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INDUSTRIAL CO-OPERATION
EVOLUTION OF THE CONTEXT
PROBLEMS AND APPROACHES*

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CONTENTS

PREFACE

During the last decade, it was generally accepted that the industrial development of the developing countries could be promoted by "aid" received from developed market-economy countries and countries with centrally planned economies. In view of the failure of this method - in terms of constant prices, government aid by developed marked-economy countries to developing countries has declined over a long period of time - another approach is now being advocated, namely industrial co-operation.

The concept of mutual advantage is inherent in the idea of co-operation. The inhabitants of developed market-economy countries should desire the industrialization of the developing countries no longer for reasons of universal justice but for reasons of long-term enlightened self-interest.

This is a new idea which is far from being unanimously accepted in the developed market-economy countries. The world economic crisis has also exacerbated some fears felt about the industrialization of the third world.

These misgivings are most often centred on the fact that the industrialization of the third world and the resulting exports of industrial products to the developed market-economy countries constitute an apparent threat to industrial employment in these countries. These short-term fears need to be viewed in perspective in the framework of a more long-term analysis. This analysis should take into account, inter alia, the following:

- The expansion of the market. The improvement in standard of living which will result from the industrialization of the third world will create new world markets for many products. Already manufacturers of capital goods and firms of consulting engineers in developed market-economy countries view these efforts with a favourable eye since a process of expanded industrialization creates outlets for their products or services.
- The emergence, as a result of negotiations, of a new international division of labour better taking into account the specific characteristics of each country. On the basis of more egalitarian international relations, the loss of jobs in industry in the developed market-economy countries could be compensated for by the creation of non-industrial jobs (services, including engineering).

In this paper, it is intended to sketch the territory on which industrial co-operation will be growing up, pinpoint some of the problems encountered, describe rapid developments in this field and suggest possible solutions.

The paper is organized as follows:

INTRODUCTION:	Mutual interests: the developing countries as markets
CHAPTER 1:	Involvement by the developed market-economy countries in the industrialization of the developing countries - current situation and trends
CHAPTER 2:	Transfer of technology - positions and debates
CHAPTER 3:	Contractual developments
CHAPTER 4:	Difficulties relating to the transfer. Potential problem areas. Positions and approaches
CONCLUSION:	Industrial co-operation - the protagonists and their role.

INTRODUCTION

MUTUAL INTERESTS: THE DEVELOPING COUNTRIES AS MARKETS

1.1 For some years, much of the literature on the various aspects of what is referred to as a "new international economic order" has tended to stress the major demands of the developing countries.

- Raw materials: Ensuring remunerative prices and guaranteeing price stability (recent negotiations in UNCTAD).
- Opening of markets of industrialized countries to manufactured products from developing countries (effective implementation and expansion of a generalized system of preferences).
- Transfer of technology (discussion of a code of conduct proposed by the Group of 77).
- Indebtedness of the developing countries (discussion in UNCTAD of rules for alleviating the most serious consequences of growing indebtedness, etc.).

This literature gives the impression that the surge of demands from the developing regions of the world is unsettling an existing industrialized world because a broadly favourable response would not correspond to its evident interests.

1.2 In fact, the situation is much less clear-cut. The demands put forward by the developing countries do of course correspond to the requirements of a process of development and industrialization, but it must not be forgotten that the very process of development and industrialization which generates demands is constantly opening up substantial, and sometimes even vital, markets for the industry of the developed countries. The strength of the demands in one direction must not conceal the existence of mutual interest.

	Size of the market a/		Intensity of the market b/		Market growth c/ (over 5 years)	
	1974	1975	1974	1975	1969/74	1970/75
Western Europe	24.84	23.79	2.15	2.04	25.98	18.94
Including: European Economic Community (EEC)	(18.24)	(17.30)	(2.54)	(2.39)	(22.48)	(14.50)
European Free Trade Association (EFTA)	(3.01)	(2.85)	(2.58)	(2.40)	(26.85)	(18.33)
Eastern Europe	14.37	16.76	1.20	1.36	35.69	42.28
Middle East	2.03	2.05	0.47	0.46	101.78	76.68
Africa	4.13	4.77	0.23	0.33	69.03	57.80
Asia (excluding China)	10.07	19.37	0.36	0.34	50.59	31.38
Oceania	1.32	1.26	3.16	2.73	28.64	22.69
North America	26.42	24.71	4.08	3.78	21.31	16.91
Latin America	6.77	7.30	0.59	0.68	48.55	45.13
Whole world	100.00	100.00	1.00	1.00	29.61	24.55
Including:						
United States	24.10	22.43	4.13	3.81	20.11	15.64
USSR	9.69	11.90	1.15	1.36	38.93	46.05
Japan	7.88	7.46	2.36	2.22	47.56	30.67
Federal Republic of Germany	5.01	4.64	2.94	2.70	20.99	13.38
United Kingdom	3.87	3.72	2.41	2.31	12.33	10.27
France	3.71	3.60	2.61	2.50	24.23	18.48
Italy	3.45	3.26	2.22	2.03	38.75	19.55
Brazil	2.51	2.47	0.70	0.69	67.86	66.29
Canada	2.33	2.28	3.66	3.51	32.39	30.05
Spain	1.87	1.82	1.76	1.74	51.35	47.71

Sources: Business International, 21 February 1977, p. 22.

Business Europe, 4 February 1977, p. 35.

a/ Size of the market: Indicates the relative size of each national or regional market measured as a percentage of the total world market. These indices are calculated on the basis of population, private consumption, consumption of steel and electricity, cement production and the number of telephones, private automobiles and television sets used.

b/ Intensity of the market: Measures the "wealth" of the market or the degree of unit purchasing capacity which it represents. The same indices are used; double weighting is applied to private consumption and the owning of private vehicles. The relative size of the urban population is also taken into account.

c/ Market growth: Is indicated by an average of the growth rates of the various indicators listed above.

1.2.1 The developing countries already offer the industries in industries in developed countries expanding markets, as is shown by the data on size, intensity and growth of the various markets.

It can be seen from these data that, in the space of one year, Western Europe and North America have lost nearly three points (market size) to the profit of Eastern Europe on the one hand and African and Latin America on the other.

The same shifts are taking place with regard to market intensity, with the bracket tending to shrink to the benefit of the same regions. On the other hand, the shift is emphasized with regard to the growth rate of markets, with those in the Middle East, Africa, Latin America and Eastern Europe showing growth rates two, three or four times as high as those of Western Europe or North America, and the growth rate for Brazil being six times that for the United Kingdom.

1.2.2 The intensity of these "shifts" is of course linked to the exceptionally rapid development of the petroleum-based economies and certain semi-industrialized economies such as those of Brazil and the Republic of Korea. This phenomenon is reflected in market intensity measured as follows:

World	1.00[a/]
Kuwait	13.96
Israel	7.45
Saudi Arabia	5.75
Libyan Arab Jamahiriya	5.73
Lebanon	4.29
South Africa	4.39
Gabon	3.29
Iran	1.69
Iraq	1.43
Liberia	1.47

All the same, many developing countries, including countries without oil resources as well as countries with oil resources, experienced very high growth rates between 1970 and 1975.

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a/ For market intensity, see the preceding table.

First by:

Libyan Arab Jamahiriya	84 a/
Gabon	81
Saudi Arabia	81
Iran	68
Kuwait	68
Nigeria	62

But also:

Yemen	66
Upper Volta	66
Zambia	66
Mauritius	62
Niger	62
Zaire	62

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a/ For the growth rate, see the table on page 7.

1.2.3. The market afforded by the developing countries is particularly wide open to imports of capital goods.

The imports of capital goods for the world as a whole (in current dollars) doubled between 1972 and 1975. The increases were:

2-2.2 for Latin America,
2.2-2.3 for the Far East,
2.6-2.8 for Africa,
3.7-4.8 for the Middle East.

Projections prepared on the basis of hypotheses established by UNCTAD indicate that net imports of capital goods by the developing countries from developed countries will increase by a factor of 7.5 over a period of 30 years.

In this connexion, it is of some interest to point out that the growth rate for purchases of complete plants appears (on the basis of data for 1970-1976 from French and Japanese statistics) to be twice as high as the growth rate for purchases of capital goods.

These data reflect the growth of the share accounted for by purchases of capital goods in total imports of the main developing countries. For example:

- In Pakistan, the percentage accounted for by purchases of capital goods in total imports increased from

  29.7 in 1973 to

  38.0 in 1977.

- In Brazil, purchases of capital goods accounted for 29 per cent of total imports in 1976 and should amount to 45 per cent, or more than $US 17 billion, in 1985.1/

By 1990, total purchases of capital goods by the developing countries should amount to $121 billion (30 per cent of total imports of capital goods), as compared to $24 billion in 1970 (20 per cent).2/

1.2.4. The developed countries are fully aware of the importance and even the essential nature of the market afforded by the developing countries for their industry and economy in general.

1.2.4.1. In the United States, more and more of those responsible for international trade are becoming convinced that the developing countries afford potential rapid-growth markets for sales of American products. In this connexion, the Department of Commerce recommends accelerated implementation of a programme of promotion of exports to the developing countries. In this context,3/ Eximbank is preparing to make available credits (low-interest long-term loans) and guarantees in respect of exports to developing countries, while there is a question of limiting the guarantee provided by the Overseas Private Investment Corporation (OPIC) to transactions carried out in developing countries where per capita income is less than $US 1,000.

1.2.4.2. The data available on recent developments in the French economy show the impact of sales to developing countries on French industry and in particular on certain branches.

- Exports to the developing countries accounted for 18 per cent of total exports in 1973; they accounted for 25 per cent in 1976.
- Exports of capital goods to the developing countries in 1974 accounted for 29 per cent of total French exports in this category; in 1976, they accounted for 40 per cent.

1/ Source: World Bank.

2/ Source: Wassily Leontief, The Future of the World Economy, Oxford University Press, New York, 1977.

3/ Business International, 1977, p. 252, "OPIC, Exim to reflect new emphasis on LDC's in US trade policy".

Among French industrial products, those most directly concerned by the markets afforded by developing countries are:

1/	Share of total exports accounted for by exports to developing countries (%)	Share of production accounted for by exports to developing countries (%)
Steel pipe	50	26
Metal structural parts	55	32
High-voltage electrical equipment	65	28
Electronics equipment	55	8
Commercial motor vehicles	60	18
Railway rolling-stock	65	30

This situation has direct repercussions on jobs in industry:

2/	Total jobs in industry	Theoretical jobs corresponding to trade with the third world	
		Exports	Imports
1970	5,445,000	234,000 (4.3%)	74,000 (1.3%)
1976	5,462,000	363,000 (6.6%)	93,000 (1.7%)
Whole period, 1970-1976	+ 17,000	+ 129,000	+ 19,000

However, the jobs in industry eliminated or threatened by imports must also be taken into account.

The growth in markets supported by the developing countries has in recent years provided French industry with room for expansion.

Similar remarks could be made concerning the industry and economy of the Federal Republic of Germany, which sent the developing countries 13.63 per cent of its total exports in 1970, 12.94 per cent in 1972, 18.42 per cent in 1975 and 17.80 per cent in 1976.3/

1/ Source: Based on the work of INSEE (Institut national de la statistique et des études économiques).

2/ Source: SETEF, November 1977.

3/ Source: Wirtschaft und Statistik.

German exports have grown at the following annual rates (in percentages per annum):

1/	1971-1972	1972-1973	1973-1974	1974-1975	1975-1976
Total exports	9.6	19.8	29.2	-3.9	15.6
Exports to developing countries	4.0	20.7	56.4	13.5	14.4

Similar movements could be recorded for most industrialized countries.

These findings converge, pointing up the importance of the developing countries not only for industry, but also for banks and many providers of services in the industrialized countries.

This fact provides a solid basis for the relations developing between the industrialized countries and the developing countries. There are closely inter-related mutual interests which are giving rise to confrontations on a large scale but which promise to provide a foundation for future co-operation.

1/ Source: Wirtschaft and Statistik.

CHAPTER I

INTERVENTION BY DEVELOPED MARKET-ECONOMY COUNTRIES IN THE INDUSTRIALIZATION OF THE DEVELOPING COUNTRIES

CURRENT SITUATION AND TRENDS

Before making any analysis of industrial co-operation, it appeared necessary to clarify the way in which the developed market-economy countries have in recent years intervened in the industrialization process in developing countries. This intervention is changing, and many forms co-exist. In this chapter, which mainly analyses the problems of financing industrialization, it can be seen that the practice of direct investment (a branch in a developing country) is a form which is declining in relative importance, to the benefit of other forms of involvement in which participation in the capital of the firm established in the developing country may descend to zero per cent. Lastly, other protagonists are intervening on a more and more massive scale in the developing countries, namely the banks. Whether international banks are concerned (such as those in the World Bank Group and regional development banks) or private banks (especially American, British, German and Japanese banks), the developing countries are finding in this system financing possibilities which sometimes tend to take the place of direct investments.

Thus, we see a trend towards a steady decrease in the use by developing countries of the establishment of foreign branch offices - whose activities are poorly supervised - and towards a steady increase in credits from a variety of sources to promote domestic industrial enterprises,[1/] which can be better integrated into an industrialization strategy.

The real circumstances are more complex than this brief outline, and this chapter endeavours to describe them in more detail.

1/ Often making use of imported techniques - to be discussed later.

1. Foreign investment in the developing countries

The measurement of direct investment going abroad is often unsatisfactory. Many authors also point out the difficulty of gaining a good knowledge of flows of capital from one region of the world to another:[1/]

- Balances of payments indicate net balances and inflows or outflows from the point of view of the country concerned, and not flows from or to individual countries or regions;
- It is impossible to take into account all the countries in the world and, at the same time, very difficult to make region-by-region aggregations;
- The volume of "errors and omissions" may be substantial (e.g. $5 billion in the United States of America); they cover part of the capital movements;
- Accounting for short-term capital, while indispensable, is a source of fresh errors;
- The existence of go-betweens such as non-monetary international agencies (e.g. IBRD) creates asymmetries between the nature of outflows and that of inflows;
- The partial reinvestment of profits by multinational firms, the difficulty of distinguishing amortization from net investment and the possibility for multinational firms to mobilize their profits in a country which is not necessarily the one in which the profit was produced all constitute obstacles to a precise statistical reflection of direct investment.

Although the data available must be treated with caution, they agree and oonverge sufficiently to make it possible to reach conclusions regarding trends in direct international investment by the industrialized countries.

The following phenomena emerge:

(1) A relative stagnation of direct investment in the developing countries, accompanied by a very marked concentration of flows in a few countries;

(2) An increased interest in direct investments in the industrialized countries.

1/ G. Destanne de Bernis, Relations Internationales, Dalloz, 1977.

1.1. General data

According to the most recent comparable data (1974), cumulative international investment in the world, broken down by country of origin, amounted to $110 billion for the United States, $32 billion for the United Kingdom, $15 billion for the Federal Republic of Germany, $12.7 billion for Japan, and $11.6 billion for France. As will be seen below, these figures have evolved in very different ways since 1974.

The cumulative amount of direct investment in the developing countries amounted at the end of 1970 to $42.3 billion, as compared to $58.2 billion at the end of 1973 and $83.5 billion at the end of 1976. This is a substantial growth since it reflects a doubling in six years, but nonetheless is accompanied by a stagnation, or even a decrease in flows of direct private investment in the developing countries, as is confirmed by the following table:

Investment flows
(in millions of dollars)

From:	1970	1973	1974	1975	1976
EEC	1,253	2,171	2,076	2,364	2,273
United States	1,742	2,887	3,778	7,077	3,275
Japan	261	1,301	705	222	1,084

Source: OECD

While in 1975, there appeared to be an exceptionally large increase,[1] it must be noted that this development did not continue in 1976, nor, as will be seen, in 1977. In fact, the size of the fluctuation observed in 1975 is attributable to United States investments alone. In 1975, there was a considerable increase in profits re-invested by the subsidiaries of oil companies, accompanied by a substantial capital flow.[2] These two movements account for $2.8 billion of direct investment in 1975

1/ Cf. the report of the Chairman of the OECD Development Assistance Committee (DAC).

2/ Survey of Current Business: US direct investment abroad in 1976, August 1977.

The figures for 1976 fit better into the previous trend towards a decline in flows from the countries of the European Community and the United States, contrasting with the growth in Japanese investments - a growth which must, however, be seen in its context.

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A more detailed analysis of trends in the direct investments of four countries, namely the United States, the Federal Republic of Germany, France and Japan, bear out these general conclusions. The enterprises of these countries were responsible for more than 70 per cent of international investment in the developing countries in 1976. More generally, these four countries plus the United Kingdom were involved in 82.5 per cent of investment flows and 88 per cent of portfolio investments in 1970 and 78 per cent of investment flows and 77 per cent of portfolio investments in 1976.

1.2 United States investment

1.2.1. The United States is by far the largest investor abroad. Its cumulative holdings amounted to around $75 billion in 1970, $110 billion in 1974, $124 billion in 1975 and $137 billion at the end of 1976, with the following distribution between the developing countries and the industrialized countries (in percentages):

	Cumulative			Increase		
	1970	1975	1976	1970	1975	1976
Industrialized countries	69	73	74	70	56	78
Developing countries	26	21	21	21	46	22
(Not allocated)	5	6	5	9	2	0
	100	100	100	100	100	100

A sharp decline in these increases in the developing countries owing to a drop in oil investments, accompanied by stagnation or even recession in other activities, can be seen.

Direct investment in the developing countries
(millions of dollars)

	1970	1971	1972	1973	1974	1975	1976
Petroleum	612	383	349	-1,304	-6,464	2,909	363
Manufacturing industry	430	561	729	1,053	1,380	1,259	904
Other sectors	523	382	476	880	1,992	2,242	1,562

Source: Survey of Current Business

Direct investment has two main components, namely capital flows and reinvested profits. Both have evolved along similar lines:

	1970	1974	1975	1976
Flows	1.1	2.0	4.0 (3.7)	1.8 (1.6)
Reinvested profits	0.6	1.7	3.2 (3.0)	1.2 (1.2)

Source: OECD/DAC

Source of figures in brackets: United States Department of Commerce, Bureau of Economic Analysis.

1.2.2. This over-all finding needs to be qualified in terms of the developing countries concerned. United States investments continue to be heavily concentrated in one region, and the general decline is linked with a distinct increase in American commitments in certain countries.

For the manufacturing industries sector alone, the total amount of cumulative investments in the developing countries amounted to $11.3 billion (at the end of 1976).

- Of this total, 81.4 per cent was located in Latin America, and of that amount 52.1 per cent went to two countries, namely Brazil and Mexico.
- 14.7 per cent was distributed among several Asian and Pacific countries (with 6 per cent concentrated in the Philippines, India and Indonesia).

Between 1975 and 1976, the increase in direct investment going into these activities amounted to $904 million. Brazil alone received 55 per cent of these new resources.[1/]

1.3 Investment by the Federal Republic of Germany

1.3.1. Redeployment abroad by the Federal Republic of Germany accelerated beginning in 1973. The constant revaluation of the mark damaged the competitiveness of some exports, while facilitating investment by the Federal Republic of Germany abroad. These investments exceeded foreign investments in the Federal Republic of Germany in 1977, when DM 49.6 billion were invested abroad, while cumulative foreign holdings in the Federal Republic amounted to DM 47 billion.

Investment by the Federal Republic of Germany abroad continues to be strongly concentrated in the industrialized countries.

1/ Survey of Current Business: US direct investment abroad in 1976, August 1977.

Geographical distribution

Cumulative amounts since 1952, in millions of DM

	1967	%	1969	%	1973	%	1975	%	1977 (1st ½ year)	%
Developed countries	8,384	71.2	12,234	69.4	22,585	70.1	29,710	70.8	34,754	70.0
Developing countries	3,473	28.8	5,384	30.6	9,651	29.9	12,282	29.2	14,832	29.8
Including: Europe	636	5.2	929	5.2	2,726	8.4	3,344	7.9	3,870	7.8
	12,057	100	17,718	100	32,236	100	41,992	100	49,586	100

Source: IFO

Federal Minister for Economic Affairs

Between 1969 and 1977, the share accounted for by the developing countries changed very little, and even declined, if the following are not taken into account:

- Investments directed towards the southern European countries (especially Spain, Greece and Turkey);
- Investments in the Canary Islands[1/] (included with Africa for accounting purposes)

The share accounted for by the developing countries, as corrected, thus declined from 23.6 per cent (1969) to 20.4 per cent (June 1977).

1.3.2. The sectoral distribution of direct investment by the Federal Republic of Germany in the developing countries shows the size of the share going to manufacturing industry. This coincides with the trend observed for commitments by the Federal Republic of Germany in the industrialized countries.

1/ Non-existent in 1969, DM 703 million in 1973 and DM 813 million in 1977, or 1.6 per cent of the world total.

Sectoral distribution (end of June 1977)

		(Percentages)	
Agriculture	99	0.7	(0.7)
Industry	10,428	70.3	(76.9)
Service	4,202	28.3	(20.8)
Miscellaneous	103	0.7	(1.6)
	14,832	100	(100)

Note: Figures between brackets indicate distribution in the industrialized countries.

The consumer goods industries are little represented, and enterprises of the Federal Republic of Germany do not assign priority to moving into countries with low wages. "Low consumer purchasing power, the lack of advanced infrastructure, shortages of skilled labor, low productivity levels, high raw material costs and bureaucratic red tape tend to offset the attraction of lower wages ..."[1/]

It is interesting to note the evolution of this sectoral distribution of investment by the Federal Republic of Germany abroad. The share accounted for by services (trade, banking, insurance, tourism) is tending to grow (19 per cent in 1969, as compared with around 30 per cent in 1977) to the detriment of industrial investments.

1.3.3. This stagnation in respect of investment by the Federal Republic of Germany in the developing countries as a whole contrasts with the growing commitment of enterprises based in the Federal Republic in countries such as Brazil, in which more than one quarter of the Federal Republic's investments in the third world (or more than one third if the cumulative amounts for southern Europe and the Canary Island are discounted)

1/ Business International, "German firms stepping up foreign investment", 6 May 1977.

is concentrated. More generally, the regional structure of direct investment by the Federal Republic of Germany in the developing countries is tending to shift towards an increased share for the Latin American countries (46 per cent of the cumulative totals in 1977, as compared with 42 per cent in 1973), a decreasing share in Africa (15.6 per cent in 1977, as compared with 18.7 per cent in 1973)[1] and stabilization in Asia at around 12 per cent (10 per cent in 1973).

Investments in the poorest countries are very limited. Recognition of this fact led the Federal Government to develop agreements with a number of countries. Negotiations had been completed by the end of 1977 with a total of 37 countries and were still going on with Yugoslavia, Portugal, Romania, Malawi, Barbados and Paraguay. To encourage commitments by the Federal Republic's enterprises, the State intends, through these agreements, to provide them with guarantees (above all of a political nature).

In addition, the German Development Company (DEG), a Government agency whose task is to promote investment by the Federal Republic abroad (through loans and equity participation), is assigning priority in its operations to the countries of Africa and Asia. The assistance concerned is substantial. At the end of financial year 1976, the assistance provided by DEG amounted to a total of DM 338 million, and it had played a part in the realization of investments amounting to DM 1.9 billion.

1.4. French investment

The measurement of French investment abroad is unsatisfactory. The only data available come from analysis of capital movements registered by the Bank of France. Only direct investments by French enterprises and liquidations are recorded.

Flows of direct investment by French enterprises in the third world account for an annual amount of around $240 million (FF 1.5-2 billion between 1973 and 1975). This is a small contribution compared to those of other countries. It is one quarter of that of Japan, one third of that of the Federal Republic of Germany and equal to that of the Netherlands. Commitments by French enterprises in the developing countries have stagnated since 1970, as is shown by the following table:

1/ If the Canary Islands are disregarded, the figures are 10.2 per cent and 11.4 per cent respectively.

	1970	1973	1975	1976
(millions of dollars)	235	287	274	245

This stagnation goes hand-in-hand with growing involvement in the industrialized countries. The developing countries accounted for 63 per cent of the investment flow in 1970, and 20 per cent in 1976.

Nearly half of these investments relate to the petroleum sector, followed by the metals sector, then chemicals with a slightly lower figure, the mechanical engineering industry (motor vehicles), the food industry, the electrical and electronics industry and textiles.[1/]

It must also be pointed out that this lack of dynamism is accompanied by a decline in the share of investments going into the industrial sector (33 per cent in 1973, 24 per cent in 1974 and 20 per cent in 1975), with a corresponding increase in investments in services. Investment in banks and commerce are developing steadily.

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The flows are indicative only of trends. The growth of subsidiaries of existing estblishments may derive from alternative resources such as reinvestment of profits, calls for funds on international financial markets and local funds.

1.5. Japanese investment

1.5.1. It was pointed out above that Japanese investment in the developing countries is increasing. This development should be viewed in the context of the more general shift in Japanese direct foreign investment, which until recent years accounted for only a small part of the world total, but is rapidly growing. The cumulative amount of such investment exceeded the

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1/ Tunisia is a special case. Of 42 enterprises set up under the law of April 1972 on exporting industries, 29 are in the leather-textile branch. However, total investments remain small: 60 million francs during the period 1972-1976.

cumulative amounts for France in 1974, with $12.7 billion ($11.6 billion for France), and has reached the level of $19.4 billion (as at 31 March 1977). The Ministry of International Trade and Industry (MITI) forecasts a sustained growth, up to $40 billion by 1980 and $80 billion by 1985.

Japanese investment abroad has two features which deserve special mention. It is oriented towards the developing countries (more than 55 per cent) and it is not accounted for by large firms only; small and medium-sized enterprises account for around 40 per cent.[1/] It should be pointed out that Japanese investment abroad is based on a number of criteria. The wealth of the market and the political stability of the country are factors which play just as large a part as the cost of labour.

The developing countries remain the field of preference for Japanese enterprises, but there is none the less stagnation, if not a decline, in Japanese investment in the third world, as compared with total Japanese investment world-wide.

Cumulative Japanese investment in the developing countries
(millions of dollars and percentages)

1974	1976	1977
5,677	8,144	10,792
57.2%	52.9%	55.7%

Source: Ministry of International Trade and Industry (MITI).
Bank of Japan.

The same trend can be seen for Japan as for the other major investors - namely, the share accounted for by industrial investments in the developing countries is tending to decline, while that accounted for by services and commerce is increasing.

1/ One per cent of the enterprises of the Federal Republic of Germany are responsible for 80 per cent of the investment abroad; in the case of the United States, it is almost exclusively major firms that invest abroad.

- In 1974, 16.2 per cent of cumulative investment in the countries of Latin America, Asia, the Middle East and Africa related to commerce, banking, insurance and miscellaneous sectors (including tourism);
- In 1976, the figure for the same investment was 19.2 per cent;
- In 1977, it was 23 per cent.

MITI distinguishes two types of investment (apart from those in services). The shift in the respective share of each in the total amount of cumulative investment in the developing countries was as follows:

- That related to the search for raw materials (agriculture, mining, forestry): 41.7 per cent (1974); 36.2 per cent (1976); 37.8 per cent (1977);
- That related to the market (local or export): 40.6 per cent (1974); 43.6 per cent (1976); 38.1 per cent (1977).

1.5.2. This stagnation is accompanied by a redeployment of Japan's involvement abroad. It appears[1/] that Japan will maintain its position in the ASEAN countries, where most of the investments were made between 1960 and 1973. The enterprises are now turning towards other regions, and in particular towards Europe, Latin America and the United States.

Cumulative Japanese investment, by region

(millions of dollars)

	1974	%	1976	%	1977	%
South and East Asia	2,420	24.3	4,181	27.1	5,464	28.2
Latin America	1,807	18.2	2,877	18.7	3,301	17.0
Middle East	1,219	12.2	580	3.8	1,254	6.5
Africa	231	2.3	566	3.3	773	4.0
Total, developing countries		57		52.9		56.7

Source: MITI.

1/ According to a survey of 234 Japanese firms made by the Japanese Committee on International Economic Policies in 1976, and quoted by Business International, 17 September 1976.

This new approach is due to the decline in the earlier disparity between wages in Japan and those in other industrialized countries, and also to a resurgent protectionism. As a study of the Bank of Japan indicates, "an increasing number of Japanese firms will go to the advanced nations, thereby ... [making it possible] to correct the trade imbalances [of these countries with Japan] ..."[1/]

This geographical redeployment will be accompanied by a shift in the sectoral distribution of investments. The commercial subsidiaries established in the industrialized countries will give way to industrial establishments, and Japanese industrial investments in certain developing countries, especially those in South East Asia, will be increasingly directed towards the production of intermediate goods (iron and steel or chemical industries).

1.6. Conclusion

The conclusions which can be drawn from the examples of the United States, Japan, France and the Federal Republic of Germany are in harmony and bear out the general finding of stagnation in the direct private investments of the industrialized countries in the developing countries. We are seeing a decline in one type of involvement of enterprises from industrialized countries in the developing countries, but at the same time, the emergence of alternative strategies to replace direct investment, whether in the form of minority participation in capital or, in the extreme case, of "technological" participation alone.

Before exploring the new forms of action by firms, a development which stands in contrast to that described above must be taken into account, namely the increased interest of enterprises in direct investment in the industrialized countries, and more specifically in the United States.

This development involves two types of firms, namely American firms withdrawing to the United States and European and Japanese firms penetrating the United States.

We are beginning to see some decline in the standard multinational. A study[2/] shows that American companies have sold nearly 10 per cent of their subsidiaries abroad. This abandonment of subsidiaries coincides with a

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1/ Business International, 10 February 1978.

2/ Quoted by S. Rose in Fortune.

decrease in the number of new establishments. In 1971, 3.3 subsidiaries were established for every one abandoned. By 1975, the ratio had fallen to 1 to 4. This shift reflects a sharp about-face in comparison with developments in earlier years. The causes of this reorientation are many. For example, the tax incentives to United States firms investing abroad are increasingly being contested; the wage differential between the United States and other countries is shrinking and competition among multinational firms is becoming keener. This withdrawal movement must also be viewed in the context of the penetration of the United States by European and Japanese enterprises.

The weakness of the dollar, the attractiveness of the American market, the increase in protectionism, the organization of trade, etc., are all factors which explain the increase in investment by industrialized countries in the United States. Repurchasing of existing firms alone accounted for $2.1 billion in 1974 and $1.1 billion each in 1975 and 1976 (where the value is known). The amount of other direct investments, i.e. the construction of new plants, expansion of existing ones, imports and joint ventures, must be added to these figures. Cumulative direct foreign investment in the United States has evolved as follows (in millions of dollars):

	1973	1974	1975	1976
Petroleum	4,792	5,614	6,213	5,901
Manufacturing industry	8,231	10,387	11,386	12,550
Commerce	3,117	4,387	4,844	5,832
Insurance	1,905	1,298	1,635	1,969

Source: United States Department of Commerce.

Although industrial capital appeared to move preferentially towards the developed areas, that does not mean that firms originating in developed market-economy countries no longer take any part in the industrialization of the developing countries. Other means of action are being developed, taking into account the sometimes rapid evolution of economic situations in the individual countries.

2. Evolution of modes of action of firms originating in developed market-economy countries

Direct investment is generally interpreted as an input of capital leading to the establishment of an enterprise which the investor will control, the taking over of an existing enterprise or the expansion of an already existing controlled enterprise. Neither the provision of equity capital without assumption of control (portfolio investment) nor the various forms of credit are included in this definition.

This definition for accounting purposes does not take into account the various forms which investment in the developing countries can and may in future take.

A first development which is emerging relates to the level of participation looked upon as optimum. We shall see below that firms are developing alternative strategies to investment in the developing countries.

The concept of control is completely flexible. With 51 per cent of the capital, there is considered to be control, but with 30 per cent, it is usually agreed that there is a certain measure of control. Holdings of between 10 and around 15 per cent are looked upon as portfolio investments. It is, however, interesting to note that firms are tending to redefine their positions in this respect. What is today considered by some to be optimum a few years ago appeared to be renunciation of power.

2.1. From the subsidiary to the joint venture: attitudes

2.1.1. Increasingly contested control

This discussion takes place in the context of what is frequently a reserved attitude towards foreign investments. Host countries want control, and this is reflected in demands for shares in company capital. In this connexion, we are reminded of the precedents set in Latin America and the Indian example.

From 1971, the Andean Pact countries promulgated an investment code looked upon by firms as somewhat restrictive. The main restrictions related to the delimitation of sectors which foreign capital could enter, access to

credit, subsidies, etc. These restrictions are accompanied by a requirement for participation in equity capital. Foreign equity holdings may not exceed 85 per cent after 3 years, 55 per cent after 10 years and 49 per cent after 15 years. Similar measures have been taken in various Latin American countries. Some countries have since gone back on their positions, while others have strengthened them.

In Brazil, for example, an attempt is being made to tighten the control over foreign investment in certain sectors. While domestic capital predominated in the cement, fertilizer, paper pulp and paper sectors and was substantial in the non-ferrous metals and aircraft construction sectors, the multinational firms used to be generally dominant in sectors such as mechanical and electrical engineering. It is with regard to the latter that new proposals for the regulation of foreign capital are being considered. The integration of domestic capital goods into production is one of the main goals of the proposed regulations.1/

In India, the Foreign Exchange Regulation Act (FERA) makes Indianization of foreign companies mandatory. While this regulation caused the departure of firms such as Coca-Cola, and even IBM, 90 per cent of the foreign companies bowed to the demands of FERA. The size of the Indian market is such that, while they are recalcitrant, many firms are "queuing up" to return.2/

2.1.2. More flexible positions

In the face of these demands, firms take widely differing positions. The more reserved attitude of United States firms contrasts with the flexibility of Japanese firms.

For most American enterprises, 100 per cent equity has been a basic principle. The demand for increased State control advanced by the developing countries and the desire of some firms to minimize risks have led to a redefinition of forms of participation in equity.

1/ Business Latin America, 22 February 1978.

2/ Financial Times, 23 January 1978.

Enterprises which insist on 100 per cent participation often do so in order to guarantee their control of technology, know-how, and the trade mark, and of course also for financial reasons. Those which agree to joint ventures or minority participation do so in order to guarantee their positions with host Governments, but also to have access to subsidies, finance or (State) markets.

European enterprises, which often have a longer tradition of foreign involvement behind them, are much more disposed to agree to only equal or minority participation.[1]

Participation in the equity of subsidiaries, by origin of the major firms (Fortune classification)

	95-100	94-51	50	49-26	25-5
Average of non-American firms	53	18	7	12	10
Among these: Japanese firms	27	8	7	15	33
United States firms	71	— 20 —		— 9 —	

Source: Y. Tsurumi, "The Japanese are coming", Ballinger, 1977

Japanese enterprises have an even more flexible attitude than their European and American partners. Being the latest comers in many countries, they have had to accept the terms laid down by the Governments of developing countries. In addition, Japan has itself been very fastidious in its attitude to foreign investment on its territory, and this perhaps explains the tolerance shown by Japanese firms abroad. Furthermore, since they engage in very little self-financing and rely heavily on banks, they are often unable to invest very extensively abroad. While Japanese commercial subsidiaries in Europe are under majority control, this is much less often the case for industrial subsidiaries.[2]

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* *

1/ Although slightly out-dated (1971), the following table is indicative of this diversity of approaches.

2/ Y. Tsurumi, op. cit.

It is probable that direct foreign investment - conceived of without local participation - is in many cases tending to become obsolete. In this connexion, we can point out the shift in flows of capital to the developing countries between 1970 and 1976:

- While direct investment accounted for 20 per cent of the foreign resources of developing countries in 1970, it accounted for only 12 per cent in 1976;
- Portfolio investment, on the other hand, accounted for only 6 per cent in 1970, and for 15 per cent in 1976.

Beyond these discussions on the optimum level of control, alternative strategies to investment are being considered.

2.2. From joint venture to "package" technology

2.2.1. An alternative strategy

For a variety of reasons, political, economic and technical, many firms seem to consider that sale under licence, as part of a complex operation - the "packaging" of technology - is a preferable alternative to exports, which are often restricted by customs barriers; or subsidiary companies, which are becoming increasingly difficult to establish; or joint ventures, which are costly. Discussion is shifting ... the issue is no longer the optimum rate of participation (100%, 51%, 30%) but the optimum conditions for the sale of technology.

Transferring technology, packaged technology, to foreign undertakings instead of to subsidiaries or joint ventures, has substantial benefits for the supplier. Over and above the direct income obtained from royalties, which are often calculated on the amount of sales, there are other benefits, such as:

- Maintaining a presence in the market when other means, such as exports or subsidiaries, are no longer possible;
- Creating a market: as one firm interviewed by Business International put it: "You have to transfer technology if you want to create a market";
- Developing production capacity abroad where it can be linked with a "buy back" contract for the product.

Considered as an alternative option, the sale of packaged technology gives firms with limited funds the possibility of international expansion and hence a greater freedom of manoeuvre. Other objectives may be pursued through a presence abroad, such as the acquisition of the technology of the licence holder - in the case of East-West contracts and also in North-South relations - and the acquisition of know-how in plant building. Through this latter operation, export markets can be extended by supplying semi-finished products, components and raw materials.

Through the complexity of the operations one can see clearly that while sale under licence on its own is on the decline, it is rapidly developing as part of a more complex strategy, involving sales, financing, compensation and even investment by transforming royalties into capital.

Attention has already been drawn to the withdrawal of certain multi-national American firms which are reinvesting in their own countries, the increase in industrial commitments by European enterprises in the United States, or Japanese enterprises in Europe or the United States. These commitments are made by the setting up of subsidiaries, or joint ventures. While this type of intervention between developed market-economy countries, or even between those countries and certain socialist countries, shows no sign of decline, it is likely to decline between industrialized and developing countries. Indeed a falling-off has been observed in direct foreign investment in the developing countries, and more particularly in industrial commitments. However, international trade statistics show a growth in "packaged" technology trade.

2.2.2. The measure of this development

The recent trend in international trade emphasizes the importance of flows directly linked with industrialization. There has been a considerable growth in the flow of capital equipment goods. International trade statistics take account of this increase, but do not always indicate another equally important change: equipment is being purchased less and less in isolation: it is becoming part of aggregate or sub-aggregate industrial purchases. There is less trade in machinery than in machinery systems.

This development meets the needs of the countries purchasing technology, and at the same time coincides with the sales strategy of suppliers who are less interested in selling isolated goods than groups of goods.

The following examples show the changes in trade brought about by industrialization.

Table 1 shows the development of the part played by exports of equipment and turn-key plants in total Japanese exports between 1970 and 1976: from 4.8 per cent to 15 per cent.

Table 1	Total Japanese exports	Exports of equipment and turn-key plant	
	Rate of growth	Rate of growth	Proportion of total exports
1970	20.6 %	35.7 %	4.8 %
1971	24.1 %	35.0 %	5.2 %
1972	19.4 %	14.4 %	5.0 %
1973	23.1 %	35.5 %	5.5 %
1974	50.4 %	77.5 %	6.5 %
1975	0.4 %	35.2 %	8.7 %
1976	67.5 %	59.0 %	15.0 %

Source: MITI.

Table 2 concerns French exports and shows the second change referred to: sales of equipment are less and less isolated and form part of aggregate industrial exports: the factory/equipment ratio rose from 8.2 per cent in 1971 to 25.3 per cent in 1975 and 22.2 per cent in 1976.

Table 2.	Exports of equipment (10^6F)	Exports of factories (10^6F)	Ratio $\frac{\text{Factories}}{\text{Equipment}}$ %
1971	28,887	2,369	8.2
1972	32,263	2,659	8.2
1973	38,327	4,604	12.0
1974	51,999	10,269	19.7
1975	62,135	15,716	25.3
1976	73,055	16,241	22.2

Customs statistics provided by the Ministry of Economic Affairs and Finance.

These global amounts have two main components: the East-West flow and the North-South flow. Capital goods represent one of the most important of the developing countries' imports.

The statistics for the Federal Republic of Germany (table 3) provide a breakdown of these flows: the developing countries' share in industrial aggregate orders, which was about 20 per cent in the late 1960s, is now nearly half. The socialist countries account for between 10 and 20 per cent.

Table 3

Orders received for industrial aggregates * by region, 1969-1976 (in millions of DM)

	1969	%	1970	%	1971	%	1972	%	1973	%	1974	%	1975	%	1976	%
Total	5,029	100	6,230	100	4,979	100	5,097	100	7,694	100	10,275	100	13,072	100	14,065	100
Including: Developing countries	1,034	20.5	1,152	18.5	1,657	33.2	1,586	31	2,897	37.5	4,269	41.5	6,828	52	6,524	46.4
Socialist countries	325	6.4	642	10.3	381	7.6	608	12	1,148	15	1,657	16	1,201	9	3,012	21.4

Source: Arbeitsgemeinschaft Grossanlagenbau

* Excluding nuclear industry

The example from the Federal Republic of Germany illustrates what has just been said about direct investment alternatives.

It is interesting to compare the volume of orders received for industrial aggregates[1] by country of origin with the volume of direct investment by the Federal Republic of Germany.

	1974 and 1975 Cumulative		1976	
	Investments	Orders for aggregates	Investments	Orders for aggregates
	(in millions of DM)		(in millions of DM)	
Africa (excluding South Africa)	295	2,823	163	2,116
Asia	316	4,805	292	2,778
Latin America	1,400	1,832	970	600
TOTAL	2,011	9,460	1,425	5,494

This is only a rough comparison, but it is revealing.

It shows the increase in orders for complete industrial units DM 9.4 billion for 1974/75, and DM 5.4 billion for 1976 alone,[2] although this growth in orders is not uniform, as it comes essentially from Africa and Asia;

It emphasizes the decline in investment by the Federal Republic of Germany in Asia and Africa and its increase in South America - the only region where the amount of investments exceeds the amount of orders (excluding nuclear products).

On the global scene it may be recalled that while the share of the developing countries (outside southern Europe) in the total of direct investment by the Federal Republic of Germany abroad has fallen (from 23 per cent in 1969 to 20 per cent in 1977), their share in purchases of complete industrial units has risen considerably (from 20 per cent in 1969 to 40 per cent in 1976).

1/ Only the orders are broken down geographically.

2/ Certain small orders have been excluded and the totals do not therefore correspond with the totals in the preceding table.

2.2.3. Reserves

People have become aware of the dynamics of this alternative strategy to investment represented to some extent by the sale of the "technology package" surrounding the sale of a licence. However, direct investment still continues and there are in fact obstacles to the alternative strategy. It is interesting to compare the kind of objection raised by the developing countries to direct investment and to the transfer of technology. The developing countries have challenged the control that industrial firms exercise on their investments. Subsidiaries have been replaced by joint ventures. Those are the very countries which originated the draft code of conduct on the transfer of technology proposed to the United Nations. They are in fact opposing a whole series of unfair practices which include:

- Restrictions on exports, whereby the supplier tries to control his client's exports by channelling them to particular geographical regions. The developing countries regard this restriction as a barrier to development.1/
- The price of technology: excessive royalties - they should not exceed 3 or 4 per cent of sales.
- The imposition of a "technology package" which makes the transfer of technology very costly since instead of royalties it involves paying for know-how, equipment, spare parts, raw materials, management and other services, such as assistance.

Whatever the outcome of the negotiations on the code of conduct, it is bringing about a widespread awareness of certain problems which arise in the sale of licences and industrial aggregates. It also increases the negotiating capacity of many countries which, in the absence of an international code, will be tempted to draw up their own national charters, which might sometimes be more restrictive. The introduction of these charters supports, in a way, the kind of development that we have been trying to describe, from exports limited by the customs code, through investment, regulated by the investment code, to the sale of the technology package.

1/ In this connexion, we might mention a very different trend in the case of two car construction enterprises, both making cars under the same licence. One of them SEAT (Spain), in which FIAT participates, has had very limited growth. The other, LADA (USSR) has shown considerable development. The SEAT agreement provides for co-production only, without any agreement concerning marketing abroad, whereas LADA has been able to develop its exports and to compete with FIAT on its own ground in Europe.

The movement from the establishment of subsidiaries to the sale of packaged technology which has been noted in regard to trade in technology between the industrialized countries and the third world, has increased the developing countries' indebtedness. The countries of the third world are turning more and more to the Euro-currency market to meet their needs; the international banks have become their main partners and bank credits or customer credits are replacing supplier credits. In that sense indebtedness can be considered a substitute for investment.

3. Indebtedness of developing countries

The discussions which were recently held in UNCTAD on ways of alleviating the indebtedness of developing countries once again drew attention to the sometimes insupportable burden being borne by many developing countries, in particular two categories:

- The least developed;
- The "most seriously affected" (UNCTAD classification).

It was thought useful to present and analyse this problem of indebtedness inasmuch as, from the point of view of its recent evolution, it reflects a flow of capital advanced by the developed countries (or their various institutions) to developing countries and, as a kind of substitute or intermediate stage, constitutes an alternative strategy of investment (and control?).

It seems that supplier credit or bank credit, whether or not guaranteed by Governments of industrialized countries, enables developing countries to escape certain constraints imposed either by investors or by certain more official sources of loans (tied loans), while enabling industrialized countries to diversify their policies by having recourse, at different times, to direct investment and to various forms of loans.

3.1. Some current examples will illustrate the way in which a number of developing countries utilize (private) loans as an alternative to direct investment in meeting their needs for capital.

For example, the Republic of Korea has made considerable use of foreign capital to finance the development of its economy:

External financing accounted for:

83.5% of total investments in 1962
39.1% of total investments in 1966
44.0% of total investments in 1970
15.4% of total investments in 1972
41.7% of total investments in 1975.[1]

In the course of this period there has been a change in the structure of external financing, in that the share of direct investments and transfers and that of loans have gradually reversed themselves:

[2]	1962	1970	1975
Direct investments and transfers	81.0	22.4	10.3
Loans	19.0	77.6	89.7
Total	100.0	100.0	100.0

This marked transition to borrowing to enabling South Korea, whose reserves have risen from $US 300 million to $US 4.5 billion to pay off part of its indebtedness[3] by getting rid of loans negotiated at high interest rates (2 per cent above LIBOR[4]), to the great chagrin of its creditors, American banks.[5]

Algeria is another example of a country which has very strictly limited the fields open to foreign investors - oil and some high-technology chemical and machinery enterprises[6] - but this has not been accompanied by a reduction of recourse to external financing.

1/ Montly Statistics of Korea, 7, 1976.

2/ Source, idem.

3/ $US 8.7 billion.

4/ London Interbank Offered Rate.

5/ Business Week, 27 February 1978.

6/ 25 per cent participation of a firm of the Federal Republic of Germany in the Algerian ALMO company (machine tools).

Algeria's external (disbursed) debt rose from $1,232 million in 1972 to $6,665 million in 1976;[1] it is expected to rise to $13,878 million in 1980 and $17,242 million in 1985.[2] This indebtedness consists mainly of supplier credit and credit provided by banking consortiums, and of a relatively declining share of credit from Governments.

As to the countries of eastern Europe, they have accumulated a very large debt vis-à-vis their OECD creditors - a debt whose rise they have halted in the last two years and whose structure they are trying to alter by systematically preferring loans negotiated with banking consortiums over supplier credit, where such loans offer greater freedom of choice and manoeuvre.[3]

These few examples lead us to the first of our conclusions:

Borrowing (from banks, the "Euromarket", etc.) enables developing countries to escape the constraints associated with private investment or tied credit while benefiting from an infusion of external capital; the question of the burden of the debts apart, they constitute what appears to be an alternative which is regarded as more flexible.

3.2. Growth of indebtedness

External debt sometimes represents a very heavy burden on the external finances of a number of developing countries.

At the end of 1976, the external medium- and long-term debt of developing countries amounted to a total of $US 207 billion - to $US 169 billion not counting the Mediterranean countries (Spain, Greece, etc., but including Turkey)[4] - to which must be added $US 50 billion of short-term debt (trade credits).

1/ Source: B.E.A. $7,110 million according to UNCTAD document TD/B/685/Add. of 29 December 1977.

2/ Idem.

3/ Cf. Business Eastern Europe of 11 November 1977, p.357

4/ "The external debt of developing countries", Helen Hughes, Finance and Development, December 1977.

Indebtedness has grown as follows:

	in billions of dollars
1955:	8
1960:	16
1967:	36
1970:	73
1973:	173
1975:	207

It should be noted

- That this indebtedness rose rapidly up to 1972; that it declined in real terms from 1972 to 1974, and that it rose again sharply as from 1974;
- That 16 countries bore 80 per cent of the debt burden;
- That the countries with the highest indebtedness in nominal terms are not necessarily those to which it was most burdensome.

If a distinction is made between low-income, middle-income and oil-exporting countries, the debt breaks down as follows:

in billions of dollars

1/	Low-income countries	Middle-income countries	Oil-exporting countries	Total
Official lending	26	41	13	80
Private lending	3	70	16	89
Total	29	111	29	169

Such a breakdown conceals the real impact of the indebtedness on low-income countries, whether they are the least developed or the most seriously affected of the developing countries, to use the terminology adopted by UNCTAD.

Thus, in 1976 total external indebtedness represented 40 per cent of the annual exports of oil-producing countries, 80 per cent of the exports of middle-income countries and 200 per cent of those of low-income countries. Moreover, the external debt of the least developed countries rose at a much faster rate than that of the average of the developing countries.

1/ End of 1976, excluding Mediterranean countries.
Source: Finance and Development, December 1977.

3.2.2. This brief analysis of the changes that have taken place in external debt and of its distribution leads to two sorts of assessments:

- One assessment concerning the intolerable debt burden of the "least developed countries" category. This has just been discussed in UNCTAD. The third world countries called for a debt moratorium for the poorest countries. A compromise resolution was finally adopted under which the developed countries undertook to take measures to adjust the terms of official development assistance granted in the past, or other equivalent measures.1/
- Another assessment, this time coming from financial circles: a positive and optimistic assessment after the fears that have been expressed concerning the stability of the system: "a deeper analysis indicates that the debt burden of most LDCs [less developed countries] is not all that dangerous." The World Bank, private banks and large corporations all stress the need to go beyond a single indicator (debt-service costs in relation to exports) to evaluate the "vitality" of an economy and its capacity to manage this debt. In this light, "less developed nations are more creditworthy than debt data suggest",2/ and it is "very encouraging for the international financial system that developing countries have been able to obtain considerable funds through commercial channels".3/

3.3. The evolution in the structure of indebtedness

The structure of the developing countries' indebtedness has appreciably changed in recent years, as is shown by the following table:

4/	in billions of dollars			
	1967	1970	1975	1976
Official aid plus ODA5/ type aid	20	29	52	57
Other multilateral aid	4	5	12	13
Export credit	17	26	49	62
Loans from the private sector	7	13	60	75
Total	48	73	173	207

1/ See the records of recent meetings of UNCTAD.

2/ Business International, 31 December 1976, p. 417.

3/ "L'endettement extérieur des pays en voie de développement", Finance and Development, December 1976.

4/ Telex Méditerranée, 28 January 1976.

5/ Official development assistance.

In 1967, ODA type aid still represented 50 per cent of total indebtedness, but it did not account for more than 37 per cent in 1975 and 33.8 per cent in 1976. Export credit took over, and during the 1970s loans from the private sector have become the most important source, rising from 17.8 per cent in 1970 to 36.2 per cent in 1976. Sixty developing countries have obtained credit from private sources; many developing countries have turned to the "Euro-market": $US 10.7 billion in 1974, $US 13.5 billion in 1975, $US 7 billion in the first six months of 1976 ... These private sources (banks) have made no difficulties about lending to developing countries. During 1975, 1976 and 1977 they even found it more advantageous to lend to developing countries than to industrialized countries, owing to the higher interest rates,[1] fees and commissions they were able to charge.

Loans from private creditors had already increased more rapidly than those from official sources in the last years of the 60s, during which commercial banks started to supplement supplier credit and thereafter replace it by offering other loans. In 1976, it was estimated that supplier credit had come to represent no more than approximately 25 per cent of loans from private sources whereas bank credit represented 70 per cent.

Some commentators claim that "the banks displayed more energy and flexibility than official lenders in responding to the needs of developing countries in the changing conditions of the middle years of the present decade ..."[2] While many developing countries preferred to turn to the banks to deal with their balance-of-payments problems rather than meet the hard conditions imposed by IMF for its loans ....

1/ Much use has been made of floating interest rates: for as much as 50 per cent of outstanding obligations at the end of 1974; thus:

5.25 to 6.25%	in 1972	
11.2%	in 1974	
More than 14%	in August 1974	
5.9%	in January 1976	(Finance et Développement,
7.8%	in June 1976	December 1976)

2/ Finance and Development, December 1976.

3.4. The significance of the above evolution

The increasingly heavy reliance on private credit (banks and Euro-currency) must be viewed against the trends in world sources of credit.

3.4.1. OPEC funds and credit to developing countries

The trend in the global structure of current account balances provides an interesting indication in this respect:

in billions of dollars

1/	Major oil exporters	Industrialized countries	Other non-oil exporters		
			More developed	Less developed	Total
1967-1972	0.7	10.2	- 1.7	- 8.1	1.1
1973	6.0	12.0	1.0	-11.0	8.0
1974	67.0	-10.0	-14.0	-30.0	14.0
1975	35.0	19.0	-15.0	-38.0	-
1976	41.0	- 1.0	-14.0	-26.0	-
1977 (projections)	37.0	- 1.0	-12.0	-25.0	- 1
1967-1972 (Average rescaled to 1977 levels)	3.0	31.0	- 6.0	28.0	-

The indication is this: lenders in the industrialized world (banks and other financial institutions) no longer lend from funds generated by their internal savings as they were doing until 1972 or 1973. They have become middlemen who invest and earn income on capital derived from petroleum-producing countries; they are part of what has been called the "petrodollar-recycling" process, which at the beginning of 1974 was repeatedly but incorrectly accused of representing a source of numerous problems for the future. In actual fact, the system has worked extremely well; the big American banks and also those of the United Kingdom, the Federal Republic of Germany and Japan have gained fresh business from it and contributed much of the proceeds to meeting requests from developing countries.

1/ Source: Finance and Development, December 1977.

3.4.2. The American banks predominate but are no longer alone

Particularly since 1974 international banking activity has tended to concentrate in the hands of some 50 banks, dominated by the American banking institutions, taking advantage of the facilities offered by their London branches. More than 50 per cent of the private loans granted to developing countries comes from American banks. The American banks concerned have been attracted to this international market in growing numbers: at the beginning of 1978, 119 American banks, including regional banks of secondary importance, accounted for a total of 36 billion dollars' worth of debts from developing countries. Smaller American banks are now entering the market as well. After loans to the dynamic economies of Brazil and Mexico, the banks are looking actively for business in Ecuador, Trinidad and Tobago and other parts of the world. This movement coincides with aggressive business-getting by banks in Japan and the Federal Republic of Germany and, less specifically, by banks from elsewhere in Europe which are competing with the American banks by extending loan periods (breaking the ten-year barrier) and offering lower interest rates;[1/] the market in private loans to developing countries is now a borrower's market in which loans are negotiated at rates of 1 3/8-3/4 per cent, instead of 2 per cent as in 1975, over LIBOR.[2/] This raises doubts about the frequent ascertion that "the most dynamic developing countries offer better prospects than the trouble-stricken industrialized countries". The debt question, then, obviously has several facets, depending on whether attention is focused on the least developed or poorest countries or on other developing countries which repay their loans early or renegotiate on the basis of far more favourable rates of interest.

1/ "New lending patterns are changing the outlook for Latin America borrowers", Business Latin America, 1 March 1978.

2/ "Bankers wince as LDCS prepay their loans", Business Week, 27 February 1978.

3.4.3. Private credit, States and international organizations

The expansion of private loans to developing countries and the emergence of the role of banks in this sector is due to:

- The flexibility of this form of credit, which represents fewer supervisory constraints for the borrower (than those of IMF, for example);
- The expanded lending capacity of the major banks, arising from deposits of oil funds and the slackening of demand in industrialized countries.

Some States are beginning to worry about banking activity in regard to private loans to developing countries. In the United States, for instance, the Office of the Controller of Currency is anxious to check this kind of activity and, for example, to require "government agencies" to be ranked as Governments for the purpose of calculating the commitment ceiling which must not be exceeded for a given country.[1/] Other measures along these lines will probably be taken by other national administrations.

If the situation is viewed from an angle other than that of formal relations between banks, States and international organizations, an unofficial distribution of roles emerges.

- The major banks are interested in and explore, actively and sometimes aggressively, the outlets offered by dynamic and solvent developing countries, which are numerous both in Africa and Asia and in Latin America. States, for their part, are being urged to step up the flow of softer ODA loans to the least developed and most needy countries in order to keep the latter's economies within the circle of international demand and international markets.
- The major banks have therefore made themselves responsible for converting the oil funds deposited with them on what is very often a short-term basis into short-term loans, or more often medium- to long-term loans, made *inter alia* to developing countries. This represents a risk but so far, according to the banks themselves, is good business. The bank loans are not of course entirely unsecured. In any case, the banks are embarking on paths which are increasingly clearly marked out by international or, at least, plurinational organizations. In supplying evaluations of the economies of borrowing ccuntries, the multilateral financial institutions are now playing an important role in the maintenance and expansion of flows of private capital to the developing

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1/ *Business Latin America*, 1 March 1978, quoted above.

countries. This exploring and prospecting role is played by the International Monetary Fund, the Bank for International Settlements and the various regional development banks. Increasingly, the banks are leaving the field to the International Monetary Fund when the situation of a developing country becomes too hazardous and there is a need for matters to be put in order.

Thus the roles are assigned on the basis of the capacities of the various parties involved: States (ODA) and multilateral organizations preparing the ground for or backing up the banks which, in terms of the total amount of private loans, have become the central instrument for the borrowing (and indebtedness) of the developing countries.

3.5. Advantages and problems

It has been noted above that the banks involved in the flow of private credit to the developing countries are in the first instance banks in the United States (taking into account the importance of the London branches of the United States banks), but also banks in Japan and the Federal Republic of Germany, and in Europe in general. There is a relationship between the national origin of the banks active on the market and the dominant currencies: the United States dollar, followed by the yen and the mark. This clearly also contributes towards expanded markets in the developing countries involved for the economies of the United States, Japan, the Federal Republic of Germany, etc. (and particularly for their industry), the competing activities of the banks of these countries being an advantage for the industry of Japan and the Federal Republic in comparison with the industry of European countries less well equipped with banking institutions.

Although this is an advantage, a problem arises: how is one to evaluate the evolution of the phenomenon of private credit linked with the activities of banks and the possible expansion of this phenomenon? In addition, how is this phenomenon and the distribution of roles among States, banks and multilateral organizations which it reflects to be fitted into the effort to promote industrial co-operation? This question will be examined further on, by way of conclusion.

CHAPTER II

REGARDING THE TRANSFER OF TECHNOLOGY: OPINIONS AND DISCUSSIONS

The question of the transfer of technology to the developing countries is central to the debate on the new international economic order. Such transfers occupy an increasingly large part of the industrialized countries' exports to the developing countries. This trend is bound to accelerate; whether or not one takes seriously the quantified targets set at Lima (25 per cent of world industrial production in the third world by the year 2000), the industrialization of the developing countries is irreversible.

In the face of this trend, the positions of the various firms in industrialized countries, and their Governments, are diverse: openness on the part of some and reticence on the part of others - reticence on account of potential competition and the threat to employment in the industrialized countries. Aside from this discussion, the very reality of transfer is in question: is it a real transfer leading to mastery of techniques, or rather a pseudo-transfer?

1. Desirability of the transfer

Arguments have been put forward[1/] concerning what is called the folly of the industrialized countries in exporting their most precious capital, namely, their technology and know-how. This discussion differs and leads to different conclusions according to whether the firms involved are small, medium-sized or large, according to the branches of industry, with the speed of technological evolution varying from State to State, and according to the level of employment.

1/ P. Moyrond, "Politique de Gribouille", Le Monde, 23 September 1977.

1.1. The industrialized countries' intervention in the developing countries, except for that of Japan, has only slightly affected small and medium-size enterprises, be it at the export stage or at the stage of a direct involvement - the establishment of a subsidiary or the setting up of a joint venture. This intervention has remained the province of the largest firms of each country.

Small and medium enterprises are now being subjected to a lot of pressure by trading concerns, or even by large firms[1] which are trying to integrate them into international circuits, and by States which are encouraging them to export or to accept redeployment.[2] They constitute a hitherto little-used reservoir of products capable of being exported, and of technology and know-how capable of being transferred. It is in this context that small and medium enterprises are confronted with two related types of competition:

- A medium- or long-term competition - often already perceptible, to the extent that some of these enterprises are already the victims of the forms which "industrial redeployment" has taken; the resultant "cutthroat" imports deprive them of a part of their market;
- An already very real competition within the industrialized countries themselves - developed market-economy or even socialist countries. The transfer of technology affects small and medium enterprises as an irreversible phenomenon: "the processes which we decline to transfer will be transferred by our foreign competitors ... who will then be in the market ..." [3]

Although some small and medium enterprises may consider pursuing a "product cycle" policy, transferring obsolete production, others have neither the opportunity nor the means of doing so, and they fear the consequences of a transfer of technology which they analyse in terms of potential competition.

1/ As exemplified by Pechiney Ugine Kulhman, which is thus "developing" its international trade network.

2/ Reference will be made later to the activities of DEG in the Federal Republic of Germany, SBII in Belgium and FMO in the Netherlands - para-State bodies which "escort" firms abroad.

3/ One industrialist's reaction at a Mediterranean Trade meeting, Marseilles, 5 May 1977.

1.2. The reactions of certain large enterprises employing highly sophisticated technologies are often not very different. At the Third Quadrilateral Conference of Businessmen on Economic Interdependence,[1] some firms insisted on conditions which should be observed in order to stop a proliferation of international competition, and on the need to distil technology and know-how, which remain the most strategic assets; a very high, even exorbitant, price must be demanded for them, so that only outdated technologies will be negotiable.

However, regardless of the sphere of activity, or even the technological level, under consideration, there was no absolute consensus of firms; competition is always possible, since the reservations are not always shared throughout. In the field of data processing, although it is a highly oligopolistic one, the IBM company refused to go ahead with an "Indianization" process in India and preferred to quit the country despite the market prospects which it would have had; another firm, Burroughs, has bowed to the requirements of the FERA (Foreign Exchange Regulation Act) and established a joint venture with the Indian enterprise Tata.[2]

It is worth noting the diversity of views among firms which, when all is said and done, are up to now the sole possessors of technology. This diversity can be illustrated by studying the replies given to an inquiry seeking the reactions of firms to proposals for a code of conduct for the transfer of technology, as drawn up by the Group of 77. An organization, detailing the various interaction and guarantee clauses as they appeared in the draft code (in November 1977),[3] asked a sample of firms[4] for their comments on the formulation used, and their reaction. This reaction could be gauged by looking at the replies to the following

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1/ Meeting in London, 28-30 October 1976.

2/ Financial Times.

3/ The draft has been modified since November; some clauses have disappeared.

4/ This does not mean a sample in the statistical sense of the term, but the 50 firms interviewed - 30 in the United States, 20 in Europe - have a very widespread influence internationally, and their replies are a sure indication of more general reactions.

question: "If this clause were applied, how would you modify your technology transfer operations to your subsidiaries, or to other enterprises in which you have no participation, according to whether these various establishments were situated in OECD countries or developing countries; would such flows tend to increase or to diminish, or would they remain unaltered by the implementation of a clause of this type?" Although certain clauses aroused considerable objections on the part of the firms interviewed, a significant number of differing replies were nevertheless obtained. Thus, among the clauses where the divergence between the developing countries' claims and the reticence of firms is most clearly marked is the guarantee that the partners to the transfer would allot sufficient resources for research and development work to be carried out in the host countries.

Although 80 per cent of the firms polled feel that the application of such a clause - aside from its unrealistic nature[1/] - would lead them to revise their technology transfer policy and reduce their flow of technology to the developing countries, no less than 16 per cent (10 per cent of United States firms, 25 per cent of European firms) feel that such international legislation will in no way affect their own flow. There is a considerable divergence, however, on one point which - as will be seen later - seems central to discussion on the suitability of transfer.

Moreover, mention may be made, in this connexion, of the open-minded attitude of certain firms, as seen from their statements as well as from their actions.

- In the case of a contract between Technip and Petroleo Brasileiro (ethylene production unit), the possessor of the technology undertook to provide the Brazilian concern with improvements developed in the processes and to carry out joint research and development. In this contract, Technip "transfers itself".
- A statement by the Chairman and Managing Director of Heurtey may be noted, in which he stresses the setting up of local engineering consultancy capacities in developing countries:

1/ Firms active in several dozen countries - over 100, in fact.

"If we go on to look at the second aspect of technology transfer relating to this period - efficient use of plant - it has to be recognized that, for this purpose, it is not enough to follow to the letter the plant supplier's operation and maintenance guidelines. The operators also need to have acquired the requisite experience and have the support of local industry of an adequate technological level.

"How could the operators acquire such experience, and how could local industry attain such a level of competence having been systematically excluded from project and implementation work for plants involving advanced technology?

"Participation in plants operated by a company having the required experience can doubtless overcome the problem of the operators' competence; but here again local staff are restricted to subordinate tasks, which may result in a psychological climate of 'neo-colonialism' and in no way solves the problem of the industrial environment.

"An improvement over complete turnkey projects is, for a company possessing advanced technology, to establish, in the client country, a subsidiary which it introduces progressively to design work and which turns increasingly to local industry opportunities".[1/]

Suitability of transfer is bound up with the fear - real or otherwise - of the potential competition which any transfer involves.

This is not a new question, as can be seen from William Pitt's words to the House of Commons in 1774:[2/] "We shall never tolerate the production in our North American colonies of manufactures which would compete with those we make on our soil." The fate of that prophecy is well known. The statement is also a reminder that the position of States - whatever its ultimate effect may be - has to be taken into account.

1/ Heurtey Information, December 1977.

2/ Cited at the Innova 77 meeting.

3. In an article published by the Foreign Policy magazine,[1] J. Baranson drew conclusions from a study of 25 years of technology transfer in five sectors of activity (aeronautics, motor vehicles, data processing, consumer-goods, electronics, chemical industry) and aimed at industrialized countries - socialist countries, Japan - or developing countries. These conclusions were equivalent to a warning:

"Contrary to what is generally thought, United States firms which create foreign subsidiaries by licence sales to foreign enterprises may be contributing to a worsening of the United States trade balance and to a weakening of United States technological leadership. The dissemination of American technology to other economies and the adverse consequences which such transfers may entail have given rise to much concern in government circles. Further technology transfer contracts are to a like extent further sources of worry".

The article proposed the setting up of institutions similar to that governing East-West agreements - COCOM, the co-ordination committee established in 1949 by the United States and its military allies to control exports of products regarded as strategic.

"US firms which request export licences or receive help through public financing (through the Export-Import Bank or the Overseas Private Investment Co.) should be subject to such inquiries and furnish details of their technology transfer contracts."

More recently, the United States Administration drew up a list of technologies regarded as "critical", to serve as a reference list for the Department of Commerce. A further step has been taken, namely the defining of "key plant",[2] in other words plant which makes up a line of production and enable it to be operated. Once such plants had been defined, controls would be applied to them exclusively, both for East-West exports and for North-South trade.

1/ J. Baranson, "Technology exports can hurt us", Foreign Policy, winter 1976/77.

2/ Business International, 2 December 1977.

The reason for the diversity of these reactions - from reticence to an open-minded attitude - is to be found, inter alia, in the different approaches in evaluating the reality of the transfer: is there a real transfer of technology or a pseudo-transfer? Do the channels described above, or the contractual forms examined below, lead to a true acquisition of technology by the developing countries and in time to an independent technological capability, or is it rather a case of a renewed dependence in another form, in the guise of new contractual relationships?

2. Real transfer of pseudo-transfer?

For a variety of firms, the future will consist increasingly of selling technology whilst developing it further - a matter of being always one step ahead. This, however, should not be allowed to conceal the strides made in some instances by firms in certain developing countries.

2.1. The desirability of the transfer of technology was the focus of the discussions at a symposium organized by the Directorate of Economic Affairs of NATO[1/] centred upon the need for the transfer of technology. The underlying question was not, of course, potential economic competition so much as military competition. The various participants discussed the scope and the impact of the diffusion of imported technology in the socialist countries. Their analyses pointed to the following conclusions:

Techniques which are already considered obsolete in the West, or are about to become obsolete, will continue to be transferred on a priority basis, especially in the case of computers and the allied technology, mainly because of the limited absorption capacity of Soviet industry at the level of research and development. The techniques of the present generation - especially those which call for practical knowledge regarding the production of perfected integrated circuits - will perhaps not be included in the present five-year plan until towards the end, or not at all. The development of the very advanced numerical technique, comprising perfected forms of production techniques for integrated circuits, will supply the NATO nations with technologies which are substantially superior to those which they have today. That progress, in turn, will make it possible to utilize systems and equipment more efficiently than can be done now.

1/ Symposium on Exchanges of East-West Technology, NATO, Brussels, 1976.

These conclusions do not confirm Baranson's apprehensions concerning East-West and, a fortiori, North-South transfers. The techniques which are sold at a high price do not really represent a transfer, in so far as the dependency which they create tends to constitute the main instrument of control and domination, especially since the exported technology is an advanced technology or appears to be such in so far as it brings in its train an uninterrupted series of developments and transformations.

As was pointed out at the Dijon symposium,[1/] "It is a matter of planning technological obsolescence by having always ready in one's possession, behind the technique which is offered and sold, a technique which is linked in a chain with it, and so on for the following stage and each of the subsequent stages.

"This, then, is the finding of this critical analysis: what is commonly called the 'transfer of technology' is nothing else but the result of the organization of 'technological obsolescence'. What this amounts to, then, is not a transfer but a 'pseudo-transfer', which the big firms manage to make look like a transfer by playing on the uncertainty as to the limits of the area, or, if you like, the market which they dominate, which they extend and which they organize. It can be readily understood why the claim has so long been advanced, and is still being advanced, that big firms constitute an ideal agency for the transfer of technology; it is simply not realized - or one refuses to admit - that these 'transfers' are actually nothing more than internal movements within the area dominated by the firm (whether openly or in subtle ways), where all the difficulties of external transplantation have been completely eliminated.

"The impact of the propaganda of the big firms is especially strong because it has the advantage of a terrain prepared long since by the tradition of neo-classical thought".

2.2. However, in placing too much emphasis on the pseudo-transfer which is to be found in many cases, one may be ignoring a certain number of successes registered by certain countries, such as the Republic of Korea, India, Brazil, etc., which, whether alone or in association with others, are intervening in sectors and markets which have long been considered the private preserves of the industrialized countries.

1/ P. Judet, J. Perrin, "Problématique économique" in "Transfert de technologie et développement", Dijon symposium, October 1976.

The entry of the countries of the third world into the ranks of technology exporters can take various forms: the export of machinery is an initial stage, and is accompanied by service contracts for maintenance. Subsequent stages are the export of processes (licenses, etc.) and lastly the supply of engineering services for the completion of feasibility studies, etc. The export of technology offers the firms which engage in it various opportunities for experimentation which can be to their own advantage. This beneficial aspect is recognized by many responsible officials in developing countries who are encouraging their enterprises to export.

A certain number of executives[1] of American enterprises used to maintain that the enterprises of the developing countries would be able to compete with them successfully in many fields. And especially since many trade marks and many patents do not incorporate any real technological superiority but mask what Vaitsos calls "pseudo-transfers of know-how".[2]

In this connexion, we might draw attention to certain achievements of developing countries:

- The Republic of Korea became the sixth-ranking supplier of Saudi Arabia in 1977 (first six months), thus moving ahead of France in a market which was considered highly competitive. It is well known that Korean exports are included in the big contracts obtained by the Korean firm of Hoyndai: construction of the port of Jabail and various infrastructure projects. The Koreans are also responsible for the construction of the dry dock in Bahrain. [3]

  The Republic of Korea is preparing to export cars to Europe to compete with the Japanese cars.

- In India, there has been great progress made in mastering techniques and management, [4] especially in the public sector: in 1953, Hindustan Machine Tool set up a joint venture with Machine Tool Bulhe and Co. of Zurich; it is manufacturing watches and machine tools. In 1974, this enterprise was exporting more than 4.5 million Swiss francs' worth of machine tools.

1/ D. Goulet: The uncertain promise, value conflict in technology transfer, IDOC/NA, New York 1977.

2/ G. B. Vaitsos, Summary of the written and oral statement, United Nations, ST/ESA/15, 1974, quoted by D. Goulet.

3/ Incidentally, the Hoyndai Corporation has obtained a licence from Krupp for the construction of blast furnaces, electric steel mills, etc. This licence will help to increase the Republic of Korea's production capacities (4.5 million tonnes in 1978), and perhaps also to export iron and steel complexes.

4/ G. Etienne, Le Monde, February 1978.

Bharat Heavy Electricals is also being given a contract of $74 million for the construction of a power plant in Saudi Arabia and a similar order in Libya, in the face of all the big names of the world in electrical equipment. The technology is considered satisfactory and Indian services cost much less than American or European services.

Exports of technology primarily involve third markets; exports of manufactured products, on the other hand, are increasingly invading the markets of the industrialized countries, and it is on the basis of this observation that some countries are already concerning themselves with problems of adjustment connected with employment in a time of crisis.

3. Transfer and employment

On the basis of various formulations - neo-mercantilism, organized trade liberalism - some Governments of industrialized countries are trying to get away from protectionist reactions already exacerbated by the repercussions of a certain industrial redeployment and the industrialization of the Eastern countries - the boomerang factories; reactions which would not fail to become more intense if the industrialization implied in the Lima goals should develop in an anarchic fasion.

The renegotiation of the "multi-fibre" agreement has emphasized the reservations of the industrialized countries when confronted with a certain kind of industrial development in the developing countries.

A new international division of labour is calling in question a certain number of industrial jobs: the number of jobs created in the exporting industries does not always equal the jobs lost in certain traditional industries. Moreover, jobs are not always replaceable by others, whether within the manufacturing sector or, a fortiori, as between the manufacturing sector and the services sector. We shall show two results of different analyses, one of them concerning the Federal Republic of Germany and the other France, both of them underlining the importance of the problem.

3.1. In drawing up alternative hypotheses, an institute in Kiel[1/] has concluded that for structural reasons the development of the international division of labour in the industrial sector would be accompanied by the elimination of a large number of jobs, varying between 250,000 and 600,000. These job losses would be spread out between 1973 and 1985: they are equivalent to 4.3 per cent and 7.8 per cent of the industrial jobs in 1973, respectively. The sharpest reductions would be in the consumer goods sector: between 249,000 and 366,000 jobs; and within this sector there would be far-reaching changes in the following two activities:

- The clothing industry would see its personnel reduced by 42.4 per cent to 65 per cent in relation to the jobs existing in 1973;
- The leather industry would be threatened with extinction: foreseeable reductions between 67.9 per cent and 100 per cent.

In the field of equipment goods, the most threatened activity is still electrical engineering, but job reductions amount to relatively minimal percentages, between 1.4 per cent and 4.2 per cent for all equipment goods as opposed to 13 to 19 for consumer goods.

The jobs created by the new division of labour will still be fewer than the jobs eliminated: 200,000; they concern only a limited sphere of activities:

- 33,000 jobs in the chemical industry,
- 65,000 jobs in mechanical engineering,
- 39,000 jobs in the automotive industry,
- 18,000 in electrical engineering.

On the whole, therefore, the balance will be negative: -140,000 to -400,000, which involves 2 to 5 per cent of the personnel employed in industrial production.

These figures must not be given more significance than they really have, since they are only an estimate; they only illustrate a trend. It is striking to note, however, that industry as a whole will be unable to create new jobs in the Federal Republic of Germany.

1/ Institut für Weltwirtschaft, mentioned in Industrial Redeployment, "Tendencies and opportunities in the Federal Republic of Germany", IFO Munich 1976.

However, one cannot look for beneficial aspects in the industrial sector alone, as exports of technology have important repercussions on the services sector:

- In France, a study 1/ has analysed the effects of the industrialization of the developing countries on French industrial employment; several effects can be taken into account: job losses resulting from the penetration of third world products, those resulting from the closing of a certain number of markets in the developing countries, and the creation of new jobs connected with French exports.

The direct effects on employment have been evaluated 2/ on the basis of four hypotheses, two for exports and two for imports.

These hypotheses are the following:

- For exports: a rapid increase (a) or fall (b) in French exports to developing countries;
- For imports: receptiveness (c) to imports from developing countries or a limitation on their growth (d).

It is not possible to establish any reliable connexion between the export and the import hypotheses, although the "planning of exchanges" 3/ being called for by more than one country allows one to say that a connexion between (a) and (c) or between (b) and (d) is probable.

The results relating to the different hypotheses are the following:

Trends in industrial employment in France according to the four hypotheses

Connected with exports	Connected with imports
(a) + 205,000	(c) - 344,000
(b) + 86,200	(d) - 154,000

1/ SETEF: Les échanges français de produits industriels avec les pays en voie de développement, November 1977

2/ Substitutions in third markets have not been taken into account.

3/ See below.

Combining the extreme hypotheses, it would seem that industrial employment could develop over a range of +50,000 to -250,000. This result is less serious than the preceding conclusion about the Federal Republic of Germany. However, what is most important is the total number of threatened jobs which will have to be reclassified, whether in their branch or out of it: they are estimated to be between 3 and 7 per cent of the personnel in 1976. Moreover, as the study points out, the beneficial effects for employment are dispersed throughout the territory as a whole, while the negative aspects are concentrated on a small number of areas.

By stressing only the repercussions on industrial employment, one is ignoring the beneficial aspects to be found in the services sector. These studies only underline the fact that the industrial sector alone will not solve the problem of employment.

Whatever may be the reservations and apprehensions of the industrialized countries, the industrialization of the third world is a reality which they have to take into account. These reservations show up the need for more comprehensive negotiations about industrialization; such negotiations are one of the aspects of industrial co-operation.

CHAPTER III

TRENDS REGARDING CONTRACTS

The determination of the developing countries to master the techniques needed for their industrialization, on the one hand, and the search of the developed countries for increasingly larger outlets for their industries, on the other hand, work together to enlarge the channels for the transmission of technical and industrial knowledge and to diversify the contractual forms governing those channels.

1. Towards more complex contractual formulae

1.1. For a long time, the sales contract represented the dominant contractual form: sales of machines, sales of spare parts or parts of machines. Contracts of this kind, negotiated and signed by equal partners, used to be duly terminated within a brief lapse of time. Even if engineers, foremen and workers used to be imported from abroad to help make the new machine work (as, for example, when English iron and steel specialists were brought to France in the nineteenth century or European or American engineers to Japan at the end of that century), those were entirely distinct operations which in no way affected the simplicity of the purchase/sale contract. The development of industrial techniques, but even more the industrialization of countries without industrial traditions, have triggered a process of rapid transformation of contractual forms.

1.2. Problems of dimensions. In this context, it is no longer a question of replacing a machine or enlarging the capacity of an installation, but very often of creating a new installation of large or very large dimensions from scratch:

- Plants for the production of 100,000 to 500,000 cars;
- Installations for the production of 300,000 tonnes of alumina and 150,000 tonnes of aluminium;
- Opening of an iron mine intended to produce 12 to 15 million tonnes annually;
- a petrochemical complex costing from 1.5 to 4 billion US dollars aimed at manufacturing dozens of different products.

The contract continues to relate to a sale and to connect a seller to a customer, but the object of the contract is of such an order of magnitude[1/] that it can no longer be assimilated to a mere purchase/sale contract.

1.3. Problems of duration. It used to take only a few days to set up and try out a machine or a small set of machines. In contrast, in order to build an average sized steel plant (0.5 to 1.5-2.0 million tonnes) the minimum duration in a developing country is 36 to 48 months, which is sometimes greatly exceeded (up to 80 months and more). Moreover, the contract is not terminated by the completion of the factory, inasmuch as it involves technical assistance tasks which may extend over several years. It happens quite frequently today

1/ Technical and financial dimensions.

that the establishment of a plant involves contractual relationships binding the supplier to the customer for a period exceeding 10 years.

1.4. Problems of content. These contractual relationships are constantly becoming more diversified and more complex. Today, contracts dealing with one machine or simple equipment are very much a thing of the past.

It has been noted above that sales of complex aggregates of machinery and equipment (comprehensive industrial units) were showing a tendency to increase much more quickly than sales of single items of equipment.

It rarely happens that the supply of a complete industrial unit is not organized around the sale of a licence: a licence whose exploitation requires the supplying of documentation and know-how, which may be prolonged by a service of technical assistance. It has also become normal for the contract to provide for the training of the customer's personnel in accordance with a precisely prepared table of organization. We are thus concerned with organization and management affecting all the channels of the future unit, from supplies to the marketing of the product.

From an ordinary sales contract, we have advanced in a few years to "turnkey" contracts[1/] and then to contracts of the "product in hand"[2/] or "market in hand" type with a whole series of intermediate formulae combining these various components with differing degrees of emphasis.

1.5. The evolution in the nature of contracts brings to light the fact that the specifically technical aspect, directly or indirectly connected with machinery, equipment and processes, constitutes only one part of the package. The increasing complexity of contractual forms is precisely reflected in the successive incorporation of numerous immaterial components of the transfer, among which special emphasis is placed on the following:

1/ This is "the supplying of a complete industrial unit, comprising the design, study, construction and delivery in working order of all the works and equipment for an over-all lump-sum price and under the prescribed conditions of production".

2/ In the "product in hand" contract, the buyer entrusts a contractor with responsibility for designing a product as well as for building and equipping the plant needed for its production. The contractor must design the product, determine the process of manufacture, select the equipment, build and equip the factory, select and train the local personnel. Contrary to what happens in "turnkey" contracts, the contractor assumes the technical responsibility up to the time when the local technicians consider themselves able to take over all the operations of production.

- Components involving training;
- Components involving organization and management;
- Components relating to financing.

1.5.1. Training. Formerly, training was acquired on the job (apprenticeship) or in schools (technical schools, higher-level schools); during the last fifteen years, the tendency has been for it to be systematically organized when a new industrial unit is constructed, through specialized training courses, etc. This has opened up a new, large-scale market. "Trainers by vocation", trainers by logic or trainers by necessity,[1] "many firms (selling industrial units) have perceived the opportunities which were offered to them in this way" - "training helps us to sell our products" - "we all gain by this sort of arrangement ... it enables us to discover the defects of our own products, which we correct, thus helping our technological progress ..."

In this new situation, the big project contractors are setting up their own training organizations or taking shares in specialized companies;[2] they can no longer avoid this activity, which is becoming an integral part of their replies to invitations for bids.

1.5.2. Organization and management. One passes insensibly from training to organization and management. Although the training of individuals is generally successful, a team of well-trained workers does not always constitute an effective group from the viewpoint of the efficient operation of the workshop or the factory. It is not enough for the workers to be well trained; if they are not incorporated into rational, fluid circuits, the result may be disappointing. Training is only one aspect of the effective organization of the enterprise. The contents of the manuals providing guidelines for the establishment of subsidiaries of a big multinational firm are significant with regard to the importance of the organizational and management aspects: guidelines and directives are set forth in seventy manuals, one third of which deal

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1/ Replies by French firms to a survey conducted by ACTIM in April 1975.

2/ This is the case with Creusot-Loire, which has just taken a share in the capital of EUREQUIP (13%).

with specifically "technical" questions concerning production, the product, quality control, etc., whereas two thirds are devoted to problems of supply, of financial and accounting management, of recruitment and management of personnel, etc. Moreover, there are examples to show that sometimes the mere establishment of a "capacity for commercial organization" can make it possible to make full use of existing equipment which has hitherto been under-utilized, without any new additions.

1.5.3. Financial aspects

The mobilization of the necessary funds for carrying out a project has become a complex art, passing through many stages from the original outline of the project to the signing of the contract and its implementation. The financing of a project can be broken down into some twenty-five successive stages, from the attempts to define financing strategies to the final approval of loan contracts. A very big engineering firm such as Bechtel has set up a specialized section for this purpose, "Bechtel Financing Services Inc.",[1/] whose purpose is to take care of what might be called the financial engineering of a project: an engineering component whose purpose becomes increasingly important along with the dimensions and cost of very many projects.

2. Evolution of contractual forms and the planning of exchanges: offsetting (compensation)

The development of offsetting is introducing a new element of great importance into contractual relations, in so far as the sale of industrial complexes not only gives rise to a financial flow but also to flows of goods which may be directly connected or not to the operation of the new unit which has been built. This new procedure marks the transition from the sale of industrial units to complex relationships involving the planning of exchanges and potentially leading on to the question of harmonizing productions, or of industrial collaboration arrangements.

2.1. The different modalities of "offsetting"

- Barter is the extreme form of offsetting; it does not involve any monetary transaction or any other counterpart; usually it gives way to subtler types of arrangement.

1/ See Business International Money Report for 10 and 17 February 1978, "Project financing now to construct the optimum package".

- Offsetting contracts: 1/ the exporter of industrial complexes accepts payment in kind for all or part of the contract.

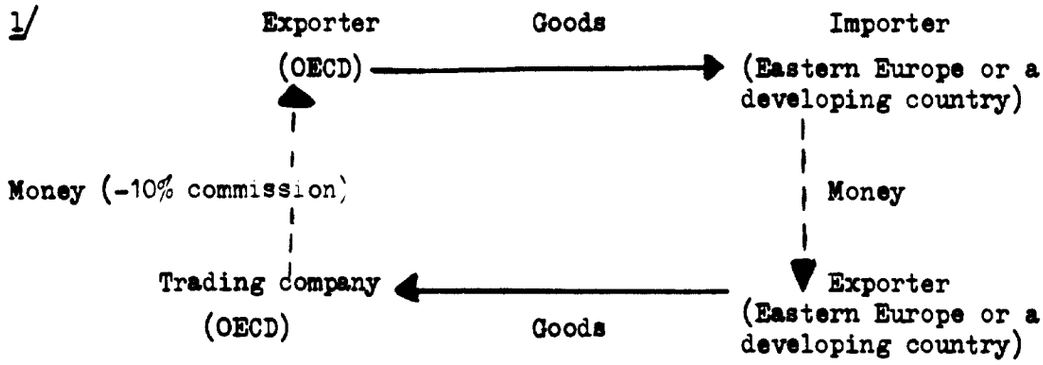
  One hundred per cent offsetting is closely akin to barter, but with two differences: the possible appearance of a third party and the possibility of monetary settlements.

  Partial offsetting affects only a part of the market, the balance being settled in currency.

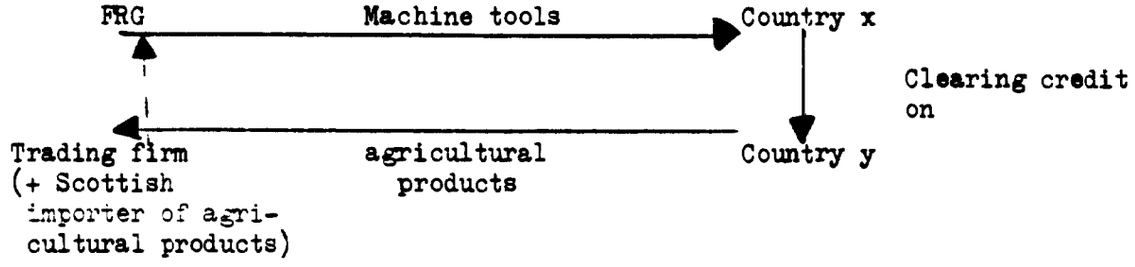
- Reciprocal purchase contracts by which the exporter undertakes to purchase (or to have purchased) products of the (Eastern European or developing) countries for a certain percentage of the amount of the contract and during a specific period of time. Unlike in the case of the preceding type of contract, there is an exchange of currency; additionally, the exporter or a third party can choose - within certain limits - the products to be bought. In this case, two contracts are signed, a sales contract and a purchasing contract; this favours the exporters in so far as the export insurance covers the whole and not the balance.

- "Switch" contracts play on the bilateral trade agreements concluded between the Eastern European countries and many developing countries, known as clearing agreements; these contracts use the clearing credits available in one country to obtain desired products from another country. 2/

1/



2/ A country x uses a clearing credit which it has in a country y to pay, in agricultural products produced by country y, for machine tools sold by an exporter in the Federal Republic of Germany.



The circuit is closed thanks to the intervention of a trading company which finds a buyer for the agricultural products and pays the monetary equivalent to the exporter of machine tools.

- Agreements of the "buy-back" type. At the present time, offsetting agreements are developing fastest in this form.

  The exporter accepts a payment (whether partial or not) in products manufactured by means of the equipment sold (ammonia in return for an ammonia plant, methanol in return for a methanol plant).

  The granting of licences against payment in kind also comes under this heading. Payments in the form of the delivery of products often constitute a preliminary stage in a movement towards more complex relations between the partners.

- "Self-supporting" or subcontracting agreements. When, in connexion with a buy-back agreement, the supplier (of equipment) or the grantor (of a licence) acquires the whole production and continues to buy the products thus manufactured even after the price has been fully paid, one is moving towards a subcontracting agreement. This becomes clear if the products purchased in return are incorporated as parts or subassemblies in a product (or complex) manufactured by the supplier (licenser). We are now in the field of industrial co-operation.

2.2. Offsetting: a spreading evil

The phenomenon of offsetting has certain contradictory aspects: while some administrations show great reluctance to resort to it, other countries are pushing actively in that direction.

It is as though the process were an evil, but a necessary evil, and one which is tending to become permanent and in any case is spreading rapidly.

2.2.1. Many administrations refuse to have an official position on offsetting; they consider it a return to the "barbarism" of barter, undermining the Havana Charter and all the GATT principles which were the driving force behind the improvement in international trade since the end of the Second World War.

For example, COFACE in France is extremely reluctant to cover export operations which are explicitly tied to forms of offsetting; the same thing is true of Exim in the United States.[1/] The more open-minded attitude of other insurance organizations, such as ECGD, shows that reservations in principle are in the long run undermined by the sheer force of circumstances.

1/ See Business International Money Report.

2.2.2. The United States Government itself estimates that nearly 30 per cent of trade between the OECD countries and the countries of Eastern Europe is transacted on the basis of offsetting agreements in various forms.[1]

With Czechoslovakia: a minimum of 20 per cent is offset for contracts exceeding $1 million;

With Poland: the average is around 20-30 per cent;[2]

With Hungary: approximately 30 per cent;

With Romania: 30 to 100 per cent;

With Bulgaria: 40 to 100 per cent;

With the German Democratic Republic:[3] about 40 per cent;

With Yugoslavia: more than 50 per cent and sometimes up to 100 per cent;

With the USSR: offsetting agreements are more recent; at the present time there are 60 buy-back projects. The sectors involved in this kind of agreement are being extended rapidly.

2.2.3. Today, offsetting agreements are going way beyond the field of East-West trade; they are taking over:

2.2.3.1. Relations between oil countries and industrialized countries and to a greater extent between developing countries and industrialized countries.

Iran is concluding or negotiating contracts exchanging oil against industrial equipment or complexes:

With Italy: 6,000 barrels of oil per day against steel plants valued at $1 billion;

With the United Kingdom: oil against various types of armaments[4] and equipment;

1/ In this connexion, see Business Eastern Europe for 17 December 1976, 5 August 1977, 3 February 1978, 17 February 1978, etc.

2/ With Poland, the amount of offsetting asked varies according to branches: for heavy equipment, 60 per cent of contracts; for electronics, all of the contracts.

3/ The German Democratic Republic has placed an order for goods trucks in France amounting to 1 billion francs, on the basis of 300 million francs in offset purchases.

The German Democratic Republic has bought 10,000 cars from Volkswagen for DM 100 million, on the basis of 100 per cent in offset purchases: 30 million in coal, the rest in tyres (for the cars), machine tools and miscellaneous products.

4/ It is well known that offsetting has been readily accepted for a long time when it comes to armament contracts; it is often a condition, for example, in contracts placed between Belgium, the Netherlands, Denmark and the United States for arms purchases.

With Greece: oil against services and work by Greek enterprises.1/

Algeria has also placed several contracts on the basis of offsetting. The specialized press points out that the readiness to accept and propose offsetting is an advantage for firms which want to win markets in this country.

Brazil is trying to negotiate contracts which will enable it to exchange its agricultural products (sugar, rice, soya) against the oil which it mostly has to import.

2.2.3.2. Offsetting agreements are also increasing between industrialized countries, as in the case of Finland, which asks the United Kingdom for a counterpart of 100 per cent to compensate for the purchase of training aircraft.

In the case of Canada, which asks for industrial offsetting for purchases of equipment from Europe;

Or in the case of France, which tends to make purchases of foreign aircraft dependent on orders for subassemblies for those aircraft.

2.3. A phenomenon which is tending to become permanent

Thus the offsetting phenomenon, far from being only a left-over from the past, is tending to spread widely and to become a permanent fixture. Some people estimate that in the next five years offsetting agreements might involve up to 40 per cent of East-West trade and up to 6 to 10 per cent of world trade as a whole; in these conditions it is understandable that many authorities are beginning - although still unofficially - to evaluate and analyse a reality with which they have to live and from which they ought, if possible, to derive the maximum profit.

2.3.1. The countries of Eastern Europe have been the first to make systematic use of the advantage which they have when they appear as buyers in markets which are on the point of stagnation; they have learned to use the buyer's advantage with full effect; they are using it as a means for restoring their balance of trade. Developing countries, followed by industrialized countries, are also proceeding in the direction of more systematically organized trade relations. Today, it would seem that the time is nearly past when foreign trade services could merely evaluate their possible exports without worrying

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1/ See Business Europe for 5 August 1977.

about what they would buy in return in the various markets they had explored. Such a conception of foreign trade in simple terms of maintaining and expanding shares of the market is tending to disappear before the increasing pressure to tie purchases to sales and sales to purchases, i.e. to plan trade relations. An article recently written by a foreign trade minister of an OECD country was significantly entitled "Let us import better in order to export better".[1/]

2.3.2. Even if the official authorities of the OECD countries still systematically denounce or are reluctant to apply the offsetting method, the same is not true of a large number of industrial, commercial or financial firms.

2.3.2.1. Some of the biggest industrial firms, as well as some smaller ones, are willing to enter into offsetting agreements; they even take the initiative in that respect. For example, one big Western firm has set up a commercial subsidiary which specializes in prospecting for products (agricultural or other) in developing countries which lack convertible foreign currency, so that it can find a counterpart for the cars sold by it.

2.3.2.2. This type of agreement encourages the rise of international trading corporations: corporations affiliated with big industrial groups like the Japanese (or Korean) shoshas, independent corporations or corporations affiliated with banks based in Vienna, Hamburg, London or Amsterdam: the Centro Bank[2/] in Vienna, for example, whose business turnover rose from $2 to 55 million between 1975 and 1976.

2.3.2.3. The banks themselves are welcoming the increase in offsetting agreements: at least for certain kinds of loans in the case of certain categories of banks. Offsetting agreements and especially buy-back agreements are creating a medium-term and long-term flow of goods. A flow of this kind offers the real guarantee which every banker looks for to justify his loans, especially in the case of loans (in Euro-currency) which are not covered or are only partially covered by official insurance of the Hermes, ECGD or Exim type.

1/ M. Rossi in Le Monde, November 1977.

2/ A subsidiary of Italian, Spanish, British, German, Austrian, French, Japanese and Polish banks and corporations. Business Eastern Europe for 18 March 1977.

There is every reason to conclude, therefore, that offsetting agreements are tending to become a contractual arrangement of the greatest importance and that an inventory should be made of their beneficial implications and the possible openings towards more intensive co-operation.

2.4. From offsetting to co-operation

2.4.1. Initiatives and counter-initiatives

To begin with, offsetting agreements are to be found in terrain which is unfamiliar to the firms and Governments of developed market-economy countries; they have to enter this terrain willy-nilly, first responding to the initiative of partners and then seizing the initiative themselves. In this context, offsetting agreements sometimes have the style of arguments or instruments on which a power relationship is based; for example,

- On the part of purchasing agencies of the Eastern European countries, the demand for offsetting may be a means of pressure to lower the price agreed to by the seller;
- On the other hand, some big Western firms boast of having made good use of the offsetting method to delay the granting of a licence until such time as it became profitable.

From another point of view, offsetting may give Eastern European countries a marketing network for their products in the West without having spent any resources on the construction of that network; on the other hand, when Western firms take over the marketing of these products in the West that may make it possible to set up a screen between production in the East and marketing in the West and so remain master of the process.

It is true that oil is an asset for the producer; an advantage which may act as a constraint on those who are trying to sell equipment, factories or manufactured goods to that producer, but it is also true that the purchase of oil can transfer the advantage into the hands of the party who is trying to sell and who undertakes to buy ... provided that one buys from him. The seller of oil himself is sensitive to attempts of this kind, especially in certain market situations.

In connexion with offsetting agreements, we can speak of "creative selling" as well as of "creative buying"; this can mean several things:

- That there are initiatives to be taken on both sides.
- That there are possible gains to be made on both sides: this is the basis of all co-operation.
- That the trading function can no longer be relegated to second place; it has to be brought in to give consistency to industrial co-operation and adjustments.

2.4.2. From offsetting to co-operation

The link which is being created between offsetting and co-operation may be clear or not depending on the type of offsetting used:

- The relationship is distant and vague when purchases of footwear or tomato concentrate partially offset sales of medical equipment.
- The link is much more apparent in the case of "buy-back" agreements: the sale of an ammonia plant offset by the buying back of ammonia over a period of several years, or the sale of a methanol plant offset by the buying back of methanol, etc.
- The relationship is, on the other hand, quite obvious when the product bought back is incorporated in a product or set of products being manufactured by the seller (electronics or engineering products). Here we pass from individual transactions (which may be of large size), entered into one by one, to long-term operations which fall under the heading of "sub-contracting" or "co-production" and, in any case, of industrial co-operation.

These relationships established on the basis of offsetting are medium-term or long-term relationships; they are more likely to extend over ten years than over five years. They establish, for partners from different environments, a long period of close collaboration. One finds that these co-production and co-operation relationships sometimes tend to lead on to joint ventures for the development of processes and products, and, eventually, research (R and D). These relationships are based on mutual advantage: the expansion of a market and the lowering of certain costs, on one side; access to larger series, or the acquisition and assimilation of new techniques, on the other. In practice, offsetting agreements in the sense of co-production and co-operation agreements are today becoming an effective instrument for the transfer of technology[1/] where the buying back of the product manufactured under licence is a strong incentive ensuring the effectiveness of the transfer.

1/ Some agencies and some large firms go as far as to recognize that "to talk about offsetting today is to talk about the transfer of technology".

2.4.3. From offsetting to expanded agreements

In some quarters, offsetting contracts seem to be regarded not as a makeshift expedient which is better than nothing but as an initial stage which leads on somewhere else - inter alia in two directions:

- The development of bilateral relations - buy-back contracts are, after all, limited by the importing capacity of developed market-economy countries and also by the exporting possibilities of the Eastern European (or developing) countries ... "It is a matter then of adjusting production launched in the east or in the developing countries to bring it in line with the needs of Western markets, so that these operations become equally attrative for both parties". 1/ We pass then from individual long-term agreements to harmonization based on the adjustment of real flows in industrial development strategies; this is at the very centre of industrial co-operation.

- Triangular and multilateral expansion

Offsetting agreements do not lock the partners up in a narrow, closed bilateralism. The agencies of the eastern European countries are actively seeking to enter into co-operation with Western firms in order to penetrate third markets ... Moreover, new industrial partners in developing countries sometimes provide a way into new third markets (in the third world) for large Western firms of consulting engineers and suppliers of plants. Western firms also take the initiative in proposing to the USSR and the Eastern European countries co-operation on industrial projects directed towards third countries.

Offsetting agreements generally constitute one element in these complex systems. where the transfer of technology is linked to an expansion of markets, and where quite original edifices are being built in place of the undermined edifice of free trade - the efficiency of which must in any case be examined in the light of the very modest results obtained by the developing countries under a generalized system of preferences.

Before trying to identify the implications of this evolution in contractual forms from the viewpoint of industrial co-operation and inquiring into the role of the firms, States and multilateral organizations involved, a more refined approach is once again needed as we analyse the problem areas which arise in any co-operation effort.

1/ Business Eastern Europe, 9 December 1977.

CHAPTER IV

THE DIFFICULTIES OF TRANSFER: POTENTIAL PROBLEM AREAS, POSITIONS AND OPENINGS

The "potential problem areas" refer to a complex of problems regarding which recent years have seen the development of:

- Demands, particularly from spokesmen of the developing countries, and also
- Divergent attitudes on the part both of the Governments of the developed market-economy countries (DMECs) and of the national or multinational firms operating under their laws. Depending on the particular situation and the nature of the problems confronted, these attitudes range all the way from a total acceptance of the claims made to an outright refusal even to begin discussion, passing through all the intermediate nuances of receptivity and reserve.

For this reason, too facile a classification of the existing problems and the attitudes to which they give rise will fail to reflect the reality of the situation, which is both complex and changing.

Industrial co-operation must constitute a force for integration strong enough to prevent these potential problem areas from degenerating into sources of conflict, and must signal, through the patient achievement of solutions, the presence of a common will to co-operate.

In the first part of this chapter these potential problem areas are catalogued. Their origin lies in a certain type of relationship between developing countries and their companies, on the one hand, and their developed analogues, on the other. The reader is therefore offered a summary classification of these relationships with specific reference to the various kinds of contracts whose execution typically entails problems - problems, moreover, whose implications differ depending on the industrial branches concerned.

The remaining portion of the chapter is taken up with an analysis of each of the nine potential problem areas, describing in each case the most significant attitudes of the various parties concerned and outlining solutions which might prove acceptable to all sides involved but which accord special consideration to the concern of each of the developing countries to master the specific industrialization process which it has set as its goal.

1. General analysis of the potential problem areas: Context

In the preceding chapters we have taken note of a number of attitudes displayed by the different participants involved in relationships which are likely to become an integral part of what is known as industrial co-operation.

Normally, the problem arises in the form of a demand by a developing country or group of such countries.

Later on we shall see that some of these demands are not always completely homogeneous. This is why the aim of this section will be to place these potential problem areas in their proper context, i.e. taking into account:

- Contractual modalities, and
- Industrial branches.

The ultimate purpose is to refine the statement of the problem and, thus, the formulation of possible recommendations.

1.1. List of potential problem areas

The following list is offered without comment. The necessary clarification is given in subsequent sections.

1. Technical information, including technological choices;
2. Financing;
3. Quality of equipment and installations;
4. Training and transmission of knowledge;
5. Local integration in investment;
6. Local integration in the manufacture of the finished product;
7. Export possibilities;
8. Measurement of the indirect advantages on the side of the supplier;
9. Guarantees, arbitration, insurance, security.

It will be observed that these potential problem areas correspond in large measure to the demands of the developing countries.

This does not mean that, for their part, the companies of the developed countries (and occasionally the countries themselves) are not also desirous of bringing about specific improvements in their dealings with the developing countries. However, apart from the desire for greater political and economic stability in the client country, the requests of these firms extend only to certain administrative, legal and contractual devices which some of the developing countries are introducing, or endeavouring to introduce, in order to secure more advantageous conditions for the transfer of technology. Although it reflects only partially the potential problem areas listed above, table I is highly instructive in this regard.

Prepared by a representative of a United States corporation - one of those which seem least receptive to the very principle of the transfer of technology - its portrayal of the reactions of the supplier companies and countries seems exaggerated. But it does indicate quite clearly that lengthy negotiations will be required before any general consensus can emerge.

Table I. United States technological objectives: interests and constraints

Third-world strategies in respect of technological objectives	Interests and constraints of supplier companies and countries
1. To increase the involvement of the local Government	1. To minimize the cost and complexity of technology sales
2. To change the forms of payment and the duration of contracts	2. To receive fair payment for a valuable asset (technology)
3. To diminish the supplier's control over the use made of the technology in the recipient country	3. To obtain assurances regarding the use made of the technology
4. To dissociate technology from the traditional foreign investment package	4. To furnish technology as part of a long-term production and market-penetration process
5. To eliminate restrictive commercial clauses from technology contracts	5. To preserve the possibility of controlling the use of the technology and associated products as well as the commercial markets
6. To minimize the property rights of the supplier	6. To enhance the protection of property so as to encourage larger technology transfers and innovation
7. To reduce contractual guarantees of stability	7. To use contracts to create a climate of stability and confidence
8. To encourage the transfer of R and D to the user's sphere of influence	8. To maintain the effectiveness of R and D

Source: Third Four-Party Conference of Businessmen on Economic Interdependence, London, 28-30 October 1976; by M. W. Wallerder III, Managing Director, Council of the Americas, New York.

1.2. Classification of relations

Industrial relations may develop against a background of bilateral or multilateral co-operation agreements. It sometimes happens, however, that companies based in countries that do not even maintain diplomatic relations with each other nevertheless enter into agreements and sign contracts with one another.

Industrial co-operation thus implies a great multiplicity of contractual forms.[1/] While it is true that the transfer of technology problem is the central concern of this co-operation, it ought not to be forgotten that

- The financing of the industrialization of the third world, and
- The development of international trade

are also very important.

The analysis must not place special emphasis on any one particular contractual form. In addition, it must take into account two other aspects:

- The problem of the size of the industrial projects that are the subject of co-operative relations; such projects may range from a simple workshop to a large integrated project;
- The way in which the implications of the problem in question may vary depending on which industrial branch is involved. This is a factor of major importance which merits further inquiry.

1.3. Analysis by industrial branches

An examination of investment activity in developing countries over recent years casts light on two trends in particular, among others:

- A heavy volume of direct foreign investment has been directed to the mining sector;
- Enterprises operating with local capital have frequently concluded subcontracting agreements with foreign companies in the consumer goods sector.

One must avoid any kind of generalization - for example, the demand of the developing countries to exercise control over their natural, particularly mineral, resources may run counter to the first of the two trends mentioned above.

1/ See section 2.2.

It is nevertheless true that our analysis will benefit from further exploration if the industrial sector is considered branch by branch.

Table II covers 15 industrial branches (including building and public works) plus two other sectors which, although not part of industry, nevertheless offer ample opportunities for co-operation: transport and telecommunications.

The first part of the table cites the principal characteristics of each of the branches as developed in the DMECs, and specifically from the following points of view:

- The "average" size of recently erected production units;[1/]
- The "level of technological sophistication", i.e. the complexity of production processes and machine systems;
- The number and size of the firms controlling the technology.

The second part of the table is designed to show at a glance the prevailing trends in relations between DMECs and developing countries with respect to the establishment and development of each of the branches covered in the survey of developing countries.

Finally, a brief indication is given of the importance of each branch to the over-all industrialization process and the potential problem areas that appear to have the most direct bearing on the development of an industry.

A study of this table suggests a number of conclusions:

A. In a number of branches there is no need for the use of sophisticated technologies. Generally speaking,[2/] industrial units can operate with relatively simple installations in the following branches:

1/ A great deal might be said about the notion of "size". It is not at all certain that optimum enterprise size is necessarily the same in a developed market-economy country and a developing country. The concept of economies of scale is relative to an industry's economic environment. The adaptation of technology to facilitate its transfer must at least involve an examination of production unit size.

2/ A more detailed analysis would require the qualification of this assertion depending on the particular branch under consideration.

TABLE II. Differences in the situation according to industrial branches.

Industrial branch	Analysis of the situation in the USSR: Technical and economic nature of the branch	Type of production process	Size of production unit	Level of technological capitalization of branch as a whole	Number of technology-controllers	Size of technology-controllers 1/	Present status of relations with the developing countries: Trends towards "relocation" 2/	Prevalent types of agreement in the branch 3/	Importance of cooperation other than the USSR	Remarks	Potential problem areas of particular relevance to the branch 4/	Importance of industrialization process in the developing country
[Agriculture]	-	-	-	[Increasing]	-	-	-	Technical assistance; licensing	-	"Green Revolution"	-	[Low]
Power 5/	Heavy	Continuous	Increasing	High	Few	Large	No	Technical assistance; licensing	USSR	Special cases: petrol, nuclear fuel	Financing	Special role in oil-pr.c; average elsewhere
Mining	Variable but tending to heavy	Discontinuous	Increasing	Average	Average	Large	Yes (historical)	Direct investment, credits and joint ventures	Socialist countries (in specific cases)	Particular cost. (history, geology)	Export and financing	Yes (if controlled)
Steel-making	Heavy	Increasingly continuous	Increasing (traditional process, but mini-plants)	Simple to high	Few	Large	Reluctant	Joint ventures; licensing	Yes (several)	-	Financing, equipment quality, integration	Yes
Non-ferrous metallurgy	Heavy to medium	Increasingly continuous	Increasing	Average to high	Few	Large	Yes (raw materials)	Direct investment; licensing	Yes (socialist countries) (aluminium)	-	Financing, equipment quality, integration	Average
Chemistry	Heavy (except for low-volume chemistry)	Continuous (basic chemistry)	Increasing (basic chemistry); small (low-volume chemistry)	Increasingly higher	Few (oligopol.	Average to large	Reluctant	Joint ventures; licensing	No	Many projects in oil-pr.c.	Financing, equipment quality	Yes (particularly for oil-pr.c.)
Metalworking and engineering	Medium	Discontinuous	Medium to large	Simple to high	Low to high	Average to large	Yes (simple areas); No (sophisticated areas)	Direct investment, joint ventures and licensing	Yes (several)	-	Equipment quality and experts	Yes
Electrical and electronic	Medium to light	Discontinuous	Small to medium	Simple to average	Low to high	Small to large	Yes (components assembly)	Direct investment; sub-contracting	Yes (not linked to them)	-	Equipment quality, integration, export	Average
Building materials, ceramics and glass	Heavy to medium	Continuous	Increasing	Simple to average	High	Average to large	No (little or no transport)	Licensing	Yes (USSR and advanced developing countries)	Duplication poss.	Technical information	Yes
Textiles, hosiery and ready-to-wear clothing	Medium to light	Discontinuous	Variable	Simple to average	High	Small to large	Yes	Subcontracting	Yes (several)	-	Integration and export	Average
Leather and footwear	Light	Discontinuous	Small	Simple	Average	Small	Yes	Subcontracting	Yes (several)	-	Integration and export	Average
Paper	Mainly medium	Continuous	Medium but increasing	Average	Low	Average to large	Reluctant	Direct investment; joint ventures	Yes (Eastern countries)	-	Financing and equipment quality	Lesser
Agro-food industries	Light to medium	Discontinuous	Small to medium	Low to average	High	Small to average	Quiet	Direct investment; licensing	Yes (Hungary and Poland)	-	Equipment quality and export	Average
Printing and publishing	Light	Discontinuous	Small	Average	Average	Small to average	Yes (beginning)	Subcontracting	-	-	Equipment quality and export	Lesser
Miscellaneous	Usually light	Discontinuous	Usually small	Average	Variable	Usually small	-	-	-	-	Equipment quality	-
[Transport]	-	-	-	[Average]	-	-	-	-	[Yes]		Financing and integration	[Yes]
[Telecommunications]	-	-	-	[High]	[Low]	[Average to large]	-	-	[No]		Financing and equipment quality	[Yes]
Building and public works	-	Discontinuous	Variable	Low to average	High	Variable	-	Technical assistance	Yes (several)	Projects to be distinguished from cases of construction	Technical information and integration	Yes

Notes to Table II

1/ The information on the number and size of the firms controlling the technology is useful in that it provides an idea of what some have called the technology market. In a branch in which only a few large companies control the production processes, it seems probable that it will be far more difficult for developing countries to gain access to the technology than if they are able to play off a large number of moderate-sized firms to a competitive situation (assuming they can create that kind of competition).

2/ The term "trend towards relocation" refers to those branches in which, for a variety of reasons (labour costs, environmental pollution, tax benefits, etc.), there is an incentive for companies based in MDCs to transfer to certain developing countries productive activities which are closed at the interests of the developed countries themselves (direct control, joint ventures, subcontracting, control through operation of distributive channels).

3/ In order not to overload the table, only four types of contractual relations have been mentioned in this column: technical assistance, joint ventures, subcontracting and licensing agreements. The real situation is far more complex; however, every type of agreement can be reduced to one of the four types mentioned here. For example, a "turnkey" contract not providing for a capital contribution may, in the first approximation, be regarded as a licensing contract, but also, if it contains "buy-back" clauses, as a subcontracting agreement.

4/ Only five potential problem areas have been listed in this column: technical information, financing, integration (either in the construction or production stage, or both), equipment quality (which usually relates to training problems) and export. For each branch an effort has been made to indicate those areas in which the risk of difficulty is greatest.

5/ Predictable developments in the area of so-called "non-conventional" energy sources, particularly solar energy, have not been reflected in this line. Such developments might take the form of a variety of low-power, decentralized applications, quite unlike the ones now made of conventional energy sources.

- Mining;
- Metalworking;
- Building materials, ceramics and glass;
- Textiles, hosiery, ready-to-wear clothing;
- Leather and footwear;
- Agro-industries (in part);
- Building and public works (particularly traditional house-building).

Thus, provided certain safeguards are observed, the transfer of technology for these branches need not involve any major problems. In these branches, particularly in building materials, textiles, leather, agro-food industries, and building and public works, the application of local know-how should be explored, without however totally ruling out the use of imported technologies.

B. A number of branches (in the area of heavy industry) have developed along highly capital-intensive lines. These include mainly:

- Power;
- Steelmaking;
- Metallurgy;
- Chemistry.

Even in those developing countries where the availability of the necessary financial resources and the size of the market justify it, the development of these branches entails formidable problems of financing.

C. Enterprises of the developed market-economy countries do not invest in all branches. Their direct investments have been concentrated in the following areas:

- Mining and,
- To a lesser degree, metallurgy, mechanical engineering, paper, and certain agro-food industries.

Joint ventures, whereby the enterprise in the developing country is not totally controlled by the foreign investor, are found principally in the following branches:

- Steelmaking;
- Non-ferrous metallurgy;
- Mechanical engineering;
- Paper.

Finally, it will be observed that in the case of consumer goods (except for those mentioned in the two lists given above) the involvement of foreign companies in developing countries is increasingly limited to licensing or subcontracting agreements, regardless of whether these goods are intended for the markets of the developing countries or for export to developed market-economy countries.

Thus it appears that, in these branches, the major companies of the DMECs are satisfied with indirect (market) control. The growing dependence of the producer on the distributor (mirroring a situation that is also found in the DMECs themselves) makes it possible to control a branch without actually contributing to its production capital.

D. A final observation suggested by the table is this: in a number of branches there are other sources, besides the companies of the developed market-economy countries, from which technology can be acquired. No analysis of industrial co-operation should overlook the potential of the countries with centrally planned economies and even of certain countries which, although classified among the developing countries, e.g. India, Brazil, the Republic of Korea and others, are already in a position to study, design and produce the kind of capital equipment that gives them the capability of carrying out "turnkey" projects in other developing countries.

2. The potential problem areas: Statement of the problems and considerations

In this section, in which each of the potential problem areas will be identified and defined, it is important to bear in mind all the observations made earlier which may imply qualifications of the following remarks.

2.1. Information - technological choices

Scientific, technical and economic information, when not covered by industrial secrecy, is, at least theoretically, available in the developing countries just as it is in the developed countries, in the following forms:

- Periodicals, books, scientific publications,
- Possibility of access to certain card files and data banks and
- Patents and standards, to some extent.

However, this information is not always complete. In addition, it may for a variety of reasons be difficult for it to reach the developing countries. Furthermore, the information contained in these aids is designed primarily in the developed countries with a view to use by them. It is therefore not necessarily suited to the requirements of the developing countries.

More specifically, as regards an industrial project, the information required, sometimes referred to as "industrial information", comprises information on the following:

- Raw materials, semi-finished products and the utilities required for production,
- Possible technologies,
- The products themselves (both technical and marketing factors),
- Administrative and management problems.

There are two main issues relating to this information as a whole, namely:

- Access to the information and
- The nature and quality of the information.

2.1.1. There is a large body of information available. Paradoxically, even in a developing country, the danger appears to be that there might be too much information rather than not enough, since 100,000 scientific periodicals are published (2 million articles a year) and 200,000 patents are registered yearly. The problem lies in being able to sift this body of information. This problem is directly linked with:

- Training of technical personnel and
- The organization of certain structures.

A minimum technical level is required to grasp scientific or technical information. The persons in charge of an industrial project in a developing country must therefore have access to this level, either directly or through their collaborators. Otherwise, any technical follow-up of the project is impossible. The foreign partner, if he approaches his work in the normal way, will want this kind of minimum follow-up from design to the production phase of the project.

In the developing countries, technical training is by and large patterned after that provided in the developed countries. This is true not only for training acquired in the local educational system, but also in the case of students being trained abroad.

In addition, theoretically, scientific information is accessible in the same way everywhere. In concrete cases, there are a number of obstacles, both to individual access to scientific information and to the access of groups to such information.

For individuals, the following problems may arise:

- The failure to disseminate certain periodicals and books in the developing countries,
- The excessive cost of publications purchased directly.1/

As regards groups, the difficulties are often inherent in the bodies concerned (enterprises, documentation centres, etc.), and linked to the level of development of the country, limiting access to the information published. In this connexion, the idea can be put forward that the establishment in enterprises in the developing countries of "prime contractor cells" would appear to be a minimum measure. Such a cell should be able to carry out feasibility studies, draft invitations for tenders on its own and ensure follow-up in respect of work. Its operation calls for the gradual acquisition of the mastery of technical problems specific to the enterprise, beginning with the sifting of the mass of existing information and selection of that which is of direct interest to the enterprise.

2.1.2. Another problem which arises in addition to that of access to information is its quality. In particular:

- Does existing information make it possible even to begin to master a technology?
- Does this information, which is for the most part designed in developed market-economy countries, enable the specific socio-economic conditions in the developing countries to be taken into account?

1/ The problem may be aggravated by currency controls or import monopolies.

2.1.3. The first question can be answered by an example. Many publications present the information contained in registered patents as a source of information - already classified - for the developing countries. However, there are two obstacles to utilization of the information contained in patents:

(a) The normal rules of conduct prohibit a firm in any country from using the invention described in a patent without purchasing the right from the inventor (licensing contract) if this patent has been registered in the country.

(b) In addition, owing to the fear of inventors that these rules may not always be respected, a good patent:

Describes a product or process so precisely that an imitation can easily be recognized,

But always remains vague enough on a number of points to make this imitation almost impossible.

In practical terms, where the text of a patent describes a manufacturing process which is genuinely innovative, a specialist in this process is not able, with the text of the patent alone, to achieve the results described in the patent. The know-how - all the specifications regarding the points left vague in the text of the patent - is also required.

It can be pointed out that, apart from some products whose production hardly presents technical difficulties, licensing contracts (conferring the right to produce under a patent) are usually accompanied by a technical assistance or know-how contract to provide the licensee with the missing elements.

It may therefore be misleading and even dangerous to let it be thought that the use of patents which have entered the public domain constitutes a source of free technology. In order to make use of such know-how, one must:

- Either refer to the holder of the patent,
- Or have research and development teams, already operational, to retrieve the know-how.

2.1.4. The second question must also usually be answered in the negative. Apart from a little work taking into account the conditions (economic, geographical and technical) prevailing in the developing countries, the great majority of scientific publications focus on the most up-to-date technical advances. However, all the "basic" techniques are mastered in production units. Engineers and technicians gain concrete experience in these units and there is no reason for these "conventional" data to be covered in publications.

However, above and beyond this information in the public domain, there is know-how of an informal nature in enterprises in the industrialized countries, socialist countries and some of the relatively more advanced developing countries.

In the case of the industrialized countries, there are enterprises which have in the past been able to design and produce articles of comparable quality to that which now prevails under different conditions (plant size, less sophisticated techniques).

Such know-how and techniques can be surveyed by an international agency, which can also disseminate knowledge of the relevant experiments.1/

It is on the basis of such data that technological selection can be made. The entrepreneur in a developed country is able to compare the costs and advantages of the traditional production process which he has mastered with those of a new process. In a developing country where there is little or no industrial experience of this type, the only reference will be what is described in technical information. Those in charge of a project may therefore find themselves defenceless in their negotiations with the representatives of firms which will propose only the technology in respect of which they expect to earn maximum profits2/ and not the one which would be best suited to local conditions.

2.1.3. Several series of measures can be envisaged to alleviate the difficulties encountered by the developing countries in the search for information with a view to their industrialization.

In general, it is necessary to refer to firms holding technology in developed market-economy countries.3/ Whatever contractual forms this collaboration - and sometimes co-operation - may take, it is absolutely essential that developing countries should have structures able to accommodate and store this information. In particular, there are the "prime contractor cells" in enterprises and the "technical information and co-ordination centres" which can be set up

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1/ For example, there is the case of a Tunisian enterprise which learned by chance of the existence of a Danish process for the manufacture of frames from reinforcement bars. It should be possible to survey and disseminate information on the experimental use of this technology in Tunisia.

2/ Sometimes even certain contracts with developing countries are "full-scale tests" of new technologies which - in the context of accumulated experience - benefit firms in the developed countries.

3/ Not forgetting that, in most cases, there are other holders of technology. See table II, page 79.

at the level of a developing country or sometimes of a regional group of developing countries. Under these conditions, the information purchased - sometimes at great expense - will be used to the best advantage.

As for so-called "free" information (patents, scientific publications), the assistance of international agencies (ISO for the former and, for example, UNIDO for the latter) could be valuable in the selection process. However, the utility of such sources could be much greater if they took into account the special requirements of the developing countries with regard to technology by exploring more specifically the following fields:

- Suitable technologies,
- Technologies for basic requirements,

but of course not meaning by this:

- Out-dated (obsolete) technologies.

While in some fields systematic use of the most advanced technologies does not appear to be necessary (e.g. building materials), in others very close attention should be paid to innovations (e.g. the various applications of solar energy).

In any event, the assistance of international agencies would be especially effective in this field since they would "organize" the information available with a view to its use in the developing countries and would not settle for storing it for future dissemination on an "as is" basis.

The various developing countries should also be placed in contact with one another in order to ensure dissemination of information on experience of interest to the group as a whole.

2.2. Finance

This problem has already been referred to in chapter I. There is therefore no need to revert to the subject of developments with respect to the investments of the developed market-economy countries in the developing countries or the evolution of these investments into other forms of involvement, nor to return to the use of credits and loans as a financial instrument of preference in the industrialization of the third world.

In this section, we shall concern ourselves primarily with the extent to which the constant and rapid increase in the prices of capital goods in recent years has affected the industrialization programmes of many developing countries, including some of the wealthiest of them, namely the oil-producing countries, where the cost of some projects sometimes exceeds the limits of finance which can be locally mobilized.

2.2.1. Several examples will serve to indicate the scope of the phenomenon.

In iron and steel making, in the case of integrated complexes, a cost of $1,000 per tonne of installed capacity appeared to be the ceiling in 1975-1976. In 1977, costs of up to $1,200 per tonne in the United States, and even amounting to as much as $2,000 per tonne for iron and steel projects in several developing countries (Algeria, Morocco, Venezuela) are being advanced. Under the Lima goals (25 per cent of industrial production in the third world by the year 2000), it has been calculated that an iron and steel production capacity of 25 million tonnes/year would have to be installed in the developing countries each year. At a cost of $2,000 per tonne, $50 billion would have to be invested annually in the third world for iron and steel alone. In comparison with this amount, the cumulative total of loans by the World Bank and credits from IDA approved as at 30 June 1977 for iron and steel was $941.5 million, and the total amount of loans and credits made available by these same bodies during financial year 1977[1] was slightly more than $7 billion.

The examples of the increase in investment costs in many industrial branches are numerous:

- In the paper-making industries the cost is around $2,000 per tonne of installed capacity for a complex;
- In the petrochemical industries, it is approximately $2,000 per tonne of installed capacity for a complex based mainly on the ethylene line;
- For an aluminium refinery, it is $1,500-2,000 per tonne, and for a copper foundry and refinery (including the mine), it is $3,000-5,000 per tonne, etc. [2]

1/ From 1 July 1976 to 30 June 1977. Source: World Bank.

2/ ITCM, March 1978.

2.2.2. There are two main reasons for this substantial increase. On the one hand, there is the increase in costs (inflation) taking place in the developed market-economy countries which the latter incorporate into sales prices and attempt to pass on to their customers, including their purchasers of capital goods and industrial complexes in the developing countries. On the other, the investments made in the developing countries are subject to substantial excess costs (nearly 70 per cent for iron and steel in the example quoted above) by comparison with those made in developed market-economy countries. A number of reasons can be advanced for this:

- Assumption of infrastructure costs which are much heavier in a country which has little or no industry;
- A considerable increase in the cost of some specific equipment (e.g. ferrules); 1/
- Higher transport costs because the capital goods are manufactured in developed market-economy countries;
- Additional costs arising out of the lack of industrial experience (local staff must sometimes be trained at the same time as the equipment is delivered).

These explanations, in addition to the fact that they are not always verified, do not in themselves justify the excess costs encountered. The following must also be taken into account:

- The systematic charging of excessive prices for goods sent to the developing countries by certain firms;
- The cost of technology. In sales between developed market-economy countries, this type of cost is less often taken into account.

2.2.3. With regard to this group of problems, just as some economists say that a substantial source of energy in the developed market-economy countries might be ... a serious energy-saving policy, it may be considered that the problem of financing industrialization in the developing countries would become less acute if part of the excess costs were eliminated. Greater care in the selection of technologies and partners by those in positions of responsibility

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1/ In this connexion, reference may be made to the effort in the United States to determine the key equipment for various industrial processes (see chapter 2).

in some developing countries would work in this direction. International agencies can also play a part by helping to re-establish genuine competition in many sectors. In addition, it is probable that the appearance on the market of industrial equipment and units manufactured by suppliers in the more advanced developing countries will bring about a substantial decrease in prices (and costs). This is borne out by recent examples.

All this will not do away with many causes of cost increases. Since the financial resources of the developing countries are unlikely to improve rapidly,[1] imagination would appear necessary in order to ensure that the industrial projects of the developing countries get off the ground.

2.2.4. One of the approaches now being advocated, which appears most attractive from this point of view, consists of the so-called "buy-back" arrangement already studied in the United Nations Economic Commission for Europe.[2]

Under this scheme, the industrial project is paid for by its purchaser in the form of part of the planned production. Thus, for the purchaser, there are no outflows of foreign exchange at the time of construction of the project. For the seller, or rather the seller's banks, the loans concerned involve a low level of risk because they are backed by the security of a production which all the partners have an interest in seeing started up as soon as possible. However, this approach assumes that the supplier will be able to market the share of production coming to him.[3]

1/ The terms of trade between the developing countries and the developed market-economy countries will be able to improve only very slowly. The difficulties being encountered in the negotiations on basic commodities prove this.

2/ Financing and developing industrial co-operation through compensatory transactions, United Nations Economic and Social Council, ref. TRADE/AC.3/R.4, October 1976.

3/ This means of financing of industrialization is a special form of credit. In view of the inadequacy of accumulation of capital in most developing countries, any proposal relating to finance will involve some form of credit. In view of the disorder in world money markets, some anxiety is in order concerning the extent to which credits and finance schemes will in future be suited to the real needs of the developing countries.

Other forms of compensation are envisaged. Some oil-producing countries (e.g. Iran) are attempting to link the purchase of capital goods to sales of oil. However, this has already been covered in the preceding chapter, in which it is indicated that the expansion of this phenomenon may enhance guarantees to the developing countries against the risks in the world market, while at the same time ensuring additional financial resources.

2.2.5. In general, and referring back to some of the conclusions of chapter I, we find that:

- The investment capacities of domestic firms in the developing countries are often small, sometimes very small;
- Firms originating in the developed market-economy countries are tending, in relative terms, to withdraw from involvement;
- Governmental type credits (bilateral and multilateral) and private credits, on the other hand, are playing a very important part in the financing of industrialization in the developing countries in traditional forms (export credits, bank loans) or in new forms (buy-back).

This raises not only the problems of:

- Reduction in the unit cost of industrial installations and
- Increasing availability of these credits,

but also that of:

- The rapid growth in domestic savings capacity needed to reduce recourse to these external sources.

2.3. Quality of equipment and installation

This sensitive point is one of the problems directly linked with transfer of technology. After all, technology is embodied in a group of machines. However, at first glance, it appears that suits arising concerning the quality of equipment and installations are not of a different nature when developing countries are involved than in the case of relations between developed market-economy countries. Much has been made of the case of second-hand machinery repainted and sold as new to enterprises in developing countries. Such dishonest practices, apart from the fact that they are rare, are indefensible. The laws of all countries ensure a minimum of protection to purchasers in this connexion.

However, in the context of international trade, it is difficult for the developing countries to have any recourse once they have paid for equipment. The Governments of the countries in which the firms of developed market-economy countries originate take their stand on the entrepreneurial freedom of their firms.

Again, then, there must be minimum means of control in the developing countries for reception checking of equipment:

- On the one hand, in the manufacturer's plant,
- And on the other, upon arrival at the site of the production plant.

For some developing countries which do not yet have the manpower required to carry out such reception checking, the idea of entrusting reception checking of equipment to an international agency would probably be looked upon as an interference which would hardly be acceptable. In addition, it would have the disadvantage of completely relieving the national sponsors of the project of responsibility.

The following approach would doubtless be more attractive. Just as the developed market-economy countries provide their enterprises with information on the reputation of foreign firms with which they wish to establish business relations, one could imagine that the enterprise publishing a call for tenders might ask for information on the reputation of enterprises submitting tenders, in particular with regard to the following:

- Their genuine and full mastery of the proposed technology,
- Their engineering and implementation capacity,
- Their financial standing.

2.4. Training - transfer of know-how

2.4.1. The developing countries which have set up various general or specialized training systems have always been acutely aware of the importance of general training problems. However, over the past 15 years, awareness of the importance of training more directly linked to the establishment and operation of industrial complexes has gradually grown. This phenomenon has

emerged through the evolution of contractual forms, with contracts (involving subcontracting or turnkey arrangements, etc.) supplemented by supplementary contracts relating to training, up to the "product in hand" contract, under which training becomes one of the main features.

While, as far as general training is concerned, there has always been co-operation among the developed market-economy countries, the planned-economy countries and the developing countries, taking the form of:

- The sending of students from developing countries for long stays and
- The establishment in developing countries of institutes or schools in which foreigners teach,

the preparation of training programmes integrated with the construction work involved in industrial projects (from the simple licensing and know-how contract to the "product in hand" contract) opens up a new field of co-operation.

2.4.2. These integrated training programmes relate both to:

- Long or short periods of training abroad in the workshops of the builder of equipment or plants of the firm providing the licence and know-how,

and to:

- Co-operation on the spot, i.e. on the installation site or in the new workshops of the industrial plant - between local personnel and personnel sent by the supplier for varying lengths of time.

In the case of conventional training systems, with students in foreign universities or being trained in local institutes, the usual methods of evaluating the effectiveness of the training, e.g. diplomas or various types of checking of knowledge, are normally used.

This is not true in the case of a programme of training integrated with a project. Here a problem of evaluation arises. How can the quality of the training and also the effectiveness of the transfer of know-how be measured?

In this field, one is concerned primarily with non-material elements. Of course, there are material aids, e.g.:

- Documentation,
- Mimeographed courses,
- Plans, audio-visual material, instruction booklets accompanying the granting of a patent or know-how, representing technical assistance in material form.

However, should the plant covered by the project fail to operate, operate poorly or be slow in achieving its normal rate of operation, it is difficult to determine the extent to which responsibility for this situation lies with:

- Poor presentation and clarification of the information sold;
- Inadequate diligence and even reluctance on the part of the technical assistance personnel responsible for presenting and illustrating the information in the plants; or
- Inadequate work or lack of responsibility on the part of the local personnel during the training period abroad, on the installation site or in the already operational plant.

2.4.3. It is sometimes found that although the training of individuals (engineers, technicians, workers) is good, and these persons are subsequently able to make a career (sometimes abroad), the unit does not operate satisfactorily. There is a gap between individual training and collective training.

This finding emphasizes the importance of all factors relating to organization and management in what is referred to in a very general way as "transfer of technology". This is why we necessarily move from interest in training problems to the related questions of management. The problem of training is never a problem of technical training pure and simple. It would appear, on the contrary, that technical training (of an individual nature) only becomes effective if it is placed in the context of a certain type of organization and management. This is why the evolution of contractual forms is now leading towards formulae involving "mixed management", joint ventures in the field of management, etc.

Such formulae do not automatically guarantee greater effectiveness in the transfer of knowledge. However, they do elicit two remarks.

2.4.3.1. Refined and systematic analyses would have to be undertaken in this field in order to throw more light on a field in which reliable information is still fragmentary, i.e.:

- How is knowledge transferred in the context of construction and implementation relating to an industrial project - individual versus collective transmission?
- How should the transfer of specifically technical knowledge be organized in the context of an organization and system of management?

An organization such as UNIDO would probably be in a position to make advances in this type of analysis.

2.4.3.2. It is obvious that the best protection for the customer enterprise remains a strong interest on the part of the supplier in good operation of the unit, and, thus, in good transfer of knowledge, whether this interest is motivated by:

- The prospect of obtaining other contracts in the same country,
- Concern for its good international reputation,
- The fact that the production of the unit itself constitutes the guarantee of payment for services rendered, e.g. in the case of a buy-back agreement.

2.5. Utilization of local inputs in the implementation of investment projects (integration)

This relates to the utilization of domestic goods (and services) in the construction of the new industrial plant, including civil engineering work, execution studies, metal structures, various capital goods, sub-assemblies or assemblies.

2.5.1. The integration of local inputs is a foregone conclusion when the customer has had long industrial experience, himself carries out project studies and implementation (with or without the assistance of an engineering firm) and maintains full initiative as regards the selection of his suppliers.

The problem becomes more difficult when the customer has had little or no industrial experience and concludes a turnkey or, even more, a "product in hand" contract.

The problem is also made difficult when recourse is had to foreign credits and these credits, as often occurs, are tied to the purchase of supplies from industry in the investor country.

2.5.2. Whatever the difficulties, many developing countries are steadily strengthening their demands. These demands are of course connected with the desire to "untie the package", but they are also advanced with increasing frequency by customers engaging in "product in hand" contracts, who have a tendency to impose on contractors an increasing level of utilization of domestic inputs of goods and services. This constraint develops as follows:

- From the supply of earthworks and civil engineering works (and possibly execution studies),
- Through:

  Participation in installation (starting with simple line-laying work),

  Supply of metal framework and storage facilities (and execution studies for these),
- To the supply of more sophisticated goods and assemblies:

  At first of the repetitive type (e.g. travelling cranes and speed reducers),

  And eventually of the non-repetitive type (continuing up to the cement kiln).

Furthermore, there is a "line" which is difficult to cross between what might be called "auxiliary" goods or sub-assemblies and goods and sub-assemblies essential to the "core" process. It is difficult to cross this line, and it is even more difficult to gain its acceptance by the supplier (i.e. to impose it effectively). There are several types of obstacles to be overcome, in addition to the problem of tied credits:

- Locally produced inputs used must meet minimum standards in terms of quality, price and delivery deadline. In this connexion, it is relevant to point out that it will hardly be possible in the beginning to avoid higher prices and longer delivery times. Both customers and suppliers will have to take this into account in finalizing their planning. There can be no compromise regarding quality, but standards which relate to exclusive commercial processes more often than to technical imperatives must be avoided.
- It must be recognized that there is an apparent contradiction between the desire for utilization of domestic equipment, services and sub-assemblies and the demand for more extensive guarantees by the supplier.

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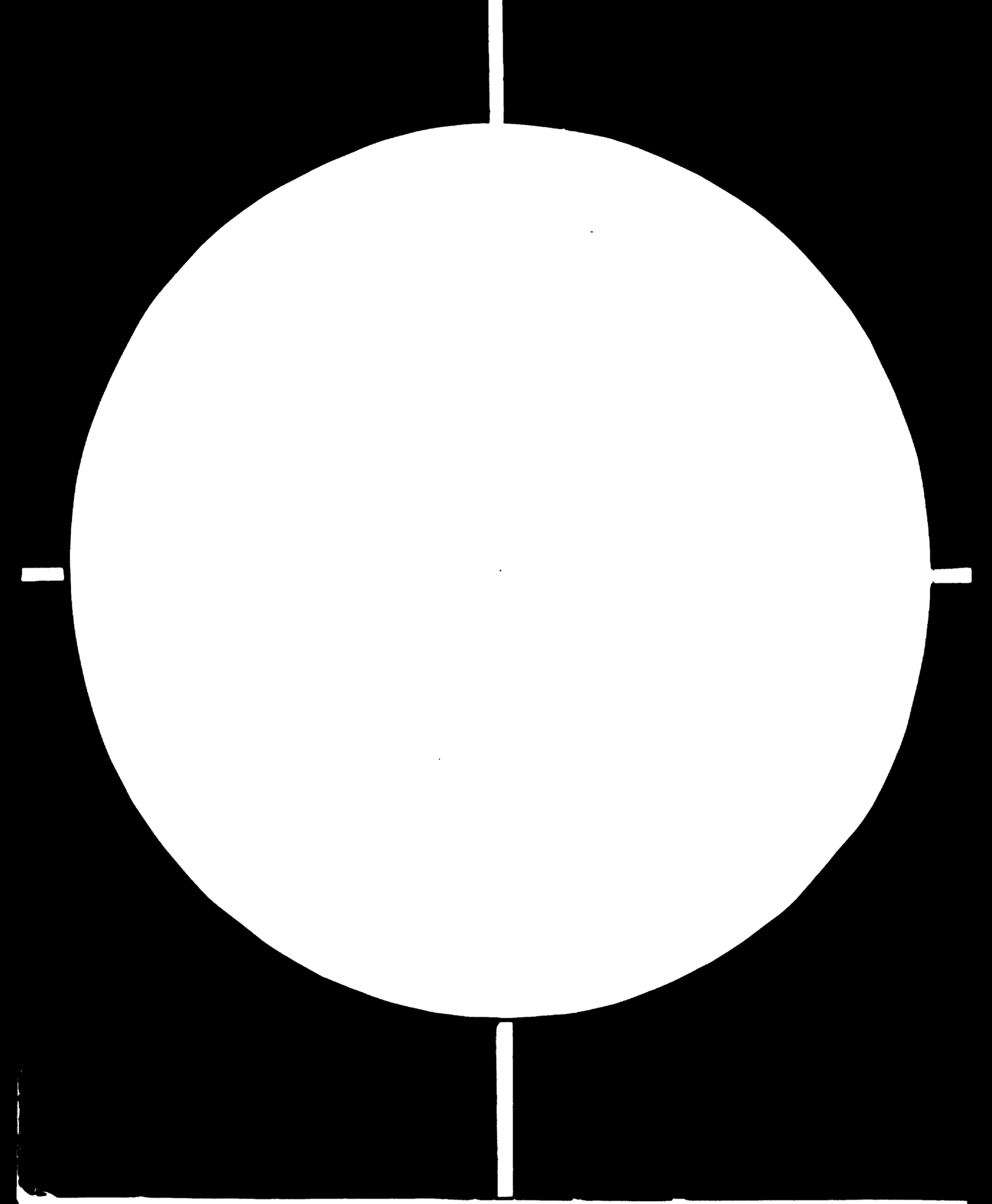

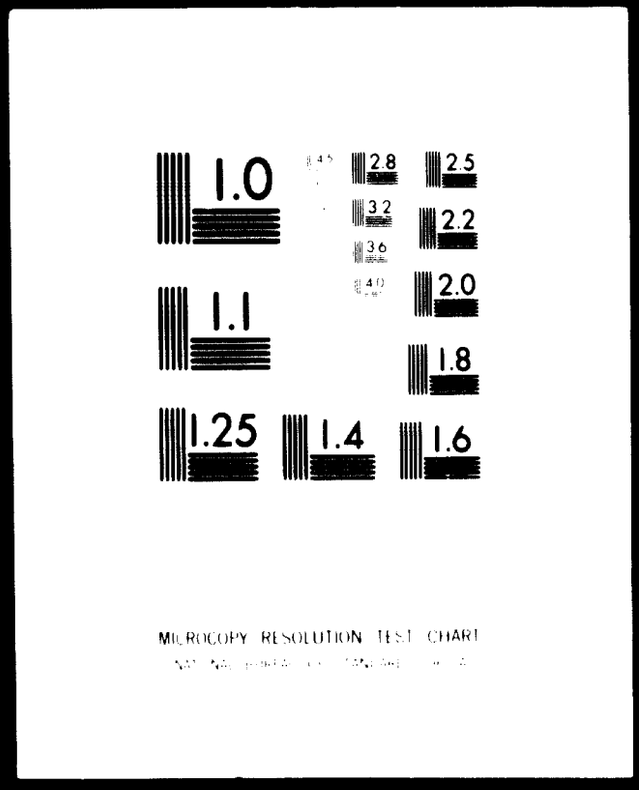

2.5.3. This is a contradiction which cannot be studied in the sense that it is located at the heart of the industrialization and negotiation process, where confrontation should give rise to new forms of co-operation.

From the viewpoint of the developing countries, the desire for utilization of domestic inputs does of course arise out of a concern that national components should be used and maximum savings of foreign exchange achieved. However, this is only a secondary objective to the extent that the utilization of domestic inputs constitutes one of the essential instruments by means of which technological mastery is gradually built up. Experience shows that technological mastery is achieved through both:

- Construction of increasingly sophisticated capital goods and
- Construction closely combined with the establishment of study capacities, including capacities for execution studies, and also phase after phase of capacities for design studies.

From the point of view of the developed countries, it is also a commonplace to say that their greatest assets no longer lie in the simple production of cotton cloth, footwear or drawn wire, but rather in brainpower-intensive capital goods and even mastery of software.

The contradiction resulting from this double reality is emerging with increasing clarity as the industrialization process becomes more complex in some developing countries. It comes to light in more or less explicit or low-key conflicts. Disputes have arisen, for example, between a developing country and the World Bank concerning the construction of new iron and steel plants. The initial agreement had provided for financing by the Bank and participation amounting to 30 per cent by the capital goods industry. The national authorities, basing themselves on their country's industrial capacity, wanted to increase this share to 70 per cent, and this provoked a long discussion and dispute.

Similarly, a stir is now being caused in Brazil by what the firms refer to as a "new climate for foreign investment". Whatever grounds there may be for the firms' fears, and whatever the outcome of the discussion, it is clear that the Brazilian capital goods industry is attempting to affirm itself and

to use domestic sources of finance to its advantage in order to gain additional assets by comparison with foreign firms, whether or not established in the country.[1] In this context, they are also demanding:

- A limit on imports of capital goods and
- A right of veto by the Industrial Development Council with regard to any foreign investment. [2]

2.5.4. Since there are strongly opposing views on this matter, it is of particular importance to clarify possible areas of common ground and pinpoint common interests.

The developing countries know that their demands will be all the more well founded if they take measures (as concerns their partners and themselves) to solve or come to terms with problems of quality, price and delivery deadlines with respect to the domestic inputs which it is proposed to integrate into production. The assignment of high priority to the establishment of domestic study capacities probably constitutes a prerequisite for the solution of these problems and for on-going discussion on an equal footing with the supplying partner.

The developed countries will not be unaware of the prospects for long-term, as well as medium-term and even short-term, co-operation opened up by this type of promotion of study and production capacities in the developing countries.

The way is already open for three-cornered transactions[3] in which the main supplier in a developed country embodies in his proposal equipment and services (studies) from a given developing country.

In this context, a multinational institution such as UNIDO would facilitate the development of such co-operation by proposing in-depth analyses of the gradual mastery of the production of capital goods and preparation of studies (execution and design). In this connexion, it would be useful to collect

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1/ "Foreign investor curbs appear to be new mark of Brazilian climate", Business Latin America, 22 February 1978.

2/ Business Latin America, 6 April 1977.

3/ Mention must also be made of all the possibilities for collective "self-reliance" opened up.

information on the lessons learned from experience by countries which have industrialized or have started their industrialization process in the past 30 years. That would make it possible better to pinpoint the areas and possible phases of bilateral, trilateral or multilateral co-operation:

- Between developed market-economy countries and developing countries,
- Between developed market-economy countries, planned-economy countries and developing countries,
- Between planned-economy countries and developing countries and
- Among developing countries (collective self-reliance).

2.6. Integration of domestic inputs into production

2.6.1. Through integration of locally produced raw materials, semi-finished products and sub-assemblies into the end production of the new industrial plant, industrial linkages within the host country are accentuated. This integration can also relate to services (e.g. maintenance and repair) for the new plant. It is this desire for development of an industrial fabric which comes to expression in the demand for a higher level of integration of local inputs into production. This demand is reflected in one of the proposals of the code prepared by the Group of 77 in the form of one of the guarantees, i.e. that providing for a constant effort to replace imported supplies with locally produced materials, equipment and spare parts. Action is being taken in many countries to bring this about.

In Mexico, the Government is exerting pressure on automobile manufacturers to increase the level of integration of local inputs from 60 per cent to 80 per cent. To ensure that this level has a very specific meaning, the Mexican authorities account for:

- Imports of equipment,
- Payments in respect of licences and
- Re-exported profits

as external elements, by comparison with car prices in the licenser's country of origin - an idea already put forward by the Andean Pact countries. Thus, the level of integration takes into account all the elements which may exert an influence on the Mexican balance of payments, whether visible (imports), or invisible (payments, exported profits).

In Algeria, where the main industrialization effort has thus far been concentrated on the implementation of major projects in fields to which priority has been assigned, integration within complexes is being aimed at. In the engineering complex producing engines and tractors in Constantine, 80 per cent of the value of the products is created within the complex. It would even be possible for the raw materials to be the only input for such complexes, with all other required productions, even including tooling, carried out within the complex. This means of solving the problem by a drastic approach is quite attractive, but it does have some drawbacks:

- It increases the total cost of industrialization. In this connexion, some maintenance and repair services could be common to several plants and would be less under-used.
- It makes the management of some complexes, in which co-ordination among the various units is very hard to achieve, more difficult.

This strategy aims at massive on-the-site integration and attempts to circumvent the lack of an industrial fabric, which must often be established from scratch. In doing this, it raises an obstacle to the emergence of small and medium-sized enterprises, which would make possible an evener spreading of employment.

2.6.2. This desire for integration assumes that domestic production meets constraints in respect of quality, and also that domestic products are known and have been catalogued. This desire for integration should be accompanied by a concern for the promotion of local engineering operations and a parallel concern for standardization. If these points are not taken into account, the desire for integration may never be realized, since foreign engineering firms - either through ignorance or intentionally - will curtail the use of local inputs (semi-finished goods, maintenance services, etc.), using imported supplies instead in order to ensure compliance with standards.

In this connexion, it may be useful to touch on the importance of standards, which are the bearers of both technical information and commercial procedures which must be understood in order to implement an integration policy.

* * *

"Standardization has acted as one of the factors in the world-wide spread of trade by imposing uniformity at the world level."[1] The International Federation of National Standardizing Associations (ISA), set up in 1926, comprised 22 regional committees. Since 1947, international standardization work (in all fields other than electricity, which has been dealt with since 1904 by the International Electrotechnical Commission-IEC) is carried out by the International Organization for Standardization (ISO), which took over from ISA after the Second World War.

Since the beginning of industrialization, standards have constituted instruments of strategy drawn up by the major countries and large firms to ensure self-supply or to strengthen a position of preponderance. The standards system can often act as a non-tariff barrier to imports.[2] This point can be illustrated by an example relating to the establishment of protective standards.

After the adoption of the metric system by the United Kingdom a few years ago, the United States is the last major industrial country remaining faithful to the inches system. The country is therefore in a position which is unfavourable to its economy and balance of trade, and this prompted it to study the possibility of adopting the metric system. However, in view of the cost of changing systems, which would place the country in an unfavourable position by comparison with the European "metric" countries, the Americans have worked out a so-called "optimum" metric fixing elements system (OMFS) different from the ISO metric system applied in most countries in order to force the other countries to change again and thus also to bear the corresponding expense. "In view of the role played by the American screws and bolts industry in world markets, which enables it to make its own laws, this operation constitutes a serious threat to competing European industries. It is to be

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1/ Louis Armand, President of AFNOR (French Standards Association), "Cinquante ans de normes françaises" - brochure published by AFNOR.

2/ Recently, AFNOR and the French textile centre decided to study standards for textile products, with a view to combating "wild-cat imports".

feared that American importers may demand that their European suppliers should comply with these new standards at a time when manufacturers have had to make costly investments in order to make the transition from Anglo-Saxon measurements to metric measurements."[1]

It is often engineering consultancy structures which use and administer these standards, and sometimes amend them. A country can hope to participate in the drafting of standards,[2] and above all to orient the system with a view to its own interests, in other words in keeping with its own industrial system, if it controls the whole engineering system. Control of the engineering system is gained by one country through the development of engineering structures including consultant engineering firms and an engineering design structure established by capital equipment manufacturers and through orientation of the relationships developed by these engineering structures with research and development, enterprises manufacturing equipment and machinery and industrial customers of engineering concerns.

1/ MOCI, No. 129, page 84. See also Usine nouvelle, No. 17, 1973 and Les industries mécaniques, 23 January 1975.

This attitude on the part of the USA regarding the international standards system for screw threads can be better understood in the light of the evolution of the country's imports of nuts, bolts and screws. In 1974, imports accounted for 39 per cent of supply of the American market, but by the first half of 1975, the proportion had increased to 50 per cent. In view of this development, American producers of standard nuts, bolts and screws asked the International Trade Commission to establish import quotas for a period of five years (Usine nouvelle, 2 October 1975).

2/ The following example is interesting in this connexion (Usine nouvelle, 30 March 1978):

- SFR, an enterprise belonging to the category of small-scale and medium-sized industry which specializes in hydraulic safety devices, has been hampered in its international development by the variety of standards systems. As the company's export director notes, there are few standardization bodies which do not exhibit some latent protectionism by delaying approvals as much as possible. However, thanks to its determination to break through this barrier - some files having remained pending for several months - SFR succeeded in penetrating the various northern European markets.

SFR has promoted its system in Spain, suggesting that boiler manufacturers should establish strict safety standards. "As I am the only one to have done this groundwork, the standard established will undoubtedly correspond to the AFNOR standard."

2.6.3. This desire for integration on the part of the developing countries can sometimes run counter to the short-term interests of foreign firms which find in transfer of technology not only an opportunity for penetration of a market, but also the chance to expand their operations to other products. None the less, some large firms have shown that they were entirely receptive to this type of demand; the examples of Fiat and Ford in Spain are very conclusive in this respect. These firms have committed themselves to maintaining a substantial degree of integration. It may be recalled that Fiat was amenable to the idea of decentralizing the whole production process, with the exception of engineering and marketing.

This openness of firms to the integration of domestic inputs into production goes hand-in-hand with the openness already described above towards the establishment in the developing countries of domestic engineering capacities.

In addition, the industrialized countries will not be unaware of the prospects for longer-term co-operation afforded by this integration.

Through offsetting contracts, the developing countries, like the socialist countries, attempt to export increasing amounts in terms of value added in the form of manufactured goods. This goal would be equally well attained under a buy-back contract, with the supplier paid in products manufactured under his licence, if the product comprised a substantial share of locally manufactured semi-finished products. The supplier would have fewer problems in marketing this product which he controls and sells elsewhere than in marketing products which lie outside his sphere of competence.

2.7. Export possibilities

This is a problem which arises today in a very acute form, and at a number of levels:

- At the level of the firm which wants to limit the area of competition and requires inclusion of a restrictive clause concerning the export of products manufactured under the licence which it has sold;
- At the level of the industrialized countries, which want to protect certain industrial sectors from competition from the products manufactured in the third world.

After having recalled the main elements in this "potential problem area", we shall analyse the approaches which might emerge in the light of positions on both sides.

* * *

There are various reasons why most of the developing countries which are industrializing want to export. One reason, of course, is compensation in foreign exchange for the cost of the industrial plant and the imports which it involves, and another is the desire to see locally manufactured goods confronting international competition.

This desire sometimes encounters the obstacle of restrictive clauses concerning exports. As a result, at a number of meetings and in the course of preparation of the Code of Conduct on Transfer of Technology in UNCTAD, the Group of 77 has requested that such clauses should be declared improper and that the prohibitions against exporting, if any, should relate only to the country or countries in which the seller of the licence is established. Reactions to this demand vary:

- Some firms may react fairly positively. These have already long since started a process of decentralization of their activities. In investing in the developing countries, or concluding marketing agreements for products manufactured in third world enterprises, these enterprises have withdrawn from this type of production. None the less, there is still a problem regarding importation into the industrialized countries of origin of the firm (or third countries). 1/
- Other firms which are involved in sectors in which technology develops rapidly agree to abandon the production of some items in order to concentrate their efforts on the production of items involving the most up-to-date technology. However, a large number of firms consider that the abandonment of restrictive clauses is unrealistic, since they consider the protection provided by such clauses to be fundamental and vital to their interests.

1/ Le Monde, 4 April 1978, mentioned conflicts in this connexion in a single industrial federation (for footwear) in France.

These reactions indicate the importance of the stakes involved and emphasize the diversity of the problem.

Before moving beyond these contradictions and pinpointing possible approaches, it should be pointed out that the application of a clause providing for full liberalization of exports can in the long run turn against its present advocates.[1/]

We shall not dwell on the problems of the revival of protectionism aimed, inter alia, at exports of manufactured goods in the third world. Bilateral or multilateral negotiations will be required to solve them, since they involve Governments.

On the other hand, the conflict arising among large firms, often multinationals, and the developing countries relating to restrictive clauses calls for solutions which are often more specific and which may take the form of factors working towards industrial co-operation. For example, joint marketing agreements paralleling joint production agreements can bring the two parties to terms and joint production and buy-back agreements can be more systematically envisaged. This conflict reflects the relations between firms and the State. The integration of agreements between firms into agreements between States may appear ineffective in the case of multinational companies.

2.8. Assessment of the indirect advantages to suppliers

The subject dealt with in this section, sometimes known as "reverse transfer of technology", is a sensitive one. Technically speaking, it covers different phenomena:

> In the first place, clauses in a licensing contract may require the purchaser to inform the supplier of any improvement he makes to the product or the process, free of charge;
>
> Less obviously, the supplier firm may be interested in all the benefits or improvements that it may derive from a transfer of technology.

Some manufacturing processes, for example, are perfected in developing countries. In this way the supplier gains experience and may in some cases take out patents.

1/ Some firms in the developing countries will soon be exporters, like the firms in the developed countries.

It may be noted first of all that the first aspect is not so controversial as some legislation might imply.

From the survey already quoted[1] on firms' reactions to the Group of 77's draft code of conduct, we note that the attitude of those concerned is relatively favourable. They take the view that if the improvements made to the imported technology are "retransferred" improvements, the reverse flow should be maintained.

It should not be forgotten that many firms are interested in the research and development undertaken in countries to which they transfer technology. Among the motives for the transfer, apart from the desire to penetrate a new market, is the possibility of acquiring a licence.

The parties have a common interest in such cases, which can only grow as the developing countries become more industrialized. There is a basis here for co-operation which is in the interests of all the partners.

The second kind of reverse transfer mentioned above can lead to a form of collaboration which is just as effective.[2]

There should be a body whose task it would be to see that these developments are recorded, pooled and publicized, dealing with technology developed in the industrialized countries as well as under the conditions just indicated. It could be an important factor in efforts to achieve self-reliance, as advocated by many developing countries.

2.9. Guarantees

2.9.1. As long as relations between suppliers and customers developed between equals, in the execution of industrial projects, the guarantees provided by the supplier to his customer were the customary ones that gave protection against any hidden defect in manufacture and referred to the "engineering". The provisional acceptance of each machine or sub-unit, followed by final acceptance of the whole unit, made it possible to release the security and consider the contract to be completed.

1/ Chapter II, section 2.

2/ An example is the establishment in an African country of a joint venture for the purpose of marketing and transferring a technique developed in that country under a transfer-of-technology contract. The technique in question is an industrial process for shelling cashew nuts.

The problems have become more complicated since, in the context of the industrialization of the developing countries, the equality of the partners has tended to become largely fictitious because the customer lacks the industrial experience of the supplier. The inequality has given rise to a discussion of the problem of the guarantees to be given to the weaker party - guarantees that the developing country customer tries to extend and make more restrictive.

2.9.2. It may be worth referring, in this connexion, to the development of commercial legislation that has taken place in the developed countries in recent years - a move towards better protection of the consumer from the seller. It is tempting to draw a comparison between this development and the demands made by many developing countries on their suppliers of capital goods and technology. The comparison is probably not unwarranted.

In any contract of sale, in fact, it is understood, even implicitly, that the object purchased must be suitable for the use for which it is sold. Apart from considerations of the normal use of the object, the function of the manufacturer's or distributer's "guarantee" is to limit his responsibility both in scope (exclusion of indirect damage) and duration (one-year guarantee) should it prove impossible to use the object bought because of poor design or errors in manufacture.

Where capital goods are purchased separately by a developing country, the problem lies strictly in the framework that has just been defined. Particular problems may arise in connexion with the date from which the guarantee is to run - from the date of take-over by the customer or the date of first use. Because of transport times and the delays in starting certain projects in the developing countries, it may happen that the guarantee on, for example, a machine may expire before the machine has ever run. Here adjustments may be made but they will be of minor importance in comparison with the problems arising from purchases of machinery aggregates and non-material supplies connected with such purchases.

2.9.3. Where the purchase envisaged is no longer one of capital goods separately but of an organized group of machines (turnkey contract, for instance), the responsibility of the seller is for the proper functioning of each machine and also for the design of the whole unit. The supplier must show that the unit supplied is capable of producing what it is supposed to for an extended period. In general, however, the responsibility of the supplier, as far as design (hidden fault) is concerned, ends once the "acceptance trials"[1] have been made. The buyer's contractual protection against the supplier's errors or faults therefore appears inadequate to the customers (developing countries).

2.9.4. This explains the extent of the discussions in recent years on the guarantees to be obtained from the supplier by the customer on machines, groups of machines and the whole of the unit acquired.

The apex of the demand is expressed in the "product in hand" contract[2] in which the customer tries to obtain from the supplier guarantees not only in respect of the functioning of machines or groups of machines, but also in respect of the product (exactly according to specification) and a specified rate of operation and increase in output.

This effort has sometimes been explained by saying that there is a move from the (customary) guarantee of means to a more restrictive guarantee of result.

It seems that, beyond the statement of principle which corresponds, indeed, to a stronger push for a more serious guarantee, no contract in fact includes any real explicit guarantee of result, since:

- Action by the customer and his staff is in any case essential to the result and the customer is thus always partially but jointly responsible for the result, whether it is the quality of the product or the rate of production;

1/ His responsibility may continue only for the machines supplied, considered individually.

2/ Cf., in the first part of the IREP paper, the draft submitted by Algeria to the OPEC Conference of Heads of State in 1975.

- The so-called guarantee-of-result clauses contain a very subtle but real danger for the customer that they are likely to limit the supplier's responsibility rather than extend and increase it. This is due more generally to the difficulty of new legal formulae in a context that has not really taken into account fully the basic reality of the inequality of the partners, but continues to refer to the fiction of their equality.

2.9.5. In any event, it appears to the developing countries, whether they are concerned with "tying up" or "untying the package", that, except in the event of total default by the supplier (bankruptcy, for example), the application of a suitably negotiated over-all contract will finally ensure that the customer either has a unit meeting specifications or receives compensation. And compensation raises another specific problem for the developing countries.

In an economy where industrialization is starting, it is not unusual for a single industrial project to represent an entire industry. Where this is so, a delay - and even more a project that does not work - has much more serious consequences than in a highly industrialized country. These consequences may include:

- Operating losses;
- A need to import the product that should have been produced locally;
- The stoppage of industrial production upstream or downstream from the project concerned;
- Other indirect damage.

It may therefore seem logical to make the supplier bear all or some of the indirect damages,[1/] as well as the direct damages represented by the value of the industrial unit.

The amount of indirect damages may sometimes considerably exceed the means of the supplier.[2/] The bankruptcy of the latter, should the unit he has constructed fail to operate properly, is not a satisfactory remedy.

1/ The expression "consequential damage" is perhaps more exact.

2/ This happened with a contract signed between a United Kingdom company and a Hungarian glass factory, worth £116,000. When the unit failed to operate, a Swiss arbitral tribunal imposed as indirect damages on the United Kingdom company repayment of £50,000 out of £104,000 already received in payment.

Consequently, the suppliers try to exclude indirect damages clearly in contracts or to limit their amount to that of the retention money (10 per cent of the value of the contract) which is paid only after final acceptance of the unit.

Other contractors try to insure themselves by taking out a "professional third-party liability" insurance for their contracting activity. But the sum insured - about $10 million for one large contractor - is still very small compared with the value of some contracts that the enterprise has signed recently (one of the contracts, for example, is worth just under $500 million).

In the United Kingdom, on the other hand, the Export Credits Guarantee Department (ECGD) is experimenting, for contracts worth more than £50 million, with a commercial non-performance risk coverage of industrial plant in addition to the customary so-called political risks.

Finally, certain developing countries, particularly certain oil-producing countries that have a reputation for toughness on this subject, are trying to extend the guarantee they get by demanding from their suppliers a bond that can be called unconditionally on first demand. This performance bond relates to 5-10 per cent of the value of the contract.[1/] It must be recognized that such a bond nevertheless represents only a comparatively small sum. The supplier enterprises insure themselves with national insurers against recourse to such bonds, in the United States, the United Kingdom, Japan and France.[2/]

These approaches and efforts are not as yet very satisfactory because the compensation for damages - which, as in the preceding case, may be insufficient - is limited to the payment of a sum of money and does not contribute directly to the solution of the industrial problem - the operation of the new unit.

1/ Source: Business International of 20 August 1976.

2/ Sources: Business International Money Report of 15 October 1976, 11 February 1977 and 30 December 1977; MOCI No. 278 of 23 January 1978.

Certain "sureties for satisfactory performance", for which the supplier also obtains insurance himself, seem in contrast to be more interesting because the insurer, in the event of default by the supplier, has an interest in finding another supplier to complete the work rather than paying the bond; this meets the "industrial" and not only the financial concern of the customer.

2.9.6. It must be noted in conclusion that this debate is taking place in a context that has become inadequate because reference is constantly made to a so-called equality of the partners. The factual inequality that exists between customer and supplier in industrial experience and also the insufficient restructuring of a legal system that favours, in fact, the partners from the developed countries give rise to mutual mistrust.

The enterprise in the developing country fears that his supplier:

- Does not have a sufficient command of the technology that he claims to be transferring;
- Is not large enough to complete the project successfully;
- Will not do everything within his power to ensure the success of the enterprise, etc.

The enterprise from the developed country, on the other hand, fears that his customer will not accept the "industrial risk" or will try to profit systematically from any guarantees offered, etc.

Some of the experiences of the developing countries or in the developing countries tend to feed this mistrust, although they are in fact infrequent.

The problem arises of finding ways to create a better climate where mistrust gives way progressively to collaboration with confidence.

How is the customer to be assured of the seriousness of his supplier and concerning the result he wishes to obtain - by an operational guarantee of satisfactory operation rather than financial compensation?

How is the supplier to be assured of the ability of the customer to assume his responsibilities (only his responsibilities, but all of them)?

It is likely, because of the industrial and operational nature of the guarantee sought, that the extension of insurances, although an interesting approach, will not be sufficient. It will doubtless be necessary to look towards the guarantees that could be given - as a framework for inter-company agreements - by the presence or guarantee of States and, at another level, multilateral organizations.

This is the theme of the next chapter, which will be by way of a conclusion.

V. CONCLUSIONS: INDUSTRIAL CO-OPERATION, THE ACTORS AND THEIR ROLES

1. The call for greater involvement by States and international organizations

The literature on the transfer of technology frequently stresses the role of companies: it is companies which contract; the companies have the industrial experience and the know-how; the companies are able to provide effective technical assistance; etc. The companies referred to are private or State (or mixed) companies; large and very large companies (multinational companies); and, increasingly, medium-sized and small countries.

Whatever may be said about the indispensable character of companies of every standing, they have a primary relationship with a State and they act on an international market. Their field of play therefore intersects that of other actors - the States and international organizations, which many people would like to see playing a more active role.

1.2. More active involvement by States

It must be noted that more active involvement by States is wanted both by the developing countries and by the companies from the developed market-economy countries themselves.

1.2.1. The demand of the developing countries for more direct action by the States of the developed market-economy countries was expressed forcibly by the Algerian spokesmen of the Group of 77. "It would be unrealistic to accept the hypothesis that the particular interests of the companies of the industrialized countries are quite independent of the general interests of the economies of those countries or to support the idea that the enterprises of the industrialized countries are free to ignore the fundamental guidelines and directives laid down by their Governments. Consequently, the Governments of the industrialized countries cannot continue to state that they are in favour in principle of the transfer of technology to the developing countries while refusing to assume their responsibilities directly and practically on the grounds of the nature of mechanisms specific to the functioning of liberal economies."[1/]

1/ S.A. Ghozali, interview in Cahiers du Nouvel Observateur.

This should induce the industrialized countries to accept the idea of negotiating with the developing countries a new framework[1] that would define explicitly the role of those Governments as full partners in contracts negotiated by enterprises under their jurisdiction.

1.2.2. Companies from the developed countries are also calling for States to play a more active role.

- They are first of all unanimous in wanting their respective States to provide them with wider and more complete protection, particularly as regards non-commercial risks when they invest in the developing countries or make contracts with them. 2/
- They also - the medium-sized and small companies more than the large ones - want their States to assume certain functions:

  To tell them what they should not do;

  To help them interpret the geopolitical situation;

  To define clearly the sectoral strategies into which they can incorporate their own strategies. 3/
- The large companies are also aware of the difficulty of solving the problems currently posed by the transfer of technology and know that those problems cannot be resolved finally at their level. They thus accept that the only common ground between the two parties is the acceptance that a world that has become increasingly interdependent is confronted with very difficult problems and that the resolution of such serious matters makes it necessary to take the discussion to the highest ministerial level. 4/

1.3. More active involvement by international organizations

More active involvement by international organizations is wanted both by the developing countries and - in certain fields - by the developed countries.

1.3.1. Although every company has a country of origin, the size and power of certain companies leads them to maintain a distance from the State that governs them in principle. Consequently, the developing countries that deal with those large companies are turning to the multilateral organizations to find a framework that will give them guarantees in their dialogue with the large companies.

1/ Draft resolution. Ministerial Conference of the Group of 77, Algiers, February 1976.

2/ Cf. the advice requested by UNIDO from ICME, Zurich.

3/ The Japanese MITI already does this for Japanese companies.

4/ International Licensing, Business International Corporation, New York, 1977, p. 3.

With this in mind, the Group of 77 is negotiating a stabilization fund for the main commodities and has proposed and is negotiating a code of conduct on the transfer of technology, etc.

1.3.2. The developed countries and the companies with their origins in those countries are also making use of the international dialogue and the multilateral organizations to negotiate agreements and compromises that allow for their essential interests: negotiations on the enlargement of the role of IMF, negotiations on the follow-up to the multifibre agreement, etc.

It may thus be seen that developing countries, developed countries and companies all want States and multilateral organizations to play a more active role. It remains to define how the interplay of these actors can contribute effectively to the development of industrial co-operation.

2. The role of States

All the industrialized market-economy countries have instruments and institutions for the promotion of their exports. When developing their trade relations with the Eastern European countries and the developing countries, they had to modify some of their instruments and reinforce certain institutions. The change in these procedures was accompanied by growing involvement by the States of the industrialized countries.

What is involved at present, and what appears to be an essential component of industrial co-operation between industrialized and developing countries, is a redefinition of forms of State involvement: their action, which until now has been unilateral[1/] - support for exports - should give way to more bilateral action - the planning of trade relations, the promotion and guaranteeing of transfers of technology, the pooling of data.

2.1. Unilateral involvement

1. The collection, organization and processing of commercial data is one of the first aspects of State support for the export policies of enterprises; all the industrialized countries have public agencies

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1/ The procedures for cultural and technical assistance and co-operation, which provide interesting precedents, should however be noted.

responsible for this work. This function is sometimes expanded, the public agency being responsible for providing an interpretation of geopolitical situations to facilitate company strategy.

2. The function of financing appears, however, to be an essential one. For a long time, private and public agencies have insured enterprises against possible losses due to the supplier's credit. It is only recently that the various forms of export credit insurance have undergone the rapid development that has enabled them to cover a growing range of possibilities and financing techniques, and that Governments have supported them financially by means of favourable interest rates, refinancing possibilities and direct loans. The reasons for the development are many and are related to:

- The type of trade: the share of sales of increasingly expensive capital goods included in increasingly long contracts for the transfer of technology;
- The type of partner: socialist countries and developing countries that may sometimes have payment difficulties.

The State involvement takes place through export insurance agencies which are sometimes public, like COFACE (France) or ECGD (United Kingdom), and are sometimes private but work closely with the ministries concerned, like Hermes (Federal Repubic of Germany) or NCM (Netherlands). The State also acts through financing agencies: Eximbank (United States), KFW (Federal Republic of Germany), BFCE (France). These various forms of involvement may be the subject of competition between industrialized countries, but the tendency of the different policies to become uniform must be stressed; and this allows the conclusion that there is some standardization of this form of State involvement.

2.2. Towards new forms of involvement

2.2.1. The policy of export promotion is tending to acquire a new form: it is a matter no longer of simply supporting exports, but of "importing better so as to export better". State involvement through the attention the State gives to the planning of trade relations thus tends to become more bilateral.

The involvement must increase as offsetting agreements tend to become a contractual form in common use not only between the industrialized countries and the socialist countries, but also between the industrialized and the developing countries. Apart from the desire to promote exports through these new contractual forms, the State must increasingly link its trade and industrial policies by allowing for imports linked to exports and applying the adjustment policies required.1/

The liaison established between exporters and importers, and subsequently between exports and compensation, will continue into contracts for co-production that will bring in industrial operators and assume increasing State involvement.

2.2.2. Most of the industrialized countries have agencies to support investments in the developing countries, although not all agencies cover the same ground.2/

By engaging in the creation of a mixed economy company or a public enterprise intended to operate in the countries of the third world, the State can design and define instruments of co-operation. This involvement of States can lead to different results: encouraging and guiding companies which without such support would invest only in the countries they felt were the most secure; providing a guarantee to the associated investor and the host country; helping to broaden the horizons of the investor, since such intervention forms part of a long-term policy while the investor often maintains a short-term view in his operations. Such involvement also encourages small and medium-sized enterprises that would otherwise be excluded from this investment movement to enter the field.

It is interesting to mention at this point the way in which the Deutsche Entwicklungsgesellschaft (DEG), a public agency of the Federal Republic of Germany, operates. While investors from the Federal Republic of Germany show a preference for third-world countries where the income per capita is particularly high, DEG gives preference to low-income countries. While

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1/ In the particular case of ammonia, exports by Eastern European countries tied to "buy-back" clauses in the contracts of sale for factories will represent in 1980-1982 the equivalent of current world trade in ammonia.

2/ For example: DEG (Federal Republic of Germany), FMO (Netherlands), SBII (Belgium), or Setilix (France).

45 per cent of investments by investors from the Federal Republic of Germany are in Latin America, and only 16 per cent in Africa, investments supported by DEG[1] are structured quite differently: 15 and 52 per cent respectively.

Emphasis was laid above on the alternative strategy to investment that relies more on portfolio investments and may go as far as the complete elimination of capital participation by limitation to participation in operation. A para-public investment-support enterprise could follow the same line, limiting its capital contribution but participating in the financing and supplying the elements of a transfer of technology - not only technical elements but also those relating to management and training.

2.2.3. Apart from this type of intervention, the State in the industrialized countries must provide a number of assurances and must also undertake to promote the partner; these are information functions that would no longer be intended only to support exporters but also to help with the customers' choice.

Through intergovernmental co-operation agreements, the State of the enterprise supplying technology must be able to guarantee the State of the host country that the contract concluded will be duly executed. The supplier's State will therefore have to provide information on the quality of the enterprises that reply to invitations to tender. This duty to provide information of a preventive nature will enable the supplier State to guarantee the seriousness of the enterprises under its jurisdiction.

The industrialized countries are already acting through bilateral technical and co-operation agreements. These agreements offer useful precedents that should be expanded.

Within the context of more intensive industrial co-operation, these various actions should be supported by a systematic collection of the know-how in existence in the various industrialized countries. This know-how is not always formalized and is often held by small and medium-sized enterprises that operate very little in the developing countries. The information must also relate to the experience of companies, particularly

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1/ The case of multinational companies will be examined below: when a subsidiary of a large company acts as a supplier of technology, the guarantee by the State is a more delicate matter.

small and medium-sized enterprises. That experience covers a period of time; a knowledge of the stages passed through may interest the developing countries when they find themselves in similar circumstances.

These new forms of State involvement are some of the ways of providing frameworks and co-ordination that contribute to effective industrial co-operation. This more bilateral involvement requires the creation and improvement of such new instruments as the public enterprises[1/] designed to operate in the third world, and intergovernmental agreements.

This involvement does not exclude that of the international organizations: some problems go beyond the bilateral context and require multilateral solutions.

3. The role of multilateral organizations

The multilateral organizations should develop their action particularly in respect of the points below.

3.1. The discussion of codes of conduct

The proposal and drafting of codes of conduct is a response to the characteristics of a certain number of large companies that are generally not subject to the constraints of a bilateral context and State action - the large multinational companies.

Many codes of conduct are currently being studied, including:

- The code of conduct on transnational corporations, prepared by the United Nations;
- The bipartite declaration of principle by ILO on multinational enterprises;
- The OECD guidelines for multinational enterprises;
- The draft code of conduct for multinational enterprises and Governments, drafted by a delegation of the European Parliament;
- The international code of conduct on the transfer of technology, prepared and discussed within UNCTAD.

1/ An enterprise that is wholly or partially public, but in any case is closely incorporated in a State strategy.

The last of these codes is probably the one that has aroused the greatest interest and sparked off the liveliest discussion by all concerned. In general, the developed countries and the large companies are mainly on the defensive, while companies that are "outsiders" are more inclined to comply with the provisions adopted so as to find an opening. The desire of the developing countries to achieve the abolition of restrictive measures that hamper the transfer of technology is sometimes accompanied by apprehensions about the development of the flow of foreign investments.

Be that as it may, it must be pointed out that the debate sparked off by the idea of a code of conduct is probably more important than the final wording. This is because the debate enables not only the presentation of demands, and arguments to support them, but also the diffusion of information on the advantages obtained, which tends to encourage alignment on the most favourable agreements obtained by given developing countries.

3.2. Participation in the organization and diffusion of information

It was mentioned above that it was not so much an absence of information that caused the developing countries a problem in obtaining access to scientific and technical knowledge as the selection and organization of the diffusion of selected information.

In this field, multilateral organizations, and particularly UNIDO, cannot claim to substitute for States or groups of States. UNIDO, however, can certainly play a pilot role that would go further than a "question-and-answer" service.

The development of global and sectoral forward studies is causing the services of UNIDO to look at the problem of storage, and also of the use and selective diffusion of information. This might be an opportunity to contribute to the development of a methodology for the organization of information according to specific needs.

On the other hand, UNIDO is also able to stimulate an exchange of information and experience between developing countries or between recently-industrialized countries (countries of Eastern Europe) and developing

countries. In general, knowledge of this kind does not appear in any publication, but it is potentially of great value to countries that are going through stages that others have recently gone through.

3.3. Contribution to the effectiveness of training

It is not the purpose of the multilateral organizations (with certain exceptions) to participate directly in the transfer of knowledge and in training.

In contrast, a major contribution by the multilateral organizations is desirable so as to further the analysis of channels and means of transferring knowledge in the industrialization process in the following directions (among others):

3.3.1. The way to usefully incorporate local techniques and knowledge, not so as to slow down the modernization of obsolete economic structures but to broaden the basis for a capacity to assimilate and adapt the most modern techniques.

3.3.2. The way to organize channels and means for the transfer of knowledge with allowance for the fact that the transfer of knowledge relating to machines and processes (techniques in the strict sense) is part of a general process of organization and management.

3.3.3. The way to further methods of assessing the effectiveness of training and the transfer of knowledge so as to establish as exactly as possible what the customer is responsible for.

3.3.4. Also in this field, there is the experience gained by various countries in various sectors. That experience should be analysed and made available to countries in comparable situations. UNIDO, ILO and UNESCO are in a good position to participate in that activity.

3.4. The multinational organizations and the placing in perspective of the problems raised by industrial co-operation

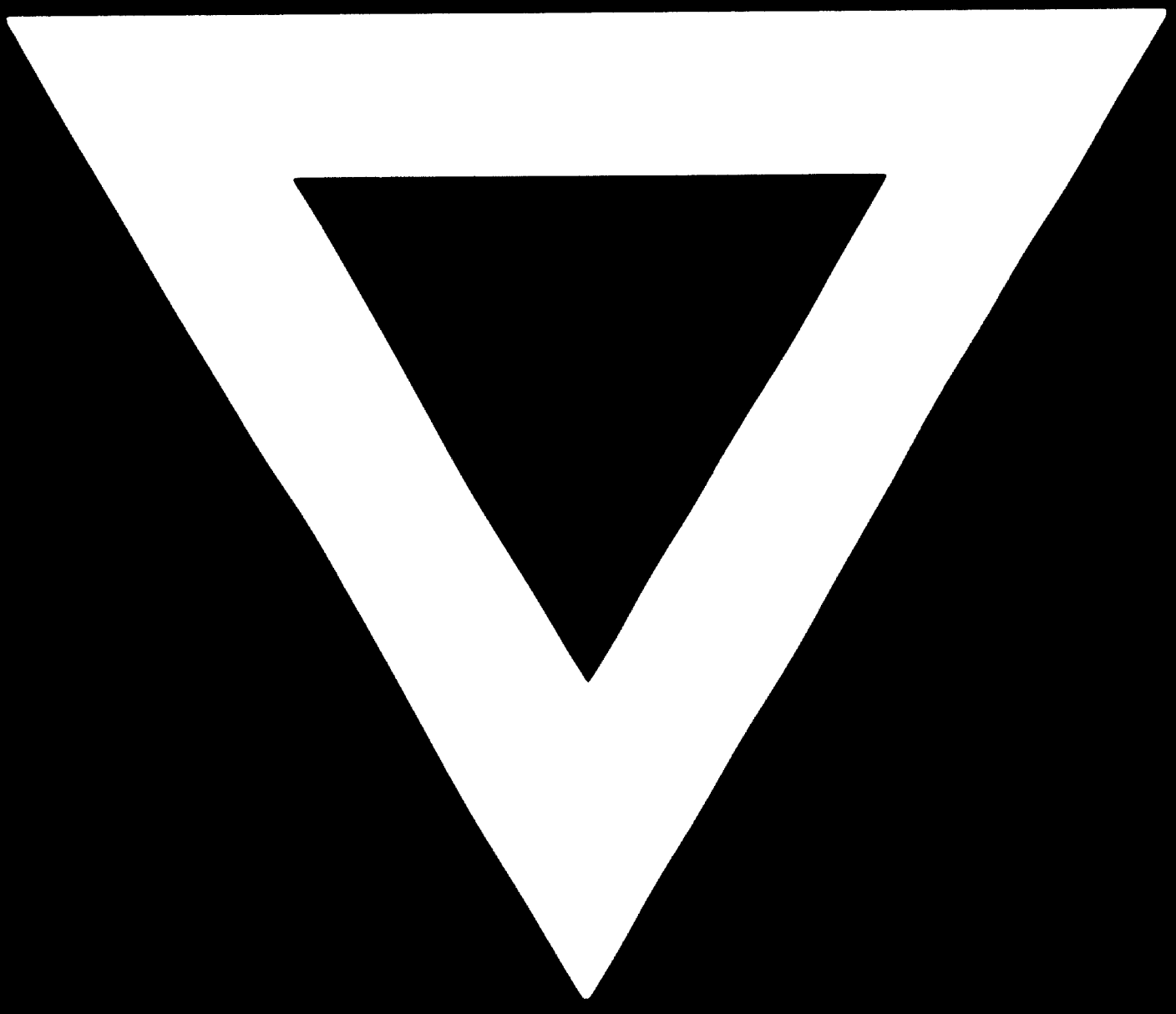
The Lima Conference had the great merit of proposing very long-term goals and prospects (for the year 2000). After the Conference, long-term work was started to translate the general goals into industry-by-industry goals and to bring out their various implications in terms of financing, training and so forth according to alternative scenarios.

As these findings are published, they stake out the ground for lively discussion and confrontation. The alternatives and their long-term perspectives also establish reference points for adjustment and harmonization - in other words, for possible co-operation.

To the extent that the first long-term and very long-term approximations enable possible ways to be considered of overcoming the short-term and medium-term problems, it is certain that the predictive studies of UNIDO, providing general guidance to those concerned is an important contribution to the development of industrial co-operation.

We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche

G-666



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