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EUROPEAN AGRICULTURE IN AN INTEGRATING ECONOMY.

THE AGRO-INDUSTRIAL COMPLEX IN THE NATIONAL ECONOMY OF POLAND

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## 1.- CONCEPTION OF THE FOOD ECONOMY COMPLEX

Modern approach to the problems of food economy requires that it be considered in a complex way, as a certain sub-system of the national economy, with established internal relationships and, at the same time, strongly united with the economic organism as a whole and, also - through the export-import channels - with foreign countries. Presently, in the majority of the developed countries, there exist all the circumstance for this sub-system to be programmed and developed in a complex way. Its dynamism, like that of any economic organism of a complicated structure, is to a great extent dependent on the nature of internal proportions that would develop between its individual members.

The formation of the food economy complex is a consequence of the social division of labour in the food production process, and the objectivisation of relationships between the links of the national economy which participate, indirectly and directly, in the food production process. As a result of the structural maturing of economy accompanied by the deepening and complication of the inter-branch flows, the "ministerial" forms of the organization of economy and management developed in the past are falling in value and the forces that integrate economic activity in big macrostructural systems, of which the food economy complex is an example are coming into prominence. Thus the complex must not have a formalised institutional and organizational form, because its essence lies in creating complex policy aimed at ensuring optimum conditions for the socially desirable growth of the production of food.

In Poland, the food economy complex is understood as the State policy oriented on the optimisation of social and technological conditions of growth of the final product : food.

Links between the individual members constitute the basic element of the food economy complex, and the scale, range, strength and frequency of these links should be taken into account. The links have an osmotic character because all the sectors of the food economy mutually penetrate one another and their relationships are of the multi-plane nature.

The separate approach to the food economy is a logical consequence of economic expansion as well as an expression of tendencies towards the integration of sectors and branches involved indirectly or directly in the production of food and separated as a result of advancing social division of labour.

With the maturing of the economy in the structural sense and with the complication of inter-branch flows, the forces that integrate economic activity in big macrostructural systems are coming into prominence. One of them - and the one presumably most developed in Poland - is the food economy complex. As it results from what has been said here, it exists objectively, because there are objective relationships between the links of the national economy that participate in the production of food. Thus, food economy is the objectively developed subsystem of the national economy which should be programmed and planned in a complex manner according to the goal function appropriate to it. Its essence lies in creating complex policy that would ensure optimum conditions for the socially desirable growth of food production.

According to a view which dominates in Poland, the food economy complex should be localised in the sphere of material production. It embraces the food production process, from the excavation of the elementary raw materials to the final product (accumulated social outlays on food production). This view is accompanied by a assumption that the community as a whole is involved in the production of food by allotting for this purpose an appropriate quantum of direct and materialised labour expenditure. Thus, this complex is not an arithmetic sum of the individual sectors and branches of the national economy, but of these production processes which are linked, directly and indirectly, with the production of food (exclusive of the whole sphere of food consumption).

Three main constituents should be singled out in the food economy complex :

1°) the sectors and branches manufacturing the production means for agriculture and the food industry, i.e. the engineering, transport facilities, fuels, electrotechnical and chemical industries, etc. Obviously only these parts of the industries that are engaged directly or indirectly in the production of food are reckoned to the food economy complex. One should also include the part of the building industry connected with food production and all the production services rendered by specialised service units ;

2°) the direct food production sphere including agriculture, the food industry, refrigerating and catering industries - this is the sphere whose contribution to the production of food is direct and, still, the greatest ;

3°) the post-production sphere connected with conveying the food from the production to the consumption sphere, that is such operations as the storage and preservation of food, packaging, transportation of ready-to-use food-stuffs, food trade, services to consumers, etc..

In the complex social food production process another, fourth component, the food economy supporting cadres, should be singled out. Modern food economy cannot function without highly qualified specialists and an extensive research base to develop qualified specialists and an extensive research base to develop modern food production processes and techniques, methods of food storage, refining and adapting it for consumption. Food production is not only a technological process but, to the same extent, a social process. This is why economic and social studies, aimed at improving the organization of production and cooperation between those involved in the food production process, are also important here.

Speaking of the food economy, we have in mind the extensive range of problems and activities penetrating the whole national economy. Food is presently produced almost in every manufacturing process, because it fulfils one of the basic and most elementary needs of the man. With the advance of social progress, our requirements set before the food economy grow - both quantitatively and qualitatively - and in this connection the proper functioning of the food economy is becoming more and more important.

Among the problems discussed here, special emphasis should be put on the fact that all the food economy constituents should expand harmoniously and in a complex way. This is why we speak of the food economy complex. At every stage of social progress there must be definite proportions between the individual constituents of the food economy ; if the latter has to develop harmoniously, these proportions must be maintained. There are thus no important or unimportant elements of the food economy - each link is necessary. One weak link would prevent the efficient and rapid development of the organism as a whole. The final effect will be poor, even if agricultural production is greatly increased, if <sup>at</sup> ~~the~~ same time - the food industry would not be prepared for taking over all the agricultural raw materials and for processing them into finished foodstuffs. Food trade may also be such weak link and poor work of this sector may destroy the good work of agriculture and the food industry and of all those engaged in the production of food. The food economy is a complex multi-member organism and, thus, it may develop

only in a complex way. At present this seems to be the most important question. The complex development should be ensured by economic planning whose main function is to establish optimum proportions for the development of the food economy and to remove its weak links.

## 2.- THE PLACE OF THE FOOD COMPLEX IN THE PRODUCTION POTENTIAL OF THE WHOLE NATIONAL ECONOMY

The food economy complex is presently one of the most important segments of Poland's whole national economy. Its dimensions and its place in the national economy can be determined on the basis of the statistics of the inter-branch flows. (1) The inter-branch flow balance-sheets enable, better than any other statistical studies, the analysis of the structure of direct and indirect current material and non-material outlays, the consumption of capital resources, the state of material and human resources and how efficiently they are being utilised. Such balance-sheets contain information not only about the level of economic phenomena, but they also make it possible to carry out complex analyses of the more important economic relations characteristic of the structure of phenomena under investigation and the dependences existing between them. The inter-branch flow balance-sheets are actually the only statistical material, available nowadays, which enables one to form a picture of the total social process of producing material goods and the social costs of their production.

The way in which the inter-branch flow balance sheet can be made use of will now be explained using the estimation of the total production of this complex as an example. The whole value of the gross output of agriculture (without the elements which are not foodstuffs) and of the food industry is reckoned, as well as the parts of the gross output of those other sectors and branches of the national economy which are linked directly with the production of food (in a proportion corresponding to the amount of material goods and services which flows from these sectors to agriculture and to the food industry). For this purpose we use the following formula :

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(1) One should emphasize that in Poland we have at our disposal excellent statistics concerning the inter-branch flows. The Central Statistical Office has for many years prepared annual inter-branch flow balance sheets recently dimensioned 50 x 50, which provide a sufficient basis for the analyses of interrelations within the sphere of the food economy.

$$X_k = x_r + x_p + \sum_{i=1}^n x_i b_{ir} + \sum_{i=1}^n x_i b_{ip}$$

where :

$X_k$  - is the gross output of the economy complex,

$x_r$  - is the gross output of agriculture,

$x_p$  - is the gross output of the food industry,

$x_i$  - is the gross output of sectors and branches connected with agriculture and the food industry  
/  $i = 1, 2, \dots, n$ ;  $n = r, p$  /.

$b_{ir}$  - is the factor determining the flow of products and services  $i$  of the given sector/branch / to agriculture in percent of indirect demand  $i$  - of this sector or branch/,

$b_{ip}$  - is the factor determining the flow of products and services  $i$  - of that sector/branch/ to the food industry/in per cent of indirect demand  $i$  - of this sector or branch/.

Using an analogous formula, one can also determine other parameters characteristic of the food economy complex. Let us have a closer look at them.

#### a) Employment in the food economy

Employment in the food economy complex is one of the basic indices that determine the amount of work a society allocates for the production of food. It should be said that this amount is quite substantial. If we take into account all those employed in agriculture and in the food industry, and the appropriate proportions of employment in the sectors servicing agriculture and the food industry (1) and participating indirectly in the production of food, we shall arrive at some 7 140 000 people, i.e., 48 % of all those professionally active in Poland. Thus it can be said that nearly every second person in our country produces food (directly or indirectly) or is involved in its distribution, transportation, storage, etc.

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(1) This can be determined if one knows the share of production earmarked for the needs of food economy in the total output of industry, transport, trade, etc. Then it is assumed that employment which can be reckoned to the food economy is proportional to the share of production handed over to sectors producing directly food, in total output. If, for example, we state that agriculture and the food industry, taken together, take over 13 % of the gross output of the chemical industry, then also 13 % of people employed in the chemical industry are reckoned as employed in the food economy.

Employment in agriculture, which is still fairly high - 5 100 000 people - determines the number of people employed in the food economy in Poland. This high number of people working in agriculture results from its socio-economic structure : a high share of small peasant farms. In countries where socialised farming dominates, relatively less people are employed in that sector and relatively more in the sectors and branches which service agriculture. It is a rule that with economic development there is a drop in the share of total employment in the food economy, and particularly in agriculture. These processes also occur in Poland where, however, they are advancing relatively slowly because of the existing structure of peasant farming. It can be estimated that, in 1967, 55 % of all people employed in Poland worked in the food economy, where as presently this ratio is only approximately 48 %. The figures for the individual years of the period under investigation are as follows :

1967 - 55,0 %	1973 - 48,9 %
1971 - 51,2 %	1974 - 48,1 %
1972 - 49,2 %	1975 - 48,2 %

It is characteristic of Poland not only to have <sup>a high</sup> share of active population in the food economy but also a great percentage in agriculture. The problem is that, because of the scattered structure of peasant farming and the small size of farms accompanied by poor equipment with modern production tools, the labour productivity in this sector is low - it is estimated to be 2,5 times lower than in the non-agricultural sectors and branches. As a result, the entire food economy complex produces less than it should judging by its employment level. This fact has a great bearing on our food economy as a whole and it determines its place in the development of the national economy of the country.

b) Productive fixed capital

The productive fixed capital in the food economy complex includes all the premises and buildings of a productive nature (excluding dwelling building), tractors, farm machinery and implements, the entire technical infrastructure of agriculture and other sectors of the food economy and all other means of production engaged in the production of food.



If, like in the case of employment, the whole productive fixed assets engaged in all the food production phases are taken into account, it appears that these assets presently reach the sum of 1 060 milliard zloties, *i.e.* 36,7 % of the total mass of fixed assets used in the national economy as a whole. These assets, though growing rapidly in recent years (in terms of absolute value), show clearly a downward tendency with regard to their share in the total productive fixed capital. This results from the fact that the fixed capital in other sectors and branches of the national economy grows faster than in the food economy sector. The share of the food economy in the value of the fixed productive assets engaged in the national economy amounted to :

38,9 %	in 1971
37,8 %	in 1972
37,5 %	in 1973
36,7 %	in 1974
36,7 %	in 1975

It should be noted that the share of the food economy in the total fixed productive capital is much lower than its share in employment. This means that, in the food economy, there is less technical means of production per person employed than in other branches of the national economy. Investigations show that fixed assets per person employed are approximately 149 000 zls in the food economy, compared with some 289 000 zls in industry, and approximately 195 000 zls in the entire sphere of material production (the national economy as a whole).

In Poland, it is agriculture which determines the level and rate of increase in technical production facilities in the food economy sector. It can be estimated that fixed productive capital per person employed in agriculture amounts to 123 000 zls whereas the same figure for peasant farming is 98 000 zls. The source of this situation is the socio-economic structure of Polish agriculture, which does not favour technization and mechanization of the production processes. Another cause is the delayed development of agriculture itself. The historically accumulated disproportions can be traced in the whole national economy. In spite of great investment efforts, especially in the last few years, it is difficult to catch up with these arrears in a short period of time. In the years 1971 - 75 as many as 266 milliard zls were invested in agriculture - 59,7 % more than in the 1966 - 70 five-year period and 2,8 times more than in the years 1961-65 (in comparable prices). Further 193 milliards zls were invested

in the years 1976-77. As a result of these investment outlays, productive fixed assets in agriculture in 1975 were 27,6 % higher than in 1970 and 73,1 % higher than in 1960.

In these years the growth of the production potential in socialised farming was particularly rapid - it increased by 42,4 % compared to the 1970 level and 2,4 times compared to 1960. Analogous indices for peasant farming are much lower - 19,7 % compared to 1970 and 45,6 % compared to 1960 (all indices for the year 1975, in comparable prices).

The food economy in Poland is characterised by a relatively high share of agriculture in the total value of the productive fixed capital engaged in the food complex : approximately 55 %. This results from the structure of the food economy complex. The situation changes slowly but systematically ; the share of the food industry is growing both as a result of the extending scale of the processing of agricultural raw materials and the technical modernization of this branch of industry. In the period 1971-75, a total of 89 milliard zls was invested in the food industry, i.e. 2,5 times more than in the previous five-year period. And plans for the forthcoming years envisage a further rapid expansion of this industry and a growth of its production capabilities. To-day it is the food industry on which not only the possibility of receiving and utilisation of the whole agricultural market production is dependent, but also - and to a decisive extent - the quality of foodstuffs to be purchased by consumers.

An important feature of the present stage of expansion of the food economy in Poland is the rapid growth of the production potential of industries which manufacture means of production for agriculture and the food industry, accompanied by the development of the sphere of production services for agriculture. We expand - very rapidly in recent years - the manufacture of tractors and farm machines ; we purchase the necessary foreign licences, we develop and put into production technical solutions of our own design.

Investment outlays in industries manufacturing the means of production for agriculture were, in 1975, more than twice as high as in 1970. The output of these industries increased by 81,1 % during these five years, the fastest growth having been observed in the output of the branch manufacturing agricultural machinery, equipment and implements - 130,1 %. In the same period of time, the production of tractors increased by 64,9 %.

Plans for the next few years envisage a further rapid growth of spendings on investment projects in the whole food economy sector in order to greatly increase its production potential. The draft plan for 1978-80 assumes that investment outlays for the whole sector of the food economy would total some 560 milliards zls ; of that 368 milliard zls will fall on agriculture, which means a growth of approximately 40 % compared with the 1971-75 period.

### 3.- GROSS NATIONAL PRODUCT OF THE FOOD ECONOMY COMPLEX

In this brief review we have presented Poland's food economy in the light of indices characteristic of its production potential, i.e. employment and the productive fixed capital. According to the data, the food economy is a particularly exposed and important constituent of the total national economy. This is so because the production of food employs nearly half of the total number of professionally active persons in Poland and approximately 37 % of the total amount of productive fixed capital. No other branch or domain of material production has a production potential equal to that of the food economy complex. Also the needs fulfilled by this sector of national economy have quite special importance. Fulfilling them fully is an important element of the program of raising the national standard of living.

Let us now have a closer look at the food economy complex from the angle of its production. This can be determined by the volume of the GNP and commodity production supplied by the food economy complex, and by its contribution to the accumulation of national income.

The investigations indicate that, in 1975, in the entire food economy complex, a gross product worth approximately 1300 milliard zls is made, which accounts for 36,7 % of GNP of the national economy as a whole. It can be seen that its share in GNP is much lower than its share in employment and slightly lower from its share in the productive fixed capital. This situation results from differences in the technical development level and productivity in agriculture and the non-agricultural sectors. Since the productivity of people employed in agriculture is 2,6 times lower than in industry, and the share of agricultural labour in the food economy complex is high, the share of the food economy sector in production is correspondingly lower than its share in the production resources.

Investigations show that the share of <sup>GNP</sup> originating in the food economy complex has a downward trend. This share, amounting to 44 % in 1962, has dropped to 36,7 % now. The figures for individual years of the period under investigation are as follows :

1971 -	38,9 %
1972 -	39,0 %
1973 -	39,3 %
1974 -	38,0 %
1975 -	36,7 %

The share of the food economy complex in GNP diminishes although the absolute volume of its production is growing continuously. Data from Table I illustrate the dynamics of production of the basic sectors of the food economy complex for 1965 to 75. It can be seen that in 1977 the gross output of this complex was 93,2 % above 1971 and 25,9 % above 1975 (nominal value). Taking into account the price index of commodities and non-consumptive services one can estimate that the gross output in real terms of the food economy complex in 1977 was 33,9 % higher than in 1971, which gives an annual rate of growth of 4,3 % - which is certainly high.

The fastest rate of growth is observed in the production of industries manufacturing the means of production for agriculture and the food industry. This was connected with the implementation of the program of technical modernization of our agriculture and its socio-economic reconstruction, and with the modernization of the food industry.

Products supplied every year to society by the food economy complex have been growing rapidly in quantity in the last few years, although the feeling of improvement is rather low among the people because of the simultaneous growth of their needs with the fast growth of their income. The needs are growing both quantitatively and qualitatively. The number of inhabitants of our country is increasing constantly and this growth is accompanied by a change of their structure - a factor of greater importance in this case than population numbers. Urban population grows rapidly in number and its food needs differ from those of the rural people. At the same time, the income of the population is growing rapidly. In the past five-year period the income, in real terms, increased by 42,5 % and a great proportion of this income - 52 to 54 % - was spent on food. This is the reason of the fact that the social feeling of improvement in the supply of market with foodstuffs is poorer than it would be expected from the growth of production of the

Table I.- Estimated value and structure of the gross output produced by the food economy complex in Poland in the years 1971-1977

Sectors and branches	Gross output in mld zls /current prices/				1975 1971 index(%)	Structure in 1975 (%)
	1974	1975	1976	1977		
Agriculture (exclusively agricultural production)	344,5	484,6	586,6	643,7	140,6	36,8
Services for agriculture	32,3	62,7	76,7	87,8	193,9	4,8
Food industry	272,6	444,0	517,1	535,2	162,9	33,8
Industries manufacturing means of production for agriculture	63,3	111,3	116,1	120,9	175,9	8,5
Industries manufacturing means of production for the food industry	24,0	42,7	50,4	57,4	177,9	3,2
Trade turnover	50,2	72,6	83,2	93,7	144,8	5,5
Other sectors	70,2	97,3	112,2	117,0	138,7	7,4
Food economy, total	857,1	1315,2	1542,3	1655,7	153,5	100,0
National economy, total	2203,9	3587,5	4351,1	-	162,8	-

food economy complex. Nevertheless, as a result of increased agricultural production (by 19,8 %) and industrial food processing (by 48,6 %) the deliveries of foodstuffs in 1975 were more than 70 % greater than in 1970. These are objective facts and they characterise the dynamic expansion of our food economy and its place in the national economy as a whole.

Table: II.- Basic indices determining the place of the food economy complex in Poland's national economy in 1975

Item	Index (%)
1. Share in the total number of professionally active persons	48,2
2. Share in the total value of productive fixed capital	36,7
3. Share in material costs borne in the material production sphere:	39,7
4. Contribution to GNP	36,7
5. Contribution to national income	31,6
6. Share of food (including alcoholic beverages) in total value of consumption	43,5
7. Share of food (including alcoholic beverages) in total value of consumption from personal income	49,4

On the base of a few most important indices we have determined the size of the food economy complex and its place in Poland's national economy. A telling proof has been given that this is definitely the biggest and one of the most <sup>important</sup> sectors of our national economy. It cannot be thought otherwise if one remembers that every second professionally active Pole is engaged - directly or indirectly - in the production of food. Thus, half of the annual resources of manpower is earmarked by our community for the production of food. This domain of production engages 37 % of the total amount of the productive fixed capital engaged in the national economy as a whole. To produce foodstuffs worth 1 zloty, a production capital of 1,4 - 2,8 zls must be engaged. At the same time, the food economy complex supplies 36,7 % of the gross national output and 31,6 % of the national income. Thus, in every respect, the food economy complex constitutes a big and important sector of the national economy. It is characterised by indices specified in Table II.

Besides, the importance of the food economy sector is measured not only by quantitative indices. This sector meets needs having the highest social rank. The state of equilibrium on the food markets to-day is of great importance, not only from the economic but also social and political points of view. It is therefore obvious that the problems of food production, understood in a complex way, are and must remain in the centre of attention of our whole community.