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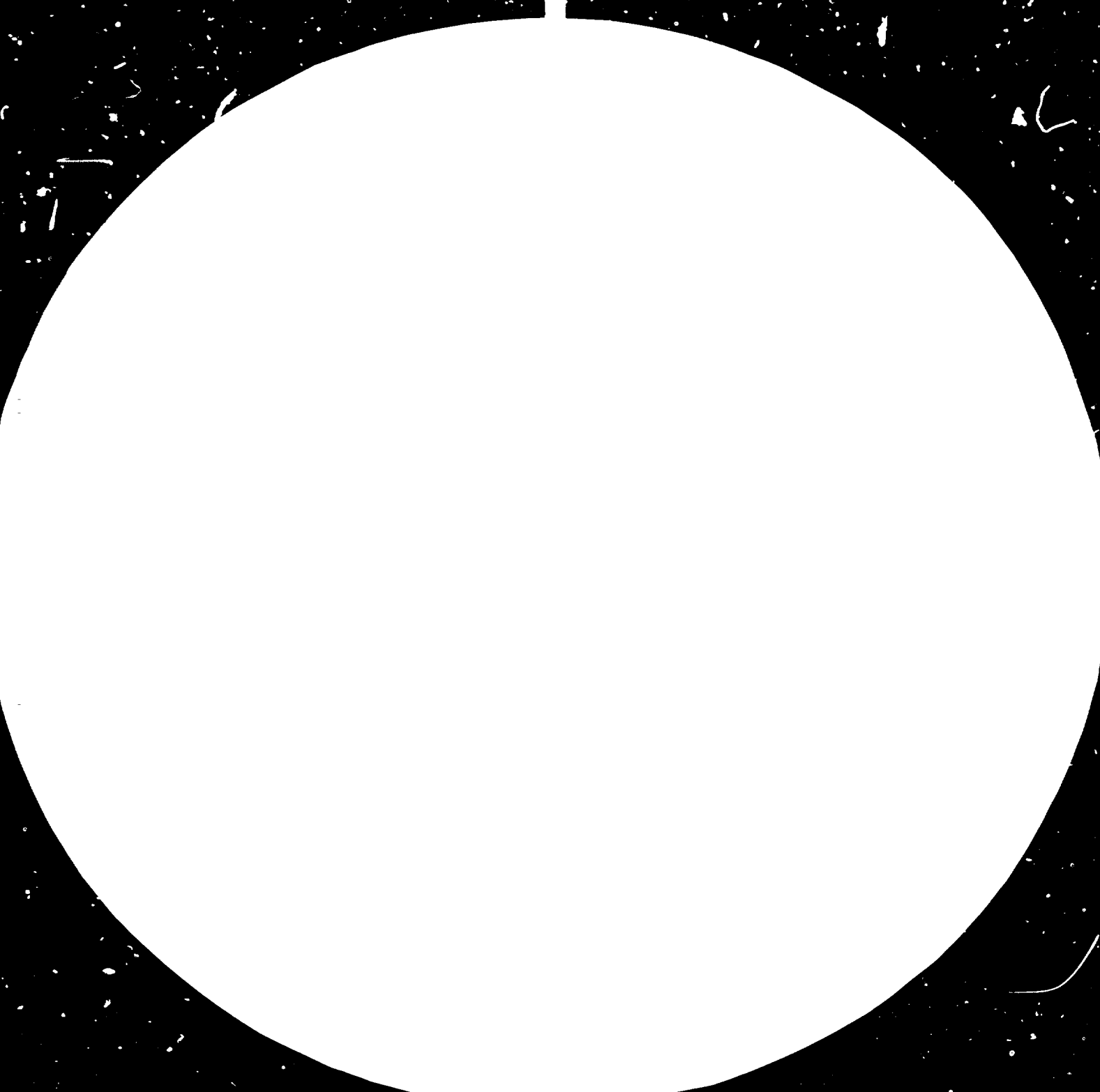
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STRUCTURAL CHANGES IN THE POLISH INDUSTRY\*

by

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and

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PREFACE

This study was undertaken in the framework of the research programme of UNIDO on industrial redeployment and structural change. This programme constitutes a surveillance of the international industrial restructuring process, aiming at highlighting pertinent trends in industrial development nationally and internationally. By identifying the factors that determine structural changes and indicating the likely direction and possible implications of this process, uncertainties and rigidities in this process might be reduced and a basis created for a forward-looking conception of industrial co-operation between the developed and the developing countries.

This study is part of a series of analyses undertaken on selected centrally planned economy countries in Europe. It attempts to analyse past and prospective changes in the industrial structure of Poland and to highlight some major features of these changes. Special consideration is given to the possible implications of the process of structural change in Poland on the country's division of labour with developing countries. It should be noted that throughout the paper the term "European CMEA countries" is used to denote the following countries: Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Poland, Romania and the USSR.

The study was carried out by Mr. J. Olenski, Deputy Director of the Research and Development Centre of the Central Statistical Office, in co-operation with Mr. M. Kukulski, Senior Expert, Division of International Organizations, Ministry of Foreign Trade, Warsaw, Poland, as UNIDO consultants in consultation with the UNIDO Secretariat.



1. GENERAL OUTLINE OF STRUCTURAL CHANGES IN POLAND'S NATIONAL ECONOMY  
IN THE POST-WAR PERIOD UP TO 1970

1.1 Post-war situation of Polish economy and the period of rebuilding  
1945-1949

During the war Poland suffered havoc, in relation to the population as well as the state of national economy. War losses in the industry were estimated over 22,400 million pre-war zlotys (1 zloty = 0.225 US\$ at the 1939 exchange ratio). According to the industrial census of 1945, 65.3 per cent of industrial plants were destroyed. The average extent of destruction of buildings was 35.1 per cent, of power industry 52.1 per cent, and of machinery and industrial equipment 45.4 per cent. Despite these difficulties about 70 per cent of industrial plants had been started up with employment of 738,000 employees by July 1945.

During the first 25 years of the post-war period the Polish national economy passed through a complicated road of intensive development. This was a period of deep political, social and economic changes of the country, accompanied by immense progress and achievements as well as by tensions and difficulties.

In the period 1945-1946 essential organizational changes of the industry were introduced. Main branches of the industry were nationalized, mainly heavy industries. Nationalization of industry has determined the social and economic character of the Polish national economy.

After the rebuilding of transport and of the basic branches of industry as well as establishing new legal and institutional bases of management of the socialist economy, the first central plan of economic development was elaborated, covering the period 1947-1949. This three-year plan paid special attention to further reconstruction and restructuring of industry. According to the assumptions of this plan, industrial production per capita in 1949 was planned to increase by 125 per cent over the level of the last pre-war year. In this period the rate of investment was growing steadily and rapidly. Already in 1946 total investment outlays in industry were in the energy sectors connected with setting in motion of old coal mines rather than the construction of new plants. The effectiveness of investments in that period was high and relatively small outlays gave quick gains in productivity.

Table 1. Structure of investments in the industry during the 3-year plan 1947-1949

Branches of industry	Mean share of investment outlays in 1947-1949 (per cent)
Power	11.8
Energy	22.1
Metallurgy	14.0
Engineering	14.2
Chemical industry	9.1
Building materials	6.6
Light and food industries	18.0
Other industries	4.2

SOURCE: Rocznik Statystyczny 1964

By the end of this period the socialist sector took the dominating position in production. The share of socialized sector in production of national income grew from 29 per cent in 1947 to 59 per cent in 1949.

#### 1.2 Restructuring of the Polish economy in the period of intensive industrialization: 1950-1958

In the period of 1950-1958, which was the first stage of the so called "socialist industrialization" of the country, the main goal was to build up a structure of a developed industrialized country in which all the main branches of industry were developed.

One of the characteristic features of the period 1950-1958 was the absolute priority of heavy industry branches. Because of the necessity of concentration of considerable resources for development of heavy industry, particularly in the period 1950-1958, the programme of industrial investments contained potential tension for the national economy as a whole. The industrial production in 1955 was 270 per cent of that in 1949. However, at the same time numerous disproportions occurred in the national economy because of the relative underdevelopment of agricultural production and tensions connected

with the level of real wages and consumption of population. To balance these negative phenomena, the five-year plan 1956-60 assumed the diminishing of the rate of growth of production, as well as the rate of growth of investments in industry.

Table 2. The structure of investment outlays in the industry in 1950-1958

Industrial branches	Composition of investment outlays in Polish industry (in per cent)	
	1950-1955	1956-1958
Power	9.6	11.6
Fuel	17.0	19.7
Metallurgy	20.8	13.3
Engineering	17.6	14.3
Chemical industry	13.6	13.1
Building materials	5.3	8.7
Light and food industries	10.8	13.3
Other branches	5.3	5.7

SOURCE: Rocznik Statystyczny 1964, p. 83

The results of this period for the development of the industry were the following:

- expansion of steel production, particularly of production of higher quality steel and rolled products
- creation of copper and aluminium metallurgy
- expansion of basic branches of the engineering industry, the electronic and instruments industry, as well as the transport equipment industry, including the new branch of sea-going vessels. The 1950's have been the period of a real increase of engineering industry, e.g. the number of employees in these branches grew from 313,000 in 1949 to 707,000 in 1958.
- rapid expansion of the heavy chemical synthesis industry, fertilizers and pesticides

- creation of the branch of prefabricated construction and wall elements and framed concrete
- organization of building enterprises specialized for the construction of complete plants and factories
- organization of the basis of industrial design
- raising of the number of skilled employees in the industry and organization of general training system of technical staff for industry.

1.3 Structural changes in 1959-1970 and the influence of the structure of Polish industry established in this period on economic phenomena of the seventies

After 1958 some new features of the economic situation of the country had appeared:

- By 1958-59 the possibilities of production growth on the basis of existing plants had been exhausted. Further development needed further investments and construction of new production capacities. These concerned mainly the mining and fuel industry.
- Important changes appeared in the demographic structure of the population. The years 1956-1960 were the period of the lowest rate of growth of working age population, while the growth of working age population in 1961-1965 was expected to reach almost 1 million, i.e. three times more than in 1956-1960, and in the years 1966-1970 a working age population of over 1.5 million persons was expected. So it was necessary to start investments to protect full employment, too.
- The underdevelopment of foreign trade in 1950-58 (the particularly low level of exports in comparison with imports) created the necessity of an export-oriented policy in foreign trade.

Further structural changes of industrial production were the effect of the realization of this programme. The directions of these changes are shown in Table 3. The data given in this table show the general structural tendencies of the development of Polish industry. First feature is the rapid growth of the share of electrical and engineering industry, chemical and power industries in total output of industry.

Table 3. Structure of industrial production of Poland in comparison with selected European countries (per cent of total production in industry)

Country	Year	Power and gas	Metal-lurgy	Electrical and engineering industry	Chemical industry	Textile and food industry
Poland	1960	2.1	10.9	19.7	7.4	34.1
	1965	2.3	10.1	25.6	9.2	29.2
	1968	2.3	9.6	28.8	10.9	25.1
Austria	1968	7.9	6.3	21.8	8.5	20.1
Czechoslovakia	1968	2.7	13.5	27.5	6.7	22.7
France	1968	5.6	6.6	32.2	15.3	12.6
FRG	1968	5.2	7.6	27.5	14.7	14.0
Hungary	1968	4.7	11.9	28.6	8.0	22.0
UK	1968	7.7	6.2	34.7	10.5	15.1
Italy	1968	7.9	7.4	24.8	12.9	14.7

SOURCE: Gospodarka Polski na tle wybranych krajów europejskich, PWE, Warszawa, 1971

The second feature is that electrical and engineering industry became the prevailing branch of the whole industry.

The analysis shows (see Table 3) that despite of the very fast growth of chemical industry the share of this industry in Polish economy remained still lower than in most of European countries. This was, however, the structural feature of the majority of socialist countries in this period (except the German Democratic Republic). It was also connected with the scarce raw material basis for chemical industry (mainly for the petrochemical industry) as well as with the underestimation of the role of this industry for the modernization of the whole industrial structure. To overcome this situation was stated as the main goal of the economic policy of the seventies.

#### 1.4 Summary

In the period 1950-1958 significant structural changes appeared in Polish economy. Their basic characteristic features were the following:

- a. The socialized sector of the economy took the dominant position in the whole national economy; in 1958 this sector produced about 70 per cent of the national income.
- b. The share of industry (35 per cent) exceeded the share of agriculture in production of national income (1958); a rather significant feature was the stabilization of the share of building and construction in national income production at the mean level of 10-11 per cent. The decreasing trend of the share of agriculture and increase of the share of industrial production started in the early fifties and has continued till now.
- c. The most important result of industrial policy of that period is the development of the overall structure of Polish industry, namely the domination of heavy industries, particularly electrical and engineering industry based on the domestic production of steel. The absolute, strategic priority of this direction of industrial development had determined intensive development of complementary branches of industry, e.g. mining, fuel and energy industry, and some branches of the chemical industry.

## 2. DETAILED ANALYSIS OF CHANGES OF INDUSTRIAL STRUCTURE IN 1970-1980 AND ITS INFLUENCE ON POLISH FOREIGN TRADE POLICY

### 2.1 General outline of Polish economic policy in the period 1970-1980

The decade of the seventies is of particular importance for social and economic development of Poland. This period differs from previous periods described in Chapter 1. The differences concern the concept of economic policy, methods of its implementation into practice, as well as its final effects which will influence Polish economic life and relations with other countries also in the eighties.

At the end of the sixties it became clear that Polish economy needed structural modernization. In the sixties practically almost all factors of extensive growth were exhausted. The flow of the work force agriculture to industry was almost completely exhausted, too. Even some negative features of aging of the economically active population in agriculture had occurred. The possibilities of increasing of the percentage of the economically active population were also exhausted. In that time Poland had one of the highest share of working age population (56.1 per cent). But in the seventies the increase of the newly entering working age population was estimated at about 2 million persons; however, the majority of this growth was expected to occur in the first half of the decade. This labour force was well trained with basic vocational, secondary or higher levels of education. However, the utilization of this abundance of quantity and quality of human factor demanded the resumption of investment efforts.

In the industry, as well as in building and transport, the possibilities of the low capital-consuming creation of new jobs on the basis of infrastructure and investments realized in the fifties had been exhausted during the relatively slow but steady growth in the sixties. In the manufacturing industry and particularly in the fuel industry, further growth of production had to be based on the construction of new coal mines or mining less advantageous deposits of coal.

In 1971 the renewed political leadership of the country set forth the accelerated modernization of the whole national economy. The strategy of this reconstruction was based on following assumptions:

- The Polish economy did not make sufficient use of the benefits obtainable from international division of labour. Because of the exhausted internal factors of extensive growth, Poland has to participate in the international division of labour, using this as the factor of intensifications of economic development and increase of its effectiveness.
- Poland has to use better her natural endowments which are (i) some important raw materials demanded by the developed European countries, e.g. copper, sulphur, coal, building materials, and (ii) export-oriented branches of the industry (mainly electrical and engineering industry) which were to be developed under the condition of modernization of its technological level as well as the technical level of final products.
- The burden of increased investment effort could be diminished by making use of foreign credits, mainly from developed market economies. This approach was justified by the relatively low costs of credits in the early seventies. It was also supposed that the decreasing trend of these costs would be continued because of the inflation of credit grantors' currencies.
- Possibilities of long-term credits should be used for import of new technologies which should allow the increase of the export production. An additional factor of the increase of payment balance could be the export of raw materials, i.e. copper, sulphur, coal etc., the prices of which had been relatively high (except for coal) at the end of the sixties.

This argumentation was theoretically clear and correct: to modernize the industry with the help of imported foreign technologies and to pay off the debts in the first stage by increase of export of raw materials, and in the second stage by increase of export of products of modernized manufacturing industry. However, this argumentation disregarded some phenomena, which did not appear in the world economy in the sixties, e.g. relative increase of exchange ratio of currencies in which foreign credits are granted: higher rate of inflation than the rate of growth of prices in international trade, higher rise of prices of goods sold by grantors of credits than the increase of prices for products offered by Poland, and last but not least -- variable interest rate of foreign credits.



Particularly false was the assumption that due to inflation the real interest rate of foreign credits would be lower than the nominal interest rate.

#### Credit trap

Since 1971 Poland's indebtedness increased precipitously. This process is illustrated in Table 4. In the first half of the decade the inflow of new credits was much higher than repayments with interests. Thus, in 1974/75 the admissible economic level of indebtedness was exceeded. Because of late realization of investment projects financed by foreign credits the expected rate of growth of export was not achieved. At the same time, the "terms of trade" with developed countries as well as the conditions of credits have changed to the detriment of Polish economy.

At the same time the implementation of new technologies of production tied the Polish economy with suppliers of technologies with bounds which determined a rather high level of complementary import of raw materials, spares and sub-assemblies necessary to take full advantage of production capacities.

Some economists assume that a "safe limit" of indebtedness for Poland's economy is reached when yearly payments reach 25 per cent of yearly export revenues. In Poland this level was exceeded at the end of the first half of the decade. In 1977 about 50 per cent of the export value had to be used to cover the payments and at present, in 1981, almost all revenues from exports must be used to cover the debt payments.<sup>1/</sup>

The "credit trap" into which Poland's economy had rushed was the result of a too fast growth of indebtedness in the period 1972-1975; this caused the cumulation of repayments in the second half of the decade. Strong limitations on imports and extension of exports of raw materials caused the decrease of production in some industrial branches, including those export oriented, thus the payment balance situation was aggravated instead of amelioration. The "credit trap" was latched.

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<sup>1/</sup> See: J. Tomorowicz, Ciezar zadluzenia, Handel Zagraniczny No. 12/1980

Table 4. The balance of Polish trade turnover with market economies in 1970-1980

Year	Balance of turnover in million exchange zl*/	million US\$
1970	+588.7	+235.5
1972	-1,000.7	-367.9
1973	-4,221.7	-1,407.2
1974	-7,126.2	-2,375.4
1975	-8,875.3	-2,958.4
1976	-9,736.2	-3,245.0
1977	-7,156.2	-2,385.4
1978	-5,984.1	-1,893.7
1979	-5,212.3	-1,608.7
1980	-2,699.6	-818.1

SOURCE: Biuletyn Statystyczny 2/1980

\*/ Exchange zloty (exch. zl) - statistical measurement unit applied for statistics of foreign trade turnover. Until 1971, 1 exch. zl = 0.25 US\$, 1972 1 exch.zl = 0.272 US\$, 1973-1977 1 exch.zl = 0.301 US\$, 1978 1 exch.zl = 0.316 US\$, 1979 1 exch.zl = 0.324 US\$.

### Investment trap

On the basis of a substantial stream of foreign credits Polish economy started in the early seventies the realization of a wide, multi-directional investment programme. In 1960-1969 the rate of accumulation of the national income oscillated around 22-26 per cent, and the rate of investment outlays for fixed assets was about 15-20 per cent. In some years of the seventies the rate of accumulation exceeded even 35 per cent, higher than in the period of intensive industrialization of the fifties. The scale of the investment level is shown in Table 5.

In comparison with previous periods, when the increase of rate of accumulation influenced directly the consumption rate, in the first half of the seventies the rate of accumulation was not perceived by the population because it was covered by a considerable surplus of import over export. Even some increase of consumption per capita was observed. The structure and dynamics of investment outlays of the last 20 years are shown in Table 6.

The data from Table 6 show that the increase in the share of industry in total investment outlays in 1971-1975 was achieved at the cost of the decrease of the share of agriculture. The negative results of this investment structure came to light in the second half of the decade in the form of a sharp decrease in supply of the food market as well as in a decrease of housing availability and increases in pollution.

This programme exceeded the capacities of existing building enterprises which caused the freezing of investment outlays (see Table 7), and the outlays allocated in heavy industry did not lead to the increase of exports.

The severity of the problem came to light in 1976; however, it was delayed due to further increase in indebtedness. But the time of repayments had come and the bankers lost their readiness to credit Poland according to previous conditions, as it had been done before. Two years later, in 1978, the absolute decrease of investment outlays was necessary. In the situation of a high level of frozen assets and investment commitments, the interruption of some investment projects proved to be necessary. The scale of these problems is illustrated by Table 7.

Table 5. Share of accumulation and investments in national income in 1970-1979 (fixed prices 1979)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Consumption	73.9	72.5	70.4	67.0	64.4	64.8	65.9	68.5	69.2	73.8
Accumulation	26.1	27.5	29.6	33.0	35.5	35.2	34.5	30.5	30.8	26.2
- investment outlays for fixed assets	19.5	19.5	22.2	24.6	27.0	28.4	26.7	27.2	26.1	23.2

SOURCE: Rocznik Statystyczny 1980

Table 6. Dynamics and structure of investment outlays (fixed prices)

Sector of national economy	1961-1970	1971-1975	1976-1979	1961-1965	1966-1970	1971-1975	1976-1979
	Mean rate of growth (in per cent)			Structure (in per cent)*			
Investment productive	8.6	20.1	-1.3	69.4	73.3	77.2	76.7
Investment non-productive	4.4	12.6	5.3	30.6	26.7	22.8	23.3
TOTAL	7.4	18.4	0.2	100.0	100.0	100.0	100.0
Industry	7.8	21.9	-3.7	38.3	37.6	42.0	40.5
Construction	11.4	26.5	-0.3	2.8	3.6	4.6	5.2
Agriculture	10.3	14.1	4.0	15.0	17.4	15.2	16.0
Forestry	6.7	17.6	12.5	0.4	0.4	0.3	0.4
Transport and communication	9.9	17.9	-6.0	9.5	10.0	10.3	8.7
Trade	5.3	17.1	-4.7	2.8	3.2	2.6	2.1
Community services	4.4	13.9	7.2	2.8	3.2	3.6	4.4
Housing economy			8.8		17.7	14.8	16.5

SOURCE: Rocznik Statystyczny 1980, p. 120

\*/ The columns do not add necessarily to 100% due to rounding differences. This relates to some other tables as well.

Table 7. Basic indicators of investment processes in 1970-1980  
(current prices, billion zł)

At the end of the year	Investment outlays		Cost-estimate value of new investments	Investment outlays of projects set in motion
	total	industry		
1970	182.2	80.3	115.1	133.9
1975	449.3	238.9	393.8	276.9
1976	571.4	273.2	413.8	313.3
1977	591.8	271.0	396.7	369.1
1978	602.1	268.5	438.1	350.6
1979	556.4	230.4	378.2	348.3
1980	519.0	208.5	224.0	220.0

At the end of the year	Value of frozen assets	Value of investment engagement commitment
1970	125.6	250.1
1975	360.7	714.7
1976	472.3	1,042.4
1977	543.2	1,059.9
1978	620.9	1,081.6
1979	664.8	1,186.6
1980	788.0	1,250.0

SOURCE: own compilation based on Biuletyn Statystyczny GUS, 2/1981

The huge investment effort of the seventies did not bring the expected effects in production of goods for the internal market and for export by the end of the decade. The hopes on which Polish investment policy had been based, i.e. that at the end of the seventies Polish economy would be able to repay the debts through the increase of production capabilities and their modernization was never realized in practice. Poland entered the eighties with over 25 billion dollars of indebtedness, the frozen investment outlays exceeding almost half of the yearly investment outlays, the investment engagement almost three times as much as the yearly investment outlays of 1979, and so called "inflation overhang" of about 20 per cent of population incomes. It is estimated that at the end of 1981 the rate of inflation overhang may rise to at least 50 per cent of incomes of population<sup>1/</sup> which will most likely cause a total breakdown of the market of consumption goods.

At the same time - which may look paradoxical - Poland's economy has large and modern production capabilities, a highly skilled and well trained labour force, has implemented modern technologies and produced modern products. Thus, despite the fact that the investment effort of the seventies did not give the expected results yet, it seems that the background for further development in the future had been effectively created. However, this is not attainable without deep restructuring of investment outlays, allocation of sources, and even of the labour force. One has also to remember that the conditions of development in the eighties will be more difficult than those of the early seventies. The main reasons for this are the following:

- The diminution of labour force increase rate (the rise of the share of population in non-working age).
- It is necessary to undertake large investments in agriculture. These investments are much more capital consuming than in other sectors of national economy.

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<sup>1/</sup> The concept of "inflation overhang" means the sum of current incomes of population, which are not covered by current production of consumption goods or can not be invested by the population. E.g. 20 per cent of inflation overhang coefficient means that every fifth zloty of current incomes of population does not meet the stream of supply of goods and services.

- In investment structure the share of infrastructural investments has to be increased because infrastructural under-investment is conditioning the development of effective production capacities.
- Scarcity and high prices of fuels and energy on international market require that an increasing part of export revenues must be devoted to the import of fuels (except coal).

## 2.2 Branch structure of the industry and its changes in the period of 1970-1980

The seventies were the period of intensive structural changes in the whole national economy of Poland, concerning mainly the industrial sector. The share of the industry in production of national income grew fast (the scale of this process is illustrated in Table 8), while the share of agriculture dropped from 22.5 per cent in 1970 down to 13.7 per cent in 1979.

In this decade the rate of productive fixed assets in national economy has grown from 54.6 per cent in 1970 to 64.8 per cent in 1979, but the rate of growth of productive fixed assets in the industry grew faster. It was even faster than the possibilities of their full utilization for the benefit of national economy. This led to the worsening of the relation between the share of the industry in the production of national income and the share of the productive fixed assets of the industry in total value of productive fixed assets. Instead of a significant increase it dropped down from 1.14 in 1970 to 1.12 in 1979.

The scale of structural changes (in the branch structure of the industry) is shown in Table 9a,b and their rate of growth is shown in Table 10. The data from Tables 9 and 10 show that the growth of the share of electrical and engineering and chemical industries at the sacrifice of the other branches of the industry, mainly food and light industries, has been the dominant factor of structural changes in Polish industry during 1960-1980. It was the "constant" feature of Polish economic policy, based on the assumption that the branches of electrical and engineering industry and chemistry determine the possibilities of reconstruction of any other branch of industry or any sector of the national economy. The accelerated growth of these preferred branches was accompanied by deep changes of the specialization of some of their sub-branches and some groups of products.

Table 8. The share of industry in production of national income and the factors of its production in national economy

Years	Share of industry in per cent		
	National income produced, fixed prices 1977	Employment	Percentage of productive fixed assets in the industry to total value of productive fixed assets, fixed prices 1977
1970	46.8	29.3	41.0
1971	47.0	29.7	41.8
1972	47.1	30.2	42.5
1973	47.5	30.3	43.0
1974	48.8	30.5	44.5
1975	50.4	31.2	44.3
1976	51.5	31.2	44.8
1977	52.8	31.5	45.9
1978	52.5	31.5	46.3
1979	52.8	31.6	46.6

SOURCE: Rocznik Statystyczny GUS 1980 and own calculations



Table 9. Structural changes of production of industrial branches of socialized\*/ industry (comparable prices 1971)

9a. Gross production of the branches of industry

Specification (grouping by branches)	1960	1970	1975	1979
	(in per cent)			
<b>TOTAL</b>	100.0	100.0	100.0	100.0
<b>Fuel and power industry</b>	11.8	10.3	8.4	8.1
— coal	7.7	5.2	3.9	3.7
fuel	2.0	2.6	2.2	2.1
power	2.1	2.5	2.3	2.3
<b>Metallurgical industry</b>	12.6	11.3	10.4	9.8
— basic metals	9.6	8.3	6.8	6.3
non-ferrous metals	3.0	3.0	3.6	3.5
<b>Electrical and engineering industry</b>	15.9	25.7	31.1	34.7
— machinery and structural				
metal products	3.3	4.6	5.1	5.6
engineering	4.5	6.8	8.9	10.1
precision instruments and apparatus	0.4	0.9	1.5	1.9
transport equipment	5.5	9.2	9.2	10.3
electrical engineering and electronic	2.2	4.2	5.7	6.8
<b>Chemical industry</b>	5.6	8.9	9.5	9.4
<b>Mineral industry</b>	4.2	4.1	3.8	3.5
— building materials	3.5	3.3	3.0	2.5
glass and glass products	0.5	0.6	0.6	0.7
pottery, china	0.2	0.2	0.2	0.3
<b>Wood and paper industry</b>	6.2	5.1	4.9	4.6
— wood	4.4	3.7	3.7	3.6
paper	1.8	1.4	1.2	1.0
<b>Light industry</b>	15.5	13.6	12.8	11.9
— textile	9.9	8.1	7.3	6.8
wearing apparel	2.9	3.3	3.5	3.2
leather and leather products	2.7	2.2	2.0	1.9
<b>Food industry</b>	26.8	17.9	16.6	15.3
<b>Other industrial branches</b>	1.4	3.1	2.5	2.7
— fodder and utilization	0.6	2.1	1.5	1.5
printing and publishing	0.4	0.4	0.4	0.4
other industries	0.4	0.6	0.6	0.8

\* / "Socialized sector": state-owned enterprises and co-operatives controlled by the state economic administration, organized by central unions of co-operatives. The term "industry" concerns all industry, i.e. socialized and private.

3b. Net production of the branches of industry

Specification (grouping by branches)	1960	1970	1975	1979
	(in per cent)			
TOTAL	100.0	100.0	100.0	100.0
Fuel and power industry	21.6	19.3	15.6	13.9
— coal	15.6	10.9	7.5	6.6
fuel	4.2	5.9	5.7	5.2
power	1.8	2.5	2.4	2.1
Metallurgical industry	6.1	5.8	6.4	5.9
— basic metals	4.0	3.5	3.3	3.1
non-ferrous metals	2.1	2.3	3.1	2.8
Electrical and engineering industry	13.4	22.5	27.6	33.4
— machinery and structural				
metal products	3.6	4.9	5.4	6.6
engineering	4.2	6.9	8.7	10.7
precision instruments and apparatus	0.7	1.3	2.2	2.9
transport equipment	3.5	6.1	7.0	7.9
electrical engineering and electronic	1.4	3.3	4.3	5.3
Chemical industry	4.6	8.5	10.3	10.4
Mineral industry	4.0	3.7	3.6	3.5
— building materials	3.0	2.5	2.3	2.0
glass and glass products	0.7	0.9	1.0	1.1
pottery, china	0.3	0.3	0.3	0.4
Wood and paper industry	5.2	4.8	4.6	4.4
— wood	3.6	3.4	3.4	3.4
paper	1.6	1.4	1.2	1.0
Light industry	17.7	17.2	17.2	16.6
— textile	13.7	12.5	12.5	12.4
wearing apparel	1.7	2.4	2.6	2.9
leather and leather products	2.3	2.3	2.1	1.3
Food industry	30.1	17.4	14.0	10.7

SOURCE: Rocznik Statystyczny GUS 1980 and own calculations

Table 10. Indices of gross production of socialized industry

Specification (grouping by branches of national economy)	1970	1975	1979
	1960 = 100		
TOTAL	225.2	379.4	447.0
Fuel and power industry	185.8	246.2	260.4
-- coal	148.0	170.4	175.4
fuel	292.3	456.7	501.8
power	294.3	469.5	491.2
Metallurgical industry	199.9	346.1	375.5
— basic metals	187.0	290.2	316.4
non-ferrous metals	242.0	523.0	564.7
Electrical and engineering ind.	360.9	733.7	1,000.0
— mach. and str. metal prod.	289.9	534.7	762.1
engineering	352.9	725.3	1,100.0
prec. instruments and app.	411.7	1,100.0	1,800.0
transport equipment	358.3	692.3	915.2
electr. eng. and electron.	496.9	1,100.0	1,600.0
Chemical industry	388.1	783.0	927.8
Mineral industry	188.2	301.2	349.2
— building materials	178.3	270.1	268.6
Wood and paper industry	198.5	318.1	352.1
Light industry	205.2	341.8	388.9
Food industry	121.6	162.5	146.6

SOURCE: Rocznik Statystyczny GUS 1980 and own calculations

in Poland

1979		1961-70	1971-75	1976-79
1975 = 100	1978 = 100	mean rate of growth in %		
117.8	98.0	8.5	11.0	4.2
105.8	95.6	6.4	5.8	1.4
102.9	98.9	4.0	2.9	0.7
109.9	94.9	11.3	9.3	2.4
104.6	88.1	11.4	9.8	1.1
108.5	93.3	7.2	11.6	2.1
109.1	94.1	6.5	9.3	2.2
108.0	92.5	9.2	16.7	1.9
142.6	106.6	13.7	15.2	9.3
142.5	109.2	11.2	13.0	9.3
146.0	108.4	13.4	15.5	9.9
156.7	108.0	15.2	22.6	11.9
132.3	103.0	13.6	14.1	7.3
144.9	104.8	17.4	16.9	9.7
118.4	98.2	14.5	15.1	4.3
115.9	96.9	6.5	9.9	3.8
99.4	90.4	6.0	8.7	-0.2
110.7	89.6	7.1	9.9	2.3
113.7	95.9	7.5	10.7	3.3
90.2	85.6	2.0	6.0	-2.6

The mean rate of growth of gross production of socialized industry in the period 1965-1970 was 8.5 per cent per year, while in the first half of the seventies this rate grew up to 10.5 per cent. However, because of the collapse of the investment front and of foreign trade balance, in the second half of the last decade this rate of growth dropped down to almost half of the previous level, i.e. 5.8 per cent. The extremely high rate of growth of industrial production in the first half of the seventies was determined namely by electrical and engineering and chemical industries.

All the rest of industrial branches had a rate of growth lower than the mean rate. The following branches had the lowest rate of growth: fuel and energy industry, metallurgy of basic metals, mineral industry (mainly the industry of building materials), textiles, food and fodder industries. So it is clearly seen that the branches producing means of production for other industries were developed much faster than the branches producing raw materials, energy and consumption products. The disproportions of the rates of growth in the first half of the seventies had been so high that the lack of energy and domestic raw materials became the limitation factor of the production of other branches of the industry.

Although the construction of some important investment enterprises in mining industry, metallurgy of ferrous metals and power industry had been started, the cycles of realization of these projects because of their immense scale were too long to meet the demand for raw materials and energy of other branches in due time. This caused the disturbances in supply of raw materials and energy, and consequently further delay in setting in motion new production capacities etc. On the other side, the "credit trap" made it impossible to replenish the stock by import.

In 1976, the share of production of electrical and engineering industry in total production was on the level of other socialist countries. Comparing Poland with some developed countries, the coefficient for Polish industry was higher than in France and Italy, but lower than in Japan, the Federal Republic of Germany, Great Britain and USA.

Particularly significant structural differences may be observed between particular sub-branches of electrical and engineering industry which is rather a complex aggregate itself. Here, the highest rate of growth was achieved by the precision instruments and apparatus industry. The

electronics industry, of which the rate of growth exceeds four to eight times the total electrical and engineering industry, was placed second. The lowest - but still very high - rate of growth concerned the transport equipment and structural metal products industry. However, it should be stressed that the differences between different branches of electrical and engineering industry are relatively small in comparison with other developed countries.

### 2.3 Structural changes and dynamics of industrial production

Poland holds a rather important place in the world economy as the producer of some products. Polish energy industry is based on coal. Recently Poland takes the fourth place next to USA, USSR and China in coal production. Poland belongs also to the first ten of energy producers. The branch structure of Polish industry and its changes during the seventies (see 2.1) is the reason of the rather high energy consumption rates of Polish industry. This is determined most of all by the high share of metallurgy, electrical and engineering and mining industries.<sup>1/</sup>

In the last decade the trend to increase the energy-consuming character of Polish industry was observed which is expected to be continued due to increasing of energy consumption of agricultural production in the years to come.

The place of Poland in world and in European production of so called traditional basic industrial products is shown in Table 11.

The decade of the seventies was characterized by the extremely dynamic growth of electrical and engineering products, both investment goods and consumption articles. The majority of those products was completely modernized. The scale of the modernization of production of electrical and engineering industry was very wide, including a certain number of completely new products for which the highest technological level was needed.

<sup>1/</sup> E.g. for production of 1 US\$ of national income, Poland consumes 2,000 kg of comparable fuel while France consumes 857 kg, GFR consumes 918 kg and Great Britain consumes 1,622 kg. Although the data are not fully comparable because of the methodological differences in national income statistics and national balances of fuels, the difference is rather significant.

Table 11. The share and place of Poland in the world and in European production of selected industrial products (1960-1979)

Products	Year	Share of Poland in %		Place of Poland	
		World	Europe <sup>a/</sup>	World	Europe <sup>b/</sup>
Energetic raw materials	1960	2.4	6.9	7	4
	1979	2.3	7.2	9	3
Hard coal	1960	5.3	11.4	6	4
	1979	7.6	20.4	4	2
Brown coal	1960	1.5	1.5	9	8
	1979	4.1	4.5	6	6
Electric energy	1960	1.2	3.0	13	9
	1979	1.5	3.5	10	6
Crude steel	1960	1.9	3.4	11	8
	1979	2.7	5.1	9	6
Refined copper	1960	0.4	1.3	21	11
	1979	3.5	9.4	9	4
Personal cars	1960	0.1	0.2	15	11
	1979	1.1	2.6	10	7
Sea-going vessels <sup>b/</sup>	1960	2.7	3.8	9	7
	1979	4.1	9.2	6	4
Sulphur acid	1960	1.4 <sup>c/</sup>	3.0	14 <sup>c/</sup>	10
	1979	2.5 <sup>c/</sup>	4.9	9 <sup>c/</sup>	6
Nitric fertilizers	1960	2.5	4.3	13	9
	1979	2.7	5.6	9	5
Phosphoric fert.	1960	2.1	3.8	15	9
	1979	3.2	7.2	6	3
Artificial fibres	1960	2.7	4.7	9	7
	1979	2.8	6.3	10	6
Synthetic fibres	1960	1.1	3.1	10	7
	1979	1.5	4.6	11	7
Cement	1960	2.1	3.9	10	6
	1979	2.3	4.8	10	6

SOURCE: Rocznik Statystyczny Przemysłu 1980, p.512, Tab. 17 (215)

a/ with USSR

b/ without USSR and China

c/ without China

The development of the machinery industry enabled the construction of complete plants, such as large beet sugar mills, sulphuric acid factories, complete installation for production of citric acid as well as a wide range of construction and building services.

The chemical industry was the second branch of fast development during the seventies, particularly in such groups as pesticides, polyvinyl chloride, polyethylene, synthetic rubber and latexes, synthetic fibres and pharmaceutical products. However, despite the high rate of growth the share of this group of products in total production remained still much lower than in other developed countries.

Although other branches of the industry developed slower, in some groups of products the increase of production was remarkable. Some examples are rolled products, particularly sheet iron for vessel industry and rolling bearings for the demand of the domestic electrical and engineering industry.

#### 2.4 Changes in structure of employment, investments and fixed assets

##### Employment

In the seventies the share of employment in industry grew from 29.3 per cent in 1970 up to 31.6 per cent in 1979. In the eighties some decrease of the total number as well as in the share of employment in industry is expected because of two reasons: (i) faster growth of the rate of employment in non-productive sectors (ii) reduction of employment created previously by intensive investment activity in Polish industry. These tendencies were already observed in the second half of the decade (see Table 12).

Table 13 illustrates some interesting trends of structural changes characterized by the increase of the share of electrical and engineering industry, stabilization of the share of other branches of heavy industry (fuel and energy, metallurgy) and the decrease of the share of the branches of light industry, particularly the textile industry. However, these tendencies can hardly be expected to continue in the future. The structure of employment will be more or less stable with some reallocation of labour force from heavy industries producing consumption goods. The main changes of the structure of employment expected in the future relates to the acceleration of the non-productive sectors of the national economy, providing services for the population.



Table 12. Dynamics of employment in Poland's socialized industry

Specification (grouping by branches)	1961-70	1971-75	1976-79
	mean yearly rate of growth in %		
TOTAL	3.3	2.8	0.0
Fuel and power industry	1.5	1.0	1.7
— fuel	5.7	1.5	-0.1
Metallurgical industry	2.8	3.3	0.5
Electrical and engineering ind.	5.5	3.7	1.4
Chemical industry	4.1	2.6	-0.8
Mineral industry	2.2	1.4	-1.2
— building materials	1.8	0.7	-2.3
Wood and paper industry	2.4	2.3	-1.4
Light industry	2.2	2.6	-1.2
— wearing apparel	3.3	4.0	-0.7
Food industry	2.5	3.4	-0.4
Other industrial branches	5.0	3.2	2.1

SOURCE: Rocznik Statystyczny 1980

Table 13. Changes of the structure of employment in Polish socialized industry 1970-1979 (in per cent)

Specification (grouping by branches)	1970	1975	1979
Fuel and power industry	11.7	10.7	11.4
— coal	8.8	7.8	8.5
Metallurgical industry	5.9	5.4	5.4
— basic metals	4.6	3.9	3.9
Electrical and engineering industry	30.5	32.8	34.4
Chemical industry	7.1	7.1	6.0
Mineral industry	6.7	6.2	5.8
— building materials	4.9	4.3	3.9
Wood and paper industry	6.2	6.0	5.7
Light industry	18.2	18.0	16.8
— textile	10.8	10.2	9.4
Food industry	11.3	11.4	11.1
Other industrial branches	2.4	2.4	2.6

SOURCE: Rocznik Statystyczny 1980

### Investments

In the period of the seventies, as already mentioned, two separate stages of investment policy might be distinguished: first, the years 1971-1975, particularly the years 1971-1974, characterized by the extremely high rate of growth of investment outlays, and the second half of the decade, with rapid decrease of the rate of growth of investments (see Table 14).

Structural changes of investment outlays in socialized industries are shown in Table 15.

The rate of investment outlays for machinery and equipment was much higher than that of construction assembly works, partly caused by the intensive import of machinery and equipment from credit-granting countries. This import of machinery was too fast and caused the time lag between the supply of equipment and the installation and setting into motion because construction works of new investment projects could hardly meet the supply of machinery.

Structural changes of investments in the cross section of industrial branches in the years 1975-1979 do not reflect the long-term trends of the Polish economy. They are the result of drastic reduction in investment programme. These restrictions did not affect all branches of the industry with the same force. Thus, in 1979 a significant increase of the share of fuel and energy industries in total investment outlays could be observed (see Table 16).

Taking into account the considerable amount of frozen and engaged capital outlays mainly in the industry, one may expect that the structure of investment in the industry will strongly fluctuate in the forthcoming years of the eighties. It will be shaped according to the needs and possibilities of continuation of investment projects started in the seventies, and the conditions of economic balances of the economy and the social situation in Poland.

Table 14. Index numbers of dynamics of investment outlays in the industry  
(fixed prices, previous year = 100 per cent)

Year	TOTAL	Socialized industry		
		TOTAL	Construction - assembly works	Machinery and equipment
1971	110.4	110.5	106.6	113.5
1972	134.6	134.7	120.6	151.9
1973	126.7	126.7	128.8	129.1
1974	122.2	122.2	117.4	126.0
1975	117.0	117.0	110.2	123.2
1976	103.0	103.0	100.0	108.6
1977	99.2	99.2	94.1	101.2
1978	97.9	97.9	104.0	101.7
1979	85.7	85.7	83.6	83.6

SOURCE: Rocznik Statystyczny GUS 1980 and own calculations

Table 15. Structural changes of investment outlays in socialized  
industry in 1970-1979 (fixed prices of 1977)

Specification (grouping by branches)	1970	1975	1979
	in per cent		
TOTAL	100.0	100.0	100.0
Fuel and power industry	26.8	19.4	25.8
Metallurgical industry	13.1	16.9	12.6
Electrical and engineering industry	19.8	24.3	25.6
— machinery and structural			
metal products	4.3	4.9	6.9
engineering	6.8	6.5	8.0
Chemical industry	12.6	9.5	12.9
Mineral industry	8.1	7.0	4.4
— building materials	6.8	6.4	3.0
Wood and paper industry	3.6	4.5	4.4
Light industry	6.1	6.0	3.9
— textile	4.7	4.9	3.0
Food industry	8.8	10.7	9.2
Other industrial branches	1.1	1.7	1.2

SOURCE: Rocznik Statystyczny 1980

Table 16. Structural changes of investment outlays in socialized industry in cross sections of branches, 1971/75 and 1976/79 (fixed prices)

Specification (grouping by branches)	mean yearly rate of growth in %	
	1971-1975	1976-1979
TOTAL	21.9	-3.8
Mining industry	10.7	3.7
Manufacturing industry	24.2	-4.9
Fuel and power industry	13.8	3.3
— fuel	16.8	-26.0
— power	11.8	7.6
Metallurgical industry	28.4	-10.5
Electrical and engineering industry	26.8	-2.4
Chemical industry	15.4	3.9
Mineral industry	18.5	-14.5
— building materials	20.6	-20.6
Wood and paper industry	27.3	-4.2
Light industry	21.5	-13.4
Other industrial branches	36.6	-12.3

SOURCE: Rocznik Statystyczny 1980

### Fixed assets

In the period of the seventies, as the result of immense investment efforts of the economy, the volume of productive fixed assets grew almost 2.5 times (in the decade 1960-69 less than two times). This growth was steady during the whole decade (see Table 17). However, in the various industrial branches the rate of growth of fixed assets was highly variable (see Table 18).

Attention should be paid to the relation between the rate of growth of productive fixed assets in the energy industry and the rate of growth of main energy consumers, i.e. metallurgy and electrical and engineering industry. The rate of growth of energy consumers was twice as much as the rate of growth of the energy producing industry. This disproportion has its repercussions in the energetic balance of the country: grave disturbances occurred in production because of lack of electrical energy in the second half of the seventies and it is even expected that Poland cannot produce sufficient energy to meet the demand before 1984, after setting into operation several power stations now being under construction.

In the effect of the policy of development of production capacities in some favoured branches, mainly electrical and engineering industry, deep structural changes of the allocation of fixed assets in the industry had occurred. This is shown in Table 19.

Significant for the structural changes of fixed assets is the remarkable increase of the share of electrical and engineering and metallurgical industries in comparison with the fuel and energy industry and, to a lesser extent, with the rest of the industrial branches. It should be stressed that in the dominating branches of electrical and engineering industry and metallurgy the output of highly energy-consuming products and technologies has been developed. This process was accompanied by the growth of the energy consumption ratio in those branches which previously had been rather low energy consuming e.g. in food and light industry the consumption of energy per employee grew about 170 per cent during the decade, in the mineral industry the respective indicator was doubled, and the demand for energy in agriculture, transport as well as in other sectors of national economy also increased as a consequence of technical progress.

In the seventies the considerable increase of technical equipment was expected to highly increase labour productivity. However, the capital consuming character of technical progress had led to the decrease of

Table 17. Rate of growth of gross fixed assets in the socialized industry in 1970-1979 (fixed prices, previous year = 100 per cent)

year	per cent	year	per cent
1971	105.0	1976	110.2
1972	108.8	1977	111.5
1973	109.1	1978	109.3
1974	112.3	1979	107.9
1975	111.0		

Table 18. Dynamics of the value of gross fixed assets in socialized industry 1970-1979, fixed prices

Specification (grouping by branches)	1975	1979	1961-70 1971-75 1976-79			
	1970 = 100	1975 = 100	1978 = 100	mean yearly rate of growth in per cent		
TOTAL	159.0	147.0	108.1	7.4	9.7	10.1
Fuel and power industry	139.4	139.8	107.2	7.4	6.9	8.7
Metallurgical industry	160.6	170.3	108.9	8.2	9.9	14.2
Electrical and engineering industry	190.8	159.3	109.3	8.8	13.8	12.3
Chemical industry	154.2	138.0	110.3	9.9	9.0	8.4
Mineral industry	147.3	139.8	107.9	6.0	8.1	8.7
Wood and paper industry	153.4	143.2	103.0	6.1	8.9	9.4
Light industry	172.3	132.1	105.0	4.5	11.5	7.2
Food industry	165.6	142.1	108.3	5.4	10.6	9.2
Other industrial branches	165.8	150.5	115.2	8.7	10.6	10.8

SOURCE: Rocznik Statystyczny 1980 (for Tables 17 and 18)

Table 19. Structure of gross productive fixed assets in socialized industry (fixed prices of 1.1.1977)

Specification (grouping by branches)	1960	1970	1975	1979
	in per cent			
TOTAL	100.0	100.0	100.0	100.0
Fuel and power industry	30.2	30.4	27.0	25.7
— coal	13.6	11.7	9.1	8.8
Metallurgical industry	10.1	10.9	11.1	12.9
Electrical and engineering industry	15.3	17.2	20.6	22.3
— machinery and metal	2.8	2.9	3.7	4.2
Chemical industry	9.0	11.3	11.1	10.4
Mineral industry	8.0	7.2	6.6	6.3
— building materials	7.0	6.1	5.6	5.1
Wood and paper industry	4.6	4.2	4.0	3.9
Light industry	8.3	6.3	6.9	6.1
— textile	7.0	5.1	5.5	4.9
Food industry	11.3	11.1	11.4	11.0

SOURCE: Rocznik Statystyczny 1980



productivity of fixed assets, despite the rather high technological level of newly installed equipment. In the years 1975-1979 the productivity of fixed assets in socialized industry dropped down by 21 per cent while the value of fixed assets per worker increased by 47.4 per cent. On the other hand, the net industrial production per worker which had been dynamically growing in the years 1971-1975 started to decrease in the second half of the decade.

In 1979 in almost all branches of the industry, except electrical and engineering industry, building materials and glass industry, an absolute decrease of the efficiency of labour could be observed which has continued in 1980, and probably in 1981.

#### 2.5 Changes in technological level of Polish industry

The first half of the seventies was the period of substantial import of modern technologies from developed industrialized countries. The import of new technologies concerned not only the preferentially treated branches of electrical and engineering industry, metallurgical and chemical industries, but almost all industrial branches. The modernization of the technologies of production processes was based on the import of licences. In newly erected or modernized plants the most modern technologies of production were introduced, based on imported machinery, equipment and know-how. The increase of technological level of production was concentrated mainly in electrical and engineering industry and chemical industry. The automation of production processes in these industries was based on electronic control systems.

In 1970-1975 complex automatic control systems for several coal mines in Upper Silesia and in all newly erected and modernized power stations were implemented. Complex automation was applied also in the biggest metallurgical plant built in Poland during the seventies, "Huta Katowice", and in copper works in Glogów and in aluminium works in Konin. Considerable progress was achieved in automation for shipyards, for ammonia production, distillation of petroleum, sodium, synthetic fibres etc. Automatic control systems were also introduced in some food production plants and light industries. Significant progress was also achieved in the technologies of telecommunication, medical apparatus industry, and automatic control for sea transport.

However, despite of the increase of the degree of pervasion of the national economy with electronic technology, its utilization was much lower than in developed industrial countries, and the acceleration of this process is expected only in forthcoming years.<sup>1/</sup>

From the point of view of technical and economic effectiveness of production, the process of modernization of Polish industry was much slower than the processes of technological and technical modernization of some selected branches and products. The index numbers of energy consumption, material consumption and labour consumption were much higher than in the majority of developed countries.

Only some progress in reducing energy consumption has been achieved which, however, was yet unsatisfactory. In the material consumption ratio of the industry no significant progress was achieved.

#### 2.6 Specialization and intra-branch co-operation of Polish industry with other countries of the CMEA

Poland has been an active member of the CMEA from the very beginning of this organization and the advocate of the development of economic, scientific and technical collaboration and of the processes of integration of socialist countries. Poland takes part in the number of common investment enterprises, of international production and trade organization as well as of common international enterprises of socialist countries. Poland is taking an active part in all the work connected with expanding specialization and co-operation within the CMEA group, accepting this form of co-operation as an important factor of deepening socialist economic integration.

At present Poland is a party within the CMEA to more than 100 specialization and co-operation agreements of a multilateral nature and to around 200 of a bilateral type. Under the terms of these agreements the Polish economic organization is producing and delivering the following more important products:

- in the sphere of specialization: ocean going and inland waterway vessels, ship equipment, plants for the manufacture of sulphuric, nitric and phosphoric acid, plants manufacturing granulated animal

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<sup>1/</sup> See: S. Jónca, Elektronizacja gospodarki narodowej, Wiadomości Statystyczne 11/78.

fodder, plants for road building machinery, machinery for processing plastics, for producing paper and cardboard, certain chemicals, mining machinery, and also certified seed plants;

- in the sphere of industrial co-operation agreements: parts and sub-assemblies for motor vehicle manufacture, deliveries of electromagnetic clutches and lathe chucks, parts and sub-assemblies for road building machinery, peripheral data processing equipment, parts for automatic control systems, equipment for nuclear power stations, certain semi-manufactured and intermediates for pharmaceutical and cosmetics industries.

## 2.7 Summary

i. At the beginning of the seventies Poland embarked on the process of accelerated development of economy, initiated by the new leadership of the country. This led, however, to a deep social and economic crisis by the end of the decade. The core of this crisis are structural disproportions between:

- the industry and other sectors of national economy, particularly agriculture and construction;
- different branches of the industry, mainly between branches producing raw materials and energy, and processing branches;
- size and structure of investments with regard to the needs and possibilities of national economy.

ii. The collapse of economic equilibria in Polish economy was caused mainly by:

- rapid increase of investment effort at the beginning of the seventies, greater than could be absorbed by the national economy;
- wrong decisions concerning structure and profile of investments;
- "abuse" of foreign credits, mainly from developed western countries;
- discontinuance of the reform of the planning and management system in 1973-1974.

iii. The present economic difficulties of Poland are of structural character. They concern the structure of investments, productive capacities, foreign trade and employment. The process of restoration of the economic equilibrium and start of "normal" economic growth needs at least 5-6 years, according to the present opinions of economic authorities.

3. STRUCTURAL CHANGES OF POLISH FOREIGN TRADE WITH SPECIAL REFERENCE TO THE CO-OPERATION WITH THE DEVELOPING COUNTRIES

3.1 Outline of Polish foreign trade turnover

Foreign trade has played a diversified role in the economy and in the strategy of economic development in the particular stages of the economic life of Poland during the last 35 years.

In the years 1951-1970 the average annual rate of growth of Polish export was less than the rate of growth of industry, while the rate of growth of world export exceeded by 2 per cent the world's industrial production in the given period. The share of Poland in international foreign trade turnover was 1.14 per cent in 1970 (0.9 per cent in 1938) while at the same time the share of Polish industrial production achieved 2.3 per cent (0.8 per cent in 1938). The relation between these two indicators describing Poland's participation in international labour division was in 1970 much lower than in the majority of developed countries.

The new strategy of economic development after 1970 was based on the concept of "open economy", actively collaborating with the world market. Radical change of the functions of foreign trade of Poland was necessary. The new foreign trade strategy of the seventies assumed the concentration of outlays in export-oriented branches to increase the participation of Poland in the international division of labour. But the result of such an approach was the considerable increase of imports. The rate of growth of exports was also increased, but much less than imports. This is shown by the data in Table 20.

The relation of foreign trade turnover to national income produced increased: export from 20.8 per cent in the years 1966-70 to 28.8 per cent in 1977, and import from 19.1 per cent to 33.7 per cent respectively.

In the years 1971-1975 only, the surplus of imports over exports enabled the financing of about 11 per cent of gross investment outlays, and 28 per cent of total outlays for machinery and equipment. The import for accumulation purposes was almost fully used for investment. In effect, the share of imported machines and equipment in total value of investment outlays for this type of capital goods grew very fast. In 1970 the share of import in

Table 20. Polish foreign trade turnover in the years 1970-1980  
(million exchange zl., current prices)

Year		Turnover	Import	Export
1970	TOTAL	28,620.6	14,430.1	14,190.5
	Socialist countries	13,956.3	9,892.3	9,064.0
	Developed western countries	7,748.6	3,721.1	4,027.5
	Developing countries	1,915.7	816.7	1,099.0
1975	TOTAL	75,811.4	41,650.7	34,160.7
	Socialist countries	39,559.1	19,086.9	20,472.2
	Developed western countries	31,306.7	20,539.2	10,767.5
	Developing countries	4,945.6	2,024.6	2,921.0
1980	TOTAL	110,207.0	58,299.0	51,908.0
	Socialist countries	61,426.0	32,409.0	29,017.0
	Developed western countries	38,296.0	20,453.0	17,863.0
	Developing countries	10,485.0	5,457.0	5,028.0

SOURCE: Rocznik handlu zagranicznego 1980

total value of investment outlays (current prices) was 12.3 per cent, and in the outlays for machinery and equipment 36.7 per cent, but in 1975 the respective index numbers were as much as 24.5 per cent and 55.6 per cent. The main stream of the import of capital goods was oriented towards chemical, electrical and engineering, light and food industries. It is estimated that in these branches of the industry almost 50 per cent of all machinery and equipment installed were imported.

The seventies were rather advantageous for purchasing capital goods in the developed western countries, because of good credit conditions. However, the situation of these credit grantors was not conducive to the intensification of export to these countries. The condition of Polish export was rather worse than at the end of the sixties.

The decrease of world foreign trade turnover and relative worsening of the situation had cumulative results on the Polish economic situation in the second half of the seventies. These difficulties were aggravated by the decrease of the rate of growth of export to developed western countries because of the recession of early seventies, very fast increase of demand for capital and consumption goods on domestic market, and insufficient stimulation of the export oriented industry.

At the end of the seventies the share of export in total value of Polish industrial production achieved the level of 15 per cent, exceeding the level of 1970 by 2 points only.

The development of foreign trade turnover was accompanied by deep changes of its commodity structure and geographical structure. Before World War II the commodity structure of the Polish foreign trade was the typical structure of an underdeveloped country. In 1938 the share of finished industrial goods was only 11 per cent in exports and 31 per cent in imports; the share of machinery was 1.4 per cent on the export side and 1 per cent on the import. Raw materials and fuels were by far the greatest commodity group, with a 60 per cent share in exports and imports. The most important goods on the export side were food (30 per cent), coal (18 per cent) and timber (17 per cent). The evolution of this structure in the years 1951-79, classified according to SITC, is shown in Table 21.

Table 21. Commodity structure of Polish foreign trade  
(classified according to SITC, 1951-1979)

Selected commodity groups	Import (per cent)		
	1951	1974	1975
Food	9.7	11.2	10.4
Raw materials <sup>1/</sup>	35.7	11.4	10.7
Fuels	3.6	5.2	9.2
TOTAL primary products	49.0	27.8	30.3
Chemicals	4.5	7.4	7.3
Engineering products <sup>2/</sup>	34.3	40.8	39.9
Other products	12.2	24.0	22.5
GRAND TOTAL	100.0	100.0	100.0

SOURCE: Rocznik statystyczny handlu zagranicznego 1980

1/ including ores and minerals

2/ including transport equipment



Export (per cent)

1979	1951	1974	1975	1979
11.5	17.9	11.6	8.9	7.7
10.7	5.6	3.7	3.4	4.6
15.3	47.3	15.9	20.0	15.0
37.5	70.8	31.2	32.3	27.3
7.9	3.1	9.5	7.6	4.8
34.3	6.9	38.5	40.0	43.3
20.3	19.2	20.8	20.1	24.6
100.0	100.0	100.0	100.0	100.0

The changes in the commodity structure were strictly connected with the economic development of the country and particularly with the process of socialist industrialization. The most specific feature of the commodity structure of exports and imports is the very high share of engineering products, which is even higher than in the trade of some developed industrial countries.

In the period 1960-1971 the absolute value of Polish export of electrical and engineering industry products had increased 13 times. In 1979 the electrical and engineering industry was supplying 47 per cent of total Polish export. The share of export of this branch of industry to developed countries had also increased. E.g. in the period of 1965-1978 the share of electrical and engineering products in global export to developed western countries grew up from 3 per cent to 22 per cent.

Relatively stable was the share of traditional industrial products of the branches: fuel and energy, chemical and light industries, while the share of agriculture and food industry products as well as metallurgical products was lowered.

The strongest long-term trend of the increase of imports concerned the products of the electrical and engineering industry (this trend was set back in 1976-78). Fuels represented the group of products with the second largest increase of the share of Polish imports. Chemical products and agricultural goods had no change in imports.

Changes also occurred after World War II in the geographical structure of Polish foreign trade (see Table 22). In the post-war period the socialist countries were the main trading area of Poland. The importance of this group is the result not only of its high share in overall trade (50-60 per cent) but also of the advantageous commodity structure and of the stability of that trade secured by long-term agreements.

The role of socialist countries in imports is particularly high in the supply of fuels, engineering products, wood and paper, metallurgical products, raw materials and products of the light industry including raw materials. It is relatively lower in chemicals and agricultural products. On the export side the share of socialist countries is highest in engineering products, the light industry (textiles and leather products), chemicals and metallurgical products. It is lower in fuels, wood and paper products and food.

Table 22. Directions of Polish foreign trade by groups of countries 1960-1980  
(in million exchange zl. and per cent)

Year		TOTAL	%	Socialist countries	%	Developed countries	%	Developing countries	%
1960	TURNOVER	11,282.0	100	7,118.7	63.1	3,357.4	29.8	805.9	7.1
	Import	5,979.9	100	3,797.9	63.5	1,775.2	29.7	406.8	6.8
	Export	5,302.1	100	3,320.8	62.6	1,582.2	29.9	399.1	7.5
1970	TURNOVER	28,620.6	100	18,956.3	66.2	7,748.6	27.1	1,915.7	6.7
	Import	14,430.1	100	9,892.3	68.6	3,721.1	25.8	816.7	5.6
	Export	14,190.5	100	9,064.0	63.9	4,027.5	28.4	1,099.0	7.7
1975	TURNOVER	75,811.4	100	39,559.1	52.2	31,306.7	41.3	4,945.6	6.5
	Import	41,650.7	100	19,086.9	45.8	20,539.2	49.3	2,024.6	4.9
	Export	34,160.7	100	20,472.2	59.9	10,767.5	31.5	2,921.0	8.6
1980	TURNOVER	110,207.0	100	61,426.0	55.7	38,296.0	34.7	10,485.0	9.5
	Import	58,299.0	100	32,409.0	55.6	20,433.0	35.0	5,457.0	9.4
	Export	51,908.0	100	29,017.0	55.9	17,863.0	34.4	5,028.0	9.7

SOURCE: Rocznik handlu zagranicznego 1980, Maly rocznik statystyczny 1981

The steady development of Poland's trade with the CMEA members is a principal element of this country's policy with regard to external economic relations. The long-range trade agreements which Poland had signed with the CMEA countries are evidence of the consistent realization of these policy objectives and create favourable prospects of deepening Poland's relations with the members of this grouping in the spheres of trade and economic contacts.

The complex programme of socialist economic integration points to the necessity of meeting the growing demand of the CMEA states for fuels and raw materials on the basis of a common effort and through the use of various mutually advantageous forms of economic co-operation. The CMEA states have either already completed or undertaken a number of common investment projects. The practice of such common undertakings, either of a bilateral or multilateral type, has shown them to be a most profitable form of co-operation among the socialist states.

Between the years 1951 and 1971 the share of developed market economies in Polish foreign trade was relatively stable at about 30 per cent, but after 1971 this share has increased and reached 41.4 in 1976. This was the result of an accelerated growth of trade with this group, the rate of which increased from 10 per cent per annum in 1966-70 to 32 per cent between 1971-75, while trade with other groups grew relatively slower (16 per cent). The background of such a process had been discussed in Chapter 2.

While the share of the developed countries in imports almost doubled, rising from around 26 per cent in 1970 to close to 51 per cent in 1974, their share in export rose in the same period only from 28.5 to 36 per cent. After 1974 the share of those countries began to drop both in imports and exports. Their share in imports decreased with each passing year (to around 42.5 per cent in 1977) while in exports this share continued to show a slight upward trend from the lowest level (from 31.5 per cent in 1975 to around 33 per cent in 1977).

The changes which arose in this respect after 1974 were closely connected with the general deterioration of the situation on the western markets towards the end of 1973. The deep recession of 1974 and 1975 clearly checked the pace of growth in Polish exports on those markets. Considering the systematic imbalance between imports and exports leading to a growth

in Poland's external debt - a brake could not be placed on imports from the developed countries.

### 3.2 Polish foreign trade and forms of economic co-operation with the developing countries

Poland's trade with the developing countries shows a more dynamic increase in recent years than with other regions. In the period 1976-79 it went up by over 70 per cent. Imports increased by 104 per cent and exports by 37 per cent.

The share of various geographical regions in the total value of Poland's trade with developing countries was as follows in 1979: African countries, 38.7 per cent of exports and 16.7 per cent of imports; the Near and Middle East - 26.6 per cent of exports and 29 per cent of imports; South and South Eastern Asia - 12.1 per cent of exports and 20.3 per cent of imports. The highest trade increases have been noted with Lybia, Iraq, Brazil, Iran, Turkey, India, Angola and Nigeria.

In 1980 the growth of trade with developing countries has been considerably accelerated. Polish imports of metallurgical products from the developing countries increased in 1980 as compared with 1979 by more than 40 per cent, light industry products by 35 per cent, agriculture products by nearly 20 per cent, chemical products by 10 per cent and food processing products by nearly 8 per cent. However, what has been achieved so far in the areas of trade and economic co-operation between Poland and the developing countries still falls short of existing opportunities.

Despite the dynamic increase (see Table 23) of export and import, the share of developing countries in Polish foreign trade turnover remained on the level of 8-10 per cent. The situation is based on internal (inadequate export offers) as well as external factors (administrative and political constraints in the contracts with socialist countries of some developing countries, activities of transnational companies, indirect purchases, etc.).

Economic relations of Poland with developing countries have a rather short history. In the first period of economic relations with developing countries the exchange was limited to a certain number of products. However, the development of industrial production enabled Poland to change the profiles

Table 23. Polish foreign trade with developing countries 1960-1980  
(in current prices, million exchange zl.)

Countries	Import						Export					
	1960	1970	1975	%	1980	%	1960	1970	1975	%	1980	%
TOTAL	5,980	14,430	41,651	100.0	58,299	100.0	5,302	14,191	34,161	100.0	51,908	100.0
Developing countries	407	817	2,025	4.8	5,457	9.4	399	1,099	2,921	8.5	5,028	9.7
e.g.												
Bangladesh	-	-	29		22		-	-	8		39	
India	33	133	345		212		25	125	358		221	
Iraq	-	-	5		1,090		5	110	192		390	
Iran	14	23	45		359		30	20	201		399	
Malaysia	14	2	48		47		3	1	10		44	
Pakistan	30	84	55		40		9	63	64		58	
Turkey	14	31	42		270		30	69	114		284	
Algeria	-	18	130		11		-	7	118		149	
Egypt	45	78	185		78		34	121	110		188	
Ethiopia	-	-	8		11		-	4	3		11	
Libya	-	-	-		286		1	40	303		594	
Morocco	11	49	353		146		12	49	112		120	
Sudan	3	14	14		19		5	27	13		18	
Tunisia	3	19	51		20		4	29	33		52	
Argentina	78	74	66		243		33	40	108		43	
Brazil	105	76	212		1,555		80	86	271		246	
Colombia	3	12	45		175		-	35	10		20	

SOURCE: Maly rocznik statystyczny 1981

of economic collaboration with the developing countries. Since the beginning of the sixties export offers included a growing number of investment goods, and complete industrial plants. By 1979 Poland had delivered to the developing countries over 250 complete industrial plants. The products of the electrical and engineering industry constituted recently over 50 per cent of Polish export to developing countries. The export of chemicals, among them nitric fertilizers, sulphur, sodium, dyes increased as well. An important role, too, was played by industrial consumption products (see Table 24).

In response to industrialization of developing countries noteworthy structural adjustments took place in Poland's import structure. Manufactured and semi-manufactured goods accounted for more than 31 per cent of Poland's imports from the developing countries by 1975. Changes in import structure in favour of finished and semi-finished goods were more pronounced in some branches of the light industry than in the heavy industry.

The trend to an increased share of manufactured and semi-manufactured goods in imports from developing countries was supported by preferences and reduction of tariff rates granted since 1975 for goods originating from developing countries. Since 1981 Poland has granted duty free rates for products originating in, and imported directly from, the least developed countries.

At present Poland maintains commercial relations with practically all developing countries. Poland has valid trade agreements with 51 developing countries. With 44 of them the agreements are based on payments in convertible currencies. Only with 6 countries Poland has clearing arrangements and with 2 countries Poland has barter agreements.

Poland has also concluded agreements on economic and technical co-operation with 18 developing countries. Numerous examples of economic and industrial co-operation drawn from these agreements are given below:

- Preparation of feasibility reports with regard to the industrial plants and other projects;
- Establishment of industrial plants and other projects as well as the expansion or modernization of the existing ones;

Table 24. The commodity structure of Polish foreign trade with developing countries  
1971-1979 (million exchange zl., current prices, and in per cent)

Selected commodity groups	Import						Export					
	1971	%	1975	%	1979	%	1971	%	1975	%	1979	%
TOTAL	860.5	100.0	2,024.6	100.0	4,240.7	100.0	1,097.1	100.0	2,921.0	100.0	3,996.2	100.0
Food	330.1	38.3	515.1	25.4	1,589.6	37.5	62.8	5.7	200.9	6.9	343.5	8.5
Raw materials <sup>1/</sup>	415.8	48.3	936.5	46.2	796.3	18.8	10.8	0.9	103.2	3.5	187.6	4.6
Fuels	-	-	182.0	8.9	1,437.6	34.0	39.8	3.6	272.9	9.3	316.9	7.9
TOTAL primary products	745.9	86.6	1,633.6	80.5	3,823.5	90.3	133.4	10.2	577.0	19.7	848.0	21.0
Chemicals	13.9	1.6	24.7	1.2	48.3	1.1	165.2	15.0	577.4	19.6	183.9	4.6
Engineering products <sup>2/</sup>	2.1	0.6	10.2	0.8	8.0	0.1	430.6	39.2	1,043.0	35.7	1,587.4	39.7
Other products	96.6	11.2	356.2	17.5	360.9	8.5	387.9	35.6	723.6	24.9	1,376.9	34.7

SOURCE: Rocznik statystyczny handlu zagranicznego 1980

<sup>1/</sup> including ores and minerals

<sup>2/</sup> including transport equipment



- Joint studies on technological subjects of mutual interest and co-operation in the field of technical training and applied research;
- Specialization in production and exchange of components, co-production and marketing of the final products;
- Establishment of joint ventures with partners from developing countries operating in the fields of manufacturing, trade, technical and consulting services;
- Organizing joint ventures in various forms in a third country;
- Exchange of technical information, publications, patents, licences and know-how.

### 3.3 Summary

- A new foreign trade strategy of the 1970's assumed that the concentration of outlays in export-oriented branches of industry would increase the participation of Poland in the international division of labour. The result of such an approach was the considerable increase of imports, mainly through credit purchases from developed western countries. The rate of growth of imports was doubled in the first half of the 1970's in comparison with the previous period. The rate of growth of exports also increased but much less than imports. The most specific feature of the commodity structure of exports and imports was the very high share of engineering products.
- Socialist countries are the main trading area of Poland, characterized not only by a high share in turnover but also by the advantageous commodity structure and by the stability of that trade secured by long-term agreements. Socialist integration has made a positive influence on expanding trade within the group by the co-ordination of national economic development plans and the specialization and co-operation in production.
- Economic relations with the developing countries grew rapidly, mainly through governmental agreements, leading to an expansion of trade.

4. TOWARDS OPTIMIZATION OF THE INTERNAL STRUCTURE OF POLISH INDUSTRY  
WITH SPECIAL REFERENCE TO THE RECENT ECONOMIC SITUATION

4.1 Plan of economic stabilization and economic reform

As was mentioned above, the 1970's can be described as the years of growing intra-branch and intra-sectoral disequilibrium. The first symptoms of the approaching structural crisis had been noticed already in the first half of the seventies: a rapid increase in indebtedness and negative balance of foreign trade, the launching of a large number of huge investment projects in the most capital consuming branches of industry (mining, metallurgy). Then the breakdown of the food market because of underinvestment of private agriculture loomed in 1976. Further, the collapse of the energy supplies during the hard winter of 1979, and the poor crop results in 1980 together with all the results of credit trap and investment trap (described above), led to a deep economic and social crisis. In 1980 national income produced dropped by 2 per cent (the first time in the post-war period). This process of decrease in national income continues in 1981.<sup>1/</sup> Disturbances in co-operation between branches forced the state authorities to use up their reserves which are expected to drop down to, or even, the economically safe level in the second half of 1981.

In this situation it was necessary to introduce significant changes in the central planning system. Instead of elaborating the next 5-year plan for the years 1981-1985, a provisional one-year plan for 1981 was prepared by the central planning bodies and simultaneous elaboration of "Governmental programme of stabilization of the national economy" was started. This programme does not cover a particular period of time, but it specifies instruments and methods aimed at stopping the erosion of the economic development of the country and at reaching basic stabilization in internal and external spheres of the economy. It is believed that relatively permanent equilibrium in the main spheres of

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<sup>1/</sup> The national income in 1981 is estimated to decrease by 15 per cent in comparison to 1980, and this decreasing trend is likely to continue in 1982.

economic activity could be reached within 3-4 years, i.e. in 1984-85, although the level of 1979 national income produced is expected to be reached only in the second half of the decade (1985-1990). Thus, any projections and prognoses based on the principle of trend analysis may be valid after the balance of the economy is reached. The Governmental programme of stabilization of the national economy<sup>1/</sup> and supplementary proposals presented during the discussion on the document enable one to make the following generalizations of the activities necessary to stabilize the economy.

The limitations of the development of Polish economy in 1980/1981

- i. The economic situation of the country is still worsening. It is projected that the national income produced in 1981 will be on the level of 1972, and in 1982 the decreasing trend of national income will continue. This decreasing trend cannot be stopped in a short time. It is the result of structural and technological disproportions between different branches of the industry and extremely high import-consumption of industrial production. Because of this, an increase of production in many of the industries is not possible without additional import of raw materials and spare parts and equipment. This import, however, is limited by the "credit trap" effect.
- ii. Another limiting factor is the production of hard coal, a basic energy source and important export product. The production of coal in 1979 amounted to over 200 million tonnes. The amount was so high mainly because of excessive exploitation of deposits, machines and labour force. Such output of coal could not be maintained because of technical and social reasons. The drop of production (over 15 per cent in 1981) to the level of 170 million tonnes has resulted in reductions both in exports as well as in the supply for domestic purposes. An increase in production of coal cannot be achieved in a short time, because it requires new investments strictly connected with import of machinery and equipment. The energy-consuming character of Polish industrial production,

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<sup>1/</sup> When this study was prepared, the draft of the programme has been submitted to the Polish parliament (Sejm) for discussion (June 1981).

reflected in the branch structure of industry, cannot be changed in a short time either.

- iii. The deficit of payment balance and balance of trade will worsen because of the decrease of industrial production for export; this type of production is relatively high import consuming and cannot be increased without parallel increase of import, mainly from western developed countries.

In this situation traditional mechanisms of economic stabilization applicable to market economies are not of use. None of the "traditional" tools of economic policy - foreign credits, investments, increase of internal demand - would fit the situation of Poland, owing to reasons detailed previously.

The programme of economic stabilization includes the following types of activities:

- i. Immediate operations

- Re-organization of the central management institutions: reduction of the number of ministries, particularly industrial ministries, limitation of direct management and co-ordination functions of the central economic administration;
- Revision of legal acts introducing new (autonomous) status of state-owned enterprises;
- Regulation of price system for capital goods and raw materials in relation to the price relations on the world market, to provide the basis for economic calculations of import and export efficiency under the conditions of non-convertible domestic currency (zloty);
- Regulation of prices of consumption goods and incomes of population, i.e. a drastic increase of prices of food, to cover the costs of production, and an increase of prices of most "non-elementary" industrial consumption products, to reduce the "inflation overhang".

- ii. Short-term operations

- Regulation of prices of other industrial consumer goods and services, further income tax operations, to reduce "inflation overhang";

- Rationalization of investments, including interruption of certain particularly high import consuming investment projects or change of profile of production or technology according to attainable raw materials and expected demand;
- Exploitation of free production capacities (actually not utilized fully because of lack of raw materials) in collaboration with foreign contractors, mainly with socialist countries, which is expected to keep in motion the surplus of production capacities;
- Re-sale of machines and equipment not yet installed, purchased for investment projects now discontinued;
- Rational use of employment, including a decrease of employment in non-productive sectors of economy, lowering of the age of retiring, an increase of social benefits and allowances to reduce the number of working women with young children, shortening of work time, abolishing the third shift, mainly in light industry, etc.

iii. Long-term operations which require investment

- Branch restructuring of national economy in the following directions:
  - (a) development of those industrial branches which produce means of production for agriculture, fuels (mainly coal), and other raw materials for domestic needs and for export;
  - (b) intensification of the development and modernization of the food industry, particularly manufacturing of milk, meat, fruits and vegetables, wheat and fodder;
  - (c) change of production structure of electrical and engineering industry to meet better the needs of the population and those of the agriculture, food and light industry, housing and so called non-productive sectors of services (health, education, public transport, etc.);
  - (d) intensive development of energy industry to increase the electric energy production as soon as possible;
- Change of scale and structure of products and improvements in technologies:
  - (a) temporary slow-down of production of most energy consuming products (mainly metallurgy), decrease of production of capital goods for domestic investment projects;

- (b) stimulation of implementation of energy and material economizing technologies;
  - (c) increase of the share of highly processed products, by proper price policy on internal market and in foreign trade.
- Changes in structure of employment adequately to branch restructuring of national economy (see above); however, the principal rule of full employment shall be obeyed.

These operations are expected to lead to relative stabilization of national economy in the years 1984-85 on the level of the national income produced in 1980. It is also expected that about 1985 the rise of the indebtedness of Polish economy could be stopped and in the second half of the eighties Poland would be able to start getting out of foreign debts. The payment situation of Poland will be a long-term factor influencing Poland's international economic policy.

Simultaneously with the stabilization programme, deep improvements in management and central planning system will be introduced, known as "economic reform". A draft of the basic provisions of the reform was published in 1981. The concepts of economic reform are based on previous drafts worked out in Poland but never implemented (1956-57, 1971) and on the experiences of other socialist countries, mainly Hungary and Yugoslavia. The main goal of the economic reform is a transformation from the system of centralized direct management to a system of socialist economy based on rational economic calculations of independent socialist enterprises controlled by central planning authorities with the help of economic instruments (prices, taxes, exchange rates of currencies, interest, etc.).

A necessary condition of full and effective implementation of the economic reform is the introduction of a complex reform of price system. A new price system is expected to be introduced in 1982. Along with the change of the price system, new economic and financial system of state-owned enterprises should be introduced, based on the principle of "self-financing", i.e. creation of direct interdependence between the economic situation of the enterprise (incl. wages, investment fund, social fund, etc.) and financial results of its activity.

Stabilization programme and the economic reform will influence Poland's economic relations with other countries, including developing countries. The period of stabilization will be governed by special rules. Export and import policy as well as undertakings in economic collaboration will be subordinate to the recent situation and to the realization of the main goals for internal balance and solution of foreign liabilities problems.

4.2 Problems related to the adaptation of the structure of the Polish industry to the world market with special emphasis on the co-operation with the CMEA

The stabilization programme described above is expected to be only an introduction to the long-term economic strategy of optimization of the structure of the Polish economy, particularly the structure of the industry. It seems rather obvious that the roots of Poland's present economic difficulties lie, besides the indebtedness, in structural disproportions caused by excessive concentration of investment on some industrial branches. A proper structural policy might be the most important instrument of stabilization and future development of the country.

Changes of industrial structure, however, can bring effects only in a longer period of time. The policy of restructuring can be based on two premises:

- (a) the priority of the food and agricultural branches of the economy;
- (b) participation in international division of labour and integration processes of the CMEA.<sup>1/</sup>

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<sup>1/</sup> Poland will endeavour to base the process of overcoming the present crisis first of all on definite tightening of economic bonds with the community of socialist countries, mainly with the Soviet Union.

In this context the main emphasis in the co-operation with the socialist countries will be put on:

- intensification of export to the socialist countries in order to widen opportunities of receiving from these countries equivalent supplies, especially of necessary fuels and raw materials, consumption goods, technical means for agriculture and food economy;
- improvement of the payment situation with the socialist countries through intensive development of not only export of products but also the range of services rendered in transit, tourism, construction, etc.

The priority of food and agricultural branches demands internal changes in the branch structure of the industry: the purpose of these changes should be a full supply of necessary means of production for agriculture and creation of sufficient production capacities in food industry and storage of food products.

Priority should be given to such industrial production as: fertilizers, plant protection chemicals, tractors and other agricultural machines, particularly those adjusted to the needs of relatively small private farms, machines and tools for food industry (processing of milk, meat, fruits and vegetables, etc.), machines for cattle breeding, means of transport, water supply equipment, etc.

Provided the industry keeps up with the needs of the agricultural and food branches, it would mean the following advantages for the Polish economy:

- The large number of small farms<sup>1/</sup> may get a chance for significant increase of food production.
- After satisfying the internal needs, the production of agriculture oriented branches of industry might be assigned for export, which may be interesting for developing countries because the technological level of machines and equipment suitable for Polish private farms should be suitable for many developing countries, too.
- The production of means for agriculture has to be based mainly on the development of domestic production capacities.

The trends of specialization and integration will be continued, expanding the possibilities of international co-operation. Industrial restructuring should be considered in both short-term and long-term prospectives.

In the short-term period (up to 1985) the supplies of raw materials and energy determine the production possibilities of the Polish industry. Because of the shortage of these two most important elements of production, a decrease in the supply of agricultural products for industrial processing is assumed as well as in the output of coal, metallurgy and cement. Some decrease of production is also expected in the production of capital goods,

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<sup>1/</sup> The number of private farms in Poland exceeds 3 millions, of which ca. 60 per cent are farms below 5 hectares.



mainly for domestic purposes, e.g. the machine tool industry, building machines, railway cars, cables, and off the road vehicles. The size of production of these branches has to be reduced to meet the needs of a narrowed investment programme, and partially to the possibilities of reduced supplies of raw materials and energy.

Protection of the standard of living requires the absolute decrease of investment outlays. According to estimations, the admissible level of investments in 1981 can be about 17 per cent less compared to 1980. Such deep limitations of investment outlays make it necessary to introduce considerable changes in the branch structure of investment outlays. The reduction of investment outlays will concern the sectors of "material production" (industry, construction, transport) but not the branches producing for food and agriculture complex, clothing and wood industries. Taking into account that in the forthcoming years the development of the Polish economy has to face problems connected with the decreasing rate of growth of manpower, scarcity of energy and water, decisions must be taken to ensure the flexibility of the economy.

Short-term decisions aiming to re-establish economic equilibrium are in some cases contradictory to long-term stabilization and development activities.<sup>1/</sup> That is why the technological and structural flexibility is very important to keep up future developments after reaching the state of equilibrium. It should also be stressed that the level of economic balance when reached - probably around the mid-eighties - will be lower than in 1980. Also from this point of view the collaboration with the CMEA countries will be important in the diminishing of the costs of restructuring.

All programmes and activities aimed at optimization of structures of the Polish industry have to be elaborated under the assumption of intensified international collaboration, first of all with the CMEA countries, but also with developed as well as with developing countries. Thus, in these programmes the following tasks should be pointed out:

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<sup>1/</sup> E.g. to re-establish market equilibrium it is necessary to raise the prices, i.e. to intensify cost inflation; to stimulate agricultural production is necessary to raise the prices paid by the state organization for agricultural products, and at the same time to increase the allowances for food products; to balance investment processes it is necessary to stop the implementation of many investment projects which increase the amount of frozen fixed assets and delays production effects from the outlays, etc.

- Rapid increase of most up-to-date products, provided that their import ratio does not hamper the expansion of the production;
- Propagation and thorough introduction of modern technologies;
- The change of product-mix of some branches, particularly to diminish the ratio of high energy and steel consumption rates, termination of technologically obsolete products whenever possible;
- Promotion of "science intensive" products, rationalization of scientific and technical collaboration with other countries, particularly with the CMEA countries, narrowing the assortment profile of electrical and engineering products, utilizing better the co-operation with the CMEA countries.

#### 4.3 Impact of present economic situation of Poland on the prospects of industrial co-operation with the developing countries

As it was mentioned above, Poland's present economic situation, particularly the heavy indebtedness and structural disproportions between different branches of industry, will strongly influence Poland's international economic relations. One feature is the reduction of imports. The purchase of investment goods from the developed market economies must be reduced while the import of materials is more difficult to curtail. This policy influenced the structure of imports, e.g. in 1975 the share of materials in total imports amounted to 63.9 per cent which rose to 68.5 per cent in 1979. At the same time the share of imports of investment goods dropped from 22.4 per cent in 1975 to 18.0 per cent in 1979 while the share of import of consumer goods and other products remained unchanged (13.7 per cent in 1975, 13.5 per cent in 1979).

This structural tendency opens wider possibilities of collaboration with the developing countries. Poland nearly entirely depends on imports of many important raw materials produced by the developing countries, namely oil, iron, magnesium and chromium ores, tin, potash, kaolin, asbestos, rubber, phosphates, textile fibres (cotton, jute, etc.) and many others. The present surplus of industrial production capacities creates the necessity to widen the contact with the developing countries. The institutional and organizational forms of these relations have been described above.

At present, it would be difficult in Poland to carry out redeployment (which is a fairly new phenomenon without major practice in this country) of any specific industrial sector to developing countries. Poland endeavours to support the industrialization of the developing countries by using bilateral agreements between governments. Poland, on the basis of plans and agreements with the developing countries, endeavours to purchase from those countries products on an increasing scale, reducing its own corresponding industrial activity accordingly and diverting the surplus capacity to other sectors.

This does not mean that Poland is not interested in the problem of industrial redeployment. Demographic changes and the resulting drop in labour force might influence the acceleration of redeployment to developing countries. On such background, semi-products and some materials for production might be a promising part of further mutual production co-operation, particularly in textile industries, processed food products, fertilizer industries, some branches of machinery construction, some groups of chemical industries and others.

The importance of economic contacts of Poland with the developing countries results from the complementary character of the majority of the developing countries in relation to Polish economy. Polish demand corresponds largely to the export offer of many developing countries and on the other hand, the demand of these countries meets the profile of Poland's industrial production and services. Moreover, long-term industrial development programmes implemented by many developing countries create possibilities of continued deliveries of particular types of machines, equipment and complete industrial plants to these countries, as well as the prospects for stimulation of different forms of economic collaboration, e.g. industrial co-operation, participation in production trade companies with mixed capital, consulting, and other services rendered by Polish specialists.

Poland takes into account in her import plans the increasing export capacities in manufactured goods of the developing countries. This is also an encouraging factor in signing long-term agreements and trade contracts, mutually advantageous for both sides.

To facilitate the structural policy with the developing countries, the programme of the development of economic relations with the developing countries till 1990 was elaborated and approved. It is entitled "Partner-

ship in Development" and explains the character of Poland's collaboration tendencies with the developing countries. This programme was referred to by the Polish delegation at the Third General Conference of UNIDO in New Delhi (1980).

This programme emphasizes, in respect of the industry, among others:

- A gradual implementation of a "redeployment policy". Certain branches of Polish industries, which hitherto had been processing raw materials from the developing countries, should be restructured in favour of permitting imports of processed goods such as cotton yarn and textiles instead of raw cotton, aluminium and aluminium products instead of bauxites, leather products instead of raw hides, etc. One form of promoting import of processed goods from developing countries is to provide them with machinery and know-how and then to buy a part of the production which is essentially called "buy-back system".
- Poland favours buying and selling products in the framework of long-term contracts. They offer the advantage of price stabilization, lower costs of transport, better planning for exporters and importers, clearer prospects for expansion of production and related investments.
- The programme favours industrial co-production and industrial partnership based either on long-term contracts or joint ventures, bilateral or with the participation of a third country. It also extends to various forms of technical assistance including transfer of technology and know-how, training of workers and professional management.

The required adjustments in industry could be facilitated also by positive actions on the part of the developing countries. Developing countries could articulate their needs for industrial growth and for long-term industrial co-operation in the framework of the national development plans. Such actions would provide also meaningful starting points for multilateral co-operation in new, undiscovered areas.

Taking into account the changes in the structure of Polish industry and its possibilities in the forthcoming years, the collaboration with the developing countries could be concentrated on several fields where mutual advantages are evident:

- The mining and energy branch: construction of collieries and plants processing coal and other minerals, construction of gas and oil pipelines and tanks, delivery of ships, ore and coal carries, LPG tankers, the construction of electric power stations and industrial low and high voltage lines.
- The small industry: various types of artisan workshops and small manufacturing plants.
- The complete chemical plants: construction of factories delivering sulphuric acid, soda, dyestuffs, plant protection agents, other chemical factories, liquid chemicals tanks.
- The construction industry: construction of factories delivering building materials, including glass works, house factories, brick works, lime kilns, cement works, residential housing construction works, communal developments, the building of roads and bridges.
- Hydrogeology and hydrology: the search for water and the drilling of wells, construction of water stages, weirs, dams, pumping stations, reservoirs, river regulation projects, water intakes on rivers, irrigation and amelioration works.
- The maritime economy complex: construction of shipyards and ship repair yards, of ports, deliveries of ships of various types, fishing cutters and trawlers.
- The agricultural and food complex: construction of sugar factories, cold stores, abattoirs, oil mills, distilleries, yeast factories.
- Other complete industrial projects: iron and steel mills, rolling mills, timber processing plants, textile factories, factories delivering machine tools and other machinery, motor car, bicycle and motorcycle assembly plants.
- Machinery and equipment: contractors' plant and road building machinery, tractors and combined harvesters, railway rolling stock, machine tools and tools.

For the forms of collaboration mentioned above the creation of joint ventures seems to be of importance. These forms of collaboration provide not only for deliveries of machines and equipment as well as other goods and services, but also guarantee proper exploitation of production capacities, training of local staff, and even some forms of "co-responsibility" for the profitability

of production. On the other side, the organization of common companies in a given branch of industry can ensure better consistence of the profile of production with the needs of domestic market of the developing country and sales of manufactured goods to Poland.

Participation of a third partner from developed countries might also be an important promoting factor. Such expansion and widening of collaboration enables deeper international division of labour and increases the effectiveness of a given transaction.

In a tripartite co-operation arrangement Polish industry is prepared to act as the contractor or subcontractor. Polish industry, following its specialization, is prepared to undertake the execution of project, including research and analysis, feasibility studies, deliveries of construction materials and assembly of equipment, marketing of products, training of personnel, etc. When appropriate Polish industry is prepared also to assume responsibility for further supervision of the technical production, as well as in the introduction of innovations and new technologies if and when they are developed.

## 5. SUMMARY AND CONCLUSIONS

The structural profile of Polish industry established during the fifties has been maintained until now. Its characteristic feature is the domination of electrical and engineering industry and the utilization of rather modern technological processes. This profile corresponds with the specialization of Poland in the CMEA.

The growth of other branches of industry (e.g. metallurgy, fuel and energy complex, chemical industry) has to a large extent been complementary in relation to the electrical and engineering industry. This complementary character has led to specific assortment profiles of these branches, entailing relatively high energy, material and transport consumption rates and relatively low effectiveness of investment.

The domination of electrical and engineering industry and the complementary development of other heavy industries led to a relative stagnation in other sectors of industry and economic sectors, mainly in food industry and in agriculture. Moreover pressures on the economy were created by these investments due to their over long gestation periods and low efficiency. The considerable acceleration of the development of the electrical and engineering industry on the basis of foreign credits in the first half of the seventies caused structural deformations which contributed very significantly to Poland's present economic disequilibria.

Due to the present economic situation, the main task in the first half of the eighties is expected to be the re-establishing of the basic equilibrium of the national economy and particularly:

- Stabilization of the market of consumption goods, mainly food, through the intensification of domestic agricultural production and increasing production of goods and services for agriculture.
- Changes in assortment structure of products and technologies, re-establishment of co-operative links (internal and external) of industrial branches, diminishing the dependence of some branches on excessive imports and increasing export-oriented production.

- Wage-price-income operations on the markets of consumption and investment goods stabilizing the internal market and establishing a reliable price basis for the enterprises.

These short-term operations are expected to lead to stabilization of the Polish economy in the mid-eighties, when a starting of the process of clearance of debts will become possible.

Long-term operations aimed at a meaningful increase of the efficiency of industrial production will be based on successive structural changes in the industry, including deep re-profiling of the electrical and engineering industry, in order to:

- Increase the share of electrical and engineering industry producing with modern technology and to reduce material and energy consumption rates;
- Increase the production of electrical and engineering capital goods for other sectors of national economy, mainly agriculture, the food industry, housing, and infrastructural branches;
- Decrease exports of non or semi-processed raw materials (sulphur, copper, etc.) by offering the products of higher level of industrial processing;
- Further develop specialization within and co-operation with the CMEA countries on the basis of mutually advantageous technical collaboration;
- Increase the share of Poland in the international division of labour, with developed as well as developing countries, to utilize through international collaboration the existing domestic production capacities which cannot be used fully because of structural disproportions and the present payment situation of the country.

In the present situation and as well as in the process of structural changes planned for the future, co-operation and co-production with the developing countries might most appropriately be concentrated to those industries which were established in developing countries with Polish technical assistance and supplies of capital goods from Poland. Recent experience shows that these links, based on investment collaboration, are stable and future-oriented.



The analysis presented in this paper obviously raises more questions than it can answer. In Poland's present economic situation only hypothetical conclusions can be drawn for the process of structural changes in the future. Nevertheless, it was possible to highlight some major tendencies of the Polish restructuring process and thereby to contribute to obtaining a first impression of the possible implications of this process in an international context.

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