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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

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on the Iron and Steel Industry

Moscow, USSR, 19 September - 9 October 1968

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THE FINANCING OF THE IRON AND STEEL INDUSTRY IN A DEVELOPING COUNTRY: THE CASE OF SPAIN 1/

by

L. Guereca,
Spain

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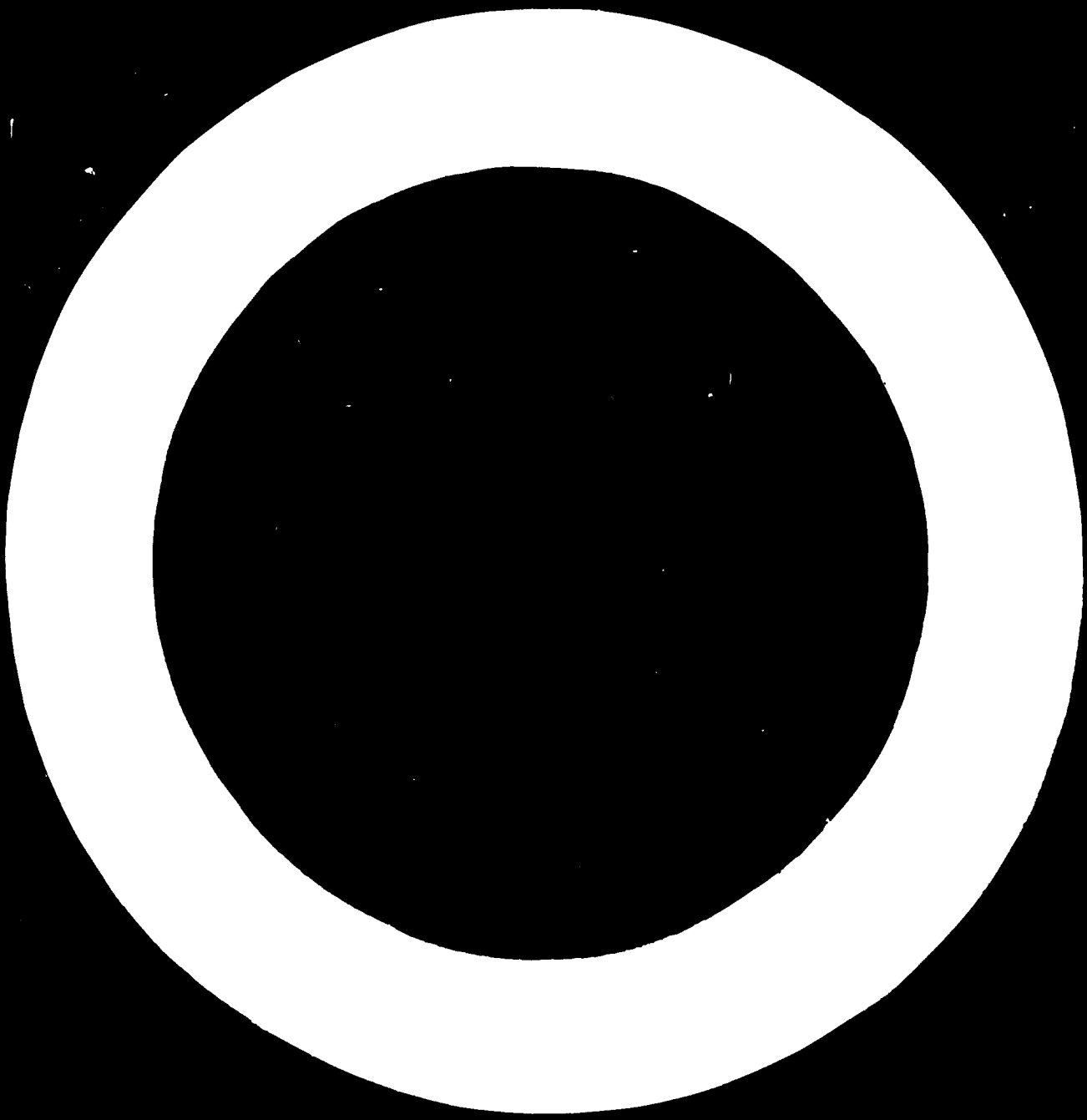

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THE FINANCING OF THE IRON AND STEEL INDUSTRY IN A DEVELOPING COUNTRY: THE CASE OF SPAIN[1/]

by

Luis Guereca

Spain

SUMMARY

Introduction

There is a close correlation between the industrialization index of a country and its steel needs. With growing industrialization, world steel consumption has increased more than ever since the Second World War.

On the other hand, rapid technological progress, through the modernization of the sector, has resulted in lower production costs and a world capacity surplus, which affect world trade, bringing about big reductions in the price of steel products.

This, together with the fall in price and improvement of transport costs, today enables a developing country, unlike several years ago, to decide calmly and

* This is a summary of a paper issued under the same title as ID/WG.14/47.

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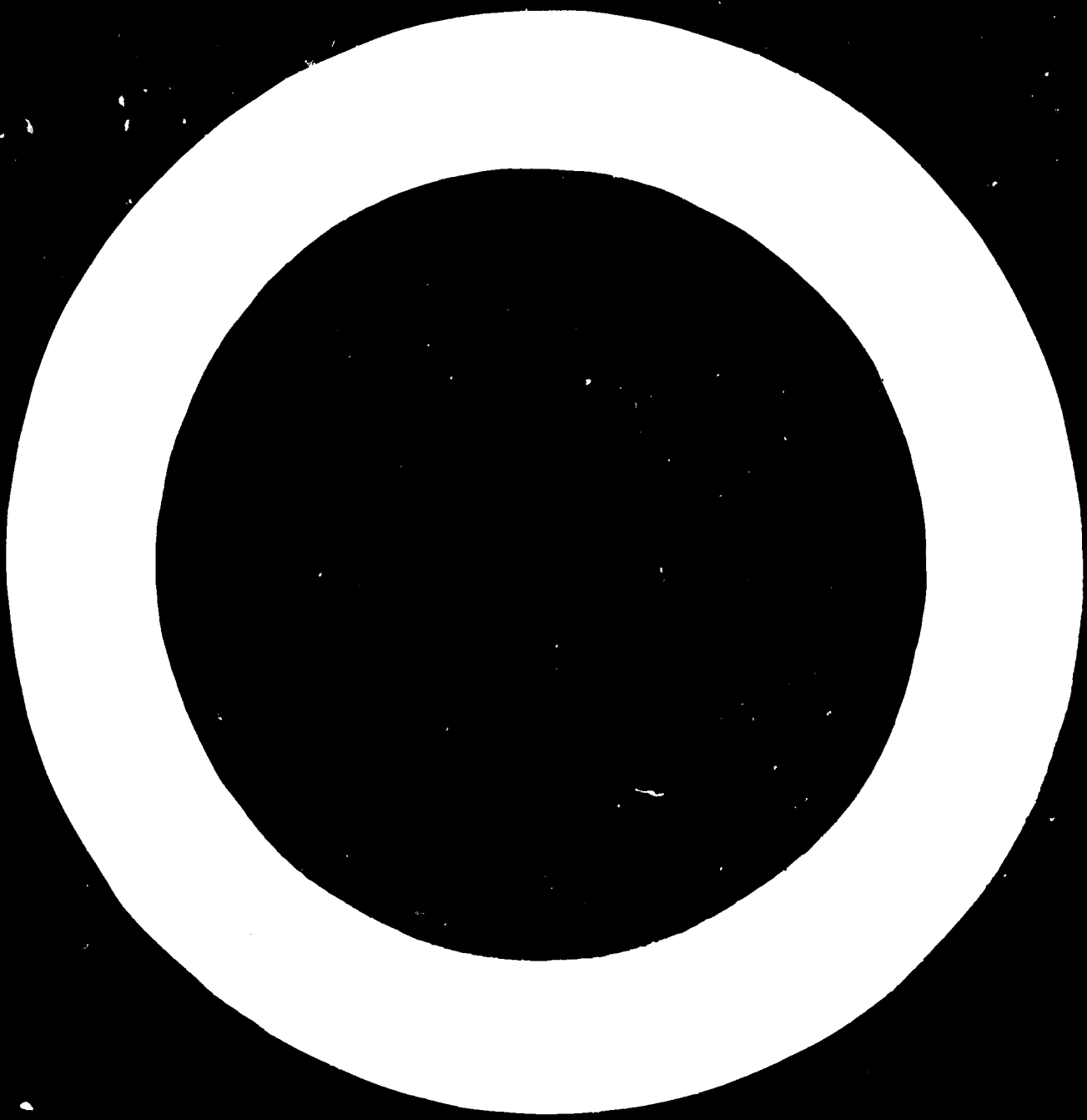


with economic criteria upon the alternative between establishing (or developing) its iron and steel industry or to depend on imports for its steel consumption.

Spanish experience: industrial development and steel consumption

In Spain several stages in the industrialization process can be observed, steel consumption showing a different tendency.

During the 1900-1923 period, the industrialization process begins and iron and steel production follows without undue effort the increase in home demand of steel (eight per cent per annum on average).

In the 1923-1930 period, the foundations of the basic industry are laid, steel production and consumption developing fast (20% per annum on average).

The first part of the 1940-1960 stage is the period of Spanish reconstruction, which coincides with other countries' general reconstruction following the Second World War. Steel consumption was restricted by import difficulties, both of iron and steel products, and of iron and steel production plant.

The present 1960-1967 period, which began with the Stabilization Plan and the New Economic Arrangements, increasing foreign exchange reserves and liberalizing foreign trade. Steel consumption develops rapidly.

Iron and steel development versus imports

In this development, Spain was faced on two occasions with the alternative of importing iron and steel products or developing her steel production.

The first occasion was at the beginning of 1950. Owing to foreign exchange reserves difficulties, already mentioned, and world steel needs, the policy followed was: a) to substitute as far as possible steel by other materials; and b) to create a public enterprise to increase the possibilities of home production.

The second occasion was in 1963, when a tremendous growth in steel consumption began, with increases of 30 per cent in 1963 and 22 per cent in 1964, met by imports which in 1965 reached 300 million dollars and which in 1972 could reach 650 million dollars.

The alternative chosen in 1964, coinciding with the beginning of the I Economic and Social Development Plan, constitutes present Spanish iron and steel policy.

Present Spanish iron and steel policy

The criteria for deciding whether or not it was advisable to prompt energetic development of the iron and steel industry were the following: among the advantages of such action were: a) eliminating a growing deficit in steel imports; b) the need to modernize existing iron and steel plant, which would not be able to maintain the productive capacity, neither in volume nor in the technological level required; c) being able to count on a base necessary for a whole series of productions which are large steel consumers.

The difficulties for so developing the iron and steel industry were mainly to be found in: a) obtaining and employing the necessary funds for carrying out sufficient investment; b) the low alternative private profitability of such investments.

The advantages mentioned swayed the balance in favour of undertaking a National Iron and Steel Programme, which would bring the sector up to date in relation to steel needs of industrial development.

In the National Iron and Steel Programme for the 1964-1972 period, the necessary investment was calculated, which involved increasing almost fourfold the average annual investment compared with the 1957-1961 period.

Features of the National Iron and Steel Programme

Briefly, the features of the Programme are as follows: 1) the total practical capacity to be obtained is calculated on the basis of normal utilization percentage of the plant (90 per cent); 2) paying special attention to distribution between integrated and non-integrated plants, bearing in mind the relationship between the size of the home market and the dimensions demanded by modern technology; 3) adequate distribution by products, giving particular importance to rolling mills, especially of flat products.

In the first stage of the Iron and Steel Programme (1964-1967), coinciding with the I Economic and Social Development Plan, investment was stepped up in finishing processes, which had a lower investment level, concentrating imports on ingots and semis of less added value.

In the second stage, investments will increase in melting shops and those in rolling mills maintained at a high level. The most important feature in the

present stage of the programming of Spanish iron and steel development is the financial one.

Financing the National Iron and Steel Programme

The principal difficulty, or the most important dissuasive element, in deciding on extensive development of the iron and steel industry, are the large amounts of investment necessary. Companies did not have sufficient financial capacity. In fact:

1. Self-financing is low in Spanish iron and steel companies. In the 1960 to 1965 period they only managed to self-finance 18.5 per cent of their investments.
2. The capital market did not admit sufficient draining of funds on the part of iron and steel companies, neither due to the volume of the market, nor to the profitability of the iron and steel business.

The Spanish iron and steel industry had been financed precariously and in a somewhat unorthodox manner. The pattern of resources employed in 1965 was 46 per cent within the industry and 54 per cent from outside. The sector's debt exceeded by more than 50 per cent the added value of the iron and steel industry.

Combined Action

Consequently, if the National Iron and Steel Programme was to be put in practice, it required some special financing instrument. This instrument was created in 1965, with the establishing of a special system, known under the name of "Combined Action".

The companies taking part in the National Iron and Steel Programme, and whose projects were approved, could obtain the following assistance and benefits under the Combined Action system: 1) official credit for up to 70 per cent of the investment approved; 2) freedom of depreciation allowances over a period of five years, extendible for a further five years; 3) relief from certain taxes and custom duties; 4) obligatory expropriation of land necessary for the investment.

The expected sources for financing the National Iron and Steel Programme are: self-financing, 8.5 per cent; increase in the companies' capital stock, 17 per cent; official long-term credit, under the Combined Action system, 35 per cent approximately; loans from international financial organisms and institutions, 12 per cent;

loans in the capital market, bank credit and credit from suppliers of machinery and equipment, 27.5 per cent.

The relationship between internal and external funds of companies will change respectively from 46 per cent to 54 per cent in 1965 to 35 per cent to 65 per cent in 1972, since by 1972 plants will not yet have had sufficient time to improve the financial pattern with the resultant larger volume of production and of increased productivity.

Results

Present Spanish iron and steel policy, begun in 1964, has made it possible:

1. To reduce the import deficit of 2.8 million tons in 1965 to 1.7 million in 1967, and by 1971 it is expected to be reduced to 0.6 million tons. Dependence on the foreign market will therefore have passed from 47 per cent of steel consumption in 1965 to 7 per cent in 1971.
2. To modernize production techniques. In 1964 10.6 per cent of steel was produced by the L.D. process, which by 1971 will reach 55 per cent.
3. To improve the productive pattern, with three integrated plants each having a capacity of 2 to 4 million tons; a dozen non-integrated plants, between 100,000 and 500,000 tons; and about ten special steel plants, between 50,000 and 400,000 tons.

Conclusions

From the foregoing remarks, conclusions of a general nature can be drawn:

1. Advisability as to whether to start iron and steel production: In a developing country which has no iron and steel production, it should possess at least one of the three following requisites before deciding to start production: a) rich iron ore resources; b) a sufficiently large market to warrant applying modern techniques and the dimensions required; c) structurally deficient balance of trade, without economic sectors with comparative exporting advantages.
2. Saving investments: Apart from the principles mentioned for developing plant beginning with the finishing sector, there are formulae for saving investment, by means of co-operation between developing countries geographically neighbors: a) by means of toll agreements; b) by setting up a common iron and steel plant; c) by iron and steel development on a

regional basis between developing countries, with the adequate distribution of investments and of trade between the regions.

3. Financing iron and steel development: Despite the saving in investments which can be achieved, the problem of financing investments will remain to a greater or lesser extent more severely in developing countries, owing to their weaker financial potentiality.

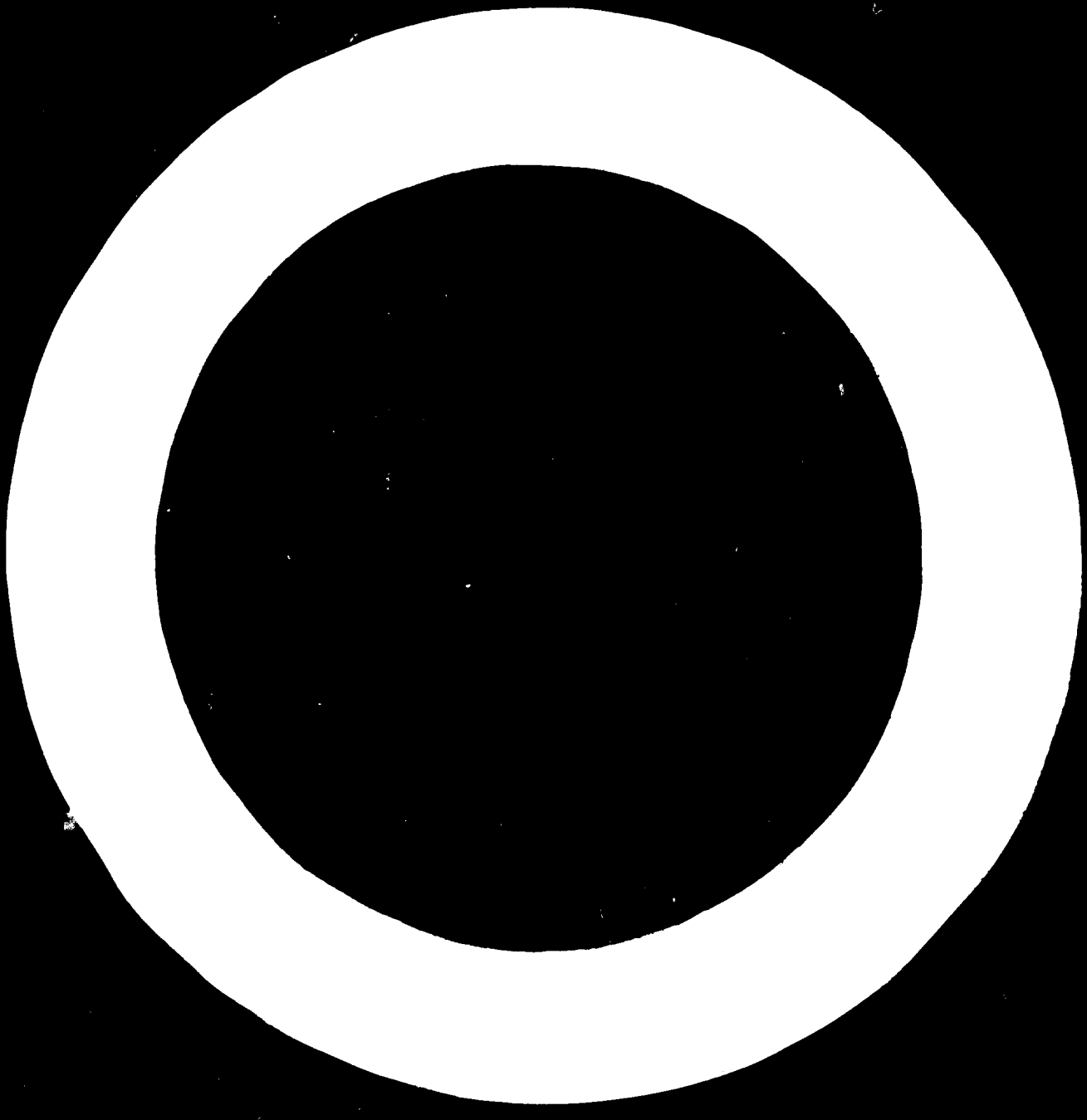
For this reason, it seems inevitable that the State has to pay growing attention to the development of the iron and steel industry, which varies from total intervention, with the nationalization of the sector, to supporting action, by means of granting financial assistance at low rates of interest and, at times, not recovered.

In Spain, both forms of action exist. There is a nationalized undertaking which by 1972 will have a production of nearly 4 million tons. On the other hand, the State offers great financial and taxation assistance to companies who undertake to comply to the National Iron and Steel Programme.

Spain has also availed herself of foreign financing sources, both from international and state organisms, public and private.

Another aspect which also has a decisive influence in financing are taxation incentives. In Spain, tax examptions and accelerated depreciation systems have been used. But there are others, such as finding the average of several financial years for the purpose of taxing company profits, the system of computing depreciation at replacement cost, the establishing of investment funds free of tax, etc.

Apart from financial aid, developing countries should pay attention to tax incentives to investment in iron and steel development.



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1. Advisability as to whether or not to start iron and steel production	21
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Consequently, the tendency should not prevail, which is quite common(5), to decide on the establishment of the iron and steel industry for subjective reasons of prestige related to an assumed symbolic value of industrial wealth.

We give below a brief account of the logical evolution to take into account between the beginning of the industrialization process and the establishing of an iron and steel basis, according to Hesse(6): in the first stage of industrialization there is great demand for finished industrial products, which can only be satisfied with imports. A substitution process is started by home production, which in turn requires the import of investment goods. At this stage it is advisable for the countries to have iron and steel finishing plants. The imports of iron and steel products are limited to semis.

In a second, more advanced, industrial phase, production begins of basic products among which comes steel. But, as the scale necessary for a profitable iron and steel production may exceed home requirements of iron and steel products, a selection of the products most in demand should be made first.

In the third stage of industrialization, in which the production of investment goods begins, the country's iron and steel developments reaches its height.

Consequently, for the above reasons, a developing country should plan its iron and steel policy according to its level of industrialization. A valuable factor in its favour, is the possibility to delay on medium term, owing to the present situation of world excess and the lowering of transport costs, the integrated development of an iron and steel industry which would demand a high level of investment.

In this connection, the following fundamental facts should be taken into account:

A point in favour of the suitability of establishing an iron and steel industry is the enormous field of steel utilization in all walks of life, in the high cost of imports and the certainty of their own supplies of such a vital product.

(5) H. G. Johnson: "Economic Nationalism in old and new States."
(6) Hesse, H.: Gestaltungs probleme der Weltwinstschaft. Göttingen 1964.

Against the establishing of steel self-sufficiency in developing countries goes the high capital-production ratio of this industry, the high depreciation rates due to wear and obsolescence, the financial cost and scale economies.

SPANISH EXPERIENCE

In Spain, the beginning of this activity was linked with the existence of iron ore resources. The development of these resources was an autonomous activity to start with, directed towards exporting. Later it encouraged and assisted the creation of an iron and steel industry, to become as it is at present, an auxiliary activity of iron and steel development, guided by same.

Thus, from an export figure of 8.9 million metric tons of iron ore in 1913, this has dropped to 800,000 tons exported in 1967, although production since that time has also fallen, due to the gradual draining of the more easily obtainable deposits.

This last factor makes even more evident the foregoing affirmation that it is Spanish iron and steel development which now promotes Spanish policy on iron ore mining. The latter is directed towards greater extraction, devoted to the Spanish iron and steel industry, with various concentration and pelletization processes, as will be explained later.

INDUSTRIAL AND IRON AND STEEL DEVELOPMENT IN SPAIN

The development of the iron and steel industry in Spain is linked with the country's general industrialization process. Different stages in our industrialization process can be denoted(7).

1) The first period, from 1900 to 1923 is characterized by a slow, but steady, development, with an annual increase in industrial production of 0.53% per year. But on the contrary, steel demand grows at an annual rate of 8%, as also does steel production, at an annual average of 8%. In this stage production follows exactly consumer needs and Spain is self-sufficient in steel.

(7) M. Torres: "Juicio de la actual politica económica española."

2) The period 1923 to 1936, with an annual increase of 8% in industrial production until 1930, and remained the same until 1936. From 1920 to 1930 steel consumption rises at an average annual rate of 20%. In this period the iron and steel industry is greatly developed, production in 1929 reaching over a million tons of steel. The increase in steel production is also an annual average of 20%. This is the second stage of industrialization mentioned by Hesse(8), in which industrialization efforts are concentrated on basic sectors, among them that of iron and steel.

3) The reconstruction period between 1940 and 1960 coincides with the general reconstruction period of other countries also after the Second World War. Spanish iron and steel production falls below the 1929 level of one million tons, which is not reached again until 1957. The period begins with a deficit in 1940 of 11% on steel consumption.

During this period, steel consumption had to be limited due to difficulties in importing, both owing to the reconstruction needs of nearly all countries in the post war period and to Spain's lack of currency for same. This lack of currency also prevented the import of the necessary equipment to develop iron and steel production. The increase in actual steel consumption during these twenty years was at an average annual rate of 8%, slightly higher than the growth in production, thus gradually increasing the deficit which in the mid 1960's reached 17% of demand.

4) The present decade constitutes the last period, in which the relationship between the tendency of general industrial production and steel consumption changes substantially, the latter growing much more rapidly than in previous periods in relation to general industrial production.

In the following table, the average annual percentage of growth in steel consumption during the different periods considered can be seen.

Average annual increase in steel consumption

Periods	Percentage of average annual increase
1900-1923	8
1923-1930	20
1940-1960	8
1960-1967	34

(8) H. Hesse; op. cit.

This general tendency in steel demand in Spain has, on two occasions, first during the 1950's and later in the present decade, posed the alternative with which all developing countries are faced regarding their policy of iron and steel development, that is, whether to produce or import certain amounts of iron and steel products for their industrial development, which are not produced at home.

DEVELOPMENT OF THE IRON AND STEEL INDUSTRY VERSUS IMPORTS

The deficient situation of Spanish iron and steel production in relation to demand is shown by the evolution of home production and consumption:

(in thousands of tons of crude steel)

Year	Home production	Apparent consumption
1950	815	849
1957	1,346	1,614
1958	1,564	1,820
1959	1,823	2,082
1960	1,920	1,817
1961	2,354	2,242
1962	2,538	2,809
1963	2,765	3,565
1964	3,150	4,344
1965	3,515	5,947
1966	3,847	6,144
1967	4,512	6,059

Source: Ministry of Industry.

The 1950-1960 period

In the 1950's, devoted to establishing the initial bases for the rapid industrial development of the 1960's, Spain faces the alternative of being dependent on foreign countries for its steel consumption, although at a modest level.

Spanish iron and steel policy was limited to complementing existing capacity, with the creation of a national company (ENSIDESA) in 1950 and which started partial production in the mid 1950's. The trends envisaged for the development of ENSIDESA would have been sufficient to meet the tendency in steel demand during the 1950's, but its development was slower than expected. It was thus necessary to continue importing from 1957 to 1960, the more so as

consumption accelerated from 1955.

The alternative chosen in the 1950's was not in fact that alternative. Spain lacked foreign exchange reserves to finance the import of iron and steel products amounting to the equivalent of 40% of her potential demand. On the other hand, the world market of iron and steel products was difficult, due to the reconstruction period in nearly all countries. For this reason, the policy adopted was:

a) To substitute as far as possible steel by other materials, and,

b) To create a national company to increase the possibilities of home production.

The steel demand per head rose from 30.5 kgs. in 1950 to 59.3 kgs. in 1959. The industrial production index increased 123% from 1950 to 1960, and the actual steel demand rose 145% in the same period. The elasticity of steel demand in relation to the industrial production index in the period under consideration was 1.18. There is no doubt that the potential demand was much greater, but owing to supply difficulties this could not be met. The need therefore arises for the policy of restricting steel consumption, and its substitution by other materials, for example in construction.

THE 1960-1972 PERIOD

The New Economic Arrangements, with the Stabilization Plan (1959), the increase in currency reserves and the liberalization of a high percentage of Spanish foreign trade, constituted the necessary conditions for potential steel demand and its future prospects to begin to develop fully.

The period of recession originated by the Stabilization Plan, which lasted approximately a year and a half, entailed a slight setback in steel demand in 1960. Thus, in 1960 and 1961 exports of considerable importance were made. Once the recession was over, demand jumped sharply from 1962, with a rapid rate of growth.

Faced with this problem, the I Economic and Social Development Plan drawn up in 1963, for the 1964-67 period, planned the expansion of iron and steel capacity.

Capacity planning for the 1946-67 period was based on correlation studies

between steel demand and various macroeconomic variables such as national income and industrial production. But, obviously, past development was not a good starting basis to plan the development of steel demand during the 1960's. The elasticity of steel consumption with respect to industrial production, slightly higher than the unit in the 1950's, changes sharply, given the circumstances already mentioned, of liberalization of the foreign trade of iron and steel products and improved foreign exchange reserves, which enabled the full use of steel in all the most suitable applications of this product.

In this way, demand reached a spectacular peak, exceeding the capacity of home production in 1963, and in 1964 it surpassed considerably the targets of the Plan, increases of 30% being registered in 1963 and 22% in 1964, with imports valuing almost 300 million dollars in 1965, a really important figure in the Spanish balance of trade.

During this period, a clear divergence with the previous period is shown, regarding the comparative trend of the industrial production indexes and steel consumption (see graph 1). Whereas the industrial production index increases 78% between 1961 and 1967, steel consumption rises 190%, that is, almost double that of industrial production. The elasticity coefficient of steel demand in relation to the industrial production index was 2.15.

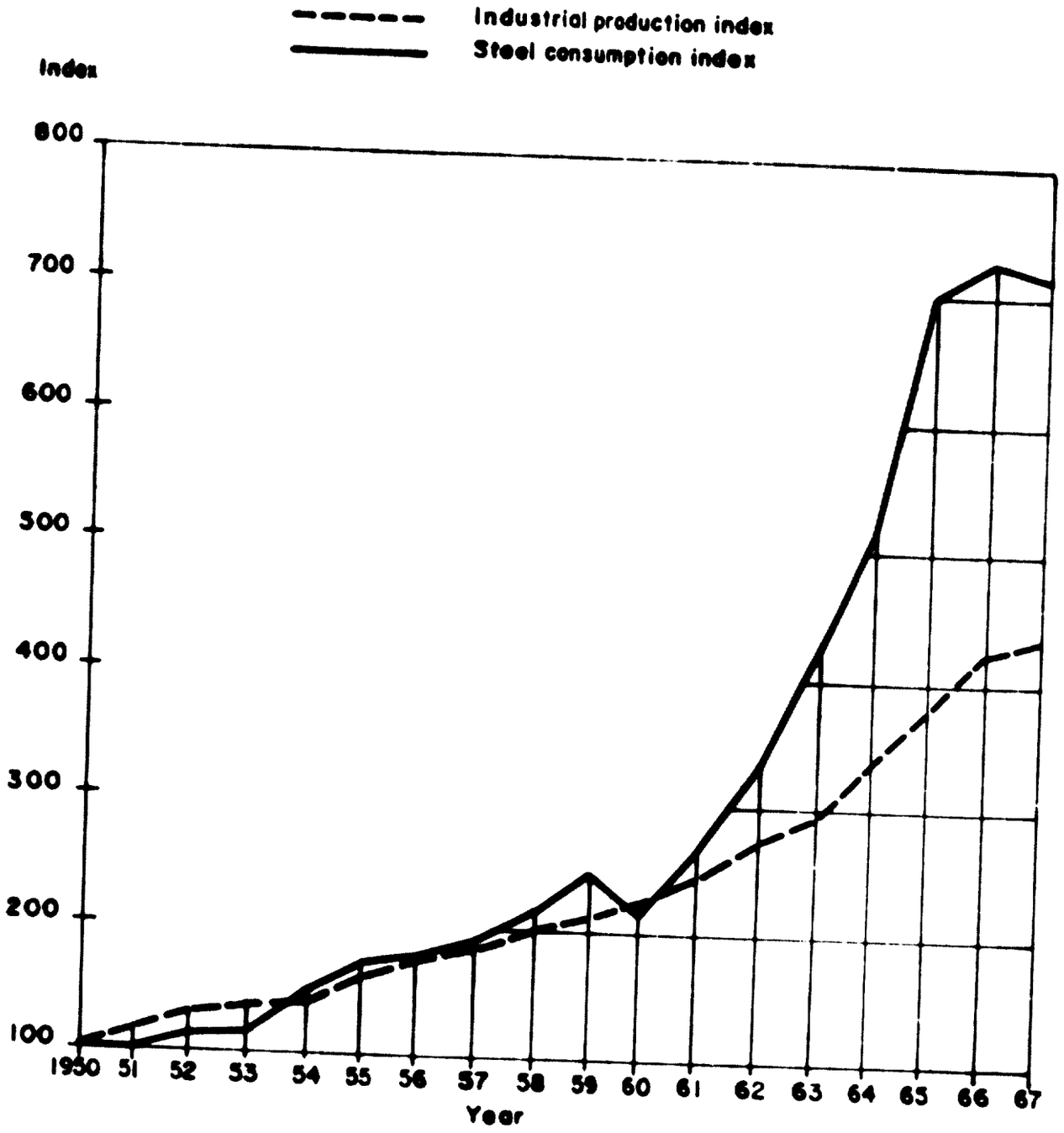
It is during the Spanish industrialization period that home production of motor vehicles, shipbuilding, machinery and equipment and durable consumer goods becomes important, all sectors which are big consumers of steel. Steel demand per head exceeds 200 kg. in 1966.

So in 1964, the alternative again arose of whether to develop the iron and steel industry, this time in a spectacular way in view of the consumption peak, or to withstand the loss of a large volume of foreign currency in a clearly deficient balance of trade.

In the following table, the trend of iron and steel product imports can be seen, in dollars.

Graph 1

TRENDS OF INDUSTRIAL PRODUCTION AND STEEL CONSUMPTION INDICES



Imports of iron and steel products

(In millions of dollars)

Year	Imports	Index
1961	57.1	100
1962	104.2	182.3
1963	127.1	222.3
1964	158.4	227.1
1965	295.5	516.7
1966	268.0	467.4
1967	229.1	400.7

The new estimate of probable future steel demand, this time adapted to the new circumstances of the Spanish iron and steel market, reached important figures, to the order of 10.6 million tons in 1972.

By following the same output capacity, the exit of foreign exchange reserves for the imports of iron and steel products could in 1972 reach an annual figure in the region of 650 million dollars, impossible for our balance of trade to bear. This argument also seems to have been applied in Italy. According to Professor Manuelli: "Italian iron and steel expansion has avoided the heavy expenditure of foreign currency, which by burdening the balance of trade of imports, would have jeopardized the very stability of economic expansion in general."

The flexion which begins to be felt in imports in 1966 is due to increased home production by reason of the increase in output capacity brought into operation as a result of the present iron and steel policy.

However, it should be pointed out that as from the second half of 1966 industrial recession began which lasted the whole of 1967, causing a standstill in steel consumption. This fact has also contributed to lowering the import coefficient of steel last year.

But it is expected that once industrial expansion has been restored, steel demand will again return to reach the trend forecast for the year 1972. This present flexion is very significant, because the increase in output has followed the level forecast, thus making it easier to achieve a comparative balance between the supply and demand of steel in 1972.

NATIONAL IRON AND STEEL PROGRAMME

Faced with this situation, a study is begun of the advantages and disadvantages of extensive development of the iron and steel sector. The advantages include: a) Eliminating a growing deficit of steel imports which would be an excessive burden on the balance of trade and on foreign currency reserves; b) The need to modernize existing iron and steel plant which could not maintain the productive capacity either in volume or in the technological level required; c) the inherent complementary development of forging, moulding, boiler, etc. plant, and d) finally, being able to rely on a basis suitable for a series of metal production and machinery and equipment and the construction of rolling stock, shipbuilding, etc., which is in full development in Spain.

The disadvantages, or rather the difficulties, involved in so developing the iron and steel sector are found mainly in: a) obtaining the funds necessary for carrying out sufficient investment; b) the low private profitability alternative of such investments, with regards to its employment in other industrial sectors, principally, transforming, that is the costs of opportunity.

When deciding between the two fields of action, the present situation of excess world capacity of steel production was also taken into account, and the possibility of obtaining it at low prices. This factor will have considerable weight in the decision on the short-term planning of the sector.

However, the balance of payments situation, the need for modernizing the sector with new techniques, which would necessarily be the equivalent of increasing capacity, and the autonomy of the iron and steel basis for the rapid general industrial development planned, swayed the scales in favour of carrying out a National Iron and Steel Programme, which would bring the sector up to date in relation with the general economic development needs of the country. When taking the decision, the rapid technological changes taking place in iron and steel production were not forgotten either, factor which has been included in the planning hypothesis.

When the National Iron and Steel Programme had been drawn up, the necessary investment was calculated, which meant passing from average annual investments of 3,100 million pesetas in the 1957-61 period to some

10,000 million pesetas average annual investment during the 1964-72 period, which brings out the investment effort to be made.

FEATURES OF THE NATIONAL IRON AND STEEL PROGRAMME

Briefly, the features of the Programme are as follows:

1) The total practical capacities to be obtained are calculated on a basis of the normal utilization percentage of the plant (90%).

2) It pays special attention to distribution between integrated and non-integrated works, taking into account the relation between the extent of the home market and the size demanded by modern technology for integrated works.

For non-integrated works estimates are made of the scrap-iron available, the consumption areas and the most suitable technique for same.

3) A very important aspect is distribution by products, great weight being given to rolling plant, especially of flat products and to ancillary automation plant, etc. Distribution in the rolling process follows the forecast of consumption by products for the 1964-1972 period.

The importance of the different types of plant in investments made during the 1964-67 period and those forecast for 1968-72 can be seen below:

Plant	1964-67 % on total investment	1968-72 % on total investment
Raw materials and preparation of burdens	8.8)	19.7
Pig iron	13.9)	
Crude steel	14.1	23.6
Rolling mills	41.7	35.3
a) Flat products	27.4	16.9
b) Others	14.3	18.4
Ancillary plant and miscellaneous	27.5	21.4
Total	100.0	100.0

Source: Ministry of Industry.

In this connection, it should be said that in the first stage of the Iron and Steel Programme (1964-67), coinciding with the First Economic and Social

Development Plan, the financial effort and the surplus in the world market was taken into account in the projects calendar. Here, investment has been stepped up in finishing processes, where investment was less, and imports have been centred in ingots and semis of less value added.

Investment is particularly noteworthy in flat products, due to increasing production of motor vehicles, shipbuilding and domestic appliances.

In the second stage, investment in melting shops increases and that in rolling mills is at a high level, the latter being distributed almost equally among flat and other products.

4) The most characteristic aspect in the programming of Spanish iron and steel development in the present stage, is the financial one.

For this reason, I decided to entitle this study "The financing of the iron and steel industry in a developing country: the case of Spain."

THE SUPPORT OF IRON ORE MINING IN SPANISH IRON AND STEEL DEVELOPMENT

As mentioned at the beginning, iron ore mining in Spain was an autonomous activity, later passing to support the iron and steel industry, and today becoming a valuable ancillary industry. In this sense, present mining policy is dictated by iron and steel development.

In fact, after drawing up the National Iron and Steel Programme, already outlined, the Plan of Iron Ore Mining was set out, adapted to the former's requirements, within Spanish mining possibilities.

By 1971 production is expected to reach nearly 9.5 million tons of iron ore, or grades varying between 52% and 56% of iron content.

Due to the Spanish iron and steel industry's need to dispose of material at the most competitive prices possible, the Plan for Iron Ore Mining envisages various concentration and pelletization processes.

The utilization of pyrite ash is also planned, and the investigation of new sources, for the purpose of being able to supply future iron and steel development.

Nevertheless, given the range of materials from the different sources, it

will be impossible to avoid the import of some types of mineral and the export of others, endeavouring in the long run to achieve a balance in foreign trade of iron ore.

THE FINANCING OF THE NATIONAL IRON AND STEEL PROGRAMME

I mentioned earlier that the main difficulty, or the most important deterrent element in deciding upon full development of the iron and steel industry, are the large investments necessary.

Spain endeavours to bring her iron and steel sector up to date, but for this annual average investment needs to be increased almost fourfold during a period of nine years.

How can this be done? In the first place, companies did not have the financial capacity for such investment. In fact:

1) Self-financing is low in Spanish iron and steel enterprises. In the 1960 and 1965 period their investment only achieved self-financing at a rate of 18.5%.

2) The capital market did not admit a sufficient drainage of funds on the part of iron and steel undertakings, neither by the volume of the market nor by the profitability of the iron and steel business.

For example, from 1962 to 1967, of the total of industrial issues in corporate bonds and shares absorbed by the market, the iron and steel industry has only been able to participate in 10% of them.

Bearing in mind that the amount absorbed by the market in industrial securities was slightly lower than 50,000 million pesetas in 1967, the iron and steel sector could not detract from the security market even 50% of the investment required.

3) Regarding long-term loans, the iron and steel sector was hampered in obtaining funds, in as far as private loans are concerned, by debts which amounted in 1965 to 54% of its assets, (including loans in the security market). Consequently, the private long-term credit market was not receptive to the extent required by the iron and steel sector.

The Spanish iron and steel industry had been precariously financed and in

an unorthodox manner during the 1960-1965 period. During this period there was investment in fixed capital amounting to some 35,300 million pesetas (almost 600 million dollars), and at the same time its requirements of working capital increased by about 8,700 million pesetas (about 85 million dollars).

The total increase in capital spent by the iron and steel industry, 685 million dollars, was financed in the following way: 30% with its own resources (11.5% increase in capital stock, and 18.5% of self-financing), and 70% with outside resources (with 40% long-term and 30% short-term). In this way, the pattern of resources used in 1965 were 46% their own and 54% outside sources. The sector's debt exceeded by more than 50% the added value of the iron and steel industry.

With all these facts, it could not be expected that the iron and steel sector could meet by itself the demands of the National Iron and Steel Programme.

Combined Action

Consequently, if the development of the iron and steel sector, that is, if the National Iron and Steel Programme were to be put in practice, some special financing instrument was needed.

Such instrument was created in 1965, with the establishing of a special system known under the name of "Combined Action." This system had been envisaged in that I Economic and Social Development Plan, in Article 5, for economic sectors which, in the fulfillment of the objectives laid down, require the granting of special concessions by the Administration.

It is therefore easy to see that, with the need to carry out the National Iron and Steel Programme, and the impossibility to completely finance it on the part of the companies, it has been the Iron and Steel Sector which has been of most importance among those covered by this system, due to the high level of investment required.

The National Iron and Steel Programme and the instrument at its service, Combined Action, are enabling the whole of the iron and steel sector to develop.

The National Iron and Steel Programme is planned on a sector basis, setting out the aims to be achieved concerning the total volume of capacity and production, participation of the integrated plants, non-integrated and special steel plants, and the distribution of capacity by groups of iron and steel

products, structurals, light sections and flat products.

Each company is free to take part in the National Iron and Steel Programme, but only by joining it, can it enjoy the advantages of the Combined Action. The plans of the companies subject to the Programme are studied in relation to the sector as a whole, in their most profitable size, and in their production pattern. In this way, a balance within the installations of each plant is hoped to be achieved, and of all the plants as a whole.

The companies joining the National Iron and Steel Programme and whose plans are approved, can receive the following assistance and benefits under the Combined Action arrangements:

1) Official credit for up to 70% of the investment approval; for fifteen years.

2) Freedom of depreciation allowances of the plants chosen and approved, over five years, which can be extended for a further five years.

3) Taxation relief from the Transfer Tax, of customs duties and rebates on internal taxes.

4) Compulsory expropriation of land necessary for plant included in the investment.

With this assistance on the part of the Administration, and with an effort on the part of the companies, the Spanish iron and steel sector is going to invest in fixed capital the equivalent of 76,500 million pesetas in the 1965-72 period, of which already in 1966 and 1967 some 19,700 million pesetas have been invested.

In this way, investments during the 1965-72 period will exceed by 117% those of the 1960-65 period.

However, the financial pattern of the sector will not show an improvement; on the contrary, at the end of the National Iron and Steel Programme subsequent deterioration will have occurred. The relation between capital from within and that from outside will change respectively from 46% to 54% in 1965 to 35% to 65% in 1972.

This is to a certain extent natural, since by 1972 the plants will not yet have had sufficient time to improve the financial pattern with the results of

greater volume of production and increased productivity, and thus the companies will have to bear a heavy financial strain for several years(9). For example, self-financing is not expected to contribute in more than 8.5%, increase in capital stock by 17%, as far as outside resources are concerned they will do so with 74.5%, to total investments in fixed and working capital.

In financing from outside sources, official credit, under the system of Combined Action (almost 50%) will play an important role. The remainder will be financed by loans from international financial organizations and institutions (12%), loans in the capital market, and credits from suppliers of machinery and equipment, and private Spanish banks.

It is important to stress the role which foreign financing can play in the process of iron and steel development. Since 1958 the Spanish iron and steel industry has received 177 million dollars in loans from the Export-Import Bank, at interest generally in the region of 5.6%, and with periods of amortization which range between five years as a minimum and fifteen years as a maximum, a period of twelve years being the most common.

Loans have also been received from the Kreditanstalt für Wiederaufbau, from the First National City Bank and from the Morgan Guaranty Trust, among others(10).

In all events, it would not have been possible to put the National Iron and Steel Programme into practice had it not been for the special financial system afforded by Concerted Action. As an example, we might say that this system is very similar to the financial assistance received by the iron and steel sector in France under the Plan Professionnel, although the cost involved in the latter case is much less.

Results

The introduction of this iron and steel policy has resulted in the fact that 85% of the Spanish iron and steel sector is now devoting itself to achieving the

(9) The case is similar to that of Italy, after extensive development of her iron and steel industry. According to Professor Manuelli, the Italian iron and steel industry is withstanding high financial costs due to the high volume of investments made.

(10) Luis Guereca: "La financiación de la industria Siderúrgica" (Financing the Iron and Steel Industry); "Economía Industrial"; No. 27; March 1966.

objectives set out for 1972, by which it is hoped to reduce imports to products of special types and specifications which are to be manufactured at a later stage, the volume of which will be insignificant compared with import figures over the last few years, and of those resulting should the sector not develop in the way envisaged.

The effectiveness of this policy has enabled the import deficit of iron and steel products to be reduced from 1965, the percentage of which, in relation to home consumption, has developed in the following way:

Year	% of imports in respect to home consumption
1964	29
1965	48
1966	37.5
1967	29.5

Bearing in mind the fact that steel consumption per head doubled from 1950 to 1959 and more than tripled between 1959 and 1967, the significance of the development planned in the Spanish iron and steel industry can clearly be seen. Production capacity rose from 3.5 million tons of steel in 1964 to 5.9 million in 1967, a capacity of 10.2 million tons being expected by 1971, production reaching 9.2 million tons (at 90% output capacity), consumption of 9.8 million and imports in the region of 0.6 million tons.

The import coefficient will have been reduced to 7% of home consumption.

The expected capacity of steel production will be adapted gradually to the most suitable economic and technical systems. In the following table the development achieved in the distribution of steel production by processes can be seen between 1964 and 1967, and that envisaged for 1971:

	PERCENTAGE BREAKDOWN OF CRUDE STEEL PRODUCTION BY PROCESSES		
Process	1964	1967	1971
L. D.	10.6	19.9	54.4
Electric	26.6	34.4	28.2
Siemens	56.8	41.9	14.8
Bessemer	6.0	3.8	2.6
	100.0	100.0	100.0

Production pattern will roughly be as follows: Three integrated plants, with a capacity between 2 and 4 million tons each; a dozen non-integrated companies with capacities ranging between 100,000 and 500,000 tons; and about ten special steels firms with varying capacities, from 50,000 to 400,000 tons.

Then there will be about a hundred smaller firms, with very variable capacities, the majority only having rolling processes, which will tend to group together or to enlarge their processes to sizes more in accordance with economies of scale.

The location of iron and steel activity will follow the present pattern in integrated plants, near ports and consumer centres (Asturias and Vizcaya principally). In the non-integrated plants, the capacities of those directed towards consumer centres will grow and the same applies to those dealing in special steels (Cataluna, Guipuzcoa and Madrid mainly).

For the 1970's, it is hoped to plan an iron and steel policy which, broadly speaking will tend to exhaust firstly development possibilities through the full co-ordination of existing plants, regarding the utilization of its potential capacity for expansion, as during the period covered by the II Economic and social Development Plan (1968-71) studies undertaken will be completed for the location and planning of a fourth integrated plant, which may well be built at the beginning of the 1970's.

GENERAL CONCLUSIONS ON THE FINANCING OF THE IRON AND STEEL INDUSTRY IN DEVELOPING COUNTRIES

From the foregoing, on the way in which a developing country can establish or develop its iron and steel industry, although not without great efforts, and foregoing other alternative investments, conclusions of a general nature can be drawn.

1. Advisability as to whether or not to start iron and steel production.

In a developing country which has no iron and steel production, it should possess at least one of the three following requisites before deciding to start production:

a) Rich iron ore resources and cokable coal, especially the former.

b) A sufficiently large market to apply modern techniques and the economic

dimensions required by them.

c) When it concerns a country with a structurally deficient balance of trade, without economic sectors with comparative export advantages.

A. If a country has rich iron ore resources, easily pelletized, development can begin as an independent sector devoted to export. Exports will have to be of concentrated and pelletized minerals, which can be economically applied in blast furnaces. (The case of Brazil, Venezuela and other countries).

In these conditions it is advisable to start steel production on the basis of an integrated plant. The size of the main initial installations will have to be such that they have at least two modern blast furnaces. This will enable it to produce some 2 million tons of pig iron per annum with modern techniques. This will later require an L. D. melting shop and a roughing train of adequate capacity.

From here, the finishing plant will depend on the home market. If consumption is below 2.5 million tons of steel, part of its production should be devoted to the export market. Assuming that its financial resources are limited, it appears advisable that its rolling plant be directed towards the home market, in as far as products and volume is concerned. The rest of production of the previous stage, semis should be directed to exports.

In this way, although the introduction of the integrated process does not prove advisable due to the reduced size of the market, its mineral wealth makes the introduction of the integrated process advisable.

If, besides mineral resources, it has a home market which exceeds 2.5 million tons of steel, the integral process is advisable with competitive dimensions.

The financial aspect can be solved to a great extent with the export of the rich minerals. If this were not so, the solution set out further on would be applicable regarding financing.

B. If a developing country lacks the mining base for the iron and steel industry (the case of Italy, Japan and other countries at the beginning of their industrialization), their decision will have to be based exclusively in accordance with the home market. Furthermore, given the greater investment costs of initial basic processes and the present world output surplus, the introduction

of an integrated plant does not appear advisable. The most suitable is to start with a non-integrated plant, from steel and with rolling mills adapted to its market. The best procedure seems to be that of electric furnaces, with profitable dimensions. The integral process can be profitably taken up when it has a wider market at a later date. In this way, investment needs are reduced as also are financing difficulties.

C. This situation in which it may be advisable to start or develop iron and steel activity occurs when a developing country, due to its own development process, is faced with a structurally deficient balance of payments.

In such a case, the constant burden of importing iron and steel products can be eliminated with investment effort, substituting the import of iron and steel products by that of plant for iron and steel production.

2. The saving of investments

The financial problem, always latent in all iron and steel development can be reduced through a saving of investments. Apart from the principles mentioned for developing plant beginning with the rolling mills, there are formulae for saving investments, through co-operation between developing countries which are geographically bounding.

Such is the case of complementing iron and steel plant between two countries, by means of a toll agreement. Closer co-operation can be the establishing of an iron and steel plant in common, in one of the two or three countries, as agreed, located in a strategic position.

Lastly, there is also the wider formula of iron and steel development on a regional basis between developing countries, by dividing work, plant and investments.

All agreements directed through these channels will lessen the financial problem in each of the countries.

3. Financing iron and steel development.

Despite the saving in investments which may be achieved, the financing problem of investments will remain to a greater or lesser degree, once it has been decided to start or develop the iron and steel sector.

Due to the large capital expenditure required by the sector, all countries

are faced with the problem of financing, but to a more serious degree for the developing countries, since they generally lack a well organized and sufficiently large capital market.

According to scale economies now in force in iron and steel plants, integral-type installations like those already described require investments amounting to over 700 million dollars. This involves, with market interest between 6% and 7%, an annual expenditure of between 60 and 70 million dollars. Thus in a newly created plant, the financial cost (depreciation and interests) can be higher than the cost of raw materials and is in the range of a third of invoicing costs(11). From this, the importance of the financial aspect can be seen in all iron and steel development.

For this reason, it seems inevitable that the State has to pay growing attention to the development of the iron and steel industry. This varies from complete intervention, by nationalizing the industry, to mere support.

In many countries, funds have been granted by the State, financing at low rates of interest and, sometimes, the funds not being recovered.

In Spain both methods are used. There is a nationalized concern which in 1972 will have a production of 4 million tons approximately, and whose output is planned within the National Iron and Steel Programme, with the other projects of companies forming Combined Action.

On the other hand, State intervention in the iron and steel sector has been directed towards drawing up the National Iron and Steel Programme and financial and taxation support to companies who undertake to abide by it.

We believe that it is also advisable that developing countries take advantage of the opportunities offered by foreign financing, either through international organizations such as the World Bank and the International Finance Corporation, or through state financial organizations and private finance institutions.

As previously mentioned, Spain has made use of these foreign finance sources, as have other countries, like Venezuela, Chile, Mexico, Argentina, Brazil, India, etc.

(11) Professor Manuelli: "A guidance to iron and steel development and the problems of competition" Madrid 1968.

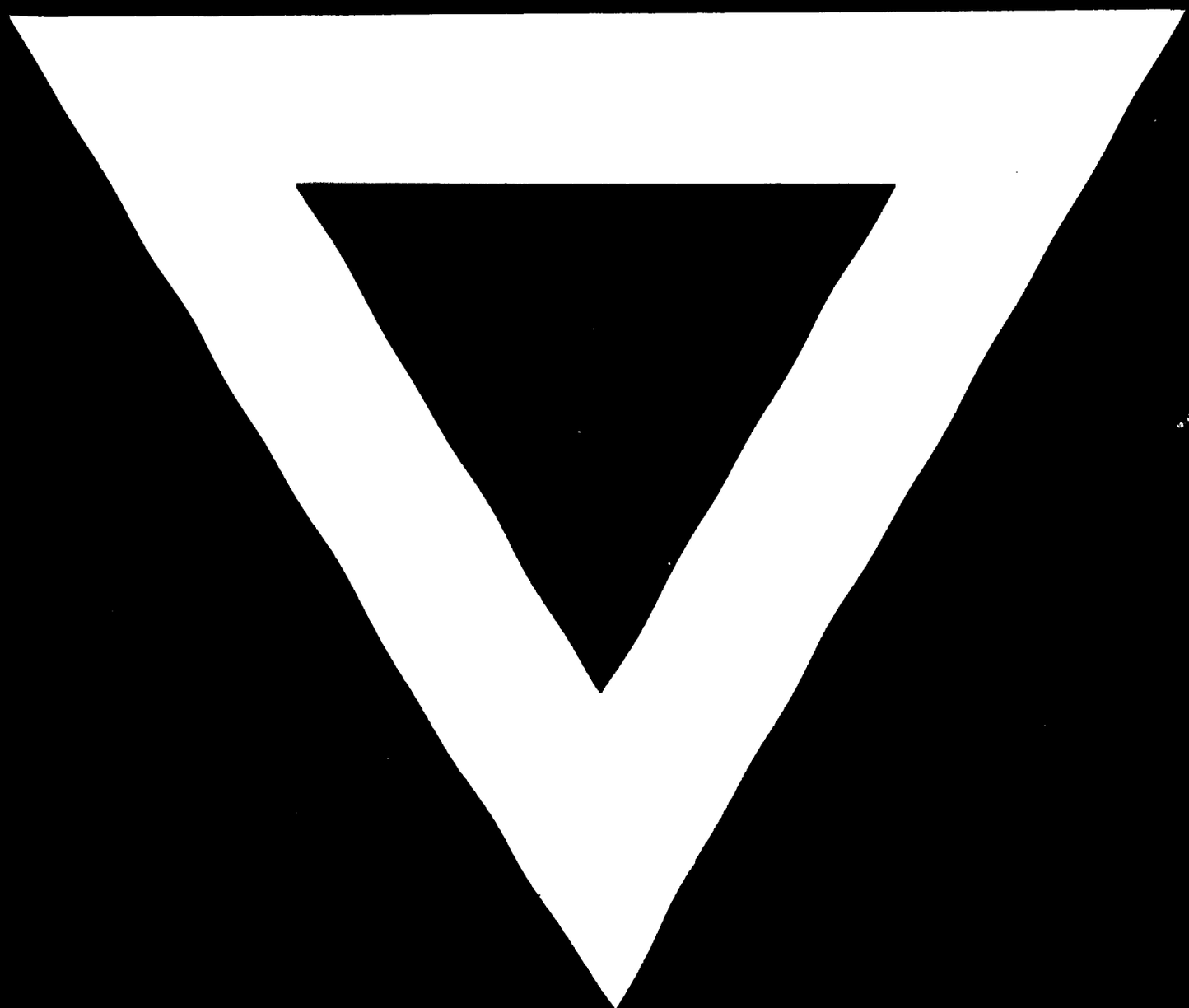
Another aspect which also has a decisive influence in the financing and attracting funds, are tax incentives. As already said, in Spain tax exemption and systems of accelerated depreciation have been used. But there are other forms such as finding the average profits of several financial years for taxation purposes on company profits, the system of computing depreciation at replacement cost, establishing investment funds exempt from tax, etc.

Apart from financial aid, developing countries should give great emphasis to tax incentives to investment in iron and steel development.

To conclude, I might say that I have thought that an account of Spanish experience could be of interest to this Symposium, in particular the aspect concerning the way in which the programming of iron and steel development has been made financially possible.

I do not claim that the policy followed in Spain constitutes a formula which can be applied in all developing countries, since on the one hand we have experienced great difficulty in putting it into practice, and some errors which must be eradicated, and which is being done.

However, lacking sufficient financial potentiality of companies and the security market, it constitutes a starting point which, adapted to the particular circumstances of each country and complemented by a certain amount of outside finance, it can make practicable the development of the iron and steel industry which would otherwise be virtually impossible.



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