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AGRICULTURE IN A TURBULENT WORLD ECONOMY

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The Effect of Scientific-Technological and Social Progress on Development in Agrarian Labour

In a strategic aspect the agrarian policy of the Soviet Union is directed at ensuring economic stability and the acceleration of scientific and technological progress, the changeover of agriculture to intensive industrial technologies.

The socialist system of planned management of economic and social development allows the concentration of resources in decisive directions, to ensure comparatively high rates of technical re-equipment. As early as 1960, despite great damage and a looted economy caused by the fascist invasion (1941–5), the volume of basic production assets increased against the 1940 level 3.2 times, and by 1983 it grew 19.5 times.¹ Power capacities per farmer in 1940 was equal to 1.7 horse power, and 29.7 in 1983. Tractor unit power increased 2.4 times and the fleet of agricultural machinery multiplied, expanded and was radically renewed.

All this provided an opportunity to reduce the share of the population engaged in agriculture (including subsidiary individual plots) from 54 per cent in 1940 to 20 per cent in 1983. The number of workers and employees engaged in the national economy increased from 30.4 to 61.8 per cent, and collective farmers decreased from 44.2 to 10.4 per cent.² The total number of workers in agricultural production and its services decreased by 5.2 million. As for the social structure, the number of collective farmers within this period decreased from 29 to 13 million but the number of agricultural workers, on the contrary, sharply increased. Changes also took place in the settlement pattern.

With the total growth of the population from 194.1 million in 1940 to 275 million by 1 July 1984, the urban population accounted for an increase from 32.5 to 64.9 per cent and the rural population for a decrease from 67.5 to 35.1 per cent. Such a ratio is based on the place of residence, whereas with regard to occupation the non-agricultural population at present is 209.8 million or 77 per cent, and the agricultural population is 64 million or 23 per cent.³

This is one of the aspects of scientific-technological progress – the shift in the structure of the population and those engaged in social production with a tendency towards the reduction of the share of agrarian labour. But there is another, no less important aspect, characterising final

efficiency – the growth of labour productivity, the gross product and national income. The gross social product for the period under analysis increased more than 15 times, including agricultural product by 2.7 times.⁴ Gross product in the USSR reached 1,294 billion roubles (in actual current prices of 1983) while the gross product of the agro-industrial complex sphere rose to 451.2 billion roubles, out of which agricultural and forestry produce accounted for 63.1 per cent.⁵

Thus, the two main objectives of scientific-technological progress in socialist agriculture, i.e. labour resources made available for other sectors of economy and raising its productivity, have been reached comparatively successfully. However, the village as a whole possesses even greater labour resources, although there are quite a number of regions where the outflow of rural population to cities is not entirely set off by the introduction of complex mechanisation. There arises a problem of deficits in covering labour demands for agricultural works, especially during the 'peaks' of labour-intensive periods. Agricultural seasonal work often involves workers from cities, which is not always reasonable in terms of the criterion of national economic efficiency.

The level and growth rates of labour productivity in the agrarian sector in the USSR are still much lower than that in the industrial sector. Within the period under analysis the productivity of agricultural labour increased 4.5 times, in industry 8.4 times, and generally in the national economy 11.9 times.⁶ The state planned investments, concentrated and distributed in the direction required by society using the criterion of national-economic efficiency, in general also determine the structural shifts in the national economy. More rapid development rates in industry within a long period limited investments to agriculture, resulting in restricted large-scale use of the latest scientific and technological advances and further reduction in the number of the employed. Only from 1965 did the investment rates in this sector start to grow gradually.

In the tenth five-year period (1976–80) investments in the development of the agro-industrial complex (AIC) amounted to 213 billion roubles, including 171 billion roubles for the development of agriculture, and in the eleventh five-year period (1981–5) they were respectively 233 and 190 billion roubles.⁷ Grain farming, poultry farming, most of vegetable growing under shelter (large greenhouse farms) and the mixed feed industry have been switched over to machine technologies almost completely in the public sector. The industrialised production of beef, pork and milk is growing. The rates of mechanisation of cultivation of vegetable and fruit crops, potatoes and fodder growing has accelerated. However, there are many problems and difficulties. Many farms lack improved machine complexes and the manual labour involved in looking after and harvesting these crops is great. There are also deficiencies in the mineral fertilizer industry which restricts the intensification process.

The USSR Food Programme, approved at the Plenary Meeting of the Central Committee of the CPSU (May 1982), in order to speed up the transition of agriculture to industrialised methods of production,

envisages the increase of agricultural and food industry main production assets by 1.5 times and power capacities of state and collective farms by 1.6 times. The supply of mineral fertilizers (in terms of 100 per cent of nutrients) is to be increased from 23 million tons in 1983 to 30–2 million tons in 1990. A long-term programme of land improvement has been worked out and is at present under way: construction of large new irrigation systems in the arid regions and drainage systems in the high-rainfall regions is designed to secure stable and high guaranteed yields.

As a result, the productivity of agricultural labour throughout the current decade is to be increased 1.5 times, and gross production output from 1 hectare of land is to be raised by at least one-third. The output and structure of agricultural production as envisaged by the Programme will reliably ensure the supply of the country's population with food products within the standards close to those which have been scientifically substantiated. Over 1983–4 the total agricultural output in the USSR increased by 20 billion roubles as compared with 1981–2, including a 7.4 million tons increase in average annual milk production, 1.4 million tons of meat and 4.6 million eggs. Positive changes are also taking place in the structure of consumption – the increase of highly valuable and varied products is accompanied by the reduction in the consumption of bakery products and potatoes. In 1983 the consumption per caput was as follows: meat and meat products, 58.4 kg; milk and dairy products, 309 kg; eggs, 253; fish and fish products, 17.6 kg; sugar, 44.2 kg; vegetable oil, 9.6 kg; vegetables, 101 kg; fruit and berries, 44 kg; potatoes, 110 kg; bakery products, 136 kg. By 1990 the consumption of meat and meat products is to be increased to 70 kg, fish and fish products to 19 kg, milk and dairy products to 330–40 kg, eggs to 260–6, vegetables and gourds to 126–35 kg, fruit and berries to 66–70 kg.⁸

Social aspects are an integral part of the Food Programme, involving further reconstruction of villages on the qualitatively new basis, the conditions of work and life in the village drawing closer to those of the city. The village's social infrastructure at present is being developed at a fast rate with the aim of creating conditions, in particular, for stabilisation and optimisation of the age structure of the workers in collective and state farms, in integrated economic systems, the reinforcement of their strength through the retention of young men capable of quickly mastering modern mechanised and automated technologies. There is a vast network of training and refresher courses for specialists of higher and medium qualifications (agronomists, livestock specialists, veterinary surgeons, engineers, technicians, etc.) as well as workers of mass professions: tractor drivers, machinist tractor-operators, combine operators, automobile drivers, electricians, fitters, turners, builders, repair workers, workmen skilled in the production of various kinds of livestock products and many other professions. The total number employed in the public economy is 1.9 million specialists with higher and secondary education and 4.6 million machine operators and automobile drivers. Their share in

the structure of employment is gradually growing. Special significance is attached to the training of master stock-breeders for work on mechanised farms and in livestock breeding centres. Some of the able-bodied workers in the public sector of the economy are still engaged in different farm jobs where manual labour prevails. Mechanisation of these jobs is the main reserve for raising the productivity of labour and using workers made available as a result of it.

State and collective farms functioning on the self-supporting basis of the socialist economy have the appropriate system of management and remuneration of labour. The system is based primarily on the principle of the team contract, although, depending on the current conditions, character and structure of production, there are various forms of teams and sections. Their work, based on the self-supporting principle whereby each team is assigned with their specific sowings, machinery, or cattle and poultry, and other functioning resources, rules out the lack of personal responsibility, shapes an elevated feeling of a collective master as well as an incentive to raise the efficiency of the resources being used to produce more, cheaper and better, and to achieve higher gross and net incomes which are decisive sources for the formation of incentive and accumulation funds.

In the system of the organisational and economic management of the social economy there are many problems that emerge in the course of the progressive movement, the implementation of more cardinal economic updating, the transition of production to the qualitatively new stages of progress. The practical solution of these problems is linked with the overcoming of inevitable difficulties and the achievement of closer unity of national, collective and individual economic interests.

Along with the group of advanced, highly intensive and efficient agricultural enterprises whose labour productivity levels are higher than current world achievements, there are also groups of farms which hold a somewhat intermediate position or are lagging behind, where the structure and technology are still far from perfect, where the share of manual work is still very high and where the average labour productivity is behind that of farms in the USA and Western Europe. The pursuance of the agrarian policy aimed at the acceleration of intensification rates solves the immediate problem of turning sluggish enterprises into highly profitable ones. This is the goal of the Soviet, basically unified, policy of investment, structure, pricing, financing and credit. To ensure social and economic levelling and stabilisation of economic conditions of economic activity there is a system of zonal purchasing pricing for agricultural products, making allowances for farms located on low-fertility lands. As a rule they specialise in those commercial crops and kinds of cattle and poultry which are better adapted to the conditions suitable for their growing. This in itself reduces the cost of labour and material resources per unit of output and raises efficiency. A portion of the rental income is redistributed within the framework of co-operated economic systems and through the state budget. When the resource potential is formed and

when the plans of state purchases are determined, consideration is taken of the necessity to level up economic conditions of economic activity with the strict observance of the socialist principle of distribution and remuneration according to the quantity and quality of labour, the final results of meeting the demands of consumers.

The growth rates of the average annual agricultural output and the index of agricultural labour productivity, calculated per man hour, are characterised for five-year periods by the following data.⁹

Years	Agricultural gross output	Labour productivity
1961-1965	100	100
1966-1970	121	136
1971-1975	137	163
1976-1980	150	181
1981-1983	154	184
1984	163	193

The increased gross output with a reduced size of labour force is reflected in the more rapid labour productivity growth rates. In the projected future up to the year 2000, it is planned to accelerate the labour productivity growth rates, first of all, through the technological improvement of land and livestock farming, their further intensification and rise in productivity. Hence, under the condition of farm staff stabilisation, part of the countryside labour resources will pass into the pension age and also will become available due to the movement of a certain number of young people to industry and services. In this case, in the labour structure the share of highly qualified workmen well versed in machine systems will prevail. Here lie tremendous reserves for the saving of public labour.

Nevertheless, manual agricultural labour will still be used for some operations where machinery is difficult to apply, both on public farms and, primarily, on individual subsidiary plots of collective farmers and state farm workers, as well as in orchards and kitchen gardens of urban citizens which are of no small importance for the labour education of children, leisure and physical training of the working people, and in keeping pensioners occupied. The dissociation of man from physical labour and the joys of his links with nature are incompatible with the very essence of human life, prolongation of his life and periods of labour activity.

The socialist system of agriculture is based on ensuring a rational combination of public and personal subsidiary farming. In this connection any attempt at finding artificial contradictions between these two forms, is erroneous. Western literature sometimes suggests that the availability of the subsidiary plots of collective farmers and state farm workers indicates lower efficiency of social production, without taking

into account the fact that the very farming on personal plots is run on the basis of the socialist economy which allots not only personal plots but also the machinery for working on them, supplies young stock of cattle and poultry and feeds to maintain them from the public farms. Through existing agreements co-operatives often purchase surplus produce grown on individual subsidiary plots. In other words, counting on the desire of farmers to run their own subsidiary farming, the co-operative encourages it in all ways possible, thereby stimulating their extra activity and interest in collective farming. This is a strictly voluntary business. One who does not have his own subsidiary farming and is satisfied with the earning provided by public farming, may not necessarily have this plot of land. For those who do have it, the co-operative (or the collective farm), as well as the state farm creates the most favourable conditions for running individual subsidiary farming, understandably without damage to social farming.

The public sector at present produces practically all grain, sugar beet, cotton and other technical crops, 97 per cent of sunflowers, 70 per cent of livestock products, 68 per cent of vegetables and only 40 per cent of potatoes.¹⁰ The gross production increase rates in the public sector in 1983 as compared with 1970 were 30 per cent and in the individual subsidiary farming only 6 per cent.¹¹ In state purchases the public sector accounts for 97–100 per cent for most agricultural products. Individual subsidiary farming sells to the state about one quarter of wool and potatoes and 8 per cent of vegetables of all purchases.¹² It should be underlined that the collective farmers' market in all the trade turnover of food products accounts only for 4.9 per cent.¹³ Thus, both far-fetched exaggeration and underestimation of the importance of subsidiary farming in the agrarian sector of the socialist economy are not credible. Its development in the system of public economy at the present stage is of marginal, secondary importance.

Consequently, the most characteristic features and tendencies of the agrarian labour development under the influence of scientific-technological progress in socialist agriculture are as follows:

First, the essential increase in its power and technological capacity, in the level of mechanisation and automation with the introduction of continuous flow process technologies;

Second, more profound division of labour, changes in its sectoral, occupational structure and inner content with the view of transferring many labour functions to machine systems and hence changes in the relationship of manual and mental labour, levels of intellectualisation and qualification and in the rates of transition from simple to complicated labour;

Third, the development of integrated economic systems is accompanied by an increase in the degree of socialisation of production and labour and its gradual conversion from agrarian to agro-industrial;

Fourth, there is a radical change in the socio-class structure of the rural population which has become part and parcel of the new historical community of people – the Soviet people. Agricultural workmen,

collective farmers and rural intelligentsia are the indivisible part of it. They, together with other citizens of the USSR possess equal constitutional rights and obligations, free access to common national endowments, social and spiritual benefits, education and science, the gains of culture. In addition to earnings from public farming or individual subsidiary farming, collective farmers get an equal share of social consumption funds, are members of the trade union and are covered by social security services.

However, the solution of the problem of overcoming the essential distinctions between the city and the countryside implies an even greater scope for subsequent changes. The economic upsurge will not only bring agriculture closer to the level of industry in terms of technical facilities and production activity, ensure well-organised co-operation of agriculture and its industrial processing in the agro-industrial systems being formed, but at the same time will help to continue the work in the direction of more rapid development of the production and social infrastructure, development of built-up areas using the principles of the latest scientific accomplishments in the field of architecture, civil engineering and town planning, achievement of uniformity in the levels of well-being and culture, the service system catering for both urban and rural citizens. These are vital programme targets of the agrarian policy of the CPSU and the Soviet state.

NOTES

¹*The USSR national economy in 1983*. M., Finansi i statistika, 1984, p. 36 (Rus.).

²*Ibid.*, p. 383, 384.

³*Ibid.* p. 5.

⁴*Ibid.* p. 36.

⁵*Ibid.* pp. 196–7.

⁶*Ibid.* p. 36.

⁷*Ibid.* p. 54.

⁸*Ibid.* p. 441.

⁹*Ibid.* pp. 211 and 301.

¹⁰*Ibid.* p. 210.

¹¹*Ibid.* p. 211.

¹²*Ibid.*, p. 218.

¹³*Ibid.* p. 457.

DISCUSSION OPENING – ERIK SWEDBORG

The Soviet Union holds a key position in international food trade. Good or poor grain crops in the Soviet Union influence the world market to a great extent. This can be a good thing from foreign farmers' point of view as well as a bad one. The influence on the farmers is probably most evident in the United States, but it is observable also in Sweden, the country from which I come.

Some 30 years ago with Nikita Krushchev as Head of State and Leonid Brezhnev as implementer, the Soviet Union embarked upon a gigantic programme for breaking new land in Kazakstan and adjoining areas east of the Urals. This project, fulfilled in only a few years, was the starting point

for a new deal in Soviet agricultural policy. The background to this was the situation at the beginning of the 1950s when the Soviet Union found itself confronted with a grave food supply crisis. There were two alternative solutions: either to intensify agricultural production in the older already existing farming areas, mainly in European Russia, or to break new land east of the Urals. It was decided to adopt the latter alternative, which is understandable since experience from earlier agricultural policy has shown that enormous investments would otherwise be needed to obtain the necessary results quickly.

The guidelines for the new agricultural policy drawn up in 1953 embraced the following:

- (1) Extensive land reclamation, mainly east of the Urals (principally in Kazakstan) where the chief crop would be wheat.
- (2) The growing of more livestock feed on additional land which would then become available in the older farming districts and in particular maize of different types.
- (3) A considerable increase in livestock which would become possible because of the additional acreage of livestock feed.

The first phase in this three-point programme was accomplished with enormous drive, though needless to say not without difficulties, in 1954–6 when the sowed area was increased by almost 40 million hectares (13 times the cultivated area of Sweden), in other words, a 25 per cent expansion. All this produced results. The vital grain crops were greatly enlarged and livestock feed crops also increased and prepared the way for a sharp rise in livestock production.

During the first five years of 'the new deal' up to 1958, total farm production (excluding livestock feed) rose by about 50 per cent, which is about 10 per cent per annum. The increase was somewhat greater in livestock production than in crop production. Thanks to the increase in livestock production the Soviet diet was improved compared with the situation in earlier years. The increase in grain production gave scope for a considerable export of wheat, chiefly to the new Communist states in Eastern Europe which were struggling with difficulties of food supply. During the 1960s however the development of agriculture lost pace and the increases in production were only in the order of 5 per cent per annum. During the 1970s the tempo slowed down even more to between 2 and 3 per cent. Even after the land reclamation, however, the Ukraine retained its traditional status as the granary of Russia; but it also became something of a milk and pork centre. Between 1954 and 1960 the number of cows in the Ukraine rose from 5.5 to 7.7 million – a 40 per cent increase, while the corresponding figures for pigs were 11.3 to 16.5 million – 46 per cent. So far as cultivated area is concerned, Kazakstan took over to a large extent the role as the principal granary of Soviet Russia (though not with regard to the size of harvest). Up until 1959 no less than 18.3 million hectares of new land was broken in Kazakstan, in other words 47 per cent of the total area of newly cultivated land. In a few years the arable land area in Kazakstan increased from 9.7 to 28.0

million hectares and from the crop point of view the emphasis was, and still is, on wheat. Despite the predictions of many pessimists of 30 years ago the special growing problems in Kazakstan and adjoining regions have to a large extent been overcome through a combination of American type 'prairie farming' knowhow and particular techniques of land reclamation.

In other respects agricultural developments in the Soviet Union have been less impressive. This emerges very clearly if we study relative yield levels in crop and livestock farming. For example, during the last period of the 1950s the average wheat yield was about 10 quintals per hectare (this low figure is explainable by the very low yields in the newly cultivated regions). Twenty years later during the 'normal year' of 1976, the corresponding figure was 16 quintals per hectare, in other words, the increase rate was about 3 per cent per annum. By comparison, milk production per cow rose by only something like 1 per cent per annum (1850 kg per cow in 1956/60 to 2200 kg in 1976-80), although the latter figure was influenced to some degree by the unsatisfactory feed conditions resulting from the poor harvests of 1975 and 1979. In the United States, where agriculture is on a larger scale and is therefore better suited to comparison with the Soviet Union than is Western Europe, wheat yields in recent years have been around 21 to 22 quintals per hectare and the yield per cow around 5100 kg per annum. It can thus be safely said that the Soviet Union has been much more successful in increasing crop production than livestock production. This may be a feeding issue and this is a point which is worth a closer examination.

I would now like to ask some specific questions.

- (1) Do you agree with my description of what has happened in the Soviet Union during the last few decades and in particular that related to the land reclamation of the 1950s?
- (2) Do you agree with my description of the regional pattern of agricultural production made possible by this land reclamation?
- (3) What are your views concerning the low productivity in animal production and how can this situation be improved?
- (4) It is well known that the 1980s started in a very unfortunate way so far as grain yields were concerned. Crop failures are likely from time to time in the context of a climate like the one in the Soviet Union but it seems that the failure has not happened so frequently before. My question really is whether such a severe drought has occurred for so many years in a relatively short space of time, and are there other reasons than climate which have produced this condition?
- (5) Regarding the future, what possibilities are there for the more effective use of water, in particular the idea that some of the Siberian rivers might be used in a more efficient way by making them flow in the opposite direction?
- (6) What is the opinion of the agricultural experts in the Soviet Union regarding changes in the near future? What may one realistically

expect regarding the near future development of food supply and production?

GENERAL DISCUSSION – RAPPORTEUR: CSABA FORGÁCS

Replying to the questions of the opener, Victor Nazarenko was of the same opinion with regard to the description of land reclamation as Erik Swedborg in generally emphasising that the main goal was to increase fodder grain production. The low productivity of animal production is a fact. The first aim was to increase the size of the production in general. Productivity is also increasing but it is really slow. The way for the future is to use intensive industrial-type technologies, as has been done in poultry production. But the problem concerning dairy production has to be faced. The number of cows will be stabilised but their productivity should be increased by breeding as well as by larger-scale feed production. The influence of agriculture on the national economy has been analysed on a base of a long-term series. Efficiency has decreased during the last six years where other reasons may also be found besides unfavourable weather conditions. Research on contract farming has shown higher efficiency especially where a labour-intensive production is taking place. He also pointed out that the maintenance of low food prices is a political and social question, being aware of the fact that it has an influence on the budget as well. For the future substantial emphasis should be placed on developing technologies.

Erik Swedborg mentioned the Chinese system of land use which appears to be efficient and he spoke about similar possibilities in the Soviet Union.

In answer to a question focusing on the system of the purchase of grain from abroad, it was made clear that the state has a foreign trade monopoly but a large-scale home trade as well. World market prices, trade situations and other factors are also taken into account by decision-makers with regard to the import of grain.

One questioner asked how it was possible to take into consideration the (around) 400 geographical units in the process of planning. In reply it was stated that resource allocation was investigated unit by unit by institutions thus creating a base for decision-makers. Planning based on administrative units which are not the equivalent of the geographical regions are used mostly in academic works.

It was asked whether net output tendencies are following the pattern of the gross output and also the availability of statistical data on net value product, with reference to the recent problems of organisation and economic management of the Soviet economy mentioned in I. Lukinov's paper. The answer emphasised that there are different ways of calculating net output figures. It was also underlined that there are a lot of publications available on farming but very few in English.

More information was requested on the exact number of people working in agriculture and the share of private production. From the answer it transpired that the number of working people in agriculture and forestry is

20 per cent of the total, but it was previously much higher. The share of private (small-scale) production depends on the basis of comparison. Auxiliary and household plot production is about 27 per cent of the gross output of agriculture. But it is an integrated part of the economy and its role is important, for example, in vegetable, potato and animal production. The output of small gardens is also significant but there are no statistical data available.

Participants in the discussion included F. Fekete and S. Holmstrom.