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PREFACE

In the framework of the Days of Agricultural Economics and Farm Organization a conference on scientific-production matters took place at the Hungarian Academy of Sciences. The purpose of the conference was to sum up the research findings of those engaged in scientific activities and to transmit directly such results which may be of use in the years to come in the fields of management and production. The scientific-production conference coincided with the twenty-fifth anniversary of the Research Institute for Agricultural Economics, a fact that helped to boost interest in the themes treated. When discussing scientific achievements and problems, and formulating the contradictions of reality and the ways of dealing with them, the lecturers, speakers, and debaters often commemorated Ferenc Erdei, the outstanding personality of the profession and former director of the Institute.

The lecturers of the plenary session dealt with the problems of agricultural economics of our days and the immediate future. The contribution of the Research Institute for Agricultural Economics to the development of the socialist agriculture was expounded. On the second day of the conference four sections were formed. Section I dealt with the rational utilization of the cropland. In Sections II and III the subjects were the development and modernization of the grain and the meat verticum as well as of the canning industry. Section IV dealt with the scientific foundation of economic management in agriculture. The lectures, contributions, and comments contained many valuable and useful information. More than fifty representatives and scholars of agricultural economics and the related disciplines delivered lectures and offered comments; the abbreviated texts thereof are included in a special publication in Hungarian, issued by the Ministry of Agriculture and Food.⁺ The purpose of the mentioned publication is to overcome the disadvantage resulting from the limited participation possibilities and to make available the lectures and discussion materials of the Days of Agricultural Economics and Farm Organization to those interested.

⁺ Scientific-production conference on agricultural economics and farm organization. Budapest, 1979, Ministry of Agriculture and Food /MEM/

Due to technical reasons the issue No. 46 of our Bulletin series contains only the texts of lectures delivered at the plenary session as well as those of the introductory lectures in the Sections. We hope that the foreign representatives of our discipline will find the contents of the present Bulletin useful.

Academician Dr. József BOGNÁR

Director of the Research Institute for World Economy
of the Hungarian Academy of Sciences

THE AGRICULTURE IN THE DRIFT OF THE EPOCH CHANGE
OF THE WORLD ECONOMY

We all who are present in this hall, whether as lecturers or as members of the audience, are aware of the undying services of Ferenc Erdei in the development of an up-to-date and socialist conception for agricultural economics, based on Hungarian conditions, and also of his endeavours to have it accepted. It is within the framework of this conception that we have achieved our significant results. The inherent power of the conception was that it was capable of uniting the interests, at work in the "internal" system and development of agriculture, as well as the forces and opportunities, with the "external" environment, namely with the requirements of the social revolution, the change of political power, the developing Hungarian economy, the scientific-technical revolution, and the international conditions.

He was keeping his eyes always on things to come, but he based his considerations on concrete circumstances; he had faith in the historical mission of revolutionary movements, but he was aware of the errors and deficiencies thereof as well. He had faith in the self-correcting force of the revolutionary movements, but he turned down the formalism of criticism and self-criticism campaigns which alternated with each other. He served the cause of the Hungarian nation by serving the development and the future of its agriculture, but he was closely attached to the past because he loved this people not only on account of its potential of carrying into effect his ideas but also as bearer of qualities and abilities resulting from the poverty, sufferings, and resurrections of past centuries. We pay homage to his memory as well, and serve and develop his ideas, too, on the occasion of this scientific-production conference.

The forms of economic activity, valid hitherto,
have become dangerous

My task, or the chosen subject of my lecture respectively, is to approach and suggest the interaction of the epoch change of the world

economy on the one hand, and of the development problems of agriculture on the other. I have used the word suggestion because this complicated subject may be hardly analyzed or expounded in detail in the course of the short time at our disposal.

I have been studying carefully for years the components and interactions of the epoch change of the world economy, and I am aware of the recent consequences of the phenomena covering an increasingly wider scope. I therefore consider the epoch change of the world economy as a coherent system of economic changes and transformations, and I am convinced that no shifts of similar significance have occurred ever since the industrial revolution. These transformations and changes have covered extraordinarily wide fields. To enumerate some of them I may mention the relationship of man and nature /to be reinterpreted/, in that the domination over nature is being replaced by a symbiosis based upon up-to-date knowledge of biology; further, the rapidly growing population, the exponentially expanding production, and the limits of natural resources; the dangers of technics - mankind has become capable of destroying itself as well as the conditions of existence; the new requirements of international politics and security systems; the deterioration of environmental conditions, etc. As a consequence of these transformations and changes, and especially resulting from the relationships of interdependence, a "sensitive" world has come into existence which renders certain forms of progress dangerous, while orthodoxy /marking time/ and inactivity are made fatal.

To put it otherwise, the order of the day is progress, for the task is to meet the requirements of a growing mankind, but the forms of economic growth, valid hitherto, have become dangerous; hence, present models of growth are to be replaced by new ones. However, economic growth and development are prerequisites not only of meeting the needs but also of dynamics of societies; stagnating societies can spend their energies only on bad causes, more precisely: on worse causes.

It is under such circumstances, and experiencing an instability of such magnitude and impact, that we have to live and find the path of the appropriate action in the world of today and tomorrow. Agriculture has to live in such an "environment".

In the decades to come the agriculture of the world will have to meet the needs of the world's population /in 2000 over 6 billion people/ at satisfactory levels. This population will live in different socio-economic systems and under circumstances representing fundamentally different development levels /the scope covers primitive crop rotation, dry farming or grazing respectively, as well as the "bioindus-

trial" system/. The question is whether agriculture will be capable of performing the mentioned task under "unregulated" population conditions, in view of the fact that according to present estimates the 2 per cent growth rate of the population of the period 1955 to 1969 has decreased to 1,8-1,9 per cent only, so that we may speak of a genuine decrease merely in respect of the developed countries. In Africa the growth rate has even increased, and some of the countries in key position - such as China - have recorded decreases, but such reports are impossible to verify at present. According to American estimates the Chinese population amounted to 968 millions in 1976-1977. In case this estimate is approximately correct, then the population of China is larger today than assumed previously. /Meanwhile the world has received official Chinese communications regarding census data; in effect they have confirmed the previous American data./

It is not easy to estimate the present and the future potential of the world's agriculture, for at present there is a negative correlation between the growth of the population and that of the production. However, the methods of estimate are simplified by many. We may often read even in the studies of world-famous economists, prepared with the help of an enormous apparatus, that there are no objective obstacles to the rapid expansion of the agricultural production, and the difficulties lie exclusively in the socio-political /international/ circumstances.

This statement is true of course, but the socio-political-international conditions are of objective nature, too, because they are the result of social structures, political power relations, and interests, as well as of the interaction thereof. It goes without saying that it is not easy to change the mentioned factors under the influence of coordinated forces throughout the world in such a manner that the production and supply objects should materialize without jeopardizing other objectives, conditions and institutions.

Yet, many are of the opinion that this problem may not be as serious as others maintain because the question of energy sources - the approaching spectre of energy shortage - has already started a series of enormous changes, it has become the centre of spectacular struggles fought with the help of manifold methods in the international arena as well as in the national economies, the prices rise from year to year, at times even several times in a year. On the other hand, the food problem has by no means started such dramatic changes; ever since the sudden rise of grain prices in 1972 the food prices have not increased substantially, in fact we have to face occasional situations

of "oversupply", too.

Quiets and storms in the world economy

In my opinion the food problem is not a minor one or less serious than the energy question, but the difference in the intensity and weight of the two problems may be explained, on the one hand, in terms of the present system of the economy, while on the other hand in terms of the discrepancies of the economic regions affected by the danger. The problems arisen in the economic system are transmitted to us by a system of indicators /prices, demand, supply, financial means, interests, etc./ which is capable of considering merely persons, groups, and farms possessing purchasing power. However, in case these factors act stormily in response to the phenomena, quicker, in a different manner than usually, with mutually frustrating intentions, etc. - then a "storm" occurs in the world market. At the present integration degree of societies and states, and because of the conditions of interdependence, these storms extend to the international, political, and security spheres as well. On the other hand, in case some millions of the populations of the Sahel countries die of starvation because of lack of food, then the economic system does not indicate anything, for the countries in question do not possess purchasing power and consequently they do not influence the cereal prices of the world market. Of course, as a consequence of political pressure and the relief actions of the international organs the phenomenon will be noticed in the non-economic sphere, but this circumstance does not affect the phenomena and developments of the market.

On the other hand, the energy problem affects today the developed world, the economic centres, and also via the centres it becomes a world problem. Contrary to this, the food supply problem affects the developing countries, so that its impact on the processes of the world economy is rather limited.

Obviously, this has to change. Therefore, the developing countries are carrying on two battles complementing each other, by employing a specific combination of economic and political means. On the one hand, they are making efforts to get into the economic system, while on the other hand they are endeavouring to change the economic system - mainly with the help of political means.

The question of the epoch change

How does the epoch change of the world economy affect the position and the future of the "bioindustrial agricultural systems"?

1. The energy. It is generally agreed that, in spite of the reduction of the growth rate of energy consumption, the oil wealth of the world will be exhausted within 30 years. At present it is difficult to say as to which sort of energy will be the leading one, after 30 years will have elapsed, capable of replacing oil, of course along with other energy sorts. It should be borne in mind that at present the oil represents 54-55 per cent of the total consumption. In respect of the alternative substitutes of energy sorts a certain scientific break-through is yet to be accomplished, their cost inputs are rather high, the danger inherent in them is debatable, etc. Therefore, it may be assumed that in the course of the coming 50 to 60 years we shall have to count on expensive and limited energy sorts, and consequently on a precarious supply situation.

However, the bioindustrial agriculture is in need of energy. The requirements are smaller in respect of the cropland production /fertilizers, machinery/, they are larger in the up-to-date animal husbandry, and they are the largest in respect of storing, transporting, packing, and marketing.

The energy requirements of the "system" are as large that, when applying American norms, the Indian agriculture would consume 75 per cent of the total international energy production.

Computations will have to be made in respect of the utilization degree of energy in the food production. The situation is relatively favourable in the crop production while it is rather bad in respect of the modern animal husbandry. The latter is as disadvantageous even in the United States of America that the dressing of plant protein with plastic materials has become an outstanding technical problem. It is obvious that the fundamental achievements of the development have to be safeguarded, but in the future the task will be to insist on the reduction of the specific energy requirement because this factor will become one of the essential components of the price competition in the world market. It is possible that the solutions employed hitherto in respect of the intra-agriculture transport will have to be revised, too, and to state the possibilities of their eventual replacement respectively. /Horse-traction in agriculture, railway transport, etc./

2. Protection of natural systems /fishing, forestry, pastures, croplands/ in relation to each other, and to the settlement policy, re-

spectively. This ensures a larger degree of protection for agriculture in respect of the extraneous world, but there are many problems within agriculture as well. /For instance, forest clearance, transformation of pastures into croplands, and the like./

3. The environment. Included are the damages caused by extraneous environment factors, as well as environment damages caused by agriculture. Serious clashes may be expected in the future, to take place between "producers" and "environment protectors", first of all in respect of energy, but there will be tensions and clashes of interests also in agriculture and in the field of conservation of waters.

New solutions are often accompanied by considerable costs, with the result that it will be difficult to include them in the economic system.

4. Settlement systems. It is necessary to develop an urban environment which should be airy, small, and true to nature, as well as a rural environment with a developing service system. In practice this means that the separation by settlement forms of industry and agriculture will diminish or will cease respectively. The decrease of differences between village and town is not a unilateral process; not only the village will become more "urban" but the natural environment will play a larger role in the development of the towns.

5. Organization of related economic activities. This means that even the villages become industrialized; in some places the task is to organize in a rational manner the consecutive production processes, elsewhere the organization is aimed at a better utilization of complementary branches, of the specialties, or of the time and labour force. These arrangements save energy, raw material, and investments.

6. The combination of large-scale farms and activities carried out with small-scale methods has become necessary on account of the low level of cooperation abilities. The unit itself has to make distinctions between the various activities, and the differing degrees of the energy consumption have to be taken into account.

7. There are countless new forms and solutions in respect of the international development of agriculture and exports, the satisfaction of needs. Relevant informations are necessary from scientific, production, or trade angles alike. The activities of the agribusiness, market situations, competitors in production or range of the produce, etc.

8. It may be assumed that in the developing countries, with their uppermost problem of the "overproduction" of the agricultural population.

the gap between the growing consumption and the national production cannot be eliminated exclusively by means of exports and imports. In order to contribute to a better understanding of the problem we draw your attention to the fact that the quantity of grain exports, realized through the channels of international trade, is 70-80 million tons per annum; this quantity may meet, in case the per capita consumption is 5 quintals, the needs of 140-160 million people out of the present 4,2 billions. Consequently, means and methods will be badly needed in the coming decades which will facilitate the acceleration of the development of agricultural production. Therefore, the exportation of the know-how will have an exceptionally great significance. Of course, all sorts of knowledge should be adapted to the conditions of the developing countries where the climate, the system of agriculture, the forms of production, the relation between economic and other social activities fundamentally differ from ours in Europe. We are heading for a world where the exportation of the know-how will be very important in the industry as well because each country is developing a certain economic structure for itself. It is obvious, therefore, that it is necessary to develop the qualities and abilities of Hungarian agriculture which facilitate the exportation of know-how from this branch of the economy.

It is from this aspect that the questions of agricultural training and education as well as those of the knowledge of languages on the part of the specialists are to be re-examined. Specialists with limited scope of knowledge will not be needed. Specialists should possess basic knowledge enabling them to follow the changes quickly, and to apply and initiate such changes.

The forces of science and practice should be concentrated

It has not been possible, of course, to analyze and expound the impact of epoch change of the world economy on agriculture, whether in detail or with a relative completeness. Nevertheless, the magnitude, depth, and novelty of the forces about to gather momentum, as well of the relationships and problems of epoch change may probably help us to perceive the enormous intellectual and practical efforts that are and will be needed, in order to reach a better understanding of the nature of these forces and problems, as well as of their systems of motion and effect.

A collaboration on an interdisciplinary basis is needed in scientific research. Within the framework of scientific research the afore-

said necessity applies to the following disciplines which are having bearing on agriculture: biology, technical sciences, economics, agricultural sciences, farm organization. The collaboration is necessary so that we may be able to understand and develop the alternatives - possibilities and limits - of the rational action; the alternatives are concentrated on the perspectives, yet they serve the present, the solution of concrete problems.

There are great eras in history, or in economic history in wider sense, which re-arrange and re-select the national economies. These eras do not destroy the achievements of the past - they are not only material means, and remain with and in us in the form of qualities and abilities - but increase potentially the differences and create more variants of development than hitherto. The tendencies of re-selection may be experienced in such phenomena of the world economy as the rapid headway of Japan or the German Federal Republic, the increasing backwardness of Great Britain, or the advance of some developing countries and the stagnation of others.

It is for this reason that all forces of science and practice should be concentrated, in order to understand the phenomena of the re-selecting era and to become capable of answering them within the framework of a rapid and well-considered system of action. In this way we may be able to enjoy a significant advantage over others, or else we may lag behind and even our previous achievements cannot protect us from the mentioned danger.

It is customary to say that in our days the exploitation of opportunities and material benefits resulting from technical progress depends on the innovation abilities of the society. We are heading for an era where this innovation spirit will be needed not only in technical science but also in social science, not only in theory but also in practice.

I should like to draw the attention to the decisive significance of this great scientific and intellectual effort.