Chapter 1

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THE POLICY OF INDUSTRIALIZATION AND ECONOMIC COMPLEMENTARITY IN THE SOCIALIST COUNTRIES

The historical process of industrialization, triggered and accelerated by autonomous means of economic policy, has been the motive power for structural changes in the East-European countries. Due to the inherited economic structures and strategic conditionings, almost all socialist countries, irrespective of the industrialization level they managed to achieve, recognized the doctrine of complementary development of industry as the main imperative of their industrialization policy. However, while applying the principle of complex development in the structural policy of industrial development, those countries made no conscious effort to achieve autarchy [1] because they recognized the necessity of developing international specialization within the framework of complexly created industrial structures. An external of this are institutional activities and programmed works taken up by member countries within the framework of the Council for Mutual Economic Assistance. The actions in question have been aimed at intensification of the processes which increase structural complementarity of the socialist countries on the CMEA scale.

The aim of this paper is to assess the influence of national industrial policies of East European countries upon the process of shaping their economic structures and, particularly, upon the effectiveness of creating a complementary system of international economy within the CMEA. In connection with this, it is also important to reveal the main phenomena and tendencies which more or less apparently accompanied the industralization processes in Europen socialist countries. One should mention here not only the intra-branch disproportions and petrification of traditional structures but also the disturbing phenomena of productional and technological parallelism.

The author is aware that out of necessity the questions posed in this paper are of preliminary and controversial nature. They are treated

[1] M. Guzek, International Economic Integration in Socialism, PWE, Warszawa 1971, pp. 30—31.

fragmentarily at times which is due to the commonly known difficulties in the comparability of accessible information and to the grave insufficiency of source materials.

1. The influence of industrial policy on the formation of a complementary economic structure

The principle of complex development belongs to the basic rules of industrial policy in all socialist countries. The regard for principle means that the industry of each country should constitute a certain complex system of considerably diversified structures of production. In this way East European countries rejected the narrow specialization of production and made individual efforts to shape their own economies as industrial or agricultural-industrial complexes. The countries in question acknowledged that an economic system comprising a sufficient number of branches (each of with should contain a sufficent number of lines) can be complexely developed without detriment to the expansion relations with abroad. However, weak point of such a policy assumed in most socialist countries was the formation of a complex system of industrial branches and lines adapted to domestic market conditions. Even in cases when this system constituted an internally harmonized complex (as regards its component elements and co-operation connections), from the viewpoint of foreign markets it was consuquently characterized by the accidental structure of production. This does not mean that the governments of East European countries did not make conscious efforts to create pro-export production programs in many branches of industry. This resulted in the elaboration (mainly by the central level) of more or less successful internal plans of industrial export production. Moreover, numerous agreements have been concluded on international specialization and co-operation in production within the framework of the intra-bloc economic assistance. However, the willingness to realize export specialization plans was distinctly weakend by the fear of excessive allocation risk, often increased by personal responsibility of the competent managerial staff at the level of ministries, industrial associations and enterprises [2)]

First attempts to formulate an international program of industrial specialization and co-opertion within the CMEA were not fully successful either. Many years had to pass before an agreement was reached as to the common principles and undertakings which should be introduced to realize the transition from the co-ordination of trade exchange (being the the basis for activities of the CMEA countries in the Sixties) to the co-ordination in the sphere of production. Each of the CMEA member states wanted to create its own individual, modern and complex structure of engineering, chemical and electromechanical industry. None of those countries was willing to take up an exclusive role of the supplier of determined groups of industrial goods, raw materials or agricultural commodities. As a consequence of this, they compromised

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[2)] A profound analysis of the sources for the hitherto occuring difficulties in creating the pro-export structure of industry in Poland has been made by E. Najlepszy in: „Programowanie specjalizcji eksportowej w przemyśle" PWN, Warszawa-Poznań 1987, pp. 30—36.

and accepted the principle that in the socialist economic system there exist favourable conditions not only for the planned and consistent expansion of labour division between countries but also for the creation of mutually complementary sectors of national economies. This combination of international specialization with a complex development of each country was a predominant principle in the national policies of autonomous industrial development of East Eropean countries fully approved by the CMEA authorities.

The approval of the Complex Program in 1971 was an attempt at an institutional, compromising solution for the realization of a difficult transition from the co-ordination of trade to international specialization and co-operation in production. This program contained a series of new preparing and executing agreements on production specialization and co-operation.

The number of standing branch committees was increased in order to stimulate the proceses of specialization and intra-branch co-operation. Priority was given to agreements concerning specialization and co-operation in the production of sub-assemblies, components and semi-fabricated goods. Alongside with agreements based on the principles which had been binding so far and concluded between governments of the member states, there appeared a certain possibility of concluding agreements between economic units.

Furthermore, at present the agreements on specialization comprise almost all stages of production process, from the division of tasks in the field of of research and development to the allocation of investments and turnover. Specialization agreements concluded bilaterally and multilaterally are supposed to precede the stage of acceptance of economic plans. They are also to be linked with five-year and long-range economic plans. The member countries also declared that they would create more favourable conditions for establishing joint firms and enterprises as well as other international economic organizations on the basis of self--financing system.

From 1970 to the mid-eighties, the CMEA countries signed over 1000 of bilateral and nearly 140 multilateral agreements or mutual co--operation and specialization of production, mainly in the field of engineering industry. As a result of this, according to some authors, specialized exports of engineering industrial goods in the years 1980—85 grew more than three times quicker than the total output of engineering industry of the CMEA countries. Especially significat were those specialized undertakings which had been given priority and which had been included in long-term specialization — oriented programs of intra-bloc economic co-operation. These programs concerned proposals of international co-operation and specialization in the field of:

1) fuels, energy and industrial raw materials;
2) agriculture and food-processing industry;
3) products of engineering industry and means of transportation;
4) consumer goods of industrial origin.

The growth of productive complementarity in the engineering industry of East European countries in the years 1980—85 is ilustrated by Table I.

In spite of a noticeable progress in the international co-ordination of production programs for the chosen branches of engineering industry, the agreements on co-operation and specialization of production which are still being concluded have not led to a radical expansion of the structural economic complementarity of the CMEA countries. In particular the CMEA countries did not manage to reach reconcilement in the production of such industrial branches as, e.g.:

— railway rolling stock, diesel locomotives, waggons and rail-coaches,
— heavy lorries,
— machinery and equipment for food, chemical, light and timber-based industries,
— electrotechnical, radio-engineering, communcation and computer appliances and articles,
— electrotechnical and electronic appliances and articles of common use (minicomputers, musical equipment, radio-video HiFi equipment),
— chemical products and cellulose — paper goods (synthetic substances. rubber, fibres, dyes).

Table 1

GROWTH OF PRODUCTION COMPLEMENTARITY IN THE ENGINEERING INDUSTRY OF EAST EUROPEAN COUNTRIES

Countries	Average yearly rate of growth in the years 1980—85 (in percentages)		Share of specialized goods in exports to the CMEA countries (in percentages)	
	total output of engineering industry	intra-bloc of exports specialized goods	1980	1985
Bulgaria	8,1	24,1	52,1	54,3
Czechoslovakia	6,2	27,4	34,4	36,4
German Democratic Republic	7,5	18,1	42,0	42,0
Poland	3,1	18,4	27,1	28,3
Roumania	10,2	15,2	35,6	36,6
Hungary	3,4	26,1	43,8	44,3
USSR	6,7	15,7	20,5	24,8
	6,4	20,7	36,4	38,1

Source: Calculations and estimates based on the date of MIEP MSS in Moscow and on economic bulletins of the CMEA countries.

Difficulties often arise from the fact that contracting *parties* (ministries and industrial associations), in the absence of economic incentive, only formally accept the obligations they take on. As result, the number of enterprises producing specialized goods within the CMEA does not inerease. The more so, the volume of supplies, anticipated for in the mutual agreements on international specialization which should be carried out in accordance with the scale of needs, does not increse either.

Due to diversification in the functions and competence of central economic bodies of the member countries and international organs of the CMEA, consulting and negotiating activities have been excessively developed at almost all levels of the intra-bloc economic administration. the growing number of intermediary links which take part in the pro-

cesses of economic co-operation contributes to a large bureaucracy and rigidity of the whole decision making mechanism in the sphere of international co-ordination of production plans [3].

The scale of this phenomenon may be ilustrated by the fact that only within the CMEA Committetee for Engineering Industry there are 17 domestic bodies, 8 international economic organization and 4 departaments of the CMEA, Secretariat, which simultaneously deal witch negotiations and specialistic adjustments on the international scale.

The low effectiveness of activities and measures taken up by the central bodies of East European countries in the field of developing the intra-bloc structural complementarity of production results, to a considerable extent, from the absence of economic mechanisms mainly at the level of economic organizations. As a result of this there exist serious divergencies between declarations of different national central bodies which conclude international specialization agreements on behalf of the governments and the ways in which the economic organizations proceed.

This does not mean at all that East European countries are not able to reach a very high level of international structural complementarity by means of institutional methods. However, to accomplish this, they would have to intensify such measures of international policy, as: co-ordination of national economic plans, joint programming and planning of direct technological co-operation in the formerly agreed production branches and joint investments, particularly in the field of fuels, raw materials and the like. This is connected with the role played by the Soviet Union even now in the processes of developing the CMEA intra-bloc economic complementarity.

It is also associated with the role this country can play in the near future as a generator of long-term structural transformations in the whole industry of the CMEA member states.

Determination of the extent of export specialization in the basic groups of products according to commodity nomenclature of foreign trade may serve as an indirect measure of the international complementarity of economic structure.

On the basis of the information available within the CMEA, it is only possible to determine the level of export specialization in the intensely aggregated branch groups in the years 1980—1985. To do this, we shall use the calculations of indicators of the relative level of export specialization development. These calculations were approved in the research carried out by the CMEA International Institute for Economic Affairs in Moscow [4].

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[3] E. Najlepszy, Teoria i praktyka międzynarodowej współpracy gospodarczej krajów RWPG. Ruch Prawniczy, Ekonomiczny i Socjologiczny, 1983, No 3.

[4] This indicator has the following formula: $I_k = \frac{x_k^i}{\sum_k x_k^i} : \frac{\sum_i x_k}{\sum_i \sum_k x_k^i}$

Metodołgiczeskoje probliemy razrabotkj kriteriew i obobszczajuszczich pokazatieliej urownija razwitija i eknomiczeskoj efektiwnosti MSKP. (edited by MIEP MSS. Moscow 1978, pp. 5—8.). See also Analiz urownija specializacji w obłasti meszynostrojenja na osnowie wzajmnych dołgosrocznych pastawek stran-czlenow SEW, MIEP MSS. Raboczyj materiał, Working materials, Moscow 1979, pp. 8—12.

Table II

LEVEL OF EXPORT SPECIALIZATION OF EAST EUROPEAN COUNTRIES ACCORDING TO COMMODITY GROUPS IN THE YEARS 1980—1985 (BASED ON I_k INDICATOR)

Countries	Commodity groups according to SITC nomenclatures				
	Machines, transporting devices and equipment (I_{kI})	Fuels, mineral raw materials metals (I_{kII})	Raw materials of plant and animal origin (I_{kIII})	Consumer goods of industrial origin (I_{kIV})	other industrial goods (I_{kV})
Bulgaria	1,30	0,35	2,90	2,00	0,90
Czechoslovakia	1,50	0,48	0,64	3,01	0,92
German Democratic Republic	1,70	0,42	0,35	3,10	1,60
Poland Republic	1,60	0,80	0,35	2,50	0,83
Rumania	1,30	0,59	1,00	4,21	1,70
Hungary	1,10	0,49	1,64	2,10	0,70
USSR	0,48	4,50	0,20	0,15	2,00

Source: The author's own calculations based on: Statisticzeskij Jeżgodnik stran — czlenow SEW 1980—1985, Rocznik Statystyczny 1985.

(Statistical Yearlies of the CMEA member states for the years 1980—85, The Statistical Yearbook 1985).

Table II shows that within the framework of mutal trade exchange between East European countries there is a slight specialization of GDR, Poland and Czechoslovakia in the exports of machines, technical devices and transportation equipment. Bulgaria, Hungary and Rumania oocupy the first position in the supplies of goods of plant and animal origin. Rumania is undoubtedly the leader in consumer goods of industrial origin,, although almost all European CMEA member states (except the USSR) specialize in this field. There can also be seen a striking disproportion between an immense industrial potential of the Soviet Union and its export specialization in most branches of the processing industry. The Soviet Union has been specializing mainly in the export of fuels, mineral raw materials, metals, certain products of chemical industry and building materials (group: other industrial goods). This situation is undoubtedly reflected in „asymmetric" nature of the processes of intra-bloc international specialization and, eo ipso, affects the formation of a „concentric" model of „intro- CMEA" trade.

2. Main structural trends in the process of industrialization of the CMEA countries

The most charcteristic trend in industrialization process of East European countries was the fact that development of heavy industry branches (the so-called Sector A) which mainly supply investment goods was much quicker than the rate of development of these branches which produce consumer goods (Sector B). As a result, the production of heavy industry branches of the CMEA countries (apart from the USSR) in 1985 grew on the average by 8,6 times as compared with 1974. On the other hand, the

production of industrial branches from Sector B which satisfies consumer needs grew by 4,2 times only. However, it most be mentioned that thanks to the increased share of Sector A which resulted mainly from the expansion of heavy industry, the East European countries made a considerable progress in advancing the processes of their industrialization. The share of engineering industry branches in total industrial output considerably increased. At the same time, however, the rate of production growth in the industrial branches supplying consumer goods had to be slowed down. This resulted in a distinct decrease of Sector B share and, consequently, in underdevelopment of a series of industrial branches producing consumer goods. An excessive growth of Sector A contributed to the aggravation of structural disproportions in the process of economic development in the majority of the CMEA countries.

In the seventies there were especially unfavourable proportions between the development of mental-processing industry and chemical industry in Poland, Czechoslovakia and Hungary. Although at that time in most of the CMEA countries special preferences were given to the development of chemical and electromechnical industries the largest means, however, were allocated for the expansion of newer and newer branches of mtallurgical — engineering industry. This resulted in a seriously delayed development of such important branches of chemical industry, as petrochemistry, pharamaceutics, petty wares chemistry (production of cosmetics, synthetic substances, and the like).

The above mentioned tendency was accompanied by incomplete exploitation of developmental possibilities of those industrial lines and branches which, to a larger extent than the remaining ones, based on domestic supplies of raw materials or which, for other reasons, played a traditionally significant role in domestic market supplies.

As a consequence, at the end of the seventies, in most of the East European countries competitiveness in the structure of industrial production increased. „Parallel industrial structures" often grew stronger without being properly related to the structure of production resources of a given country and to the needs of domestic markets. This resulted from the „abuse" of the autonomous policy widely applied in the planning of investments through which the complex development of national economy was to be realized.

There was no change in this field at the beginning of the eighties either ,in spite of the fact that new intiatives had been taken up at the CMEA forum in order to accelerate the rate of international specialization and production co-operation. Furthermore, at the beginning of that period, new unfavourable disproportions manifested themselves in the internal structure of industry of the CMEA countries. This refers to the loss of balance between traditional nad modern branches (lines) of industrial production. In such traditional branches as ferrous metallurgy, electromechanical industry engineering industry, heavy chemistry and power engineering, the level of production (per capita) in most of the CMEA member states reached as much as 70—80 per cent of the average level of the most developed West European countries. However, the production level of modern industrial lines and branches amounted to mere 20—35 per cent. In particular, the East European countries underestimated the need to accelerate the process of establishing and ex-

panding new, dynamic branches of industry connected, first of all, with rapid scientific-technological progress. They also neglected a complemntary distribution of those branches all over the CMEA member states. Preliminary estimates have revealed that between 1981 and 1985 a relative share of the most modern industrial branches and lines (e.g. electronics, telephone and teletype service, informatics, cars, numerically controlled machines, robots, industrial manipulators, petrochemistry and synthetic substances) grew only from 8 to 13 per cent the total industrial output .This is an extremely unsatisfying share, especially capitalist countries (West Germany, Sweden, Great Britain, France) the above mentioned branches of industry account for 16 to 22 per cent of the total industrial output.

Delays in the development of the most dynamic and technologically advanced fields of production which dictate the rate of product innovations and their international competitiveness cause at present the greatest difficulties in abandoning the traditional structure of industrial production in particular CMEA countries. The obsolete structure of industry is responsible for a serious technological gap when compared with the industry of the most developed capitalist states.

An unsatisfactory rise in the level of labour productivity results from too slow changes in the industrial structure of the CMEA countries. Currently, social productivity of labour in the industry of the CMEA countries is averagely estimated at 40—50 per cent of the level reached in West European countries. This phenomenon is accompanied by relatively high energy, material and import intensity of production. In the CMEA countries, where the gross national product is approximately two times smaller as compared with the EEC countries, energy consumption per head is almost 25 per cent larger. Additionally, material intensity of production is about twice as high as that of highly developed capitalist countries.

Due to poor international co-ordination of industrialization processes in the CMEA countries and as a result of pressures exerted by particular branch and department groups on the continuation of further, quantitative expansion of traditional lines and branches, the desirable changes in the degree of structural economic complementarity of particular East European countries could not occur. This obviously refers to the intra-branch complementarity which would make possible a substantial increase of the mutual trade turnover within the CMEA.

With insufficient effectiveness of domestic planning bodies, it was impossible to prevent tendencies towards petrification of industrial structures formed within the CMEA in the sixties. The development of competitive, as opposed to complementary, inner structures in particular countries restrained the effort made by the CMEA bodies to intensify the processes of international specialization and co-operation in production. In result of trends occurring in the process of structural transformations, the East European countries often had to take part in unintentional competition on the capitalist markets. The CMEA countries exported similar commodity groups and, at the same time, they had to import the same kinds of products for their domestic markets. This resluted in yet more serious shortage of goods which were generally sought after on the international CMEA market. Moreover, it caused a drop in export prices for the new commodities sold by the East European suppliers on competitive, free exchange markets.

However, there could be observed further significant growth of intra-branch structural complementarity of the CMEA economies in the relation: The Soviet Union — European socialist countries. This process became more intensive in the eighties, which was due to the growing requirements of all East European countries for raw materials and energy. On the other hand, the Soviet Union which has vast plans of expanding its own industrial potential, willingly imports large quantities of machinery and equipment as well as agricultural commodities, foodstuffs and industrial consumer goods. Recently, the Soviet Union has become the main supplier of fuels and raw materials. It has also become the chief purchaser of industrial products made by the CMEA countries, particularly machines and appliances produced by parallelly developed industrial branches of the East European countries. Thus the Soviet Union itself can exercise an effective influence on the rate of internal complementarity process, contributing to a still greater rise of the intra-bloc integration level. Because of this one can assume that tendencies towards creating more competitive than complementary industrial structures in particular East European countries are not as significant for the growth of trade turnover and strengthening of the CMEA economic integration as they are in the EEC.

3. The role of technological policy in the formation of complementary economic structure

Evaluating the policy of industrialization in the historical process of structural changes in East European industry, it is impossible to omit the activities of governments of the countries in question in the field of technological progress. From this point of view it is especially important to analyse the effects of technological policy led by these countries. First of all ,these effects manifested themselves in the nature of the structural changes of industrial production.

Generally speaking, technological policy of East European countries is characterized by the principles specified below. These principles comprise the main criteria and premises of central control over the processes of technological progress. Analysing practical results of the technological policy of East European countries in the process of industrialization, it has been impossible to state so far whether (and to what extent) this policy was to be an instrument for the realization of the previously elaborated general concept of industrial development, or whether it was only a derivative of a country's current economic situation which made it possible to counteract temporary technological — production problems. Taking into consideration the persisting practice of purchasing foreign licences, know-how, etc. by a series of the CMEA countries, one should arrive at a conclusion that governmental activities were based rather on interventional, emergency application of foreign technology in order to secure conditions for the current realization of the targets assigned by the economic plan of a country. Foreign technology imports brought the production of many new goods to the world standard ensuring them with an indispensable competitiveness of foreign markets. However, under the passive technological policy, it was observe mainly the tendencies towards mechanical imitation and ordinary adap-

tation of the imported technological solutions which, as a rule, had already been seriously exploited in the capitalist countries. This phenomenon which persisted mainly in the seventies was not accidental and in many East European countries it did not result from the lack of skills of the technical staff. It gave an opportunity to implement large quantities of new technological products, irrespective of production scale and certain deviations from the world standards. This made it easier to overcome production and technological bottlenecks and temporarily increased the export capacities of domestic industries.

A significant weakness in the technological policy of the socialist countries was a clear underestimation of the possibilities resulting from the process of international intra-bloc co-operation, in spite of enlivened activities of the CMEA Committee for Scientific — Technological Co-operation.

As a result, particular socialist countries tried to „catch up" with the world technology standard individually, treating the import of technology as an additional, auxiliary measure which helped to mollify growing disproportions in the development of their own industry.

Tendencies towards excessive application of technological innovations did not remain without effect on the „material" structure of the realized technology transfer of the CMEA countries. More and more often the the structure of those purchases was characterized by the phenomenon of doubling modern technology which manifested itself mainly in simultanoeus purchasing of licences from Western firms for the same or similar production by several CMEA countries [5]. Such decisions were made even in spite of the previously obtained information that the same licensed production had already been started by other CMEA member states.

Disinclination to abandon independent and versatile development of technological inovations inevitably led to the phenomenon of production and technological parallelism which had already been well-rooted in many industrial branches of the socialist countries. Another negative tendency in the technological advancement of industry was a „detachment" of foreign technology transfer from the development of international production specialization. In result of this, more and more numerous purchases of imported technology did not guarantee the accomplishment of the world standards because they had been dispersed among the growing number of different production branches. With easily approved decisions to implement large quantities of new products and technologies, the import of technological concepts was not able to satisfy the growing needs. Thus the purchasing of foreign licences contributed less and less to the improvement of technological processes and the production of goods regarded as „carriers" of technological progress.

Under the absence of an effective mechanism of selection in the industrial production over a longer period, it blocked technological progress in many productive branches.

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[5] M. Guzek, Methods of Programming International Production Specialization of the CMEA countries. PWE, Warsaw 1975, p. 196. Numerous examples of doubling licence purchases in the West are given by J. Popow, Duplicated materials, Moscow 1982, pp. 30—35.

As a matter of fact, even more successful efforts to implement certain licensed products and technologies in different CMEA countries could not prevent the increasing technological backwardness as compared with the world leaders. This resulted from too small a scale of production. The small production scale of modern (technologically advanced) goods was unable to create an adequately mulitplied demand for the required spare parts and sub-assemblies the production of which was also based on the latest technological solutions applied in co-operating plants. With low demand for co-operative supplies, the application of advanced technologies was usually unprofitable. This explains, to a certain extent, the phenomenon of suppressing technological „diffusion" processes in industrial sphere of the socialist countries. The restraint of technological „diffusion" is becoming a greater and greater obstacle to the development of technological innovations on the scale of the whole CMEA grouping.

Making a closer analysis of the above mentioned negative tendencies in the hitherto existing scientific-technological policy of the CMEA states, it is impossible to overlook a basic conclusion drawn from the observations made so far. Namely, the maintaining of any from of technology transfer from the capitalist countries by the CMEA on the principles applied so far, had to make the international, economic, intra-bloc complementarity more difficult. Due to the lack of external accumulation inflow (foreign exchange credits), it is unrealistic to persist in following the former scientific-technological policy principles, duplicating in fact the more or less modified „Japanese" variant (intensive purchasing of licences). On the other hand uncoordinated technological policy of the CMEA creates conditions which more and more clearly reveal the contradictions between rational attempts of each country at modernizing its national economy through technology transfer plus industrial cooperation with Western countries and a particularly desired intention to accelerate integration processes within the grouping.

These contradictions became more intense already in the seventies and the situation did not change in the mid-eighties when, along with the pressure on expansion of procurement imports from capitalist countries, a new type of technological bonds appreared directly in the sphere of production, i.e. industrial co-operation with Western firms. This undoubtedly contributed to the growth of complementarity of production structure inside a country but, at the same time, it reinforced parallelism of industrial structures within the CMEA. It is also worth mentioning that in the seventies an extremely favourable condition for spreading Western technology transfer to socialist countries was a substantial inflow of external accumulation in the from of foreign credits. These credits directly facilitated the increase of purchasing licence products and technologies from the West but they had no visible influence on the expansion of export capacities of industrial branches. Moreover, in some CMEA countries, foreign credits soon led to the growth of indebtness and drastic reduction of imports.

It should be mentioned that an independent policy of technological development of an individual country is still regarded as less risky and more effective than a collective technological policy on the international scale. The latter, as a rule, encounters numerous difficulties of

not only technological but fundamental nature as well. Mollification and liquidation of these difficulties take too much time and effort. Besides, the most technologically retarded spheres of domestic production can be more easily brought to the world standard thanks to better selected (from the viewpoint interests and preferences of the national economy) channels of foreign technology transfer.

Respecting the strategic principle of complex development of industry, the CMEA countries aim at constant modernization of all production fields which constitute the complex structural arrangement of industry. The principle of complex development combined with preference of modern fields creates the necessity to start the production of newer and newer goods — „carriers of technological progress. This, in turn, facilitates a gradual spread of modern technologies on the nation-wide scale. Besides, a complex technological development of domestic industry is not opposed to the need for international specialization of production because it does not eliminate the necessity of permanent satisfying of producer s needs in other fields of domestic production though the import of products and technologies [6].

Most of the CMEA countries attach too little importnce to the results of prognostic work on the development and application of new techniques, and, consequently, to identification of most technologically advanced branches of domestic production which will have the greatest possibilities to reach a high technological level in the future.. Thus, purchasing imported technology for given branches of production is very little co-ordinated with research-development works (R+D) carried on in domestic institutions. These purchases often have no conection with a country's own, original technological achievements. The weakness of this co-ordination manifests itself in the lack of formerly trained scientific-technical staff and the lack of material-technological means facilitating quick implementation and further development of the purchased foreign licences. Due to insufficient attempts at improving the imported licences after they have been bought, the products obtained are obsolete and deviate from the current world standards at the very moment their production starts. Therefore, the sales of such products must be conducted mainly on the home market.

The principle of complex industrial development, observed in the CMEA economic policy, fosters the development of nearly all basic branches of production; within branches it fosters the formation of the complex of all lines and within lines it promotes production of the complex of all goods. In these conditions the implementation of newer and newer technologies and products practically blocks the rational selection of a large quantity of modern goods which were to be manufactured after the production had been started. This weakens the willingness of a country for international co-operation and scientific-technological specialization within the CMEA and provokes import of technology from third parties without co-ordination with other CMEA mem-

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[6] Negative effects of technology imports on the structure of industry in the European CMEA countries have been proved by the investigations of IKC'MHZ in Warsaw. They are presented in the paper by A. Czepurko and J. Przystupa, The Influence of Technology Import on Production and Trade Structure of the European CMEA countries. Duplicated materials, Warsaw 1980.

bers. This results in the lack of possibilities to concentrate exchange funds for the purchase of foreign licences in those fields of production which were co-ordinated with the remaining CMEA member states. Moreover ,the gradually increasing number of licence purchases abroad aggravates difficulties in mastering the production and contributes to further lengthening of the period required to start it. At the same time, the increasing pressure on technology import is soon blocked by limitations of foreign exchange resources which causes unexpected obstacles to technological progress in the newly started production lines.

Obviously, the above presented specification of negative phenomena and tendencies persisting in the internal policy of controlling technological development in the socialist countries cannot be a universal synthesis. The more so, it cannot be equally adequate to the sitation of all European CMEA member states. First af all, the destructive phenomena and tendencies in the scientific — technological policy did not manifest themselves analogically in particular socialist countries. Furthermore, they were, as a rule, not equally strong and appoared to a much diversified extent. (The results of erroneous assumptions of technological policy affected most seriously Poland; to the least degree they were noticeable in GDR and hardly any affected the USSR). The negative phenomena in the scientific-technological policy of the CMEA countries began to spread more intensely at the end of the seventies, comprising successive elements of erroneous premises in the concepts of technological development realized by the European CMEA countries. However, it must be admitted that expanding external channels of technology transfer in certain countries could be effectively abandoned only due to persisting difficulties with payment and decidedly restrictive actions of the West (Bulgaria). In other countries (e.g. Czechoslovakia and GDR) such a situation partly resulted from the policy of giving preference to to technological self-dependence. This was due to a considerable inspiration of the central authorites and often to spontaneous inventions of domestic research-development centres as well as motivating a large part of the technical-engineering staff in order to obtain given technological solutions and in this way eliminate technology import from Western countries.

In the remainin cases, however, an individual and independent catching up of the CMEA countries with the world level of technology had to be more and more often realized through purchase of licences from the capitalist states.

The above presented evaluation of destructive phenomena and tendencies in the hitherto applied technological progress policy of the CMEA countries for obvious reasons does not comprise all underesiramle manifestations and drawbacks of technological development strategy in the CMEA countries. It is also undoubtedly burdened with possible subjective mistakes resulting from difficult access to all indispensable source materials and statistical data.

However,in the present situation of the CMEA countries, two postulates emerging from the evaluation made so far seem to be certain. Further maintaining of an autonomous (independent) development of scientific-technological progress can only lead to yet quicker increase

of the technological gap separating us from highly developed capitalist countries. Besides, the acceleration of development of technical and technological innovations in the national economy is not possible without assuming an international strategy of the CMEA countries based on a collectively elaborated approach of the internal scientific-technological policy to the question of technology transfer from the West.

Liquidation of the sources of deficiency in the hitherto applied technological policy requires the search for new institutional solutions, particularly the systemic ones, which would be adequate to the specific situation of the CMEA countries and to their terms of co-operation with the West.

4. Final remarks.

Due to a preliminary nature of these investigations based on limited statistical materials, not all statements are sufficiently presise and objective. Furthermore, a major part of these considerations refers only to the selected questions of structural industrial policy and does not exhaust the whole subject under invesigations. Nevertheless, basing upon the results obtained from the analisys made so far, several conclusions of general nature may be drawn.

1. East European countries lead an active policy of industrialization which aims at the complex development of industry, increase of export potential and strengthening of international intra-bloc structural complementarity.

2. The historical process of structural changes in the economy of European socialist countries has revealed a number of negative tendencies which aggravate the structural development of East European industry and the rate of international specialization. The distrurbing trends and phenomena of this kind comprise:

— maintaing and strengthening of „parallel" production structures in most branches of industry or, in other words, the tendency to develop excessively competitive and therefore insufficiently complementary structures of industry;

— numerous signs of petrification of the traditional branch structures which consist in tolerating poorly effective lines of production and industrial organizations;

— too wide development of modern branches and technologies, low rate of industrial technology diffusion, accidental selection of channels for foreign technology transfer.

3. Due to limited progress in the development of international intra-branch specialization, there is still observed an unsatisfactory degree of structural economic complementarity of the East European CMEA countries. In the first half of the eighties the situation in this field did not improve radically. Many agreements on international production and scientific-technological co-operation still did not sufficiently increase the concentration of scientific-technological research, investments and production in the industry of East European countries.

The above presented conclusions have been formulated without consideration of the differences in the general level of economic development of the CMEA countries. Differences in technological maturity of industry in particuar countries were not considered either. Besides, the analysis does not take into account the impact of „external" international environment of the CMEA, particularly the influence o fthe incereasing significance of the EEC and other most develped economies of the world (the USA, Japan) or finally, the role of many Third World countries. The occurring interactions of global dimension can explain in a sense the current direction of evolution in industrial structures of the CMEA countries which has not led to the prompt strengthening of mutual economic complementarity. The autonomous character of industrialization policy may also result from a differently manifested political will of East European governments to maintain more independent economic structures. Such structures may prevent the domination of stronger economies over the smaller and weaker countries.