COMMISSION OF THE EUROPEAN COMMUNITIES

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GENERAL OBJECTIVES STEEL 1985

(Communication from the Commission to the Council)

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SUMMARY

The ECSC Treaty confers on the Commission the task of defining the General Objectives which provide guidance on the development of the steel industry in the Community. This guidance takes account of the situation in the internal market, the state of the production installations, constraints imposed by the economic situation and the pressure of international competition.

The excess of supply over demand, pushing up costs and causing prices to plunge below the break-even point in many companies, and the cut-throat competition on export markets have seriously eroded the financial viability of the European steel industry. As a result the Commission has had to take a number of measures designed both to prevent the situation deteriorating into a state of anarchy that could nullify the very concept of a common market (and which is the reason behind the measures taken pursuant to Article 58 of the ECSC Treaty), and to set in place the mechanisms to adapt the structure of the industry to the new situation.

The strategy to be followed in this process of change will of course have to be realistic but the current weakness of the industry also demands a positive orientation.

It will be based on :

- an analysis of the foreseeable trends in demand from the main user sectors, in international competition and in production techniques, which are of vital importance in this context;
- examination of the factors that will help restore economic efficiency and financial viability to the companies involved.

The structural nature of the crisis is obvious from the foreseeable development up to 1985 of the factors governing the industry's activity. Beyond 1985 forecasting becomes more difficult as the macro-economic factors that can play an important role are not sufficiently well defined to allow their impact on the steel industry to be properly assessed; however, it already seems clear that the situation will not be fundamentally different from that foreseen for 1985.

The foreseeable balance between supply and demand is still very unsatisfactory; despite the rationalization that has already taken place, and, also, because of the improvements made, and needed, in productivity, the surplus capacity already evident in 1980 will be even greater in 1985, if the present stagnation in demand continues, if it is not substantially reduced by the policy of restructuring and the application of the aid code.

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It would amount to about 29% of crude steel production capacity, and about 33 % of finished product capacity, figures which are obviously unacceptable if the industry is to be economically viable and which certainly cannot be offset by measures to control the market.

The combination of low economic development and the continuing decline in specific steel consumption means that even the most cautious forecasts made up to now have to be corrected downwards. In 1985, foreseeable consumption of finished products in the Community is likely to be around 92 million tonnes

For external trade, the positive net balance of trade in ECSC finished products is likely to remain close to 12 million tonnes.

Whether expressed in terms of quality or price of the products passing down the chain of industrial production, or in terms of the relative yield on the capital invested in plant and production, the persistance of inefficiency in one industrial sector will extend its influence over other sectors hindering their ability to adapt and thus reducing the chances of a general recovery.

A true balance can be achieved only by taking parallel and interdependent action on the structures of the industry, in two ways: firstly, modernization and rationalization to increase productivity and increases in the production of higher value products, and secondly, stopping of marginal plant so as to mobilize capital and eliminate the surplus supply that has repercussions on the whole of the industry.

Although definite progress has been made in the way of productivity and modernization (1), this cannot bear its full fruit unless the closing down of marginal plant is carried farther than it has been up to the present, or even as planned in the restructuring and redevelopment projects currently being drawn up by the companies.

The stimulation of this effort is based on the ways and means offered by the ECSC Treaty to give new impetus to an industry that is vital to the

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(1) Communication from the Commission to the Council on the steel restructuring policies, COM (81) 67 final of 25 February 1981.

in the context of an integrated internal market.

Community. In addition the task assigned by the EEC Treaty calls for tighter coordination between the steel policies and the other common policies and activities. The latter have focused more and more on the need to continue the structural adjustment to the new economic and industrial context, as re-affirmed in the Commission's proposals for the establishment of an industrial strategy at a Community level (1).
The Commission must then see that discipline is maintained to encourage a sense of common purpose directed not towards conservation but towards revitalizing the system.

To this end, competitivity is the main indicator in evaluating "the most rational distribution of production at the highest possible level of productivity" in accordance with Article 2 of the ECSC Treaty. It is by concentrating resources on production strong points that the essential improvement in the average competitiveness of the Community steel industry can be attained.

This improvement must be measured against realistic references in terms of costs and prices. Over and above the levels, especially of prices, set in support of the restructuring effort, it is necessary to take into account the reference levels established by the most efficient competitors.

A new policy must be established around these economic references:

- firstly by the companies which must have the strength of purpose to bring about the convergence of strategies, towards an adjustment to real demand;
- by governments, whose intervention must be in support of the restructuring effort, as they cannot afford to pour cash into supporting a fundamental structural inefficiency;
- focussing all the instruments of Community cohesion (crisis measures, aid code, financing, commercial policy, regional and social measures) more closely on objectives better adapted to the needs of the present situation.
- by the governments and the Community to implement reconversion plans which are indispensible for employment and regional development.

In the Commission's view, it is under these conditions that the possible synergies between the different parties involved can allow a defensive sectoral attitude to be transformed into a steel strategy commensurate with the challanges facing it.

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(1) COM (81) 639 final/2 of 29 October 1981.

I. A REALISTIC AND POSITIVE POLICY TO REVITALIZE THE STEEL INDUSTRY

1. Realistic and positive general objectives

General objectives for steel based on a forecast of falling demand might well be viewed as pessimistic and negative.

This impression must be countered by emphasizing the nature and line of approach of this document, which is intended to be both realistic and purposeful.

To be realistic, any analysis of the current situation and future prospects must take into account:

- general and economic constraints and technical progress in the industry, which set the context for adaptation of the structure of the industry;
- the interdependence of the various industrial sectors, which indicates the lines to be followed in fitting the steel policy into an industrial strategy;
- the urgency of the problems, which make an order of priority essential;
- the scope of the questions, which requires the range of action to be extended.

In the turbulent and uncertain economic environment of the 1980s, it is not possible to be both realistic and to produce at the same time highly detailed forecasts looking far ahead, and valid for several years.

Rather, experience suggests that it is better to make fundamental qualitative appraisals, which are likely to remain valid over the years, but which themselves are based on quantitative analyses which are progressively reviewed. In any event, sectoral forecasts obtained in this way can give no more than the general trend of the economic factors. This will not be sufficient and will have to be backed up by a much more detailed and specific analysis, which must be the responsibility of the company.

Against this background, the general objectives will therefore be realistic to the extent that, without cluttering up the analysis with only seemingly useful details, they throw sufficient light on the general circumstances that constrain the activities of the various parties concerned.

With such a gloomy outlook, a policy of voluntary co-operation is needed to put the industry back on a sound footing, as the solution to its difficulties cannot come from

outside. This policy must take effect at several levels in order to:

- go beyond the restructuring effort already accomplished, which is obviously inadequate;
- ensure that this action is consistent with a Community spirit, so that any temptation to restructure at the expense of breaking up the common market is resisted;
- give further stimulus to reconversion projects, which are vital features of a positive strategy towards a better allocation of resources.

2. An order of priority commensurate with requirements

The realistic and positive approach adopted here means that, in comparison to earlier documents, the structure and content of these general objectives must be modified in the light of the priorities identified.

- The intolerable structural imbalance must be rectified in the near future ...

The Community's political commitment on restructuring refers to the year 1985, by which time the steel industry must be viable under normal market conditions.

Between 1980 and 1985, overall steel demand is likely to decline somewhat[1], the slightly higher activity in the various sectors being more than offset by a reduction in specific consumption in the Community, while the positive balance of external trade will also fluctuate.

On the supply side, the companies declared projects indicate that production capacities will remain more or less constant, as the plant closures announced are offset by productivity gains.

(1) on the relatively optimistic assumption of a GNP annual average growth of 1,9 %

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In 1985 surplus finished product capacity would then be in the region of 50 million tonnes, about 33% of installed capacity. This structural imbalance is all the more indefensible in that it first made its appearance in 1975: its continuation over such a long period has tied up resources in a dangerous and costly manner:

- at sectoral level, because it has an adverse effect on the conditions under which the steel industry operates, thus impairing competitiveness;
- at general level, because it hampers more or less directly adjustments in other industrial sectors, in particular by depriving them of the capital they need.

That is why this analysis and these proposals for action give priority to the correction of the structural imbalance.

- <u>... in the face of international competition that will become fiercer throughout the decade ...</u>

After 1985 forecasting becomes less precise, but is no less essential.

The lack of long-term references demonstrates the difficulty of economic forecasting; but in this context, the best qualified observers nevertheless consider it reasonable to project the underlying trends evident today for the period up to 1990.

Although this estimation cannot go into the same degree of forecasting detail as for 1985, it nevertheless indicates for 1990 a low growth in steel demand and an increase in the pressure of competition throughout the world : the ruling prices in the European market will tend inevitably to reflect the decline in world prices, which in term will be based on the costs of the most efficient world producers. The standing and growth of each steel industry will therefore depend even more on its competitiveness.

In seeking a structural balance between supply and demand, therefore, care must be taken to improve the competitiveness of all the factors involved.

An analysis of the key factors at operational and strategic level can identify the elements which, once the surplus supply is mopped up, will determine the competitive position of the steel industry for the rest of the decade.

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There are many such features and they can be combined into three categories:

- access to markets;
- management of resources;
- socio-economic environment.

It is essential to step up action at all three levels, as the Community industry is not at the moment managing to attain a predominant position in any one of them.

- ... the strategic importance of Community cohesion is bound to increase.

Levels of competitiveness are not of course determined solely by the mechanics of free competition, since several factors of a commercial and even political nature come into play. It is fair to say that this will probably still be true for the steel industry in the 1980s.

As its other great rivals close ranks and new producers take the offensive, Community cohesion based on internal market becomes of even greater strategic importance and political significance.
The size of the internal market remains a vital comparative advantage, while the trade negotiations and industrial strategies required to restimulate the economy call for a minimum critical mass well beyond the reach of any individual Member State.

What is more, the high degree of interdependence of the national steel industries and user sectors in the Community is conducive to the spread of inefficiency as much as the benefits of reorganization.

Consequently these general objectives deal with the Community as a whole and contain no details for individual Member States.

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This is to avoid drawing attention to questions which, without denying their importance or sensitivity, are of minor status compared to the crucial problem of the structural crisis in the common market. Until that is rectified, all producers and users will suffer because the distorting factors have a snowball effect, jeopardizing the ability to devise efficient recovery strategies.

3. A wider political framework

In view of the scope of the challenge to be met and the vital role that Community cohesion can play in streamlining the industry, it might be useful to recall the foundations of the Community policy.

The institutional basis for the steel policy is of course the ECSC Treaty, the basic approach of which is surprisingly up to date considering that it was designed with a view to the growth of the industry. The Treaty provides that the Commission should also react in times of crisis or impending crisis.

Fundamentally the Treaty advocates the most rational distribution of production at the highest possible level of productivity , and forbids unilateral subsidies being granted by member states: this might usefully be borne in mind at a time when the industry's difficulties are giving rise to over-protective and hidebound attitudes.

Nor are these attitudes justified under the EEC Treaty, on the basis of which the Commission aims to implement a Community industrial strategy (1) for adjustment to the new economic conditions.

The strengthening of the links between the steel policy and other industrial policies is necessary for two reasons :

- to ensure that Community action in economic matters remains consistent;
- to open up a wider range of action for the revival of the steel industry.

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(1) COM(81) 639 final/2 of 29 October 1981.

4. The structural nature of the crisis

Although the recession coming on top of structural decline has caused difficulties for all steel producers in the industrialized countries, the Community industry as a whole has reacted less effectively than its rivals :

- the Japanese industry, taken by surprise by the 1973-1974 crisis in the middle of a major expansion programme, unhesitatingly embarked on a cost-cutting and technical improvement campaign which allowed it to expand its markets as a result of increased competitiveness. Nevertheless at the present time the Japanese government has declared its industry to be in a state of crises;
- the American industry, less advanced technologically but with sound financial backing, started to shut down plant in order to keep capacity in line with demand, but without automatically seeking to improve productivity at the moment; however its capacity utilisation has fallen to 40% now.

The Community steel industry, which was older, less well-located and more scattered than in Japan, was unable to adapt fast enough to trends in demand in both quantitative and qualitative terms. Stagnating steel output in the Community, combined with slack internal consumption and an industry not competitive enough to increase exports, would not in themselves have brought about the structural imbalance if at the same time production capacity had not increased substantially since 1974, as a result either of specific decisions on capacity or advances in technical productivity.
The structural rigidities in the member countries aggravated the impact of sur-plus capacity. Their slowness to adapt led to a competitive lag that burdened profitability and caused financial difficulties.

The worsening structural imbalance was accompanied by an uncontrolled escalation of government aid and triggered off amongst other repercussions a price war. This has severely reduced the revenue of all producers, even the most competitive, thereby jeopardizing the general prospects for the streamlining of the industry.

Seeing that the major part of the industry was incapable of adjusting on its own initiative to the new market conditions without jeopardizing all that had been achieved by the Community, the Commission had no hesitation in stepping up its direct intervention as soon as the conditions laid down in the Treaty were met : it had no choice in the matter.

This determinated policy constantly bore in mind the need to preserve a Community sense of common purpose in the effort to make the steel industry competitive again in the long run.

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5. Measures to organize the market: an essential transitional stage to give the industry the resources it needs for restructuring

At the end of 1980 the system of production and delivery quotas on the internal market was added to the surveillance of voluntary restraint agreements, price guidelines, verification of the application of price-lists (extended to dealers' price-lists in 1981) and various measures concerning imports from non-member countries, which range from the monitoring of imports, through the publication of basic prices, to the conclusion of bilateral arrangements.

a) Good results but potential risks

These measures, taken to give the industry the time and resources it needed for restructuring while preserving the unity of the internal market, provided relative financial security even for the least efficient firms by pushing up sales prices substantially.

The price levels achieved in the first half of 1982 allowed the average firm to recover on average all its productions costs, whereas earlier only marginal costs had been covered.

Although on the whole the crisis measures may be regarded as successful, and though the respect of the price rules of the Treaty must be strictly controlled, the end must not be confused with the means.

Anticipation of more balanced market conditions as a result of a voluntary policy has imposed special contraints on the most competitive producers and on steel-using firms, i.e. on the two categories that are essential to the prosperity of the industry, because :

i) when demand is sluggish, the average competitiveness of the industry can pick up if the market shares of the most competitive producers are increased;

ii) strict control of production and artificially high prices may cause a later contraction in demand:
   - by adding to the difficulties of the user sectors,
   - by aggravating product substitution effects,
   - by increasing pressure from imports.

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That is why the production quota scheme must not become institutionalized or form the sole basis of a structural policy, nor is it conceivable to continue treating the adjustment of capacities over a long period as a purely cyclical matter; not only would this run counter to economic logic but it would also be contrary to the requirements of the ECSC treaty.

Nevertheless, because the structural impact of the restrictions increases the longer they last, the only way of preventing this from acting as a brake to adjustment is to introduce into this compulsory system dynamic factors that will encourage restructuring.

b) The criteria for progressive development of the Community anti-crisis measures

Because it is temporarily taking over from the mechanisms of the free market, Community supervision must increasingly take its operating criteria from them:

i) the key for production sharing cannot ignore the requirements of economic efficiency. Elements of elasticity should be introduced to:
   - integrate the structural changes of markets, in particular by taking more recent reference periods for calculation of the abatement rates;
   - compensate for the specific disadvantages that the quota system may have for certain producers, and in particular those manufacturing a single product as they are unable to set off losses in one product against benefits in another;
   - take account of restructuring by allowing companies to adapt quotas in the light of their efforts and results at the same time ensuring that this does not occur at the expense of the most efficient firms.

ii) the restriction of production cannot reverse the underlying trend of prices, which in this industry are linked to cost movements. Over the period 1974-81, prices in real terms moved downwards by 2.2% a year; in the period 1982/1985-86, there will most probably be a downward trend of around 2% a year in real terms, due to the fall in unit costs.

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Taken as a whole, measures to organize and regulate the internal market should facilitate the restructuring effort within the company, financed by its own resources.

This effort deserves to be supported in preference to stepping up government aid which, apart from the possible effect of distorting competition, was not, before the aid code was applied, always based on strictly economic and community criteria.

6. Requirements and criteria for the restructuring policy

To ensure that government aid to the steel industry provides support for the necessary restructuring effort, the Community has established specific rules on aid to the steel industry, alongside the introduction of compulsory market discipline. These rules also allow the actions of the member states in this field to be coordinated at Community level.

Aid, which must be degressive, is allowed only up to 1985, and must be in conjunction with restructuring programmes that are consistent with the objectives of profitability and reducing capacity.

Like production quotas, government aid, which must also be oriented towards structural streamlining, will therefore have to create the conditions under which it becomes no longer necessary.

a) Criteria for the evaluation of restructuring plans

Obviously the greatest effort must be made by companies which:
- use the most obsolete and anti-economic plants;
- record the highest losses;
- benefit from the highest subsidies;
- have precarious markets, as a result of the type of product they make or dependence on exports to third markets.

The criteria for evaluating the validity of restructuring plans stem from the overall analysis made in these general objectives:

i) Excess production capacity has an impact on the overall viability of the Community industry more harmful than any other factor. By cutting back capacity, it should be possible to offset foreseeable

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capacity surpluses for 1985, which are of the order of 33% for finished products, ranging from 23% for cold rolled sheet to more than 44% for hot rolled sheet;

ii) After the upward adjustment in the first half of 1982, it is estimated that prices will continue their downward trend in real terms. Any scheme to restore profitability that does not count on an annual average fall of at least 2% in real selling prices in the Community up to 1985 is unrealistic;

iii) As far as costs are concerned, the downward trend brought about by technical progress will be reinforced by the impact of the enormous reserves of productivity evident from the gap opened up by the Japanese and, in some cases, the most efficient Community producers. In this respect, the existence of "normative costs" (1) allows evaluation of the cost improvement hypotheses put forward in company plans. Taking an average for the Community, it is possible to predict that costs will fall annually by around 2%, but it is nevertheless obvious that in respect of costs, even more than for capacity reduction and prices, the analysis and the criteria have to be adapted to the structure of each individual company.

b) Contradictions to be avoided if the overall effort is to succeed

As a result of experience gained in the first phase of examining company plans in the light of these fundamental criteria, several contradictions that might well jeopardize the success of the overall restructuring effort can already be detected.

Too many companies are aiming first and foremost to improve profitability by increasing the use of existing plant, rather than dealing with the problems caused by least efficient plant. With this approach, their main objective is to increase sales and take a bigger share of the market, which involves several contradictions:

- companies are counting on their partners to reduce capacity while refusing to do so themselves;
- the planned production increased would not be possible under the quota scheme and yet they still wish this scheme to continue;

(1) "Normative costs" are the theoretical costs of each company on the basis of the optimum use of its plant and the prices of the production factors at its disposal.

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- at a time of sluggish or even declining demand, the relation between selling prices and sales volumes is crucial: savings in terms of unit costs from increased production may often be more than cancelled out by the resultant reduction in selling prices.

The companies' individual restructuring plans drawn up under such conditions are irreconcilable both with each other and with the objective for the Community as a whole.

Taken individually, these plans show that the individual company's profitability will be restored by 1985. However, when the capacities adopted in each plan are added together, they show a continuing overall imbalance on the market, the adverse effect of which on prices - could not be neutralized indefinitely, and therefore the assumption that the industry would become profitable again proves to be illusory.

With the same historical downward trend, the level of prices is affected by capacity levels: they will be sufficient to cover total costs, maintaining the 1982 improvement, if surplus capacity is abolished, but they will only cover marginal costs if the surplus remains.

To avoid this risk, efforts must be stepped up in two directions:

i) Companies must no longer regard prices as a purely exogenous factor since they, far more than the Commission, are in a position to control prices through their capacity decisions. The closing down of plant must meet their own needs not only in prospect of cost reduction but also in respect of price increases. Going beyond the micro-economic viewpoint, restoration of balance in the sector calls for a definite commitment on the part of the companies.

ii) Strict vigilance by the Commission becomes crucial in this respect, since the link between capacity reduction and stable price levels will only come about if company plans are reviewed within the overall framework.

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c) An effort from which no-one is automatically excluded

The need for renewed efforts, even greater than called for by the earlier forecasts, means that no-one can be automatically ruled out, provided that government aid is granted within the period 1980-85.

i) The fact that restructuring was carried out before 1980, although taken into account by the Commission, does not mean that there is no need to maintain the momentum of this effort. The mere fact that a company has recourse to government aid shows that it still needs to adapt to market trends after 1980 and that it should contribute to redressing the imbalance of the world market;

ii) It is not possible to exclude financial restructuring from the effort to reduce capacity and include only industrial restructuring proper. A sound investment policy must at least succeed in getting back the cost of the capital used, whatever its origin.

Consequently financial problems are almost always the outcome of poor industrial decisions, and therefore responsibility must be accepted by those concerned;

iii) Since the priority aim is to progress towards a balanced market, reductions in rolled finished products are essential and closures further up the line are no substitute. Rather such closures should be additional since it is at the iron and steel making stage that the impact on costs is greatest.

iv) Social and regional considerations are crucial: to delay restructuring will not resolve the problem of employment and risks discouraging regional development. It is necessary therefore to plan specific initiatives in the field of reconversion.

The excess capacity to be eliminated is so great that even unsubsidized producers cannot be exempted from making a contribution, even if only because they benefit from improved price levels resulting from the crisis measures.

Although the Commission's role is less compelling in the case of subsidized companies, it is nevertheless far from negligible. Specific impetus will come from:

- dynamic use of production quotas;
- Commission's opinions on investment;
- restructuring and reconversion loans.

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7. A revival strategy in place of a defensive policy

The Community aim is to stimulate the concentration and consolidation of resources at the strong points. Far from being a manoeuvre to dismantle the industry, it is the only revival strategy possible under existing and foreseeable circumstances. These circumstances forbid the institutionalization of a defensive policy that

- would swallow up extensive resources at Community level;
- would increase the temptation to take national measures incompatible with the common market;
- would encourage a wait-and-see attitude and reduce the industry's incentive to adapt;
- would make wasteful and unrewarding use of human, technical and financial resources that are competitive with those of the Community's most dangerous competitors.

Whether the aim is to meet internal demand under optimum quality and price conditions, or to safeguard jobs or revitalize regions affected by the crisis, a policy of supporting sectoral inefficiency can never be successful in the long run.

a) Action on key factors

What must be done therefore is to reverse the tendency towards managing the rundown of the industry so as to tackle efficiently the full range of key factors determining the competitiveness of the Community steel industry in the 1980s:

i) Demand must be sustained by a suitable combination of quality and prices and by aggressive marketing based on fast and reliable deliveries, before and after-sales services and advice for customers, increased cooperation with consumers, and a closer association of steel export policy with the flows of world trade;

ii) Production management offers extensive scope for improvement which must be used so that factor yield can offset the increase in factor prices. Most of the Japanese advantage (which can provide a yardstick for the effort to be put in) is not due to factor prices but to productivity. The mean difference to be made up on Japanese producers in terms of cost per tonne

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of steel was at least 15-20% in 1981.

These are the lines to be followed in strengthening the investment effort, seeking internal and external rationalization and making company management more efficient. Rationalization of iron production, wider introduction of continuous casting and improvement of rolling mill productivity should be strictly coordinated so as to bring down the break-even point and increase the economic yield of the factors employed;

iii) The availability and cost of the financial resources to back up this effort will be of vital importance. Self-financing should be strengthened because supply conditions outside the company will for the most part be governed by the general conditions on the market which seem likely to remain fairly difficult.

b) Increasing the impact of Community policies

The Community can play an important direct and indirect rôle in improving the factors making for competitivity in the steel industry:

i) Support for reconversion will be stepped up. After the introduction in the "non-quota" section fo the EEC Regional Development Fund of a specific Community project to help remove obstacles to the development of new activities in some steelmaking areas, the Commission is, amongst other measures, to propose new projects in a second set of non-quota regional fund operations.

The aspects of most immediate social relevance (going further than the recently extended reconversions loans and retraining grants) will later be strengthened so as to become a specific component of the reconversion policy;

ii) The steel research activities will be given a fresh impetus so as to provide a better link between the design phase and industrial application and to improve coordination with research work in other sectors;

iii) The ECSC financing policy will be rigorously pursued and will be an important factor in channelling investment, diversifying supplies and giving access to international capital markets on optimum terms or even at subsidized rates.

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Since requirements are so vast, it will be necessary to devise and introduce necessary adjustments designed to strengthen the attractivness of Community financing.

iv) The external commercial policy should bring about better integration of the promotion of steel exports.

However, the overall prospects of the steel sector depend above all on the success of a Community industrial strategy and a determined policy of stimulating investment. The Commission's thinking on these matters is known, several practical proposals have already been submitted and others are in preparation; it is therefore vital to bear in mind that sectoral activities must be consistent with the general objectives.

Conclusion

Community action can take many different and far-reaching forms, affecting not only companies but also their socio-economic environment. The instruments must be managed consistently and must be regarded as together forming a necessary mechanism for tackling all aspects of the steel industry's problems. A spoke in one of its wheels, even if apparently justified by a particular case, may reduce the cohesion of the system and thereby cancel out the effects of other measures whose individual efficiency depends on their being integrated with all the other elements. However, even though the Community offers a dynamic framework to ensure that national policies and company strategies are consistent, the recovery of the industry steel depends first and foremost on the degree of commitment shown by the companies themselves and on their determination to initiate measures that will help to streamline it.

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II. ECONOMIC TERMS OF REFERENCE: A SOMBRE OUTLOOK

1. A difficult macro-economic background

At world level, radical changes have upset the traditional monetary, industrial and trade balances over the past ten years and have reduced general economic growth everywhere. The consolidated indicator of international trade gives a quantitative idea of this malaise by way of a reduction in the volume of the annual growth of world trade, which dropped from 8.5% from 1960 to 1973 to 4.5% from 1973 to 1979, but does not show how much keener international competition is becoming as efforts are made to shore up increasingly difficult internal growth. Looking ahead, it seems likely that all these factors will continue up to 1985, when the most optimistic estimates predict an average growth in extra-Community world trade of 5% a year.

The draft fifth medium-term economic policy plan for the Community has painted an economic picture based on low and variable growth rates, and has emphasized the importance of the effort to restore a satisfactory development mechanism.

In the Community, the growth in the gross domestic product, 5% before 1973, has fallen to 2.5% since the first oil crisis.

Slower growth, falling profits, pessimism and uncertainty about economic prospects have resulted in a great decline in the development of investment. Since 1973, investment has increased at less than 1% a year whereas an annual growth rate of over 5% had been recorded over the ten previous years. Although investment is directed mainly towards modernization and rationalization, progress in the adjustment of industrial production structures has been inadequate, either because too little capital has been invested or because there has been no genuine redevelopment strategy.

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This development is unsatisfactory in comparison with the levels recorded by some of our rivals. Analyses conducted by the Commission on the competitiveness of Community industry reveal signs of relative weakness compared to its international competitors, and these are all the more dangerous in that they extend over numerous sectors, including some high-growth sectors, and affect several key factors ranging from productivity to the creation of the surplus and its accumulation.

Foreseeable trends up to 1985, if current tendencies continue, are unlikely to differ much overall from those recorded from 1973 to 1980. With some progress being made in the battle against inflation, budget deficits and rising unemployment may well prove major handicaps to the picking up of internal growth. Internationally, against a financial background marked by tension over exchange rates and the concentration of indebtedness, the oil price trends may seriously reduce demand from OPEC countries, while demand in industrialized countries might suffer from a resurgence of protectionism.

Under these circumstances, with an upturn in 1983, the growth of the GDP in the Community could average up to 1,9 % over the period 1981/1985. Investment could also pick up slightly although without exceeding the GDP growth rates. However, there will be little increase in employment, while the deficit on the balance of payments could tend to improve.

Consequently the world and Community background gives little reason for excessive optimism: it is in a context of slackened growth that sectoral adjustments become both more difficult and more important. These sectoral adjustments must also be carried out consistently in order to prevent them from hindering each other and to provide maximum stimulus for synergies, since both are equally possible in complex processing economies.

2. Slower development in steel-using sectors

In a micro-economic approach, the consumption of intermediate goods such as steel products is a demand governed by the level of activity of the user sectors.

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After declining sharply in 1975, the overall index of activity in the steel-using sectors picked up somewhat in 1976 to a level that remained fairly steady up to 1981 (see Table 1).

INDEX OF ACTIVITY(*) IN USER SECTORS CLASSIFIED BY NACE — TABLE 1

Production index 1975 = 100

NACE	SECTORS \ YEARS	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1985
22	Preliminary processing	-	101,3	107,5	118,7	122,5	100	108,9	106,6	110,7	116,6	110,5	108,5	115,5a
	Manufacture of steel tubes	-	-	-	-	-	100	100,5	93,5	103,7	104,7	103,6	114,7	114,10
32	Mechanical engineering	-	95,8	94,5	100,4	105,5	100	100,5	100,9	100,9	103,7	105,3	102,5	110,57
34	Electrical engineering	83,1	86,0	92,4	102,0	106,4	100	106,5	111,5	114,6	116,5	120,7	117,4	123,47
35	Means of transport	-	100,2	104,1	111,9	103,3	100	113,7	119,8	122,1	127,0	119,1	113,4	123,60
	Shipyards	89,5	98,1	104,5	100,6	87,1	100	112,0	95,3	76,9	64,9	53,0	-	69,7
31	Manufacture of metal articles	-	103,2	101,5	108,0	110,8	100	105,3	106,4	104,3	108,7	108,8	103,4	110,73
50	Building and civil engineering (excluding Italy, the Netherlands and Denmark)	107,4	107,6	112,3	112,1	107,8	100	99,9	99,6	102,5	103,4	102,5	95,6	104,10
	Other users	102,8	99,4	102,6	107,6	107,4	100	104,3	104,9	115,1	-	-	-	118,13
	TOTAL(£)	-	101,2	104,5	112,0	112,9	100	106,8	106,8	108,9	113,1	109,6	105,6	113,60

(*) Indices of value added at factor cost, at constant prices, except:
- tube manufacture: production indices
- shipyards : compensated gross registered tonnage indices.
- other users: production indices weighted by consumption in 1977

(£) Weighing : real steel consumption in 1978

Since 1976, the production trend for all user sectors has been weaker than those for industrial production and the gross national product; this movement is both compatible with, and complementary to, the decline in the relative share of investment in the GDP (see Table 2).

TABLE 2

TREND IN APPARENT CONSUMPTION OF FINISHED STEEL PRODUCTS AND BRANCH ACTIVITIES IN THE COMMUNITY

Indices: 1975 = 100

	Index of activity in steel using sectors (1)	Apparent steel consumption finished products	Index of industrial production	GDP
1971	101,2	103 *	94,9	90,4
1972	104,5	109 *	99,1	94,0
1973	112,0	120 *	106,5	99,5
1974	112,9	120,0	107,1	101,3
1975	100	100	100	100
1976	106,8	113,1	107,4	105,1
1977	106,8	107,3	109,9	107,5
1978	108,9	106,4	112,5	110,9
1979	113,1	114,4	118,1	114,6
1980	109,6	108,7	117,1	115,9
1981	105,6	105 *	114,5	115,3
1985	113,6	106,0		127,2

(1) Index weighted by real steel consumption in the different sectors in 1978

*) estimations

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If the pressure of international competition continues, it seems reasonable to project these trends up to 1985, taking into account the general decline in activity recorded in 1980 and assuming a modest upturn in 1982-83, more for technical reasons than because of a structural inversion in the cycle, which will probably not take place until the more distant future.

In shipbuilding, the level of activity can be expected to remain fairly poor, below the 1970 level, although in relative terms it will pick up on 1980, while all other sectors will exceed the 1975 level. The best results are likely to be recorded by vehicle construction, about a quarter up on 1975, followed by electrical engineering and preliminary processing. Compared to 1980, mechanical engineering and the manufacture of tubes could pick up somewhat, while the very low growth in the manufacture of metal articles and building is unlikely to change.

This development reflects the still cyclical nature of the movements (transport equipment), structural adjustments tending to concern the development of services and continuing modernization of the production apparatus (electrical engineering), with a re-equipment component in prospect (preliminary processing and mechanical engineering).

On the whole, therefore, the foreseeable outlook for the activity of the steel-using sectors does not justify any optimism; indeed, it calls for additional caution.

The figures showing the changes in the indices are so small that the margins of statistical error normally expected in this type of exercise could change the scale or even the sign of the variations.

This also affects the degree of reliability of the comparative evaluations between different sectors, which stem from general statistical classifications that are increasingly inadequate in the light of changes in actual production.

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That is why sectoral details, together with macro-economic information, can provide no more than general guidance for economic operators. This guidance cannot be sufficient in itself but must be combined with a much more accurate definition of the demand prospects by category of product (quality-price) in relation to the customer and the relevant market, which can be done only at company level.

3. Declining product consumption in the Community

To pass from macro-economic trends and the activity of user sectors to the consumption of steel products, use must be made of consumption functions, whose coefficients are determined by several factors.

These coefficients depend on two main components:

- Structural component: growth in the GDP beyond certain thresholds is accompanied by a reduction in the weight of the sectors with the greatest steel consumption, especially building;
- Technical component: technological progress combined with the variation in relative prices determines the variation in the technical production coefficients in the steel industry and in the user industries, which also use products that are alternatives to steel. Several factors already identified govern the reduction in specific steel consumption; for example, the value of most products at constant prices is increasing more than their weight, products having a high value per unit of weight are developing more rapidly, and modifications in product design and production processes are bringing about a reduction in scrap and an increase in steel yield.

Taken overall, the specific steel consumption functions therefore tend to decline over a long period: total steel consumption in the Community in 1980 was less than in 1972, despite an increase in the output of the user sectors, in industrial production and in the GDP (see Table 2).

By 1985, this tendency will probably be confirmed, because of its consolidated nature which is virtually independant of any cyclical upswing, thus reducing still further the outlets for Community steel products.

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The combination of a poor economic situation and the continuation of the general trend towards a reduction in specific steel consumption makes it necessary to forecast consumption of finished products in the Community at ± 92 million tonnes (see table 3)

TABLE 3

REAL CONSUMPTION OF FINISHED PRODUCTS IN THE COMMUNITY, BY SECTOR

('000 000 tonnes)

	1978	Forecast 1985	Mean annual variation between 1978 and 1985 (%)	Mean annual variation between 1978 and 1985 with a constant specific consumption (%)
Preliminary processing	20,8	22,2	0,89	0,62
Manufacture of steel tubes	14,1	15,5	1,31	1,37
Mechanical engineering	7,3	7,5	0,35	1,31
Electrical engineering	2,5	2,3	-1,00	1,07
Shipyards	1,5	0,9	-6,21	-1,38
Vehicle construction	10,7	9,7	-1,45	-0,17
Building and civil engineering	9,2	8,4	-1,31	0,22
Manufacture of metal articles	20,0	19,5	-0,40	0,86
Other users	6,6	6,2	-0,77	0,37
TOTAL	92,8	92,2	-0,09	0,72

The impact of the reduction in specific consumption is far from negligible: the average annual variation in total consumption between 1978 and 1985 is likely to be -0.09% compared to +0.72% which would be attained if specific consumption remained constant.

The trend in demand will then be negative in most sectors (electrical engineering, shipyards, means of transport and building); this will not be offset by the increased consumption in preliminary processing and the manufacture of tubes and the sustained level of mechanical engineering and the manufacture of metal articles.

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On the two main conventional product groups, flat products should continue to record greater growth than bars and sections (see Table 4).

CONSUMPTION OF FINISHED PRODUCTS IN THE COMMUNITY, BY PRODUCT CATEGORY — TABLE 4

('000 000 tonnes)

	1974	1975	1976	1977	1978	1979	1980	1981*	1985	Mean annual variation 85/78	85/80 (%)	85/81*
Liquid steel	2,1	2,0	1,8	1,7	1,6	1,6	1,6		1,4	- 1,59	- 2,23	
Ingots and semis												
Tube ingots	:	:	:	2,4	1,5	1,4	1,3		1,2	- 3,2	- 2,21	
Other ingots and semis	:	:	:	7,7	8,8	9,8	8,7		8,4	- 0,7	- 0,80	
TOTAL	11,8	10,5	10,2	10,1	10,3	11,2	10,1		9,6	- 1,01	- 0,99	
Finished rolled products	7,2	6,0	6,8	6,1	6,8	6,8	6,6		5,7	- 2,55	- 3,12	
Merchant bars	20,0	17,3	18,6	17,6	16,3	17,2	17,8		15,3	- 0,91	- 2,95	
Wire rod	10,7	8,3	9,9	9,6	10,1	10,9	10,2		10,2	+ 0,12	- 0,05	
Hot-rolled strip	7,7	5,4	6,7	6,1	6,1	6,4	5,4		4,6	- 3,86	- 3,15	
Plate > 3mm	)	)	19,1	17,1	16,4	17,9	17,5		17,4	+ 0,79	- 0,18	
Sheet < 3mm	) 44,9	)37,5	18,5	18,3	17,8	19,3	17,4		18,7	+ 0,69	+ 1,49	
Coated sheet	)	)	7,0	6,9	7,2	8,1	8,0		9,4	+ 3,85	+ 3,14	
TOTAL	90,5	74,4	86,5	81,6	80,7	86,7	83,0		81,2	+ 0,09	- 0,42	
GRAND TOTAL	104,4	87,0	98,4	93,4	92,6	99,5	94,6	91,1	92,2	- 0,06	- 0,51	+ 0,3

Amongst flat products, demand is likely to be particularly sustained for sheet (less than 3 mm thick) and coated sheet; over the period 1980-85, annual growth rates could be around 1,5 and 3,1% respectively. Consumption of heavy plate should remain at the 1980 level, while strip could decline by 3%.

Amongst bars and sections, demand is likely to fall appreciably for heavy sections (-3,1%) and merchant bars (-3,0%), while wire rod consumption should remain stable, confirming the levels recorded since 1979.

In conclusion it should be stressed that whatever criteria of average capacity (-80 % or -60 %) is used and whatever view (optimistic or pessimistic) is taken, it is nevertheless a fact that surplus structural capacity exists which is too large to affect the lack of competitivity of the sector.

4. The world market and foreign trade: slower development rates

Standardized technology and products make the steel industry a "world" industry, which is regarded everywhere as a necessary basis for industrial development.

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The world steel market is characterized by very keen competition against a background of declining demand and structural imbalance.

The world surplus in production capacity is accompanied by marked geographical differences in supply and demand trends. As a result there is an enormous marginal supply that aggravates the fluctuations in the steel cycle.

On the demand side, the movement of stocks is of vital importance because of the increase in both its relative significance and its variability. Alongside speculative buying encouraged by the instability of exchange rates, there is the impact of the emergence of new countries actively engaged in trading and the effects of protectionist manoeuvring.

The growth in world steel demand slackened off in the 1970s: in the second half of the decade it recorded an annual average growth rate of about 2% compared with 5% earlier (see Table 5).

TABLE 5

WORLD STEEL PRODUCTION AND CONSUMPTION

('000 (000 tonnes)

	Production (crude steel equivalent)			% annual average growth		Apparent consumption (crude steel equivalent)			% annual average growth	
	1975	1980	1985	1980/1975	1985/1980	1975	1980	1985	1980/1975	1985/1980
Western Europe (excluding EEC)	29,4	33,8	35,0	+ 2,8	+ 0,7	36,2	34,5	35,0	- 1,0	+0,3
Eastern Europe	192,7	209,2	220,0	+ 1,7	+ 1,0	194,7	210,4	220,0	+ 1,6	+0,9
Africa	7,8	10,7	13,0	+ 4,6	+ 4,0	13,4	15,9	18,0	+ 3,5	+2,5
Middle East	1,2	2,7	5,5	+17,9	+15,3	14,5	17,0	20,5	+ 3,2	+3,8
Japan	102,3	111,4	110,0	+ 1,7	- 0,3	64,8	74,3	80,0	+ 2,8	+1,5
China/North Korea	26,8	42,9	50,0	+ 9,9	+ 3,1	31,4	49,1	54,0	+ 9,4	+1,9
Rest of Asia	12,5	24,5	32,0	+14,5	+ 5,5	21,4	37,8	46,0	+12,1	+4,0
U S A	105,3	101,7	110,0	- 0,7	+ 1,6	115,8	114,8	124,0	- 0,2	+1,6
Canada	13,0	15,9	17,0	+ 4,1	+ 1,3	13,3	13,3	13,5	-	+0,3
Latin America	18,6	28,8	34,5	+ 9,1	+ 3,7	29,6	36,6	37,0	+ 4,3	+0,2
Oceania	8,1	7,8	8,5	- 0,6	+ 1,7	6,4	7,0	8,0	+ 1,8	+2,7
E E C	125,2	127,7	124,0	+ 0,4	- 0,6	98,6	103,8	103,5	+ 1,0	-0,1
TOTAL	643,0	716,1	759,5	+ 2,2	+ 1,2	640,1	714,5	759,5	+ 2,0	+1,2

Product definition: United Nations.

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The factors governing the new trend in the world steel trade since 1974 appear likely to continue their impact in the years ahead.

Some structural components are already clear:
- the increasing importance in terms of both production and consumption of the newly industrialized countries and the developing countries;
- the surplus capacities at world level, and more particularly in the industrialized countries;
- the renewed restructuring effort made by the main producing countries, especially Japan.

The reference framework exhibits more uncertainties than optimistic signs. Three types of factors appear likely to combine in bringing about a particularly difficult environment:
- in the period 1980-85 the world economy may now be expected to slow down, while prospects beyond 1985 will be governed by constraints as yet undetermined;
- the instability of exchange rates has a direct impact on a product normally quoted in dollars on world markets;
- government intervention to provide aid or to protect national markets sometimes seriously affects trade balances.

In this climate, for the period 1980-85, world steel consumption and production (ECSC and non-ECSC products) are likely to record annual growth rates well below the average for the second half of the 1970s, with a fall from +2% to about +1%.

Steel production and consumption forecasts in the different world submarkets can be used to draw up a reference framework within which the various producers will probably have to act (see Table 5).

Other Western European countries

Here a small increase in supply and demand and a balanced situation in 1985 can be predicted. Although the current restructuring in Spain and Sweden should reduce capacity, some increase in production is to be expected

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in Yugoslavia (Smederevo) and in Turkey (Iskenderum), while the doubling of capacities in Portugal has been postponed to 1986. Consumption may be expected to pick up in Spain, where it remains extremely low, and in Portugal.

Eastern Europe

Some expansion of capacity is planned, especially in Rumania, Bulgaria and East Germany. Even if the objectives in the plans are not fully attained in those countries, it seems realistic to predict overall an increase of around 11 million tonnes for 1985. A similar rise in consumption also appears probable as some expansion of industrial production, especially in the way of durable consumer goods, is expected in the USSR.

Latin America

It is not so much production as internal consumption that will suffer from the slowing down of development and the serious difficulties with the external debt. The steel trade deficit in 1985 would thus be reduced to one third of its level in 1980.

Africa

The recession in the industrialized countries and the external debt of several African countries, which has reached an alarming level, are likely to bring about some slackening of the production and consumption growth rate for 1985.

Japan

With production remaining steady, a small increase in consumption should result from the expected growth in investment and consumption in the private sector. Although seriously reduced, the Japanese positive balance of trade would remain the largest of all.

China and North Korea

The annual growth in consumption for 1980-85 (one third that recorded between 1975 and 1980) should be justified by the fact that China, despite the downward revision of the objectives for the 1976-85 plan, is still a large expanding market and per capita steel consumption is still amongst the lowest in the world.

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Rest of Asia

The forecasts of higher production have been greatly reduced following the decision by China Steel Corporation of Taiwan to postpone indefinitely phase 3 of its expansion programme, which would have increased its crude steel capacity from 3.2 to 5.7 million tonnes. Also there is still great uncertainty about the dates on which the steel development plans in India will be put into effect.

United States

Overall crude steel production capacity in the United States is unlikely to fall by 1985 since some reduction in integrated steelmaking will probably be offset by the later development of electric furnaces. It seems reasonable to predict a capacity utilization of close to 80% in 1985, which means that production forecasts are slightly up. A similar annual growth rate for consumption does not seem unrealistic in view of the prospect of a cyclical take off of the American economy in 1983. An adverse balance of trade of 40 million tonnes is close to the average recorded over the past five years.

Oceania

As Australia is an expanding market it seems realistic to predict a slight increase in production and consumption.

The producing areas having a structural surplus will remain the same in 1985: the countries that are forced to be net exporters will still be Japan and the Community.

Against this background of world production and consumption trends, it seems fair to predict some shrinkage in the extra-Community trade surplus from 23.9 million tonnes in 1980 to 20.5 million tonnes in 1985, with a slight reduction in the gap separating it from the Japanese surplus (see Table 6).

NET STEEL TRADE BALANCES

TABLE 6

('000 000 tonnes)

	1975	1980	1985
Western Europe (excl.EEC)	- 6,8	- 0,7	0
Eastern Europe	- 2,1	- 1,2	0
Africa	- 5,5	- 5,2	- 5,0
Middle East	- 13,3	- 14,3	- 15,0
Japan	+ 37,5	+ 37,1	+ 30,0
China/North Korea	- 5,1	- 6,2	- 4,0
Rest of Asia	- 8,9	- 13,3	- 12,0
U S A	- 10,5	- 13,1	- 14,0
Canada	- 0,3	+ 2,6	+ 3,5
Latin America	- 11,0	- 7,8	- 2,5
Oceania	+ 1,7	+ 0,8	+ 0,5
E E C	+ 26,6	+ 23,9	+ 20,5

Product definition: United Nations

- = net importer
+ = net exporter

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In ECSC products, though reduced, the balance could remain around 12 million tonnes (see Table 7).

THE COMMUNITY'S NET BALANCE OF TRADE WITH NON-MEMBER COUNTRIES

TABLE 7

('000 000 tonnes of finished products) (1)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1985
Ingots and semis	-0,4	-0,2	1,4	-0,3	-0,9	-0,9	-0,9	-0,3		-0,5
Hot coils	-0,1	0,2	0,6	-0,8	1,3	2,7	2,3	2,1		2,5
Heavy sections	2,3	3,1	2,6	1,9	2,1	2,5	2,0	1,8		1,5
Light sections	3,0	5,2	3,4	2,2	2,2	3,3	3,5	2,4		1,9
Wire rod	1,3	1,8	1,0	0,3	0,6	1,0	1,1	0,8		0,8
Strip	0,4	0,4	0,3	0,2	0,4	0,4	0,5	0,5		0,3
Heavy and light plate	0,8	1,7	0,8	-0,2	0,6	1,6	1,2	0,9		0,9
Uncoated sheet	2,8	3,9	3,0	1,7	3,6	4,3	3,8	3,5		2,7
Coated sheet	2,0	2,1	1,6	1,3	1,7	2,0	1,9	1,5		2,0
TOTAL	12,1	18,1	14,7	6,7	11,5	16,9	15,3	13,2	16,9*	12,1

(1) ECSC Products

* Estimation

An attempt to increase the value of exports, in order to make up for their low volume, might increase the favourable balance for coated sheet by a third and almost double the deficit for ingots and semis.

In 1985, the largest favourable balances should be for coated and uncoated sheet and coils.

In the medium term, the improvement of the Community's external trade balance will depend on its international competitiveness. It is then necessary to stop regarding the world steel market as a marginal outlet mopping up shortfalls in internal demand, and turn towards strategies that explicitly include it, not only in the light of export prospects but also as the main yardstick for the price and efficiency levels on which the adjustment of the whole Community steel industry should be based.

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To conclude, it is interesting to compare steel trends of the Community, Japan and the U.S. with export trends of the principal products using steel as a basic material by the same three entities.

Strategy thus becomes clear which seems to privilege exports of high value added products more than the crude product.

TABLE A

EXPORT TRENDS OF PIG IRON AND STEEL

(value millions of ECU)

Origin \ Destination		World (1)		Europe 10		USA		Japan		D.C.(2)		Latin America		Class 3 (3)	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Europe 10	1975	9.939	100			998	100	9	100	3.199	100	791	100	2.911	100
	1976	8.467	85			945	95	20	222	2.470	77	371	47	2.637	91
	1977	9.544	96			1.822	183	11	122	2.674	84	464	59	2.355	81
	1978	7.995	80			1.857	186	21	233	3.696	116	735	93	2.925	100
	1979	12.007	121			1.662	167	28	311	3.797	119	635	80	3.276	113
	1980	11.826	119			1.256	126	24	267	4.261	133	768	97	2.546	87
	1981														
U.S.A.	1975	2.000	100	152	100			11	100	1.219	100	467	100	25	100
	1976	1.724	86	188	124			28	255	784	64	397	85	52	208
	1977	1.481	74	128	84			18	164	659	54	326	70	27	108
	1978	1.376	69	142	93			31	282	759	62	382	82	16	64
	1979	1.736	87	165	109			38	345	898	74	500	107	127	508
	1980	2.266	113	305	201			38	345	1.372	113	843	181	43	172
	1981	2.640	132	230	151			39	355	1.527	125	933	200	7	28
Japan	1975	3.192	100	524	100	1.500	100			4.147	100	852	100	1.252	100
	1976	9.378	114	527	101	1.860	124			4.121	99	719	84	1.848	148
	1977	9.218	113	409	78	2.035	136			4.421	107	829	97	1.544	123
	1978	9.303	114	266	51	1.879	125			4.627	112	708	83	1.985	159
	1979	10.227	126	357	68	2.009	134			5.275	127	819	96	2.091	167
	1980	11.099	135	395	75	1.983	132			6.232	150	949	111	1.814	145
	1981	14.930	182	225	43	3.580	239			7.915	191	1.212	142	2.171	173

(1) Extra E.C.

(2) Development countries

(3) State economic countries

(a) millions of ECU

(b) index 1975 = 100

TABLE B

EXPORT TRENDS OF MACHINERY AND TRANSPORT MATERIAL

(value millions of ECU)

Origin \ Destination		World (1)		Europe 10		U.S.A.		Japan		D.C.(2)		Latin America		Class 3 (3)	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Europe 10	1975	52.285	100			5.816	100	681	100	21.892	100	4.008	100	5.567	100
	1976	61.430	117			6.570	112	769	112	26.722	122	4.307	107	5.917	106
	1977	69.837	133			7.968	137	955	140	31.117	142	4.819	120	5.969	107
	1978	71.740	137			9.334	160	1.111	163	31.968	146	4.635	115	5.973	107
	1979	76.115	145			10.461	179	1.296	190	32.329	147	5.344	133	6.237	112
	1980	86.890	166			11.722	201	1.346	197	37.707	172	6.214	155	6.082	109
U.S.A.	1975	37.186	100	6.382	100			1.479	100	13.511	100	5.741	100	743	100
	1976	44.752	120	7.499	117			1.576	106	17.307	128	6.716	116	745	100
	1977	45.241	121	7.915	124			1.504	101	17.189	127	6.684	116	535	72
	1978	47.832	128	9.336	146			1.906	128	17.529	129	7.427	129	544	73
	1979	53.021	142	11.224	175			2.600	175	19.747	146	8.658	150	630	84
	1980	62.598	168	14.455	226			2.999	202	24.388	180	11.121	193	654	88
	1981	88.581	238	18.557	290			4.347	293	35.186	260	16.370	285	624	83
Japan	1975	22.087	100	2.524	100	4.813	100			10.659	100	1.976	100	1.492	100
	1976	32.124	145	4.188	165	8.221	170			14.435	135	2.577	130	1.324	88
	1977	39.204	177	5.350	211	10.347	214			17.766	166	3.248	164	1.504	100
	1978	43.560	197	5.719	226	12.335	256			19.469	182	3.174	160	1.882	126
	1979	40.316	182	5.557	220	12.233	254			16.942	158	2.533	128	1.798	120
	1980	51.097	231	6.632	262	14.730	306			21.728	203	3.633	183	2.558	171
	1981	77.336	350	9.649	382	21.553	447			33.465	313	5.892	298	3.595	240

(1) Extra E.C.

(2) Development countries

(3) State economic countries

(a) millions of ECU

(b) index 1975 = 100

TABLE C

EXPORT TRENDS OF NON-ELECTRICAL MACHINES

(value millions of ECU)

Origin \ Destination		World (1)		Europe 10		U.S.A.		Japan		D.C. (2)		Latin America		Class 3 (3)	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Europe 10	1975	25.401	100			2.305	100	448	100	10.059	100	2.345	100	3.796	100
	1976	28.972	114			2.577	112	482	108	12.045	120	2.300	98	4.297	113
	1977	32.536	128			3.081	134	578	129	14.189	141	2.648	113	4.324	114
	1978	34.259	135			3.885	169	617	138	14.655	146	2.599	111	4.450	117
	1979	35.569	140			4.448	193	694	155	14.174	141	2.698	115	4.510	119
	1980	40.503	159			4.996	217	726	162	16.329	162	3.529	150	4.075	107
	1981														
U.S.A.	1975	16.997	100	3.458	100			666	100	6.312	100	2.865	100	602	100
	1976	19.857	117	4.029	117			791	119	7.584	120	3.303	115	611	101
	1977	19.695	116	4.298	124			756	114	7.454	118	3.240	113	379	63
	1978	20.908	123	4.802	139			830	125	8.021	127	3.667	128	392	65
	1979	23.656	139	5.682	164			1.029	155	9.071	144	4.306	153	427	71
	1980	29.424	173	7.272	210			1.296	195	11.710	186	5.495	192	321	53
	1981	41.643	245	9.628	278			1.889	284	17.051	270	8.051	281	362	60
Japan	1975	5.424	100	613	100	772	100			2.781	100	550	100	770	100
	1976	6.948	128	800	131	1.139	148			3.532	127	654	119	818	106
	1977	8.894	164	836	136	1.568	203			4.829	174	852	155	972	126
	1978	11.188	206	969	158	2.126	275			6.104	219	757	138	1.167	152
	1979	10.908	201	1.138	186	2.206	286			5.750	207	848	154	976	127
	1980	13.062	241	1.475	241	2.444	317			6.382	229	935	170	1.453	189
	1981	20.287	374	1.921	313	3.906	506			10.202	367	1.419	258	2.213	287

(1) Extra E.C.
(2) Development countries
(3) State economic countries

(a) millions of ECU
(b) index 1975 = 100

TABLE D

EXPORT TRENDS OF ELECTRICAL MACHINES

(value millions of ECU)

Origin \ Destination		World (1)		Europe 10		U.S.A.		Japan		D.C. (2)		Latin America		Class 3 (3)	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Europe 10	1975	9.834	100			684	100	105	100	4.088	100	676	100	779	100
	1976	12.280	125			884	129	150	143	5.564	136	830	123	840	108
	1977	14.403	146			948	139	195	186	6.924	169	989	146	943	121
	1978	15.429	157			954	139	222	211	7.898	193	955	141	998	128
	1979	16.059	163			1.157	169	246	234	7.730	189	1.062	157	1.062	136
	1980	17.857	182			1.337	195	259	247	8.553	209	1.284	190	998	128
U.S.A.	1975	6.264	100	1.425	100			335	100	2.678	100	1.111	100	98	100
	1976	8.507	136	1.791	126			417	124	4.021	150	1.480	133	78	80
	1977	9.200	147	1.991	140			418	125	4.489	168	1.559	140	89	91
	1978	9.483	151	2.382	167			536	160	4.159	155	1.623	146	93	95
	1979	10.581	169	2.853	200			754	225	4.459	167	1.920	173	112	114
	1980	12.438	199	3.517	247			770	230	5.180	193	2.381	214	123	126
	1981	17.470	279	4.387	308			1.122	335	7.661	286	3.469	312	132	135
Japan	1975	4.947	100	680	100	1.393	100			1.976	100	324	100	224	100
	1976	8.595	174	1.091	160	3.007	216			3.130	158	531	164	223	100
	1977	9.806	198	1.339	197	3.023	217			4.084	207	638	197	239	107
	1978	10.845	219	1.588	234	3.020	217			4.919	249	695	215	325	145
	1979	10.644	215	1.596	235	2.546	183			5.184	262	738	228	381	170
	1980	13.341	270	2.033	299	2.885	207			6.598	334	1.054	325	586	262
	1981	20.086	406	2.774	408	4.913	353			9.626	487	1.600	494	868	388

(1) Extra E.C.
(2) Development countries
(3) State economic countries

(a) millions of ECU
(b) index 1975 = 100

TABLE E

EXPORT TRENDS OF TRANSPORT MATERIAL

(Value millions of ECU)

Origin \ Destination		World (1)		Europe 10		U.S.A.		Japan		D.C. (2)		Latin America		Class 3 (3)	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Europe 10	1975	17.050	100			2.826	100	128	100	7.746	100	986	100	992	100
	1976	20.178	118			3.109	110	137	107	9.112	118	1.177	119	830	84
	1977	22.898	134			3.938	139	182	142	10.003	129	1.182	120	703	71
	1978	22.052	129			4.496	159	272	213	9.416	122	1.081	110	525	53
	1979	24.487	144			4.856	172	355	277	10.425	135	1.584	161	665	67
	1980	28.487	167			5.443	193	365	285	12.302	159	1.468	149	635	64
U.S.A.	1975	13.927	100	1.499	100			397	100	4.521	100	1.765	100	43	100
	1976	16.389	118	1.679	112			368	93	5.702	126	1.933	110	56	130
	1977	16.347	117	1.626	108			330	83	5.246	116	1.886	107	68	158
	1978	17.491	126	2.152	144			540	136	5.350	118	2.137	121	58	135
	1979	18.784	135	2.690	179			817	206	6.217	138	2.432	138	91	212
	1980	20.736	149	3.667	245			933	235	7.498	166	3.245	184	210	488
	1981	29.468	212	4.542	303			1.336	336	10.473	232	4.851	275	130	302
Japan	1975	11.715	100	1.231	100	2.648	100			5.902	100	1.102	100	480	100
	1976	16.582	142	2.297	186	4.076	154			7.774	132	1.391	126	283	59
	1977	20.505	175	3.176	258	5.756	217			8.853	150	1.757	159	292	61
	1978	21.528	184	3.162	257	7.189	271			8.447	143	1.722	156	390	81
	1979	18.763	160	2.822	229	7.481	283			6.009	102	946	86	440	92
	1980	24.684	211	3.124	254	9.401	355			8.749	148	1.644	149	518	108
	1981	36.963	316	4.953	402	12.735	481			13.637	231	2.872	261	514	107

(1) Extra E.C.
(2) Development countries
(3) State economic countries

(a) millions of ECU
(b) index 1975 = 100

5. Production

a) Finished products

On the basis of internal consumption and external trade forecasts, the output of finished products in terms of weight is likely to fall by -3,6 % in 1985 compared to 1980.

For finished rolled products, this fall would be limited to -1,8 % as a slightly higher output of flat products should almost make up for the reductions in heavy and light sections (see also explanatory table in the Annex).

PRODUCTION 1974 ⟶ 1980 & 1985

LIQUID STEEL FOR CASTING, INGOTS AND SEMIS FOR SALE, FINISHED ROLLED PRODUCTS

TABLE 8

('000 000 tonnes)

PRODUCTS		1974	1975	1976	1977	1978	1979	1980	1981	1985
STEEL FOR CASTING	(1)	2,1	2,0	1,8	1,6	1,6	1,6	1,6	1,4	1,4
INGOTS AND SEMIS FOR SALE	(2)	10,5	11,0	9,7	9,1	11,3	11,5	11,1	12,0	9,1
FINISHED ROLLED PRODUCTS										
Coils (finished products)		8,4	7,2	8,6	10,0	12,0	12,6	11,9	14,1	12,9
Heavy sections		10,5	8,9	9,0	8,7	9,3	8,8	8,4	8,5	7,2
Light sections		25,5	19,8	20,6	19,0	19,4	21,1	19,6	17,0	17,2
of which concrete reinforcing rounds		(9,9)	(7,9)	(8,6)	(7,7)	(7,7)	(8,8)	(8,7)	(7,4)	(7,5)
Wire rod		12,8	9,2	10,4	10,2	11,1	12,1	10,8	10,5	11,0
Strip/tube strip		8,2	5,5	7,1	6,4	6,6	7,1	6,0	5,2	4,9
Heavy and medium plate		17,6	14,5	12,5	12,3	12,6	13,0	12,5	12,8	12,3
Sheet		29,3	21,7	26,8	27,4	28,0	29,2	26,3	26,1	24,5
TOTAL		112,4	86,9	95,0	94,0	99,0	104,0	95,5	94,2	93,8
GRAND TOTAL		124,9	100,0	106,5	104,7	111,9	117,0	108,2	107,7	104,3

(1) Including production of independent steel foundries.
(2) Excluding those for rolling or re-rolling in the Community, but including ingots and semis for tubes.

b) Crude steel balance

The rapid growth in continuous casting makes it particularly difficult to compare crude steel output from one year to another because of the savings in ingot steel. Over a long period, trends in crude steel production underestimate the real increase in finished products.

In the crude steel balance, continuous casting production potential for 1985 is based on the company returns corrected by the historical trend. One aim of the Community steel industry must be to obtain as soon as possible a maximum continuous casting output amounting to some 85-90% of the necessary crude steel production potential, well above the figure of 69 % that can now be predicted for 1985.

CRUDE STEEL BALANCE

TABLE 9

('000 000 tonnes)

	1974	1975	1976	1977	1978	1979	1980	1981	1985
I. INGOT EQUIVALENT									
Consumption (1)	131,2	111,4	124,2	117,8	118,1	126,0	120,7	117,4	118,5
Variation in stocks (2)	+ 1,0	- 1,1	+ 5,7	- 1,1	- 0,7	+1,5	- 0,7	- 3,6	-
Exports (1)	34,3	26,8	21,5	27,7	33,2	32,1	28,3	29,9	15,6
Imports	7,4	7,8	12,4	12,5	11,1	11,6	11,6	8,1	
Scrap consumption in rolling mills	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	-
Production in ingot equivalent	158,9	129,2	138,8	131,7	139,3	147,8	136,5	135,3	134,1
II. CORRESPONDING CRUDE STEEL PRODUCTION									
Continuous casting production potential (3)	22,9	33,4	42,6	48,8	54,9	58,7	70,9	81,5	110
Continuous casting production (4)	19,0	20,7	27,2	32,1	38,6	43,7	50,0	56,6	82,5
Continuous casting correction (5)	3,3	3,6	4,8	5,6	6,7	7,6	8,8	9,9	14,4
Crude steel production (6)	155,5	125,6	134,0	126,1	132,6	140,2	127,7	125,4	119,7

(1) For the forecasting year , conversion coefficient equals 1.290.
(2) Stocks held by producers and merchants.
(3) Figure for 1985 is estimated
(4) Assumed rate of utilization of production potential 75 % in 1985.
(5) Savings in ingots obtained by continuous casting production: continuous casting output x 0.175.
(6) Ingot production - continuous casting correction.

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c) Development of mini-mills

In the context of production structures, the role of mini-mills in the current stage of development of the European steel industry should be more carefully examined. This type of works seems likely to develop and to complement the integrated works.

1. Economic aspects

The need to restructure the European steel industry inevitably means that the role of mini-mills in this new structure has to be defined.

The fact that mini-mills have obtained more satisfactory economic results than integrated works, indicates that in the future they could handle the production of all the products in the range that they are already producing successfully today. The integrated works would then of course have to be restructured accordingly.

Mini-mills have the edge over integrated steelworks in a number of factors such as :

- very low investment cost
- simple administration
- inexpensive sales organization.

Then there is also the enormous technical progress made in electric steelmaking over the past few years :
reduction in electrode and electricity consumption (around 30%) and increase in productivity (up to 100%).
Nevertheless the most important factor in this favourable situation is the price of scrap.
For the molten steel cost to be the same in the blast furnace - oxygen plant system as in the mini-mills, the price of scrap would have to be as follows (without consideration of quality) :

$$P_{(scrap)} = \frac{0.85 \times P_{(pig)} + C_{02} - C_{el}}{0.8 \times 1.05}$$

Where

$P_{(scrap)}$ is the price of scrap
$P_{(pig)}$ is the price of pig iron
C_{02} is the production cost in an oxygen plant
C_{el} is the production cost in an electric furnace

The average scrap price is about 40 ECU below this break-even price. Obviously this advantage varies within a fairly wide range depending on individual geographical, technical and economic situations.

The advantage and competitiveness that mini-mills have over integrated works quickly fall if scrap price rise. Experience shows, however, that these rises occur solely in conjunction with corresponding increases in steel prices, which means that a satisfactory profit margin is maintained.

2. Qualitative and quantitative aspects

This makes it clear that the question of mini-mills is closely linked to the problem of scrap. In the case of Europe, there is no need to delve into the question of sponge iron that could be used in mini-mills as an alternative raw material since, quite apart from the question of its availability in sufficient quantities, this product could not be sold below 130 ECU a tonne, wich is about double the current average scrap price.

The problem of scrap may be examined from three aspects :

- quality
- general availability and changes in the requirements of different user sectors
- regional availability

Quality

Here the quality of scrap is of interest only insofar as it restricts the range of products produced by mini-mills. In general these works confine themselves to producing three major categories :

- concrete reinforcing rounds
- other light sections
- wire rod.

There is no doubt that the quality of the scrap would allow 100% of the concrete reinforcing rounds to be produced in mini-mills.

As for the production of other light sections and wire rod, there are no precise statistics on quality but numerous expert findings indicate that at least 60% of this production could also be turned out by mini-mills.

If these are taken as reference figures for 1985, it would be theoretically possible for the mini-steelworks to produce the following :

- concrete reinforcing rounds		7.5 million tonnes
- other light sections	9.7 x 0.6	5.8 million tonnes
- wire rod	11.0 x 0.6	6.6 million tonnes
		19.9 million tonnes

Assuming a capacity utilization rate of 85% and a metal yield of 90%, a capacity of 26.0 million tonnes would be needed for this output.

A survey of capacities gives a figure of only 20.1 million tonnes for 1981. On the basis of this figure it seems that some additional development of mini-mills would be possible. Nevertheless, it should be borne in mind that capacity returns are very conservative.

Unfortunately the works do not generally correct their capacity figures when they increase productivity and it is precisely in this sector that, as mentioned above, productivity has been substantially improved.

In the light of what has been said above, it would be very risky to encourage the construction of new mini-mills from the point of view of overall capacity. This does not mean that capacity revision at regional level would be desirable. However, before tackling this problem it is necessary to investigate whether there would be sufficient scrap available for this expansion.

General availability and changes in the requirements of different user sectors

Availability

For the present purposes, trends in marketed scrap only will be considered. In 1974, the volume of scrap sold reached a maximum at approximately 37 million tonnes. Extrapolation of that figure would give approximately 47 million tonnes for 1985.

Since steel consumption within the Community has not reached the expected level, this figure has to be revised to approximately 42 million tonnes. Even this revised figure appears highly optimistic in comparison with the actual figure for 1982 of about 33 million tonnes.

Obviously this figure does not reflect real availabilities since it is distorted both by low demand and by a price level that discourages recovery. This means that the level of 42 million tonnes could possibly be reached but that it would be extremely dangerous to take a higher figure as a basis.

-Trend in the requirements of the various user sectors

Scrap is used by the following sectors :

- blast furnaces
- oxygen steel plant
- electric furnaces
- mini-mills
- special steels
- tube manufacturers
- steel foundries
- iron foundries
- exports.

In blast furnaces, consumption has already fallen to a very low level and may be regarded as negligible for the future.

Scrap consumption in oxygen steel plant is very fluid, varying between 80 and 300 kg scrap per tonne of steel.

The reduction of process scrap with the introduction of continuous casting could therefore be offset by a reduction in specific input. However, it must be borne in mind that a specific input of between 200 and 300 kg of scrap can be converted into steel almost without cost. At least from the energy viewpoint, it would be uneconomic to reduce the specific scrap input in oxygen steel plant.

Assuming that the current input is maintained, these steelworks would become net scrap purchasers and under those conditions about 10 million tonnes of scrap would have to be earmarked for that purpose.

With regard to special steels, the proportion produced in oxygen steel plant is likely to increase, especially with the introduction of ladle-metallurgy, and consequently scrap requirements in this sector may decline slightly.

Consumption is likely to remain more or less steady in electrical melting shops producing semis for tube manufacture.

The same is true of steel foundries.

Activity in iron foundries is declining. Nevertheless, the price difference between new foundry pig iron and scrap is sufficient to encourage foundries to make maximum use of scrap. Consequently they must be expected to use the same quantity of scrap as today even if their activity does not continue to decline.

Up to 1977 the European Community was a net scrap importer. Since then the situation has changed and in 1972 net exports amounted to about 2 million tonnes.

On the basis of the above considerations, we have adopted three hypotheses for scrap requirements other than in mini-mills in order to ascertain the quantity that will remain available for mini-works.

	Pessimistic hypothesis for mini-mills	Mean hypothesis for mini-mills	Optimistic hypothesis for mini-mills
	Million tonnes	Million tonnes	Million tonnes
Total scrap available	42,0	42,0	42,0
Blast furnace consumption	0,6	0	0
Oxygen converter consumption	10,0	6,0	3,0
Electric melting shops and foundries excluding mini-works (60% utilization of existing capacity)	16,8	16,8	16,8
Iron foundries	4,0	3,5	3,0
Net exports	2,0	1,0	0
Available for mini-mills	8,6	14,7	19,2

Even under the best possible conditions, the scrap available will obviously not be sufficient for the total output of the products for wich the mini-mills are best suited technologically. Consequently some reinforcing rounds, light sections and wire rod would still have to be produced in integrated works.

6. Raw materials and scrap

a) Raw materials

By 1985 and 1990, world iron ore output could develop as follows:

TABLE 10

IRON ORE PRODUCTION

('000 000 tonnes)

	1980	1985	1990
European Community	35,2	28,2	27,0
Sweden	28,5	26,0	25,0
Rest of Europe	18,6	20,9	21,9
U S A	77,8	73,0	68,0
Canada	51,2	50,0	50,0
Brazil	91,5	102,0	140,0
Mexico and rest of South America	40,3	43,4	46,2
Africa	64,6	71,8	92,6
India	40,0	47,0	50,0
Rest of Asia	2,0	2,1	2,8
Australia and New Zealand	106,0	106,0	112,0
China and North Korea	81,0	86,0	90,0
U S S R	249,0	260,0	270,0
Other State-trading companies	11,7	14,6	14,5
TOTAL ROUNDED OFF	895	930	1010

With a safety margin of 10%, the supply and demand balance should move towards equilibrium point after the enormous supply surplus of 1980.

TABLE 11

BALANCE OF SUPPLY AND DEMAND FOR IRON ORE

('000 000 tonnes)

	Supply	Demand
1980	895	805
1985	930	910 - 950
1990	1010	1.000 - 1.050

In the community, the foreseeable trend in steel output should in 1985 result in an ore demand of 130 million tonnes compared with a consumption of 146.8 Million tonnes in 1980.

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Assuming that internal ore production falls to 28.2 million tonnes, the balance to be covered would be at 101, 8 million tonnes compared with actual imports of 115 million tonnes in 1980.

The Community steel industry is now participating directly in five mining projects in non-member countries; however, most of its supplies are guaranteed by long-term supply contracts. There seems likely to be few changes in this situation in the immediate future, but in the medium term the Community's financial contribution to projects in non-member countries could be an additional factor helping to stabilize its supply.

b) Scrap

To cover their scrap requirements, companies mainly use their own circulating scrap. Until quite recently this source accounted for ±40% of the total Community supply.

This proportion will, however, change considerably with the spread of continuous casting, which reduces own scrap arisings. The installation of continuous casting in a typical integrated works on average increases the need for bought scrap (+ 115 kg per tonne of finished product), while the combination of continuous casting with an electric melting shop reduces the need for bought scrap (-40 kg per tonne of finished products).

Assuming a specific scrap consumption of 240 kg in LD converters, a total continuous casting weight of 70% (81% for electrical melting shops and 66% for oxygen steel plant) and supposing that 26% of total production comes from electric melting shops, bought scrap requirements would amount to 42.0 Million tonnes in 1985.

TABLE 12

BOUGHT SCRAP REQUIREMENTS IN 1985

('000 000 tonnes)

Process	Crude steel production		Products for sale	Bought scrap required per tonne of product	Bought scrap
Electric	31,8 of which	25,0 continuous casting	22,7	(1.069)	24,3
		5,8 in ingots	4,5	(1.109)	5,0
Oxygen	87,6 of which	57,5 continuous casting	52,4	(180)	9,4
		30,0 in ingots	23,3	(65)	1,5
Steel foundries	1,4	1,4		(830)	1,2
Blast furnaces					0,6
TOTAL	119,7	115,7	102,9		42,0

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Total scrap resources available for the steel industry in the Community should amount to 41.6 million tonnes in 1985; by then, supply and demand should be more or less in balance.

SCRAP REQUIREMENTS AND RESOURCES — TABLE 13

('000 000 tonnes)

	1974	1975	1976	1977	1978	1985
Crude steel production (liq.st.excl.)	153,5	123,5	132,2	124,4	131,0	118,3
Scrap consumption	64,7	54,1	57,7	55,0	59,1	53,3
Own circulating scrap	31,0	26,1	25,9	24,9	24,3	13,1
Bought scrap requirements in steel plant	33,7	28,0	31,8	30,1	34,8	40,2
Consumption in foundries	1,6	1,6	1,5	1,4	1,3	1,2
Consumption in blast furnaces	2,2	1,8	1,7	1,6	1,4	0,6
Total requirements	37,5	31,4	35,0	33,1	37,5	42,0
New process scrap	15,2	13,9				13,8
Capital scrap	21,2	17,0				27,8
Total internal resources	36,4	30,9				41,6
Requirements not covered by internal resources	1,1	0,5				0,4

7. Energy

In terms of quantity, no energy supply difficulties are expected up to 1985. The more complicated and relatively more important case of blast furnaces calls for more detailed comment.

a) Energy consumption in the blast furnace

Energy consumption in the blast furnace (including ore preparation) fell from 23.7 gigajoules per tonne of pig iron in 1974 to 22.9 gigajoules in 1980, a reduction of about 12%. For the period 1981-85, a slow but steady reduction in specific energy consumption may again be expected; it should fall by approximately a further 10% to a level of around 19 gigajoules. However, gas and electricity requirements will rise from 2.24 gigajoules in 1980 to 2.4 gigajoules in 1985 and therefore solid and liquid fuel requirements should amount to 16.6 gigajoules per tonne of pig iron in 1985.

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b) Blast-furnace energy supplies

If the injection of liquid and gaseous fuels is abandoned, around 42 million tonnes of coke will be required to cover pig iron production requirements in 1985. Coke-oven operators estimate that the Community's coking capacity should be 73 million tonnes a year by 1985, with an output of up to 65 million tonnes adequate to meet demand from the steel and other industries and for exports.

c) Energy conservation (1)

Energy accounts for about 30% of steel production costs in integrated steelworks and 20% in electrical melting shops. Its ultimate impact depends on energy prices but can be reduced by rational utilization; the energy savings obtainable in 1985 may be estimated at at least 7-8% (5-6 million tonnes a year) of 1979 consumption. This will be achieved by:

- using raw materials that are optimum from the energy viewpoint;
- more efficient energy management, e.g. heat recovery;
- returning to energy recovery techniques such as the recovery of blast furnace gas from high top pressure operation and of converter gas.

8. Excessive imbalance between supply and demand

Stagnating steel output in the Community combined with slack internal consumption and an industry not competitive enough to increase its exports would not in themselves have brought about the structural imbalance if at the same time production capacity had not increased substantially since 1974, leading to a serious and persistent gap between supply and demand.

a) The main causes of the imbalance

The capacity arose from a combination of specific capacity decisions taken just before the crisis hit and gains in productivity from restructuring and rationalization measures taken as soon as the structural nature of the crisis became evident.

i) The selling prices during the 1973-74 boom had encouraged many producers to keep in production or even to restart marginal and inefficient plants.

ii) During the same period, extensive investment programmes to increase capacity had been decided on since demand was expected to continue growing; it is estimated that these programmes led to a net capacity increase of about 15% over 1973.

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(1) The Community steel industry accounts for about 8% of total primary energy consumption in the Community and 20% of consumption by industry.

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iii) The restructuring and rationalization measures taken since 1975 have produced a leap forward in plant productivity. Between 1972 and 1980 tonnage yield increased by an average of 47% for blast furnaces, oxygen converters and arc furnaces, 69% for continuous casting and 105% for strip mills. With production remaining steady, this improvement in productivity released capacity surpluses that alone more than cancelled out plant closures.

Since 1974, therefore, enormous imbalances have been created between supply and demand in all the main product categories. On average installed production capacity has exceeded by 23% for crude steel and 27% for finished products the theoretical capacity required to meet production requirements at utilization rates of 85% and 80% respectively. In 1980 and 1981, these structural surpluses worsened (see Table 14).

TABLE 14

TRENDS IN SURPLUS PRODUCTION CAPACITY

('000 000 tonnes and %)

Year	1974		1975		1976		1977		1978		1979		1980		1981	
Products	t	%	t	%	t	%	t	%	t	%	t	%	t	%	t	%
I CRUDE STEEL	-4,0	-2,2	42,0	22,1	39,9	20,2	52,3	26,1	46,1	22,8	37,9	18,6	52,1	25,7	50,3	25,4
II FINISHED PRODUCTS																
Light and heavy sections (+ tube semis)	0,4	0,8	11,7	23,0	11,8	22,9	13,2	26,3	12,6	24,9	9,6	19,6	12,1	24,7	15,9	31,8
Wire rod	-0,6	-3,9	5,0	30,7	3,7	22,2	4,8	27,3	4,8	24,3	3,1	16,4	4,8	25,1	6,0	30,8
Strip and tube strip	0,6	5,5	4,1	37,3	3,0	25,2	4,0	33,3	4,1	33,1	3,2	26,2	4,0	34,8	4,4	40,4
Hot-rolled sheet & plate	0,3	1,3	5,7	23,7	9,2	36,7	10,8	40,9	11,3	41,2	9,9	35,5	10,2	37,1	9,6	34,8
Cold-rolled sheet & plate	1,8	4,8	13,5	33,4	8,0	19,4	8,8	20,6	8,2	19,1	7,5	17,1	11,6	26,1	11,4	25,9
M	2,3	1,7	39,8	27,9	35,6	24,3	42,0	28,2	41,0	27,0	33,6	22,1	42,8	28,3	47,3	31,1
III COILS	-1,5	-2,7	18,5	30,2	9,6	15,2	12,0	17,9	9,3	13,7	7,9	11,3	16,0	21,9	14,9	20,3

N.B. The assumed utilization rate is 85% for crude steel and 80% for finished products.

Consequently the Community steel industry has been unable to adapt its structures to a market no longer exhibiting high and lasting growth, but showing more and more signs of instability.

b) Wider adverse effects

It is not so much sluggish demand as investment decisions (which have not been corrected or compensated by shutting down marginal plant) and improved productivity (substantial but insufficient to restore real competitiveness) that must be blamed for creating this vicious circle, the harmful impact of which is intolerable for several reasons:

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i) Utilization rates have declined substantially in the Community. For crude steel, they have dropped from 87% in 1974 to an average of 65% since that date, and there was a further fall in 1980-81. Compared to a theoretical utilization of 100%, the specific impact of these rates may be estimated to add around 22% to operating costs (excluding financial costs and taxes), a burden equivalent to the cost difference between the lowest effective utilization rate (55%) and the highest (95%). Over that period, therefore, the Community industry was at a great disadvantage in comparison to the US industry, which succeeded in maintaining a capacity utilization of between 85 and 90%. Although the Japanese industry experienced a similar fall to the Community, it managed to reduce the impact substantially by achieving major improvements in performance for the other prime cost components; at present the break-even point in Japan is close to a capacity utilization of 60%.

ii) The average technical quality of the plant has suffered because obsolete plant has been kept in service, and as a result plant replacement and modernization is lagging behind the Japanese industry, which has shut down much obsolete capacity and replaced it with modern plant (the figures for 1977 to mid-1979, for example, were -23.2 and +22.6 million tonnes respectively). The percentage of plant classified as technically obsolete by international standards is much higher in the Community than in Japan, while the reverse situation is found for technically excellent plant (1). In terms of operating costs, the difference between excellent and obsolete plant is on average around 25%: together with the capacity utilization rate, this has the greatest unit impact. Even though the ECSC industry has got rid of its basic THOMAS converters and almost all of its open-heart furnaces, light plate and sheet mills, there are large gaps between the average technical levels in the Community and Japan for the main phases of the steel production process (Table 15).

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(1) The plant in 62 steel companies accounting for 88% of Community ordinary steel output in 1979-80 have been compared with that of Japanese companies accounting for a similar percentage of Japanese output. For each stage in the production cycle, specific evaluation criteria (age, dimension, special characteristics affecting plant efficiency), weighted according to their impact on competitiveness, have been used to classify plant at five levels of technical performance ranging from excellent to poor.

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TABLE 15

TECHNICAL LEVEL OF STEEL PLANT IN THE COMMUNITY AND IN JAPAN IN 1980 (*)

Type of plant		Total capacities examined (million tonnes)	% of capacity classified as:				
			1+ (excellent)	1-	2+ (average)	2	3 (poor)
BLAST FURNACES	E E C	132,8	20	13	12	22	32
	JAPAN	156,1	58	15	12	7	8
OXYGEN CONVERTERS	E E C	53,6	36	37	23	5	0
	JAPAN	64,6	51	35	10	4	0
WIDE HOT STRIP MILLS	E E C	70	23	16	32	24	5
	JAPAN	53,4	42	31	9	12	5
PLATE MILLS	E E C	15,2	20	8	24	35	13
	JAPAN	21,2	82	10	8	0	0
COLD ROLLING MILLS	E E C	34,2	8	26	29	27	10
	JAPAN	23,2	44	23	10	17	6

(*) In some cases the most recent data available on mills date from 1977.

The gap is particularly large for blast furnaces, which account for around 60% of production costs (excluding depreciation and financial costs) at the semis stage; in the Community their average productivity is only one-third that in Japan, mainly because of their smaller dimensions and lower energy yield.

In continuous casting too, the Community is lagging well behind at only 39% production compared with 71% in Japan. Because of its more recent introduction and the scattered installations, continuous casting in the Community is also at a cost disadvantage compared to Japan, estimated at about 12% for a sample representing 65% of total continuous casting capacity.

The only Community installations that are technically more efficient than in Japan are electric furnaces. Overall, the percentage of obsolete plant in the Community's total production capacity is approximately equivalent to the capacity surplus, so that the degree of modernization of the plant sufficient to meet demand, provided the most efficient plant is selected, is remarkably close to that of the Japanese and well above that of the North American steelmakers.

iii) Although the incidence of surplus capacity on costs varies according to the structure of the company concerned and although it can be offset at microeconomic level by savings on other costs factors, its adverse effect on selling prices is widespread and persistent.

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Because of the narrow gross margins in the industry, any change in the relation between prices and costs has a major impact on company results. This is what happened in the Community up to mid-1981: the companies' efforts to increase sales so as to share fixed costs caused them to base prices on marginal rather than total costs. The widening gap between total costs and those selling prices was reflected in the final disastrous results.

In the Community, the combination of adverse factors more or less directly linked to surplus capacity is therefore intolerable: from the cost aspect alone, the cumulative disadvantage in terms of operating costs from the combination of obsolete plant and rock bottom utilization rates (55%), compared to the combination of excellent plant and a peak effective utilization rate (95%), is on average about 47% and may go up to 60%.

To have an idea of the relative importance of these two factors it is sufficient to compare them with other variables: the gap between European and Japanese average hourly labour costs adds an average of 7% to operating costs, while the difference between energy costs for Community producers (including subsidies) and for American producers amounts to an insignificant disadvantage of 1%.

To judge from the 1981 investment survey in the Community and the production needed to meet foreseeable demand, the overall imbalances between demand and supply will continue. In 1985 they could amount to 29% for crude steel and 33% for finished products, ranging from 44% for hot-rolled sheet to 23% for cold-rolled sheet (Tables 16 and 17, see page 38).

It is true that these figures do not take into account closures already planned under the regulations on aid to the steel industry, but so far these closures are insufficient to modify the results significantly. Any overestimate in the declared capacity so as to have higher quotas under the crisis scheme would not be of a sufficient volume to reduce the gravity of the situation.

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BALANCE BETWEEN SUPPLY AND DEMAND - 1985 - EUR 9

TABLE 16

('000 000 tonne

Products	Product. 1980	Prod. potent. 1980	Prod. 1981	Prod. potent. 1981	Estimated Prod. 1985	Necessary Prod.pot. 1985 (1)	Prod.pot. annouced. 1985	Rate of utilization 1980	Rate of utilization 1981	Rate of utilization 1985	Surplus capacity 1985 Tonnage	Surplus capacity 1985 %
I. CRUDE STEEL	127,7	202,5	125,1	197,7	119,7	140,8	197,0	63,1	63,3	60,8	56,2	28,5
II. FINISHED PRODUCTS												
Heavy sections	8,4	15,7	8,5	16,0	7,2	9,0	15,6	53,5	53,2	46,2	6,6	42,3
Light sections	10,9	18,1	9,5	18,3	9,7	12,1	19,4	60,1	51,9	50,0	7,3	37,6
Concrete reinforcing rounds	8,7	12,2	7,4	13,0	7,5	9,4	12,4	71,2	57,0	60,5	3,0	24,2
Wire rod	10,8	19,1	10,5	19,5	11,0	13,8	19,7	56,6	54,0	55,8	5,9	29,9
Strip	6,0	11,5	5,2	10,9	4,9	6,1	10,7	52,2	47,6	45,8	4,6	43,0
of which EX SPEC.MILL	(4,3)	(7,9)	(3,4)	(7,1)	(2,5)	(3,1)	(6,5)	(54,8)	(48,0)	(38,5)	(3,4)	(52,3)
Hot rolled sheet & plate (2)	12,6	27,6	13,0	27,6	12,5	15,6	27,9	45,7	47,1	44,8	12,3	44,1
of which EX SPEC.MILL	(9,7)	(19,2)	(10,4)	(19,0)	(7,5)	(9,4)	(19,0)	(50,7)	(54,7)	(38,5)	(9,6)	(50,5)
Cold rolled sheet & plate	26,2	44,4	26,0	44,0	28,1	35,1	45,5	59,1	59,0	61,8	10,4	22,9
TOTAL (3)	83,6	148,5	80,1	149,2	80,9	101,1	151,3	56,3	53,7	53,5	50,2	33,2
III. WIDE STRIP	45,3	72,9	46,5	73,4	51,5	64,4	76,5	62,1	63,4	67,3	12,1	15,8
of which Coils Fin. Prod.	11,9)	(17,2)	(14,1)	(18,6)	(12,9)	(16,1)	(19,5)	(69,4)	(76,2)	(66,2)	(3,4)	(17,4)

(1) Assuming a rate of utilization of 65 % for crude steel and 80 % for finished rolled products
(2) Including strip and hot sheet from coils
(3) Not including coils Fin. Prod.

TABLE 17

BALANCE BETWEEN SUPPLY AND DEMAND FOR COILS - 1985

('000 000 tonnes)

PRODUCTS	Production from coils	Coeff. of conversion	Demand for coils	Necessary production potential	Announced production potential	Rate of utilization	Surplus capacity Tonnage	Surplus capacity %
Coils as finished products	12,9	1,00	12,9	16,1	19,5	66,2	3,4	17,4
Strip (1)	2,5	1,05	2,6	3,3				
Hot-rolled sheet (2)	5,0	1,07	5,4	6,8				
Cold-rolled sheet	28,1	1,09	30,6	38,3				
TOTAL	48,5	=	51,5	64,4	76,5	67,3	12,1	15,8

(1) 50 % of total strip production.
(2) 40 % of total hot-rolled sheet production.

9-Steel research and development.

Technological progress, arising from the successful exploitation of research and development effort, has made a major contribution to the advancement and to the growth of the steel industry worldwide over the past two to three decades. The economies of scale obtained from large-volume blast furnaces, the introduction of basic oxygen steelmaking with its high productivity, the replacement of conventional ingot casting by continuous casting and the automation of production processes using computers are all outstanding examples of the way in which new technology has lead to major economic benefits and improvements in the quality of steel plant products.

However, the extent to which productive efficiency in the industry has benefited from these advances has varied considerably with Japanese steel manufacturers surpassing their major competitors in Europe and North America in many key aspects of production and processing as well as in product development.

The impressive progress made in Japan has been due, in large part, to the increasingly significant innovative contributions that have been made by its industry to steelmaking since the late 1960's. Undoubtedly, some of the factors responsible for this surge in technological progress were the economic aims and policies of government and management, the stimulus of extremely rapid expansion in production (22 million tonnes in 1960 to 117 million tonnes in 1974) to meet growing demand along with an ability to adapt quickly to changing world conditions.

More recently the fortunes of the steel industry worldwide have been changed markedly by the economic recession that followed the 1973-1974

oil crisis and which still persists. The consequences have been particularly harsh in the Community highlighting structural weaknesses and reduced international competitiveness.

It is evident that the steel industry in Europe as well as in other advanced countries is in a new period in its development. Thus, in attempting to forecast trends in research and technological progress it is necessary to recognise this changing situation in which most of the early factors underlying the period of rapid progress seen over the past thirty years no longer apply e.g. strong economic growth and low energy costs. Therefore, there is ample reason to expect that the improvement of existing and the development of new technologies will remain an extremely active and competitive area whereby all major steel producing countries will strive to strengthen their competitiveness.

Within the forseeable future no dramatic change in iron and steelmaking technology is envisaged and progress, for the most part, will be gradual and incremental. Consequently, it is realistic to expect that the industry will remain dependent on the traditional blast furnace - basic oxygen furnace production method (and thus on coking coal) as the main means of steel manufacture, along with the scrap-electric arc furnace route. While industrial research will be concerned primarily with improving these existing production routes through optimization and better control, longer-term effort will include more speculative projects on the technical and economic feasibility of radically new processes for iron and steel production.

In contributing to improved competitiveness and to the modernisation and restructing of steelmaking in the Community, research and development will have the following important objectives:

- reduce costs and enhance productivity
- up-grade product quality
- minimise capital costs and capital expenditure
- improve the performance of products and extend the range of steel utilisation.

Some of the areas where research will be active over the medium-term are outlined below.

The problems related - directly or indirectly- to energy will have a major impact on the technological needs of the steel industry influencing production methods, the markets for steel products and the types of steel that will be required to satisfy these markets. Indeed, the fact that energy accounts for some 30% of the cost of steelmaking itself makes this a profitable area for process research and development work.

In production, the two major issues will continue to be energy economy and increased flexibility in the use of different energy types. In connection with the latter, a major effort will be directed at shifting steel plant energy requirements from oil and natural gas to higher coal percentages and at reducing the consumption of more costly coking coals.

Coal injection systems provide an attractive means of replacing heavy fuel oil as an injectant in the blast furnace and their wider adoption will call for further research. Coal injection in basic oxygen steelmaking will also be investigated aimed at increasing allowable scrap rates and thereby take advantage of market fluctuations in scrap prices. Reduced coke rates can be expected from the improved operation and control of the blast furnace resulting from a better understanding of such aspects as the cohesive zone while the search for methods to produce high-quality coke from low-grade coals will continue.

Interesting prospects are offered by the adoption of plasma gas heaters in iron and steel production ; while this technology is in the initial stages of development research to-date indicates that the application of plasma heating in the blast

furnace will reduce significantly coke requirements as well as raise productivity.

In the area of energy conservation there are a number of technical approaches to the problem which include the recovery of the latent and sensible heat of basic oxygen converter exhaust gases, the sensible heat of converter slags and the more effective utilisation of by-product gases within the steel plant. In rolling and finishing, energy saving may be achieved by adopting direct-rolling and hot charging but the extension of these practices will depend on the development of on-line hot inspection and repair systems to meet stringent surface quality requirements. Furthermore, the preheating of electric arc furnace scrap charges using the sensible heat of waste furnace gases with or without supplementary fuel combustion provides a valuable means to economise on electrical energy and to improve plant productivity.

It should be noted that in this area, many of the necessary technologies are available so that further research work will be largely preoccupied with their improvement and extension.

The adoption of continuous casting is another established means of achieving major energy economies and it is envisaged that production potential in the Community will reach 110 million tonnes by 1985 i.e. 59% of total steel production potential. Research in this area will be dominated by increasing product quality requirements as well as the need to raise plant productivity. Horizontal continuous casting with its lower investment costs will remain an active area of development.

Progress in automation, mechanisation and robotics have been quite startling in various industrial sectors in recent years e.g. automobile industry, and increasing emphasis must be devoted to their exploitation in steelmaking.

Priority will need to be given, for example, to the wider application of automation and to the development of more technically advanced computer control systems directed at improved equipment utilisation, enhanced and more consistent product quality, decreased manufacturing costs and improved interconnection between different production stages e.g. continuous casting machine and rolling mill. Overall progress here will be linked to improvements in instrumentation for monitoring and inspection as well as for measurement and control.

In addition to the references already made to coke another aspect of raw materials concerns scrap which is particularly valuable because of the great differences in energy requirements for melting scrap as compared with the reduction of iron ore. It is apparent that most short-to-medium term technological changes will tend to increase the use of scrap; these changes include the growing use of electric arc furnaces and continuous casting as well as the modification of basic oxygen furnaces to increase the proportion of scrap charged. In addition, demand for high-performance specialty steels is growing which incorporate higher proportions of alloy and other materials that make scrap recovery difficult. These developments have important implications for the future demand and availability of scrap and thus its price.

Future options that might be used to overcome possible scrap supply problems include expanding the use of sponge iron produced by direct reduction. This should serve as a stimulus to further research and pilot scale demonstration aimed at the development of more economically attractive as well as environmentally acceptable processes for sponge iron production in the Community ; these would need to be based on the direct utilisation of coal or the combination of direct reduction and coal gasification rather than on costly natural gas as the reductant.

An increasingly important requirement in steelmaking is for plant and equipment to have greater flexibility to meet a broader range of product specifications. Engineering has a vital contribution to make in this respect to enable installations to handle frequent changes in production schedules while, at the same time, being capable of achieving minimum production costs. An additional challenge to development work in this field will be the need to upgrade existing installations for better productivity, less maintenance and, again, more flexibility.

In steel product technology the progress will again be incremental rather than dramatic and some of the factors that will influence future developments are :

- need to meet increasingly stringent user requirements with regard to durability, reliability, uniformity and costs ;

- need to make products that are better adapted to specific applications and to produce more sophisticated higher value added products particularly for the needs of export markets ;

- need to acknowledge and to respond to changes both in steelmaking technology and in the pattern of steel consumption where, in domestic markets, it appears that there will be a sustained or even modest growth for sheet products while demand for long products will fall (see Section II.3) ;

- need to meet growing competition from alternative materials such as aluminium alloys and plastics particularly in such key user sectors as the automobile industry ;

- need for even closer collaboration between steel producer and steel user in order to establish a more offensive strategy in the promotion and development of new and existing markets.

In view of the wide diversity of steel products it is difficult to single out, priorities but it is thought that a major factor affecting developments in this area is the energy shortage. Steel products play an important role in energy resource exploitation and transport (offshore structures, transmission linepipe) and in energy production (electricity generation) and the growing needs of the energy sector will place greater demands on steel. Also, high strength steel grades will provide means of energy saving in the automotive and transport sectors since decreasing vehicle weight leads to fuel savings. The need to extend the useful life of components and products, which is another aspect of energy conservation, will require improvements in corrosion resistance and protection (coatings) of products as well as in their mechanical properties.

In parallel with specific product development, there will be further more basic work undertaken in such areas as strength and fracture characteristics, fabrication techniques (particularly welding and weldability), formability, high temperature behaviour and the structural performance of steels. The better scientific understanding of properties derived from this research will indicate how improvements may be achieved in addition to providing background data that will aid in engineering design and in establishing international codes, regulations and specifications.

While the future trends in research outlined above may well find broad acceptance, there remains the important question of how will the continuing difficult financial situation in the industry influence research funding and the rate at which technological progress is made.

Firstly, due to the limited availability of capital, it is logical to expect that preference will be given to investment in new technology where the cost-benefit is most favourable and lead times are relatively short. This approach will clearly influence priorities in research planning and encourage projects aimed at devising capital saving technologies e.g. less costly plant and equipment.

Secondly, the prevailing financial climate is having repercussions on the industry's ability to support an adequate level of research and development activity. Estimates of funding for steel research show that expenditure in the Community is, on average, 2.2 ECU/tonne of steel output compared with 2.7 ECU/tonne in the USA and 4.0 ECU/tonne in Japan. Furthermore, the effectiveness of this lower level of support in Europe is diminished by the duplication of effort that takes place in research at the national level.

Against this background, there is the danger that the rate of technological advance and thus the technological competitiveness of steelmaking in the Community will fall behind in the years ahead or it will become increasingly dependent on licences and know-how purchased from foreign sources. There is a need, therefore, for the Community's steel industry to examine the scope that exists for greater collaboration on research in areas where questions of competition and commercially sensitive issues are not of immediate concern. At present the most extensive cooperation occurs within the ECSC funded programme which represents some 8% of the total effort on steel research in the Community.

The opportunities for improved coordination and closer collaboration in the steel sector are believed to exist in more fundamental and longer term research as well as in production and processing ; indeed the potential benefits in this latter area could be substantial in view of the high costs frequently involved. The realisation of this goal must be one of the major challenges facing those engaged in the technical affairs of the Community's steel industry over the medium to long term.

In meeting the common technological needs of the industry continued support will be given by the Commission to research and development while a new initiative on pilot scale projects will provide a valuable and necessary stimulus to the transfer of research to large scale demonstration and ultimate commercial exploitation.

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PE/fc
26.11.1982

A N N E X

A. GENERAL METHODOLOGY FOR THE PREPARATION OF FORECASTS

1. The following have been prepared for the Community on the basis of studies conducted in each country on consumption in the user branches between 1970 and 1978.

a) A table of steel consumption by products and by sector for 1978, taken as the reference year for forecasting (ordinary steel and special steels).

b) Sectoral tables showing the trend in specific consumption between 1970 and 1977 for each type of product

$$CS = \frac{\text{steel consumption}}{\text{production}} = \frac{\text{kg steel}}{\text{tonne of product}}.$$

For the total (EUR 9), the specific consumption of each country has been weighted by sectoral production each year between 1970 and 1977.

c) Series of activity indices, by user sector, using a statistical data base recorded in the form of time series and managed by the CRONOS system. These indices based on 1975 = 100 are indices of value added at factor costs and constant prices. For three sectors, these activity indices were calculated as follows:

+ "other consumers": production indices weighted by consumption in 1977
+ "shipyards": compensated gross registered tonnage indexes (1 000)
+ "manufacture of tubes": production indices.

2. The figures given for 1985 represent the trend level established as follows:

a) Forecasts for the development of activity in the sectors are based on the relations between this activity and the evolution expected for the period 1980-85 of the main macro-economic variables:

1. GDP
2. Private and public consumption
3. Gross fixed capital formation
4. Industrial production;

These macro-economic trends were established in the fifth medium-term economic policy programme drafted by the Commission in cooperation with the Member States;

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b) Forecasts of consumption by products are made by applying to the activity of the user sectors specific steel consumption coefficients obtained from the historical trend, where necessary corrected in accordance with the latest developments.

B. EXPLANATORY TABLE OF PRODUCTION FORECASTS

The following points concerning the product categories in Table 8 should be noted:

a) There has been no independent forecast for coils as finished products. Production for 1985 is established by assuming that the breakdown of 1981 demand amongst heavy and light plate, sheet and coils will remain unchanged. In the light of past trends, it is probable that this will slightly underestimate production but the effect will not be significant. In that case, hot-rolled wide strip production will be slightly overestimated because of the increased demand for sheet or light and heavy plate owing to the fact that more material is lost in the working of these products than in the case of coils as finished products.

b) Similarly, the forecast for concrete reinforcing round production is based on a more or less constant share of this product within the light section category.

c) The heavy andlight plate and sheet categories include hot and cold-rolled products. The following table shows the breakdown between hot and cold-rolled sheet and plate, once again assuming that the structure will remain unchanged from the previous period. Since the quantities involved are very small, this distinction is only of interest for the accurate calculation of cold-rolled plate and sheet demand.

(Annexe)

PRODUCTION OF PLATE AND SHEET 1974 TO 1981 AND 1985

('000 000 tonnes)

PRODUCTS	1974	1975	1976	1977	1978	1979	1980	1981	1985
HEAVY AND LIGHT PLATE	17,575	14,494	12,526	12,262	12,601	13,005	12,461	12,839	12,3
- hot-rolled	17,450	14,382	12,366	12,097	12,414	12,822	12,265	12,626	12,1
- cold-rolled	0,125	0,112	0,160	0,165	0,187	0,183	0,196	0,213	0,2
SHEET	29,269	21,731	26,766	27,374	28,032	29,248	26,332	26,102	28,3
- hot-rolled	0,559	0,291	0,320	0,390	0,454	0,451	0,335	0,340	0,4
- cold-rolled	28,710	21,440	26,446	26,984	27,578	28,797	25,997	25,762	27,9
TOTAL COLD-ROLLED PLATE AND SHEET								25,975	28,1
TOTAL HOT-ROLLED PLATE AND SHEET								12,966	12,5