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# USSR Report

ECONOMIC AFFAIRS

(FOUO 5/82)



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USSR REPORT  
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INVESTMENT, PRICES, BUDGET AND FINANCE

ROLE OF BANKING, CREDIT IN ECONOMIC MANAGEMENT REVIEWED

Moscow VOPROSY EKONOMIKI in Russian No 3, Mar 82 pp 3-12

[Article by V. Zakharov: "Credit and Banks in the Economic Management System"]

[Text] The financial and credit levers play a major role in increasing the management level, in intensifying production, strengthening cost accounting and improving thriftiness. The realization of the tasks set for the 11th Five-Year Plan and for the longer period requires a profound elaboration of credit theory and the working out of practical recommendations on the ways to further improve credit and payment relationships in the economic management system.

Credit investments by banks during the period of 1966-1980 increased by 4.6-fold and on 1 January 1981 reached 342.5 billion rubles. Credit has been used to form 46.3 percent of the working capital sources in the national economy and, according to our estimates, is responsible for over 12 percent of the capital investments. All of this determines the necessity and possibility of a more effective impact by credit on the development of the socialist economy.

The employment of crediting as an economic management method presupposes the elaboration of standardized crediting methods and the imparting to the management objects of rights to independently determine the most applicable of them. At the same time the management objects should bear material liability in violating the management standards and crediting conditions.

The existing excessive detailing of crediting conditions and the obligation to employ one or another crediting method for a number of economic sectors can lead to a strengthening of negative administrative methods in the activities of the credit system.

At the same time the economic interests of the self-financing associations and enterprises can be impinged on and then great material liability will be demanded from them for the results of decisions taken related to the organizing of credit and payment relations.

Crediting, as an economic management method, assists in solving such problems as the balancing of plans, the strengthening of economic accountability, the encouraging of material and technical progress, the mobilizing of internal reserves and a number of others. Bank credit must first of all cover the demand for borrowed

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funds arising in the process of carrying out the economic and social development plans. At the same time crediting is the most convenient method for covering unplanned needs for funds.

The presence of different types of needs for borrowed funds also necessitates different methods of satisfying them using bank credit. The effectiveness of the impact on the economic interests of the management objects depends largely upon the adequacy of the methods of satisfying the needs for borrowed funds to the nature of these needs. In the planning and organizing of credit, it is essential to have a more profound differentiation between the satisfying of planned and unplanned needs.

At present, the banks differentiate the credit and payment relations with associations (enterprises) depending upon the quality of their operation. However, this is not sufficient. Both the good and poorly operating enterprises have the same need for borrowed funds both of a planned and unplanned nature. The approach to them should vary. However, this requirement is frequently not observed. For example, kolkhoz crediting is carried out according to the unified credit-debit accounts. The concentrating of own funds in one account as well as the accrediting of all requirements regardless of their nature reduces the bank's opportunity to actively influence the rational utilization of kolkhoz working capital. Here it is often virtually impossible to determine with sufficient economic soundness that portion of indebtedness which cannot be repaid as a result of mismanagement. Considering this it would be advisable to split the keeping of own and borrowed funds and provide credit to the kolkhozes through several loan accounts which would ensure the required banking control over satisfying the needs for borrowed funds.

It is possible to give another example. A significant portion (around 80 percent) of the credit used for temporarily making up a lack of own working capital is granted not to the associations and enterprises but rather to a centralized procedure to the ministries and departments without working out measures to mobilize internal reserves. The ministries turn over the money received as credit to the associations and enterprises as unreturned financing. There has been, so to speak, a return to the syndicate credits which were widespread at the end of the 1920's. The drawback of such crediting was the fact that the bank could not exercise control over the use of the credit and the operation of the enterprises. For the purposes of eliminating the designated shortcoming, in 1930, a procedure was instituted whereby bank crediting itself was to be organized in such a manner that the enterprises and organizations requiring credit would obtain it, in bypassing the intermediate levels. The more than 50-year practice has confirmed the correctness of establishing direct ties between the bank and the loan recipients.

The centralized granting of credits for temporarily making up a shortage of own working capital reduces the control significance of crediting and does not stimulate the mobilizing of internal reserves of the associations and enterprises. A survey conducted showed that almost two-thirds of the credits received directly by the associations and enterprises was repaid from additional and above-planned profit as well as due to reduced deductions into the material incentive funds. At the same time the credits granted to the ministries, as a rule, were repeatedly extended and then repaid from money of the state budget. In our opinion, credits should be granted directly to the associations and enterprises which have a shortage of own working capital after they have worked out measures to obtain additional profit. This will

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help to solve the problem posed for the 11th Five-Year Plan and the longer run of making more active use of the financial and credit levers to mobilize internal resources. What has been said does not exclude the possibility of providing credits to the economic management bodies as the principles of cost accounting are incorporated in their activities. Such credits should be provided to meet the needs of the entire economic complex headed by an industrial association or ministry.

It is also essential to improve credit planning for an increase in fixed capital. The predominant share of such credits is a source of planned capital investments and for this reason in the plan goes to specific recipients. At the same time credits can be employed for certain types of capital expenditures above the limits set by the state plan. However, these credits in also being planned in a sectorial breakdown become, in essence, a supplement to the planned capital investment sources. The purpose for credits for above-limit expenditures is to encourage maximum use of internal resources, for example, uninstalled equipment. Considering this the designated credits should be planned on a territorial breakdown so that the banking institutions could effectively settle the questions of extending these credits to the associations and enterprises independently of their departmental affiliation.

At the 26th CPSU Congress it was pointed out that "the disproportions and shortages occurring in various national economic sectors cause a good deal of economic harm and complicate the struggle for efficiency and quality." One of the ways for overcoming or, in any event, mitigating the scarcity of a number of resources is correct control of production inventories. Such control is carried out, in particular, in the process of organizing the credit and payment relations in the national economy since payment for a significant portion of the commodity and material stocks is made by bank credits. In the crediting of the production associations and enterprises, their normal demand for money should be provided for the forming of material inventories. However, recently an undesirable trend has been observed of forming the designated inventories to an evergreater degree from payment credits. Banking control over their issuing and repayment is less effective than over specific credits for material commodities. The presence of surplus payment funds with the simultaneous weakening of banking control over their use makes it possible to accumulate material inventories in amounts that exceed their actual need. This, in turn, causes the uneconomic expenditure of material resources at some enterprises and a scarcity of them at others.

It is essential to strengthen ruble control in the crediting of material inventories so as to assist in accelerating their turnover rate, to prevent the replacement of specific inventory credits by payment credits while the mechanism for the granting and repayment of payment credits should be linked as much as possible with the movement of material commodities.

For increasing the effective functioning of the credit mechanism, it is essential to further improve credit planning. The measures to improve crediting methods in a number of instances have not provided positive results precisely because they are not based upon an appropriate reorganization of the credit planning system.

Several interrelated problems are solved in the credit planning process. In the first place, a quantitative expression is given to the objectively existing cost accounting needs of the economy for borrowed funds. Secondly, the credit plans set

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the methods for satisfying the need for borrowed funds depending upon the type of need. Finally, the third task confronting credit planning consists in determining the volume and structure of the sources for covering the demand for borrowed funds.

Credit planning is carried out in several stages. First of all it is possible to note two interrelated but relatively independent processes: the planning of crediting resources and the planning of the granting of credits based upon the determined need for borrowed funds. The concluding stage is the balancing of the amounts of resources and credits. With the presence of several banks the need also arises of distributing and redistributing the credit resources between them.

All credit resources, regardless of in which credit institution they have been accumulated, are available to the socialist state and on a planned basis are channeled by it into the development of the active operations of one or another bank. Such utilization of credit resources stems from the nature of the socialist management system. Bank resources are regulated on a centralized basis in compiling and approving the credit plans of the Gosbank and Stroybank as well as in the redistribution of functions between them.

As is known, in 1977, the financing and crediting of planned capital investments for the reconstruction and technical reequipping of enterprises in industry and a number of other national economic sectors were shifted from the Gosbank to the Stroybank. Simultaneously the resources of the Stroybank were increased by the amount of the planned repayment of credits previously issued by the Gosbank. Moreover, the accounts which accumulated the money of the production development fund were transferred to the Stroybank. This increased the Stroybank's resources for long-term crediting.

Thus, socialist credit ensures the redistribution of funds on an economy-wide scale. The restricting of each bank's operations to the amounts of its resources would impede the development of the most effective active banking operations under the specific economic conditions.

The ties of the credit plans with the economic and social development plans are diverse and varied on the various levels of national economic management. On the scale of the entire national economy, the plans for granting credits for material commodities and production expenditures are correlated to the national economic material balances and the capital investment plans. This coordination is expressed primarily in the fact that credit is a planned source for forming working capital and carrying out capital expenditures along with the budget allocations and internal assets. A predominant share of the credits going to increase working and fixed capital in the plan goes to specific purposes. These credits are planned for the ministries and departments and are then distributed to the immediate loan recipients in the form of the production associations and enterprises. In granting the designated credits the proportions established in the economic and social development plan are maintained.

At the same time, under the conditions of the large-scale Soviet economy, it is difficult, and in a number of instances, even ill-advised to set ahead of time and in a centralized procedure the ratio of material funds and monetary resources and the structure of solvent demand and supply on the level of the primary management objects, the production associations and enterprises. Such a balance is achieved

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using economic management methods, including credit ones. For this reason it is quite natural to have credits which are not directly assigned. These are to be used to form the unplanned needs for working capital and capital investments and for overcoming the particular disproportions arising in the course of carrying out the economic and social development plans.

The measures to improve credit planning should be carried out in close connection with the tasks confronting national economic and primarily financial planning. The organic incorporation of the credit resources and their uses in the state's summary financial plan is the basis for solving this question. The designated plan should be compiled not only by the planning and financial bodies but also by the banking ones as well. A fuller consideration of all available monetary resources will make it possible to ensure their most rational use as well as the balancing of the material-physical and cost elements of social reproduction.

An essential prerequisite for incorporating the credit resources and their uses in the state's summary financial plan is a changeover from quarterly to annual periodicity in compiling and approving the short-term crediting plan of the USSR Gosbank. This will make it possible to more closely link it to the economic and social development plan, to the state budget and to the financial plans of the economic sectors, the associations and enterprises. For maintaining the link between the credit plans and the cash plans, a quarterly breakdown must be made for them and when necessary adjustments made in the course of carrying them out.

The economic and social development plans as well as the financial plans set the amounts of capital investments and material inventories as well as the sources of their monetary covering. But bank credits which are one such source are planned depending upon their division into short- and long-term. The classification of credits by time is essential but insufficient as it does not indicate their economic use. For this reason this cannot be the basic criterion in credit planning. The credit plans should be compiled depending not upon the length of the credits but rather upon their economic purpose. One credit plan should include the credits and corresponding resources for forming the economy's working capital and another should have the resources and their allocating for capital investment crediting. Here it is particularly important to ensure an economically sound dividing of the resources between the designated plans.

There are also substantial shortcomings in territorial credit planning. At present the credit plans are compiled only as a whole for the Gosbank and Stroybank. Even the republic bank offices do not have completed, balanced credit plans. This is due to the fact that for the union-level enterprises credit planning is carried out by the central banking bodies and for the republic-level economies by the republic offices and so forth. The inferior banking units plan credits virtually for just the enterprises of the rayon (city) level, for the kolkhozes and for the interfarm enterprises and organizations. But only the superior banking bodies are involved in the planning of credit resources.

The little involvement of the inferior banking units in credit planning does not help to develop local initiative or complete consideration and utilization of internal economic reserves. This leads to a situation where in a number of instances surplus and unnecessary inventories are created with the aid of bank credit and surplus payment funds are formed.

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An improvement in the territorial credit planning should be carried out by involving the banking institutions in credit planning for all enterprises and organizations of a region without exception. However, the transition to territorial credit planning involves definite difficulties. The experiments carried out in this area show the fundamental possibility of compiling credit plans with a territorial breakdown. For example, since 1974, the Latvian Republic Gosbank office has been carrying out an experiment in territorial credit planning. The conditions of the experiment provide that the Gosbank institutions plan both credits as well as certain resources. Regardless of the positive results of the experiment it has spread slowly. In 1978, territorial credit planning had been introduced only in the Lithuanian, Moldavian and Estonian Union republics.

The involvement of all banking institutions in credit planning will create conditions for converting to the planning of the total need of economic bodies for borrowed funds. At present planning on the level of the loan recipients covers only a portion of the borrowed funds, that is, the individual types of bank credits. But for the normal operation of self-financing enterprises they require not any individual types of credits but rather borrowed funds generally. A depriving of some type of credit correspondingly increases the demand for others. The calling in of credits due leads to the development of overdue liability. Of course, the complete halting of crediting and the collecting of overdue liability on loans creates the need to put credit liability into circulation. For this reason, in our opinion, we must organize the planning of the total demand of each economic body for borrowed funds.

An improvement in credit planning will make it possible to more soundly determine the actual effectiveness of organizing national economic crediting. The drawback of the proposed methods for calculating crediting effectiveness is that their authors analyze this effectiveness proceeding from the actually existing structure of the borrowed funds. But it makes a great difference as to precisely which credits were used by an enterprise to achieve certain results. For example, it cannot be considered normal if the economic use of credits was accompanied by an increase in credit liability. Moreover, it is essential to bear in mind that not only credit influences the operating results of enterprises but also the course of their operations directly influences the actually developing structure of credit investments. For this reason, an assessment of crediting effectiveness should be based primarily upon an analysis of the ratio of the actual and planned structure for sources to cover the demand for borrowed funds.

The state has a direct effect on the economy through the sectorial, territorial and functional management bodies. One of the functions of the socialist state is the planned distribution and redistribution of monetary resources and ensuring their efficient use for the purposes of expanded reproduction. This function is carried out with the aid of special bodies among which are also the banks.

In organizing monetary circulation, the banks possess definite methods for influencing the economy. With the aid of payments through the credit bodies, the principle of the equivalence of exchange is observed and the financial independence and profitability of the self-financing enterprises are brought out. Thus, the action of the law of value is expressed in banking operations. Through the banks the state organizes the conscious use of the law of monetary circulation. By emission and

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cash control through the Gosbank, the needs of circulation for cash are ascertained. Banking information on this question is employed by the state for controlling monetary circulation.

The banks help in observing the requirements of the law of planned, proportional national economic development. Crediting, the organization of monetary circulation and the performing of other functions by banks are aimed at maintaining the proportions established in the economic and social development plans as well as eliminating the particular disproportions which arise.

The existing methods of bank influence on the socialist national economy have developed gradually, in changing in accord with the needs of economic development. For example, the presence of numerous banks during the first years of Soviet power was caused by the mixed nature of the economy. Not having the necessary conditions or experience in planned economic management, the state endeavored to most fully utilize the credit bodies for this purpose. In the process of developing centralized planning, the banks organically were incorporated in this system and their number was reduced.

Initially all the credit bodies were part of the financial system. The gradual separating of the banks from it had the nature of a natural branching out of independent bodies in functional management from the bodies having other functions and employing different methods to influence the economy.

A clearly expressed development trend in banking in the USSR has been its centralization. At present all banking operations are concentrated in two systems, the Gosbank and Stroybank.

Predominantly the functional principle underlies the dividing of the sphere of activity of the banks. The Gosbank provides credits for the basic operations of the enterprises while the Stroybank finances and credits capital construction. However, this principle has not been precisely maintained. In the first place, the sectors of agriculture, forestry and water management are completely financed and credited by the Gosbank. Secondly, credits for planned capital investments into industry and certain other economic sectors are provided by the Stroybank, while credits for above-planned investments are put up by both banks. Thirdly, the Stroybank provides short-term crediting for some contracting organizations while the Gosbank does it for others. Fourthly, the Gosbank provides cash services for all economic bodies, excluding those which have their accounts with the Stroybank. Fifthly, the Gosbank carries out a significant number of operations in the crediting and financing of capital investments upon the authorization (on behalf) of the Stroybank which does not have the required network of affiliates. All of this reduces the effectiveness of control by the banks over the activities of the associations and enterprises.

The functioning of an enterprise as a management object starts in the period of its construction. The administration of an enterprise under construction enters into relations with other economic bodies, primarily contracting, supply and others. It possesses money, sometimes very significant amounts, to be used for the financing of construction. The very period of construction lasts frequently several years. All of this necessitates the incorporation of the new construction projects into the

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system of national economic management. The immediate aim of management is the high quality completion of construction at the stipulated dates. The more distant aim is the prompt reaching of the designed technical and economic indicators by the constructed enterprise. The reaching of designed capacity occurs at operating enterprises but the opportunities for achieving this goal are established in the course of building them.

While new construction does not coincide in time with the operation of the enterprise itself, the work involved in expansion, reconstruction and technical reequipping is carried out at already operating enterprises. Here material, labor and monetary resources earmarked for basic operations are frequently used for construction. Subsequently these resources should be recovered from the allocations earmarked for construction. But this again demonstrates how close are the relations within the enterprise as a single economic complex. The main thing is that the results of the enterprise's operations depend largely upon the results of construction (including reconstruction and technical reequipping).

Under these conditions it is quite natural to have the management of the enterprises as economic complexes by unified sectorial and intersectorial management bodies. Among the latter are the planning, financial, supply and others which have internal subdivisions in charge of capital construction questions. Only the banking system is an exception as a portion of it manages the basic operations of the enterprises within the limits of the functions entrusted to it while the other is in charge of their capital construction. This inevitably gives rise to involved relations between the banks as management subsystems and necessitates the constant coordinating of their actions.

Banks, like the other economic bodies, exercise functional management of the national economy. Consequently, it is essential to settle the question of just to what degree the function underlying the activities of the credit bodies should be consolidated or, conversely, differentiated. As was pointed out by V. I. Lenin, the banks are bodies involved in the statewide accounting, bookkeeping and control of production and the distribution of products. This control is carried out by them on the basis of the monetary circulation passing through the bank. Proceeding from this, it is possible to assume that the organization of monetary circulation by the banks and the carrying out of statewide accountancy are the constituting feature of banks as economic management bodies. For this reason, any breaking up of monetary circulation merely complicates the keeping of truly statewide accountancy.

At present, control of monetary circulation has been split between the Gosbank, the Sroybank and the USSR state savings banks [gostrudsberkassa]. A significant portion of monetary circulation passes through the savings banks and this provides grounds to consider the savings banks as banking institutions. With the transfer of the savings bank system to the Gosbank, the balances of the public's deposits began to be used by the bank as a credit resource. As for the rest, the unifying of these two banking institutions has been more of a mechanical than an organic nature. The savings bank system has kept its independent accountancy and separate cash system distinct from the bank. This was justified initially after the turning over of the savings banks to the Gosbank when they performed a limited range of operations. Then the savings banks were given the functions of receiving apartment rent and

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other utility payments from the public, for keeping the accounts of organizations and institutions not engaged in economic activities, for paying wages to employees and other income of the population and so forth. All of this significantly complicated accountancy and the cash system in the savings banks and sharply increased the "counterflows" of cash and transfer payments between the savings banks and the Gosbank institutions.

For the purposes of maximum centralization of monetary circulation, it is advisable to have the organic incorporation of the savings banks as part of the Gosbank book-keeping and cash system. The possibilities for such a solution to the question will be widened as electronic computers are introduced into the work of the bank and the savings banks. The next step should be the unifying of the accounting systems of the Gosbank and Stroybank and the creation of a unified automated control system for monetary circulation of the socialist economy. This will be of primary significance for the development prospects of the banking system as an apparatus of statewide accountancy.

The parallel functioning of several (even two) banks creates the problem of distributing resources between them to carry out active operations, that is, the crediting of the national economy and the financing of capital investments and major overhauls. Resources for financing are allocated on a nonreturned basis and for this reason it is easier to control this. The situation is significantly more complex with the distribution and redistribution of credit resources.

The emission of money is the regulator of credit resources of an emission bank. Here money is put into circulation for covering the needs of the national economy for credit or money is taken out of circulation in reducing credit investments relative to the other existing credit resources. The Stroybank is in a different situation as it does not have the right to put money into circulation and has in addition only limited resources in the form of the balances of the economy's assets. In developing various active operations (for example, the crediting of incomplete production of construction and installation work), the bank experiences definite difficulties in forming the corresponding resources.

The following aspect is also very important. It is generally recognized that monetary circulation is directly linked with the short-term crediting of the national economy. Short-term credits are provided not only by the Gosbank which directly regulates monetary circulation but also by the Stroybank. On 1 January 1981, the debts of the Stroybank for short-term credits were 39.4 billion rubles or over 15 percent of the total amount of short-term credit investments. But at the beginning of its activities in 1960, this share did not exceed 3 percent.

It seems to us that at present the credit activities of the Stroybank are underestimated. This is apparent primarily in the fact that credit planning in the Stroybank is not tied to the planning of monetary circulation. Considering this and proceeding from the unity of the statewide loan fund, it is essential to draw up a unified credit plan which is linked to the monetary circulation plans. Such a plan will provide an opportunity also to more fully consider all credit resources and to better combine the credit and budget methods for allocating funds in the economy. The planning of the total volumes of resources will make it possible for the state to more correctly and economically effectively channel them into certain economic sectors and for crediting primary measures regardless of in which bank the accounts of the borrowers are.

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In having limited credit resources, the Stroybank in a number of instances is forced to apply stricter conditions for granting individual credits than is the Gosbank. However, this causes the valid dissatisfaction and perplexity on the part of the economic bodies which obtain credits simultaneously from both banks and can compare their conditions. The presence of different crediting conditions is incompatible with the unity of credit policy. The most effective banking control over the carrying out of the capital investment plan can be provided under the condition that one bank finances and credits both the planned and above-planned capital expenditures. But in a number of instances the enterprises of the same ministries receive credits for above-planned capital investments at both banks. For example, in 1980, the enterprises of the Ministry of Light Industry received 80.2 million rubles of credits for the designated purposes at the Gosbank and 13.9 million rubles at the Stroybank; the figures, respectively, for the Ministry of Trade were 72.3 and 44.2 million rubles; for the Ministry of Communications, 122.3 and 12.7 million rubles. The possibility of obtaining credits in two banks does not help to concentrate the capital investments and weakens banking control.

In formally observing the sectorial principle of the division of functions, the Stroybank was forced to grant credits for forming the basic herd on the ancillary farms of the enterprises of industry, transportation and certain other economic sectors, while the predominant portion of these credits is provided by the Gosbank. In the course of agroindustrial integration, associations are set up which include industrial and agricultural enterprises. Here the question arises of which of the banks should finance and credit the expenditures of these associations for capital investments.

The turning over in 1977 of the crediting of capital investments in a number of economic sectors from the Gosbank to the Stroybank has led to an increased number of operations performed by the Gosbank upon instructions of the Stroybank. This means that the redistribution of functions between them to a certain degree is of a formal nature. In recent years there has been a particularly noticeable desire of the Stroybank to broaden its parallelly existing network. Instead of the small staff of authorized Stroybank agents, independent institutions are being created and this significantly increases the number of personnel and expenditures on running the banking bodies.

We feel that these phenomena could be overcome by organizing a single bank, in deepening the specialization within it. It would also be possible to create a body which would coordinate the activities of all the banks. We might recall that at one time there existed a committee for banking affairs which performed this function. Subsequently the work of the banks was directed by the People's Commissariat of Finances and later the USSR Ministry of Finances.

The conforming of the rights of banking institutions and management objects is a condition for the successful functioning of banks as economic management bodies. Considering this it is essential to broaden the involvement of the inferior banking institutions in credit planning as well as their rights to maneuver credits. The bringing of the decision taking points closer to the places where the decisions are carried out will make it possible to increase the effective influence of the banks on the basic management objects, the associations and enterprises.

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At the same time, there cannot be full material liability of the banks to the economic bodies since the relationships between them are the relationships of the principals and objects of management. This does not exclude an increase in the existing material liability of the banks for handling payments in the national economy. The necessity for this stems from the state's interest in the correct management of social accountancy as well as from the fact that the keeping of money in the bank and the clearing of all payments through it are a two-sided obligation of the enterprises, the organizations and the bank.

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## INVESTMENT, PRICES, BUDGET AND FINANCE

## IMPROVEMENTS IN PRICING PRACTICES FOR NEW TECHNOLOGY VOICED

Moscow VOPROSY EKONOMIKI in Russian No 12, Dec 81 pp 45-54

[Article by Yu. Tropin: "Improving Limit Prices"]

[Text] Increasing the effectiveness of scientific and technical progress depends largely upon the soundness and effectiveness of the scientific and technical standards employed in the process of selecting and developing new products. The decisions of the 26th CPSU Congress and the Decree of the CPSU Central Committee and the USSR Council of Ministers "On Strengthening Work in the Area of Economy and Rational Use of Raw Product, Fuel, Energy and Other Material Resources" have pointed to the necessity of constantly improving the system for evaluating the scientific and technical level of products in development and for strengthening the mobilizing role of technically sound standards in achieving thriftiness and increasing the efficient use of resources.

Among the technical and economic standards employed in design practices extensive use is made of such a one as the limit price ( $P_L$ ) which is the economically tolerable maximum calculated amount of the wholesale price. In a majority of works this is viewed as an important cost parameter of the technical specifications which guide the designers and production engineers in creating and manufacturing the most effective types of products.<sup>1</sup> Its formula can be represented in the following general form:

$$P_L = P_i \cdot \beta, \quad (1)$$

where  $P_i$ --the initial maximum price of a new article in the calculated year;  
 $\beta$ --reduction coefficient.

In recognizing the advisability of employing a limit price for selecting the most promising models (decisions), for assessing the economic effectiveness of developments and for establishing correct price ratios and levels for the articles to be produced, it must be pointed out that its role in realizing the reserves for effectiveness and in creating an economic new product is not sufficient. As the maximum economic standard, a limit price by its nature cannot help to reduce the level of the design prices (which are often significantly below the limit ones) or increase the economicness of the developed models. The orientation to such (maximally acceptable) standards can lead (and in practice does lead) to the production of articles which are ineffective for the national economy. But this is only one side of the problem.

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The limited possibilities of limit prices in the mechanism of increasing the effectiveness of expenditures to a decisive degree are predetermined by the methodology of calculating them as this is insufficiently advanced and only slightly aimed at the end result. The reasons for this are in the following.

In the first place, as yet unity has not been achieved in the methods for calculating the initial value of the limit price ( $P_l$ ) and the technical and economic parameters employed in this and determining the level of the maximum expenditures for the basic groups of new equipment. For this reason the limit prices calculated on such a basis are not sufficiently oriented at increasing the effect. They can differ substantially from their own actual initial (maximum) amounts and have significant intergroup discrepancies in terms of content and levels. Thus, for new products designed to replace previously produced ones, the limit price is calculated using the method of adjusted expenditures and ultimately would reflect a hypothetical equal advantage of the models being compared in consumption. But it cannot become an instrument for reducing expenditures for the given group of articles although in setting its level consideration is given to the importance of such significant technical and economic parameters (in addition to price) as service life and the current and capital expenditures of the user.

One of the reasons for this is that on the basis of a limit price it is virtually impossible to prevent the increased cost of a new model. The limit price for a given group of new articles includes the design (calculated) price ( $P_d$ ) and the economic effect (E) which determine the advantages (with the least  $P_d$  and the greatest E) of the selected model in comparison with other alternatives. But the economicness of a model can be reduced if according to the development results the established level of the design price is increased. In this instance there will be a real increase in the cost of the article in comparison with the design calculations and the economic effect will be reduced although the condition of the technical specifications for the  $P_l$  will be carried out since as a whole this price is not exceeded.

For new products which supplement the parametric series or are part of it, the maximum prices reflect the existing production outlays calculated for the technical and economic parameters of the articles without directly estimating the economic effect. They do not directly control the level of operating expenditures and service life and this can lead to the development of expensive-to-use models for this most representative group of new equipment.<sup>2</sup> This applies also to the limit prices for fundamentally new articles created on the basis of calculated design expenditures.

Secondly, there is no definite clarity as to the content, quantitative significance and procedure for calculating and utilizing the reduction factor given in formula (1). In establishing its level consideration is not always given to the production features and the dynamics of the initial maximum price ( $P_l$ ) of the articles being developed over the long-range period. This ultimately often leads to a distorting (overstating or understating) of the limit price.

Thirdly, the maximum prices for all groups of new equipment as yet do not sufficiently reflect the qualitative and social characteristics of the models being developed. They are little tied to the material incentive system.<sup>3</sup> All of this reduces the importance of the limit standards and narrows the opportunities to employ

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them for creating highly efficient and economic equipment. Moreover, it must be pointed out that the effective development of new equipment is determined not by the existing (or equivalent) expenditures on which the limit prices are based but rather by the least ones. Consequently, they should be reflected in the technical specifications for the development of the product.

The new methods and approaches raised in the press for improving limit prices, in our opinion, do not fully meet the demands made on them, although some of them have actually been employed. In particular, a method has been proposed based on considering the sources of savings for current operating expenditures among the users of the new equipment.<sup>4</sup> Here two basic variations are considered. The first of them is that a savings in current expenditures is achieved (often with fixed productivity) on a basis of increasing the quality characteristics of the model. This can involve an increase in production outlays and then the calculating of the maximum limit for the increase in price is considered justified, that is, the given approach does not go beyond the limits of the existing procedure. The second variation is that the savings of current expenditures is a consequence of increased machinery capacity or productivity and this does not necessitate any additional specific expenditures by the enterprises manufacturing the new equipment. In the given instance, for calculating the limit of the increase in prices, the formula has been recommended:<sup>5</sup>

$$P_l = P_b \cdot \frac{R_n}{R_b} \pm \Delta K, \quad (2)$$

where  $P_b$ --wholesale price of base article;  
 $R_n$  and  $R_b$ --productivity of new and base machines;  
 $\Delta K$ --change in capital expenditures for consumer caused by using new article instead of base one (without value of equipment itself).

This formula has been employed in establishing  $P_l$  in a number of sectorial procedures (without  $\Delta K$ ). However the use of the limit rates calculated by it does not solve the problem of their soundness and the orientation of developers to highly economic solutions. In involving only one group of new equipment, the maximum rate in comparison with the maximum permissible price is transferred only to a lower price level. For example, the limit price of a turbine with a power of 22,000 kw calculated according to formula (2) will exceed the lower level of its price by 2.2-fold (not considering  $\Delta K$ ).<sup>6</sup> Such limit rates, in essence, merely restrict to certain limits the acceptable (from the standpoint of meeting the conditions in the technical specifications for  $P$ ) increase in the design production outlays for new products (in the given example by not more than 2.2-fold) and this cannot be considered justified. Here no consideration is given to the entire diversity of quality characteristics of new equipment.

Widespread acceptance has been given to the viewpoint of the advisability of setting the limit rate on a level guaranteeing the consumers a reduction in the proportional value per unit of useful effect (or the maximum limit of the price) for a new product within a definite fixed amount, say 20 or 30 percent. In particular, the formula has been proposed:<sup>7</sup>

$$P_l = P_b + E_u K_y, \quad (3)$$

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where  $E_u$  and  $K_y$ --respectively, the useful effect and the coefficient for its minimum reduction in cost.

Of course, a reduction in the cost of a unit of useful effect (even a minimal one) in and of itself is positive. However, the position of the authors on a uniform, for example 20-percent, level of the reduced cost of the effect for all new articles, in our opinion, needs greater proof. The actual reduction for each individual article may diverge substantially in comparison with the set (fixed) amount. Thus, for the national economy as a whole, the reduction in prices for new articles per unit of useful effect over 1976, 1977 and the 9 months of 1978, as an average exceeded the recommended value of  $K_y$  by approximately 1.5-fold.<sup>8</sup> Consequently, if the actual reduction is more than the set one, then the given limit rate will not be directly tied to increased effectiveness of a specific model. But as a whole the  $P_l$  calculated from formula (3), like for formula (1), will reflect the maximum price level considering the economic effect. For this reason such a limit price cannot become an obstacle to increasing the cost of equipment in the process of its development in comparison with the initial design expenditures. Moreover, with an equality of the coefficients  $\beta$  and  $K_y$ , the limit price calculated according to formula (3) in its level is somewhat higher than that calculated using formula (1), as the coefficient  $K_y$  applies only to the value of  $E_u$  and not to the entire initial maximum amount (as  $\beta$  does) and this leads to even greater isolation of such standards from the design expenditures.

In accord with the "Instructions on the Procedure for the Coordinated Development, Approval and Introduction of Technical Conditions and Prices for Production and Technical Machine-Building Products," a design price (on the basis of the design costs) and an economic effect should be included additionally in a technical specification as normed values. The economic effect, the limit and design prices rather fully describe the economicness of a development and their use would restrict the formal fulfilling of the conditions of a technical specification for the standard  $P_l$  with a real deterioration of the design technical and economic parameters. However, the given standards, in being closely interrelated, do not meet the requirements of flexibility. In actuality for machines for which an economic effect is calculated (predominantly for articles designed to replace already developed production), all three indicators keep within the following equation:  $P_l = P_d + E$ . For other groups of new equipment, particularly fundamentally new equipment, the limit price equals the design price. For this reason each of the set standards individually plays far from a uniform role in increasing the economicness of a model. Thus, in the process of developing new articles designed to replace previously developed ones, the amount of the effect can be increased by lowering the accompanying capital investments or current expenditures of the new article's user with a certain growth of  $P_d$ , that is, under the condition:  $\frac{E_f}{P_w} > \frac{E}{P_d}$ . This condition expresses a real rise in the economicness of a product (the increase in the effect is greater than the increase in expenditures), but such a savings leads to a disruption of the conditions found in the technical specification for the level of  $P_d$  and the developers are not interested in this.

A change in the economicness of development can necessitate an adjustment directly in the limit price, too. For example, a rise in the level of current expenditures inevitably should entail a corresponding decline in the level  $P_l$  (this follows from

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the method of calculating it), otherwise it is overstated. Thus, in the process of developing a new product the objective necessity may arise (and repeatedly so) for revising all (three) set standards particularly those related to increased development effectiveness. But then they will become less stable and this reduces their importance and complicates their use in practice.

In terms of other types of equipment for which  $P_l = P_d$ , there is no control over the operating and accompanying capital investments by the users of the new articles. Due to the increase in these expenditures in comparison with the initial estimates (or their existing values) there can be a substantial decline in the economicness of development.

However, a more essential shortcoming of limit prices is their general nature and weak tie with the end result. For this reason, it is impossible on the basis of them to establish dependable control over the forming of the dynamics of specific expenditures and the structure of the economic effect which characterize development effectiveness. For example, in the structure of the useful effect of new types of machinery and equipment as an average for machine building in 1977-1978, the savings due to annual productivity was 10-15 percent while savings due to current operating expenditures were up to 70-80 percent.<sup>9</sup> For individual products there can be a relative and absolute rise in the machinery production outlays per se. But the use of general limit rates can lead to the formation of the far from best structure of the economic effect and to an absolute increase in the cost of the machines and this cannot be considered justified.

An improvement in evaluating the technical and economic level of a product being developed, increased soundness of the limit rates and the strengthening of their mobilizing role in saving resources are possible, in our opinion, with the broader use of the specific progressive expenditure rates and physical indicators. These include: labor intensiveness, quality and social characteristics, operating lives, the use of metal, fuels, lubricants, electric power and other resources linked both to the manufacturing and operation of the machine as well as to the product produced on the basis of its use (or the produced work).

Proceeding from this we consider it advisable to incorporate in a technical specification for designing a model for all groups of new equipment (regardless of the sphere of its use) the basic types of expenditures (in physical and cost terms) as normed limits, as stems from the Decree of the CPSU Central Committee and USSR Council of Ministers on strengthening work in the area of economy and the rational use of material resources. In particular, it points to the necessity of incorporating indicators of product material and energy intensiveness corresponding to the best achievements of Soviet and foreign science and practice as basic characteristics in the standards and technical conditions.

The advisability of working out specific standards and introducing them into the practice of developing new products is also determined by the need to strengthen the scientific soundness of the scientific and technical progress plans, for strengthening the correlating of product development (and production) with the resource capabilities of the industrial sectors and enterprises, for increasing the realism of the new specific scientific and technical decisions which are being taken and implemented as well as for further improving work in the area of increasing the

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efficient use of material, labor and financial resources. This is also determined by the system being created of progressive technical and economic standards and norms (approved by the USSR Gosplan on 11 January 1980),<sup>10</sup> since the standards for new products under development cannot operate outside the given system of standards and norms. In essence, the specific norms are detailed design expenditures presently employed in the technical and economic background studies for new products. It is also advisable to incorporate in a technical specification the expenditure limits for the quality of the subjects of labor and for the social parameters of the article.

The procedure for calculating such norms (we call them design expenditure norms) will include a definition of the initial values of the specific resources during the calculation year and the adjusting of their level considering the prospects of scientific and technical progress. For calculating the initial design norms for expenditures we propose the formula:

$$N_{in} = \sum_{i=1}^n P_{in_i} + \sum_{j=1}^m Y_{in_j} + \sum_{\gamma}^e K_{in_{\gamma}} \text{ with set } C_r, \quad (4)$$

where  $N_{in}$ --initial expenditure norms for new product;  
 $P_{in_i}$ --element  $i$  ( $i=1, 2, \dots, n$ ) of price or cost (raw products, materials, assembly, wages and so forth);  
 $Y_{in_j}$ -- $j$  operating ( $j=1, 2, \dots, m$ ) expenditures of the consumer (operating materials, equipment, wages and so forth);  
 $K_{in_{\gamma}}$ -- $\gamma$  expenditures for quality ( $\gamma=1, 2, \dots, e$ ) of a subject of labor (wastes and losses, operating expenditures with a change in reliability, durability, labor intensiveness);  
 $z$ --set social parameters ( $z=1, 2, \dots, z$ ) [the  $z$  term is not given in formula (4)].

After calculating the initial norms using formula (4), they must be adjusted for the corresponding reduction factor ( $\beta$ ) which considers a possible change in these norms (a decline or increase) over the time of carrying out the work. Basically two positions have developed over the content and quantitative level of the given coefficient. According to the first it should consider the possible decline in the production outlays of the base product from the moment of turning out the technical specifications (in other words, the year of determining the initial level of the maximum price) to the beginning or second year of series output of the new machines. It has been recommended that its value be set on the level (or as an average) of 0.8. According to the second position, the given coefficient which also equals an average of 0.8 should consider a possible decline in the production outlays of a new product in one or two years of its series production. The reduction coefficient

The reduction coefficient for the specific expenditures, in our opinion, should reflect their average sectorial dynamics from the year of calculating the initial norm to the year of calculating the wholesale price of the article being designed (in essence, this is the year of starting its series development). Such time limits are determined by the specific nature of the designated norms. They are designed for the development stage and for this reason after its conclusion the question arises of determining the actual economicness of the model and the degree of meeting

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the conditions in the technical specifications for the set parameters. The actual materials needed for this should be obtained during the period of preparing the draft wholesale price for the new article. If the limiting norm is reduced to the conditions of the second (third) year of series production, it in essence remains a calculated one and this reduces its reliability. The reduction factor should be made equal to the index for the change in the design initial parameters for the above-indicated period of time as a result of raising labor productivity, reducing material intensiveness and the influence of other objective factors. This seems correct. The expenditure norms set using formula (4) reflect the conditions of their formation at the start of the year of developing the new article. During the period of its creation and during the organization of series output adjustments are incorporated in the current norms (including progressive ones, too). In terms of the norms for articles being developed, this will also be considered by the corresponding production factors.

Consequently, in such an understanding the reduction factors can influence only the level of the design norms (equally  $P_L$ ) and not an increase in the economicness of development, as is sometimes proposed. Physical resource measurements (weight, quantity and so forth) should be more widely employed as controlling indicators for the change in the set value norms over time. This is particularly important for preassembled and other ready-made products which are received through intersectorial subcontracting and for which it is difficult to obtain data on the dynamics of their expenditures. If the article being developed has a basic analogue, then their reduction factors for comparable expenditures should be equal. For this reason the planning data existing at the manufacturing enterprises on a change in such expenditures for the base items can be employed for establishing analogous design norms for a new model.

It would be erroneous to set the value of  $\beta$  for all new articles on any fixed level both for the elements and types of expenditures and all the more to employ it as an indicator considering a change in the production outlays of a new (with the exception of a fundamentally new) product. In other words, the thus corrected  $P_d$  will not correspond to its purpose and loses its real basis. Let us demonstrate this from the example of data from a table which represents the dynamics of production outlays for an analogous product but with a different series run (the third year of series development).

Series Run	Production Year							
	1st	2d	3d	4th	5th	6th	7th	8th
Individual	1.0	0.87	0.80	0.76	0.73	0.70	0.68	0.66
Small series	1.0	0.77	0.66	0.59	0.54	0.51	0.48	0.46
Mass	1.0	0.75	0.57	0.46	0.39	0.34	0.30	0.27

Let us assume that the development of the new model commenced in the 4th year of producing the base article and series production started in the 6th. Then the actual coefficient for the reduction in production outlays and their component norms for the basic mass produced product, for example, from the 4th through the 6th year

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(the development period and the start of series production of the new model) will equal 0.74 (0.34:0.46), and from the 4th through the 8th year (the period of development and series production of the new model) it is 0.59 (0.27:0.46). The initial norms for the new model's expenditures set for the conditions of the beginning of its development year (in our example, the 4th year of producing the basic product) must be adjusted by the thus calculated (or by other methods) corresponding reduction factors for the types of resources (considering the chosen year of adjustment). This will make it possible to correct the initial expenditure norms in accord with their objective basis, that is, the dynamics of the specific material and labor expenditures for the basic (progressive) article for which they were calculated. The coefficient equal to 0.8 does not consider the particular features of product output (the series run of the article or the level of scientific and technical progress in the sector) and this can lead to substantial miscalculations in expenditure planning. Thus, its application will cause an understating of the design price level for a new mass produced article according to the conditions of the year of starting mass production by 0.06 (0.8 - 0.74) and for a developed product by 0.21 (0.8 - 0.59). For individual production, the level of the new model's design expenditures will be, on the contrary, overstated respectively by 0.12 and 0.07. Analogous miscalculations will also arise for the expenditures on new articles with a small series type of production. The use of the index for the decline in the new product's production outlays over the period of its series development is also not sufficiently sound as a coefficient for the reduction in cost as it reflects not the dynamics of the initial progressive norms but rather the decline (rise) in the production outlays of the products being developed. Its application leads to a distortion of the plan expenditure norms.

The norms calculated by formula (4) and adjusted for the time factor will be "expenditure decoders" adopted in the technical and economic feasibility studies for a new model and characterizing its economicness from the standpoint of price, operating expenditures, effect and social results. If the necessary corrections which consider the basic plan quotas and the trends of change over a longer period are incorporated in these decoders, such specific norms can be accepted as long-range ones. This is particularly important for the scientific research and design organizations which are working on a specific subject.

Of course, the determining of design expenditures with sufficiently high accuracy is a difficult task. For increasing the degree of their reliability, it is essential to improve the technical and economic soundness of the selected version. It is economically justified to have the extensive implementation of technical and economic expert evaluation of the most important developments after the preliminary technical designing. The working documents should be elaborated, the material specifications clarified and the work completed on designing and mocking-up. On the basis of them it is possible with sufficient objectivity and completeness to assess the realisticness of the norms, the soundness of the decisions to be implemented and at the same time to outline the appropriate measures to increase the economicness of the article being developed and to carry out the conditions of the expenditure norms in the technical specifications. Subsequently, when the article has been developed and turned over for series production, such an opportunity will not exist and significant additional expenditures would be required.

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The actual activities of the Expert Council of the USSR State Price Committee shows the high effectiveness of analogous expert evaluations. In the process of the expert evaluations conducted by it (in particular in 1980) for the new draft price lists, the limit and wholesale prices, substantial oversights were discovered in the organization of production, the norm system, and instances were disclosed of the irrational use of material resources, the overstating of product labor intensiveness and so forth. The measures promptly adopted upon their results made it possible to reduce the wholesale price level for a significant quantity of machinery and equipment (totaling hundreds of millions of rubles).<sup>11</sup>

One of the promising methods for conducting expert evaluations (including in the stage of the technical and economic feasibility studies) and thus increasing the realisticness and importance of the planned standards is the method of functional cost analysis. This involved examining the soundness of the expenditures not only from the viewpoint of development, production and operation of the products as a whole but also the functional purpose of their individual parameters and norms. At the same time, the wide use of this method in design practices presupposes the availability of data on the concrete expenditures. For this reason the necessity of working out and introducing the latter is a requirement of management practices and the present methods of planning and management.

As the initial compared norms, a technical specification should also incorporate analogous sound indicators for the base articles (the existing values according to the parametric series. The difference between them calculated using the adopted methods per unit of compared result will indicate the savings or increased cost for each expenditure element and for the product as a whole. We feel that such concretization of the expenditures and results will make it possible for the developers of the items to do more effective and organized work on all their components (the sources of formation and the expenditure elements). On this basis it would be possible to increase the demands made on the initial information (for the operating, social and other parameters) and directly on the developers of the articles, the corresponding organizations and leaders and thus strengthen their responsibility for the violation of the set norms of the technical conditions.

This will also create a basis for introducing a specific system of economic incentives for developers and a differentiated approach for using the bonus surcharges on prices for a savings (particularly above-norm) in the most important resources and scarce materials. The calculation can be carried out for the savings of consolidated expenditures comprising the effect:

$$E_t = E_p + E_o + E_q + E_s, \quad (5)$$

where  $E_t$ --the total amount of the economic effect;  
 $E_p$ ,  $E_o$ ,  $E_q$  and  $E_s$ --respectively, the savings in production outlays, operating expenses, for quality and social parameters (with an increase in costs, with a minus sign).

The decree on strengthening work to save material resources in the bonus system for workers, foremen, production engineers, designers and other engineer and technical personnel provides for wider bonuses for the saving of resources. From the methodological viewpoint, as was pointed out above, the determining of the economic effect for all types of resources (and not just for material ones) does not require

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complex calculations. At the same time a number of concepts must be clarified for employing formulas (4) and (5). Thus, for the product for which the economic effect is to be determined, it is advisable to isolate and calculate separately the effect caused by the use in it of new highly effective preassembled articles (machines, instruments, equipment and units) developed by other organizations and the conditionally fixed operating expenditures which can lead to an unjustified increase in production outlays. In a number of instances, the savings due to the difference between the calculated wages for the new article and the actually paid wages for the base article can be the result not of an improvement in production methods, design and so forth but rather a consequence of utilizing a more powerful and economic working machine or units developed by other organizations while the effect for these has been considered by society and partially paid to the industrial enterprises and organizations (the developers and manufacturers). For this reason there are not sufficient grounds to reconsider it (as a new effect) and to materially encourage another organization for the same thing. In any event here there should be a substantial differentiation.

Consequently, with the adopted method for calculating the economic effect which has a direct bearing on the level of  $P_2$  and E, one does not exclude its double figuring (and respectively, double counting) according to the scheme: new highly economic raw product, material, unit, machine. For such new equipment the economic effect and the bonus surcharge on price can be provided even before the start of its development and do not always require great efforts on the part of the developers. This directly applies to savings from the conditionally fixed expenditures. The absence of a specific clear source of the economy (where they occur) also leads to an equal evaluation of the highly skilled labor of developers and unskilled labor employed in the technical work, to an overstating of the economic indicators for new equipment in certain sectors and organizations at the expense of others, to overstating the actual total savings in the national economic sectors, to the unjustified receiving of bonus surpayments by the industrial enterprises and organizations and to reduced importance for the norms. The savings obtained due to the use of highly economic materials, preassembled articles and conditionally fixed expenditures should be isolated and considered separately in the process of the technical and economic background studies of the model and the design expenditure norms as well as in economic incentives.

Thus, the concretization of the expenditure norms involves a rather wide range of questions necessitating new procedural and organizational forms of work and sources for obtaining and processing information. Their actual solution and coordination are possible on a basis of a comprehensive approach to planning and encouraging scientific and technical progress using the method of schedule orders for the plans (and for the programs)<sup>12</sup> which should be basic and primary. On the basis of such approved plans it is essential to construct a system of secondary schedule orders which would involve the elaboration and production of the given article and range of machines with specific progressive expenditure norms set for each organization and an economic effect. All of this will make it possible to more specifically and soundly solve the problems of selecting and producing the most economic version of a product, to coordinate the planned measures for resources and time, to focus the developers of a new product on searching for progressive economic decisions, to raise responsibility and consider the actual contribution of each organization to scientific and technical progress.

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FOOTNOTES

- <sup>1</sup> See, for example, A. G. Zav'yalkov, "Tseny i tsenoobrazovaniye v SSSR" [Prices and Price Formation in the USSR], Minsk, 1976, p 154; V. I. Kabankov, "Tsena i kachestvo produktsii" [Price and Product Quality], Izdatel'stvo Sovetskaya Rossiya, 1977, pp 106-107; "Tseny i tsenoobrazovaniye v SSSR" [Prices and Price Formation in the USSR], Izdatel'stvo Finansy 1979, p 103 and so forth.
- <sup>2</sup> See V. Loginov and A. Matlin, "Determining the Effectiveness of New Equipment," VOPROSY EKONOMIKI, No 4, 1975.
- <sup>3</sup> The system of material incentives for developers and design organizations as a whole is based upon the economic effect and the wholesale price, that is, it is not directly related to the limit price.
- <sup>4</sup> See, for example, V. I. Aleksandrov, "Printsiipy i praktika opredeleniya limitnykh tsen na novoye oborudovaniye" [Principles and Practice of Determining Limit Prices for New Equipment], Leningrad, 1973; V. Gal'perin, "Effectiveness and Prices of New Equipment," VOPROSY EKONOMIKI, No 3, 1977.
- <sup>5</sup> See, for example, V. Gal'perin, "Limit Prices for New Equipment," PLANOVOYE KHOZYAYSTVO, No 12, 1974, pp 68-69.
- <sup>6</sup> Calculated from the data: "Potrebitel'naya stoimost' v ekonomike razvitogo sotsializma" [Consumer Value in a Developed Socialist Economy], Izdatel'stvo Mysl', 1974, p 199.
- <sup>7</sup> See, for example, A. Koshuta and L. Rozenova, "New Equipment and Price Formation," VOPROSY EKONOMIKI, No 4, 1978, pp 103-104; V. Ye. Novikov, "To Improve Price Differentiation for Different Quality Raw Products and Materials," in the book "Sovershenstvovaniye tsenoobrazovaniya na syr'ye i materialy" [Improving Price Formation for Raw Products and Materials], Moscow, 1979, p 9.
- <sup>8</sup> Calculated from the collection "60 let planovogo tsenoobrazovaniya v SSSR" [Sixty Years of Planned Price Formation in the USSR], Preyskurantizdat, 1979, p 57.
- <sup>9</sup> See N. T. Glushkov, "Sixty Years of Planned Price Formation in the USSR and the Basic Tasks of Improving the Price System in Light of the Decisions of the 25th CPSU Congress," in the collection "60 let planovogo tsenoobrazovaniya v SSSR," p 25.
- <sup>10</sup> See the collection of documents "Sovershenstvovaniye khozyaystvennogo mekhanizma" [Improving the Economic Mechanism], Izdatel'stvo Pravda, 1980, pp 57-68.
- <sup>11</sup> See "Voprosy tsenoobrazovaniya" [Problems of Price Formation], Scientific Abstract Collection, No 5, Moscow, 1981, pp 2-5.
- <sup>12</sup> See L. Gatovskiy, "Managing the Effectiveness of Scientific and Technical Progress," VOPROSY EKONOMIKI, No 1, 1980, p 31.

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REGIONAL DEVELOPMENT

RESOURCE USE, REGIONAL DEVELOPMENT IN AZERBAIJAN

Baku IZVESTIYA AKADEMII NAUK AZERBAJDZHANSKOY SSR: SERIYA EKONOMIKI in Russian No 2, 1981 pp 54-65

[Article by G. A. Aliyev, B. A. Budagov and A. A. Nadirov: "Comprehensive Utilization of Resources and Problems of Economic and Social Development of Regions"]

[Text] Socialist utilization of nature is one of the most important conditions for the rapid development of production, whose main goal is to satisfy the constantly growing needs of the Soviet people. Its generally recognized advantages include the solution to a complex of difficult problems in the control of the processes of reproduction of natural wealth, its efficient utilization and protection of the environment.

At the 26th Congress, the party set the task of "providing for efficient utilization of natural, material and labor resources as a decisive and the most effective method of multiplying the country's natural wealth and rapidly increasing the socialist accumulations and resources for consumption . . . ." [1, 128].

The strategy of socialist utilization of nature envisions, when bringing natural resources into national economic circulation, primarily the ensurance of the harmonious socio-economic development of the society as a whole and of each territorial part of the country individually. What with the uneven distribution of supplies of mineral raw material and fuel throughout the territory, extensive utilization of natural resources in the growth of productive forces everywhere is undoubtedly one of the most important advantages of the socialist system of management. The founder of the Communist Party of the Soviet Union and the creator of the first socialist state in the world, V. I. Lenin, considered a solution to the problem of efficient distribution of industry on the territory of Russia with its immense expanses "from the standpoint of the proximity of the raw material and the possibilities of the least losses of labor during the transfer from the processing of the raw material to all the subsequent stages of the processing of semimanufactured products right down to obtaining final products" [2, 288]. This Leninist foresight lay at the basis of the solution to the problems of the development of our country's productive forces that have arisen in a relatively short period of time.

As in all other countries of the world, in the Soviet Union there is an irregular distribution of natural wealth throughout the territories of the country although, as we know, the USSR occupies the leading position in the world with respect to

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supplies of all the most important natural resources. In terms of the degree of availability of natural resources, specialists have divided up the territory of the USSR into the following groups of economic regions [3, 15]:

regions with an extensive complex of natural resources on whose territory there have been discovered no less than 40 of the 60 most important kinds of minerals;

regions with rich natural resources having 20-30 of the most important kinds of minerals;

regions with relatively limited natural resources, each with no more than 3 kinds of minerals.

On the whole, an overall estimate of the distribution of supplies of mineral raw material and fuel and energy resources shows that they have been discovered mainly in the economic regions of the eastern part of the country. But the regions' unequal provision of their own mineral resources in no way impedes the development of the productive forces of those regions which have limited natural resources. This is abundantly clear from the following facts. The Belorussian SSR, the Latvian SSR, the Lithuanian SSR, the Estonian SSR and the Moldavian SSR have limited supplies of mineral resources as compared to the other union republics. Despite this fact, in these republics the leading branch of the national economy, industry, is developing at very rapid rates. But while the overall volume of the gross output of USSR industry as a whole had increased 20.3-fold in 1979 as compared to 1940, in the Belorussian SSR it increased 27-fold, the Latvian SSR--43-fold, the Estonian SSR--46-fold, the Moldavian SSR--48-fold and the Lithuanian SSR--56-fold [4, 142]. An exceptionally important role in this rapid growth of industry belongs to the utilization of secondary natural resources, materials, fuel and so forth that are shipped in from regions that have raw materials. The exceptional importance of this natural wealth in the development of the national economy of all union republics, including those on whose territory relatively fewer natural resources have been discovered, ensues from the very essence of the socialist method of production. The fact is that the socialist society creates all the necessary conditions for more efficient distribution of productive forces on the country's territory, provides for rapid development of the national economy in all of its regions and thus systematically enlarges their production and economic base for the development of industry. These conditions predetermine the high national economic efficiency of the utilization of many kinds of secondary resources in other regions as well, particularly in those which use mainly the prepared products that are obtained from them. On this plane the Soviet Union has created close and extensive interconnections among all of its regions, which, in the final analysis, plays no small role in providing for extensive specialization and the high level of comprehensive development of the economies of all union republics and economic regions of the country. Therefore, as the facts show, the structure of the industry of all union republics and economic regions is much broader than are those preconditions which could actually be created through local natural resources. In almost all cases, essentially, only the basic nucleus of the industry of the regions reflects the territory's own capabilities which are created through the utilization of local natural resources. Under conditions of socialism the structure of the industry of each region is actually formed based on the requirements of the

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comprehensive development of the economy, under whose condition the scope of stable combinations of interrelated branches and territorial proportions of production as a whole go far beyond the framework of these possibilities. As the overall level of development of the productive forces of the regions rises and the achievements of scientific and technical progress are utilized more extensively the development of an ever larger number of branches of industry is becoming less dependent on the availability of internal sources of raw material, which to some degree "smooths out" territorial differences in the distribution of natural resources.

One of the most important trends in socialist utilization of nature is comprehensive utilization of the mineral resources on the territories where they are located, and also more efficient utilization of natural conditions in order to create the fundamental nuclei of the economic complex of each region. The decisive influence of this trend in the utilization of nature on the economic and social development of the regions can be seen from the example of the Azerbaijan SSR.

The economy of Soviet Azerbaijan, being a part of the unified national economic complex of the USSR, is developing in a planned way and at rapid rates. During a short segment of time embracing little more than 60 years of Soviet power, the volume of the gross industrial output of the republic increased 67-fold, and that of agriculture--7.4-fold. One of the decisive factors ensuring the high rates of development of production in the republic is the more efficient and comprehensive utilization of its local natural resources. Despite its relatively small territory, in the Azerbaijan SSR there have been discovered industrial supplies of petroleum, natural gas, iodobromine water, alunite, semimetallic ores, rock salt, non-ore construction materials, marble, rock, brick and so forth. The scale of assimilation for the economic and social development of Azerbaijan has not been the same in various periods of its historical development. For a long time, of the natural resources existing in Azerbaijan they exploited mainly the deposits of petroleum and gas which are its main and most important natural wealth. But in terms of the influence of these resources on the development of the productive forces of Azerbaijan two periods can be clearly singled out. The first of them embraces the prerevolutionary period when it was typical for foreign capitalists to steal the main wealth of the region and, in keeping with this, utilize the extracted raw material inefficiently from the standpoint of its limited effect on the various branches of the national economy. Suffice it to say that in 1913 7.7 million tons of petroleum were extracted in Azerbaijan, of which only 4.5 million tons (or 58 percent of all the extracted petroleum) were processed at primitive local refineries for the production of a limited quantity of petroleum products, and the rest of it was shipped outside the region. Thus under the conditions of the social structure that existed at that time the most minimal possibilities of the main natural wealth of Azerbaijan were utilized for the development of its economy.

The second period embraces the time since the triumph of the socialist revolution. During this period a large economic complex that was formed in the republic on the basis of the extraction of local fuel resources has comprised the basis of its entire economy. Because of the high level of development of the fuel industry along with branches of the national economy that are interconnected with it the Azerbaijan SSR received such well-deserved unionwide recognition as the "Petroleum Academy."

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How is the special role of the fuel industry reflected in the entire socio-economic life of the republic? First of all, in the significant increase in petroleum extraction and the creation of a new branch for extracting natural gas and casing head gas. The large volume of petroleum extraction made it possible to organize a large petroleum refining industry in the republic whose large and modern enterprises process all of the petroleum extracted in the republic and produce dozens of kinds of valuable products. The development of the petroleum and gas processing industry, in turn, became the basis for the creation of a large petrochemical and chemical industry in the republic which is also of great nationwide importance. The extensive development of the petrochemical industry predetermined the appearance in the republic of many other branches that are related to it, particularly the large petroleum industry machine building, instrument building, various kinds of metal processing, ferrous metallurgy (production of steel pipes, the electric energy industry and so forth. The scope of the development of just the aforementioned directly interconnected branches of the petrochemical complex, including the base petroleum and gas extraction industry, is shown by the fact that it accounts for almost 50 percent of the industrial output of the Baku-Sumgait region where all the main branches of the complex are concentrated or almost 40 percent of the overall industrial production of all of Azerbaijan. The inestimable role of the significant increase in the extraction of petroleum and gas, and also their efficient utilization in the development of the republic's productive forces, is reflected in the fact that all branches of industry directly arising on the basis of the petroleum and gas extraction industry now produce almost 7 times more products than does the base branch itself. The entire petrochemical complex has provided for bringing a large number of labor resources into the sphere of production and has created the necessary conditions for carrying out an extensive process for developing a large network of higher and secondary training institutions, scientific and planning institutions, production and social infrastructures, and so forth. As a result of the rapid growth of productive forces on the basis of the development of the petrochemical complex, we have seen the appearance of new cities (Sumgait, Ali-Bayramly, Neftechala) and the dozens of settlements of an urban type, and the city of Baku, the oldest center of the petroleum industry, has grown beyond recognition. For example, the urban population in the Baku-Sumgait region had increased almost 6-fold in 1979 as compared to 1920, and that of Baku itself--5-fold. During this time the number of residents of the city increased from 131,000 to 1,571,000.

Each new stage in the development of the national economy is typically accompanied by improvement of the structure of the republic's economy as a result of the increased role of one kind of natural resource or another. In this connection the assimilation of the rich resources of the Zaglikskoye deposit of alunite in western Azerbaijan is of great significance. This is the second largest deposit in the world in terms of the supplies of raw material that have been discovered. This deposit is also being worked in keeping with the socialist principle of the utilization of nature--maximally comprehensive utilization of raw material, satisfaction of the growing needs of the country for the corresponding products, and an increased role for its assimilation in solving the problems of the republic's socio-economic development. At the present time, on the basis of the Zaglikskoye alunite mine the republic is forming a large complex of the aluminum industry. A large mine for extracting the raw material is already in operation (Zaglik) and not far from it in Kirovabad there is a large aluminum plant in operation where the raw

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material is enriched, and as a result of its comprehensive processing they can produce aluminum oxide, potassium fertilizers and other products. An important unit in the comprehensive processing of alunite raw material is the functioning of the Sumgait aluminum plant where they have organized the production of metallic aluminum and evaporators for home refrigerators. Also existing in the republic are many other enterprises of the aluminum industry for manufacturing various products for industrial and household purposes. In the near future it is intended to further deepen the comprehensive processing of the initial alunite raw material; in particular, it is intended to organize the production of various kinds of rolled aluminum and extract certain other useful components from the initial raw material, and to organize a large industry for producing various construction materials on the basis of the utilization of the enterprise's wastes.

Iron ore deposits are also being worked in the western part of the republic. Large metallurgical plants have arisen on the basis of this raw material in the neighboring union republic (city of Rustavi) and on the borders of the republic itself--in Sumgait. Comprehensive utilization of local raw material resources was one of the decisive factors in the rapid development of productive forces in the western regions of Azerbaijan. Suffice it to say that 17 percent of all the workers in developed industry of the western regions are employed at ferrous and nonferrous metallurgy enterprises. The considerable growth of the second largest city in the republic, Kirovabad, with a population of about 250,000, the appearance of the city of Dashkesan, and so forth, are closely related to the utilization of the aforementioned sources of raw material in the region.

The utilization of hydro-energy resources exerts a significant influence on the development of the republic's economy. The overall hydroelectric power resources of the republic are estimated at about 5 million kilowatts.

These resources are also being assimilated in stages. The first of the largest hydroelectric power stations in the republic was the Mingechaurskaya GES which was constructed on the Kura River. At the present time the construction of an equally large hydroelectric power station is being completed on the middle course of this river. Plans have been prepared for the construction of other large electric power stations on the Kura and Araksa rivers and so forth. A typical feature of the assimilation of the republic's hydroelectric power resources is a comprehensive solution to hydrotechnical problems which envisions an expansion of irrigation farming and regulation of the flow of the rivers in order to prevent flooding of the territories adjacent to them. An important result of each hydrotechnical installation in the republic is the formation of a new city--the center of the economic and cultural life of the corresponding region. An example of this is the city of Mingechaur which appeared in 1948 on the basis of the construction of the Mingechaurskoye GES and which became a large city in a short period of time. Here, as a result of the construction of the hydroelectric power station, the fixed capital that was created, the housing, the highly skilled personnel and the local resources, an important center was formed for electrotechnical machine building, the construction materials industry, the textile industry and other branches.

During all the years of socialist construction the Azerbaijan SSR has been a large construction site with an annual introduction of a large volume of fixed capital in

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various branches of the national economy. During 1920-1979 30 billion rubles' worth of capital investments were made in the development of the republic's national economy, 441 large industrial enterprises and numerous medium-sized and small industrial facilities as well as about 50 million square meters of overall (usable) dwelling space were put into operation, and 1,780 general educational schools were constructed; during 1946-1975 alone 408,000 hectares of irrigated land were assimilated, 1,294,000 hectares of pasture were watered, and so forth. Such a large scale of development of the economy gave rise to the problem of extensive utilization of various local mineral non-ore materials for the creation of all the necessary branches of the construction materials industry. As a result the republic created almost all branches of the construction materials industry, fully satisfying its own needs. At the present time the successful process of forming local territorial production complexes has raised for the branch a broader task--to create in the main regions almost all industrial construction materials on the basis of utilizing the corresponding mineral resources, and also wastes from various branches of the national economy.

An important condition for enlarging the economic potential of each region is more efficient utilization of the advantages and the neatness of the soil and climate conditions of each territorial part of the republic for efficient development of agriculture. It is known that accounting for the possibilities of the soil and climate conditions of each specific territory is an extremely complex process and it is largely determined not only by the character of the socio-economic formation, but also by the concrete conditions of the utilization of nature itself. One of the main reasons for the low productivity and small income from agriculture in Azerbaijan during the prerevolutionary period was the weak process of territorial division of labor, and therefore almost 90 percent of the planted area was taken up with less productive grain crops whose products were intended mainly for satisfying the limited needs of the peasants who produced them.

It is known that the territory of Azerbaijan has exceptionally diverse soil and climate conditions. In the opinion of specialists, 9 of the 11 climatic types that exist in the world can be found within the republic. These natural possibilities began to be used extensively only during the years of Soviet power. Under the conditions of a planned socialist economy efficient utilization of the soil and climate possibilities of each territory is related primarily to correct specialization and concentration of agriculture in each natural and economic zone based on the principle of maximum favorability of the chosen conditions for the development of specific branches of agriculture and animal husbandry. Efficient specialization and concentration of agriculture leads to maximally complete utilization of the natural capabilities of the soil and climate conditions of each territory for increasing the production of agricultural products. Closely related to this process is additional productivity of agriculture as a result of increasing the efficiency of the agrotechnical and zooveterinary measures that are implemented. Finally, efficient specialization and concentration of agriculture gives agriculture an increasing role in solving the most important problems of the socio-economic development of each region and country as a whole. This is reflected primarily in the fact that all the necessary conditions are created for mass production of individual kinds of agricultural products and, on this basis, there can be successful development of the corresponding branches of processing industry and many other branches of the national economy that are related to them.

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Of course the conditions for the utilization of the soil and climate possibilities are not the same for individual regions of the country. For example, under the conditions of the Azerbaijan SSR where a considerable part of the territory is in a clearly arid zone the solution to the problem of highly effective agriculture is impossible without solving the necessary water management problems. And the republic's water resources are limited. Moreover their distribution throughout the territory is extremely irregular. The average annual coefficient of local flow (annual volume 10.3 cubic kilometers) with an area of 86,600 square kilometers is 3.78 horsepower per square kilometer or a 119 millimeter layer of flow. The irregularity that is observed in the distribution of the flow throughout the territory is also observed in its distribution throughout the year, which is caused by the differences in the sources of water for the rivers. All rivers of Azerbaijan can be divided into two groups from the standpoint of distribution throughout the year: a) the area of the Greater and Smaller Caucasus--most of the moisture comes in the warm half of the year, and b) Talysh--most of the moisture comes during the cold half of the year.

During the period of most intensive irrigation of agricultural crops (July-August) the rivers of the first group provide 10-35 percent, and those of the second--1.5-5.0 percent of the volume of the annual flow.

The overall resources of river waters in the Azerbaijan SSR, taking into account the volumes for the needs of the national economy, amount to 32.3 cubic kilometers. Of these 22.0 cubic kilometers come in from adjacent territories through the river systems of the Kura and Araksa. Local flow (formed only from rivers of the republic) amounts to 10.3 cubic kilometers.

The lake network is poorly developed in Azerbaijan. The overall number of lakes does not exceed 250 and most of them have an area of less than 0.5 square kilometers; their overall area reaches 100 square kilometers; and the volume of water does not exceed 500 million cubic meters. The most important of them are water reservoirs that have been created from branches and influxes. The overall area of lakes and water reservoirs in the republic is 925 square kilometers, but those with complete volume amount to about 19 square kilometers. Under these difficult conditions for water supply, one of the most effective ways of efficiently utilizing existing water resources in the republic is to create water reservoirs with various types of regulation of the flow. At the present time 32 water reservoirs have been created and are operating on the territory of the Azerbaijan SSR, including the Mingechaurskoye, Araksinskoye, Sarsangskoye, Dzheyranbatanskoye, Akstafachayskoye, Varvarinskoye, Arpachayskoye and others with a broad network of irrigation canals.

All of the water reservoirs with the exception of the Mingechaurskoye, Araksinskoye and Sarsangskoye have seasonal regulation and used for purposes of irrigation. In addition to branch reservoirs, on the large rivers a number of non-branch (irrigation) water reservoirs have been created--the Dzheyranbatanskoye, Uzunobinskoye, Negranskoye and others.

The long-range plan for water management construction in the republic envisions the creation of numerous water reservoirs, mainly for multiple purposes. As a result, the number of water reservoirs in the republic will reach 75.

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A constituent part of efficient utilization of land resources in the republic is the implementation beginning in the first days of Soviet power of large measures for land reclamation, particularly leaching saline soil. This provided for improvement of the condition of hundreds of thousands of hectares of land. During 1971-1979 alone the republic leached about 75,000 hectares of saline soil.

The resolution of the major water management problems and improvement of amelioration of the fields have become one of the decisive factors in more efficient utilization of the republic's soil and climate possibilities. First of all, the area of land being used for agriculture has increased and now amounts to almost half of the entire territory of the republic. At the present time actually irrigated agricultural land, including land for short-term use, comprises 28 percent of all the agricultural land in the republic. With the undoubtedly considerable increase in agricultural land, the development of agriculture in the republic takes place mainly through its extensive intensification and concentration of the branches of farming and animal husbandry in the various natural and economic zones of the republic. To this end we have determined the leading branches of agriculture, whose development, as many years of experience show, are the most efficient under the conditions of the Azerbaijan SSR. As a result, during a short period of time radical changes have taken place in the structure of agriculture, which led to a marked increase in the productivity and the effectiveness of agriculture. It is no accident that the area of land planted in all kinds of crops has increased 1.6-fold in 1980 as compared to 1913 while the volume of the gross output increased more than 11-fold during this same period. This process has been taking place especially intensively in recent years, which is shown by the figures in the attached table.

Table. Change in Structure of Farming in Azerbaijan SSR During 1965-1980, %

	Years		
	1965	1970	1980
Entire area	100.0	100.0	100.0
including area planted in:			
All grain crops	45.5	38.5	29.4
Industrial crops	18.5	15.2	16.5
Potatoes and vegetable-melon crops	4.2	3.7	4.2
Feed crops	16.5	20.4	25.3
Fruits and berries	7.5	9.8	9.0
Vineyards	7.2	11.8	14.6
Tea plantations	0.6	0.6	0.6

The basis of the progressive changes that are taking place in the structure of farming in the republic, as before, is deepening of socialist territorial division of labor, under whose conditions there is a process of maximum concentration of the branches of agriculture in those regions where they produce the greatest effect on the scale of the country's entire national economy. Because of this, in the structure of agriculture in Azerbaijan an increasingly significant position is beginning to be occupied by such agricultural crops as grapes, fruits, cotton, tobacco and so forth. These heat loving crops, which have a relatively limited area of distribution in the country, are exceptionally suitable for the climatic conditions

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in the republic. The significant concentration of areas planted in them in Azerbaijan makes a weighty contribution to increasing the availability of these agricultural products throughout the entire country and, as highly profitable and relatively more labor-intensive branches of agriculture, they contribute to extensive enlistment of local labor resources in the sphere of production and regular improvement of the material well-being of rural workers. The manifestation of the improvement of the structure of agriculture in which no small role is played by a regular process of accounting ever more fully for natural factors in the overall level of development of agricultural production, can be seen from the following facts. During 1965-1980 the areas planted in all agricultural crops increased 1.3-fold (and fruit orchards and vineyards--2-fold as their proportion in the structure of farming increased from 14.7 percent to almost 24 percent), but the gross output of the branches of farming increased 3-fold during this period. During this same period the production of gross output per one hectare increased 2.3-fold. As the facts show, an important factor in the significant increase in agricultural production was the expansion of areas of those branches which are most suitable to the local natural and economic conditions of individual zones of the republic. In connection with the changes taking place in the structure of agriculture there has been a considerable increase in the role and significance of individual branches of it in the country and in the republic itself. Suffice it to say that at the present time Azerbaijan, which occupies 0.38 percent of the territory of the Soviet Union, provides 8.1 percent of the raw cotton, 17.1 percent of the grapes, 3.3 percent of the vegetables, 4.1 of the green leaf tea, most of the tobacco and so forth [4, 145].

Highly developed agriculture has provided for the republic's creation of a broad network of industrial enterprises for processing various kinds of agricultural raw materials, and it must be noted that this trend in the development of industry now occupies a fairly appreciable place in the structure of the highly developed industry of Azerbaijan. Thus calculations show that branches of industry engaged in initial processing of local agricultural raw material had 424 enterprises in 1979 (more than 20 percent of the overall number of industrial enterprises) which produced more than 28 percent of the republic's gross industrial output. On the whole all other branches (of light industry and the food industry) that use semi-manufactured products and materials from the aforementioned enterprises account for 36 percent of the overall number of workers and more than 50 percent of the products produced in all of the republic's industry. It is notable that the agro-industrial complex, which expands the scope of production with each new stage in the development of productive forces, contributes to the growth of many other branches of industry that are closely related--machine building, the construction materials industry, the chemical industry and so forth. The long-term program that was adopted for further specialization and concentration of agriculture on the basis of complete and efficient utilization of the local soil and climate conditions of each territorial part of the republic is being successfully carried out. The forthcoming advances in this connection can be judged from the earmarked development of viticulture in Azerbaijan. Its production volume in the republic will be 3 million tons in the republic in 1990 as compared to 1.4 million tons in 1980. Other leading branches of agriculture are developing at rapid rates.

A most important result of extensively bringing local natural resources into national economic circulation is the elimination within an extremely short period of time of previously existing profound differences among individual regions of

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Azerbaijan in terms of the overall level of development of productive forces. Before the revolution more than 97 percent of the products from industrial production came from Baku alone and therefore in 1920 77 percent of all of Azerbaijan's urban population was concentrated there and the remaining 23 percent of the population were in 15 other cities. Even such regions of Azerbaijan that are rich in natural resources as the central and western regions which occupy more than half of the territory had almost no developed industry.

Now, by taking advantage of particular natural possibilities in each region, certain territorial production complexes have been formed or are being successfully formed. A reflection of this deep socio-economic process is the regular expansion of the network of urban settlements, of which there were 185 in the republic in 1980 as compared to 16 in 1920. During this time the number of urban residents increased 8-fold. The scale of the development of the national economy everywhere, particularly industry, can be judged from the example of those aforementioned large western and central regions. At the present time these two regions have more than 25 percent of the highly developed industry in Azerbaijan, and hundreds of large enterprises representing many important branches of industry have been created. More than half of the republic's cities have grown up within these regions and about 28 of the urban population live in them.

The republic's natural riches are being utilized with great concern for protecting the environment. Both in the Soviet Union as a whole and in each union republic, including the Azerbaijan SSR, this problem is under state regulation. For these purposes the republic has created the State Committee of the Council of Ministers for the Protection of Nature. The interdepartmental council for the protection of nature under the Azerbaijan SSR Academy of Sciences is doing a large amount of work. The amount of money allotted for measures to protect nature increases each year. During 1976-1980 alone Azerbaijan allotted 170 million rubles from the state budget for measures for protecting the environment. Environmental protection in Azerbaijan is carried out in all the main directions while taking into account the republic's specific conditions. Among the most important of these are:

protection of land resources through conducting anti-erosion measures, terracing slopes, leaching saline soil, limiting the allotment of land for nonagricultural purposes, restoring and recultivating damaged land in places where minerals have been mined, and so forth;

protection of forest resources by limiting or prohibiting the selling of trees; regular reforestation;

protection of water resources through the construction of purification installations, purification of polluted waters, the utilization of waste waters by changing over to a system with closed cycles of water supply in production, limitation and regulation of the application of mineral fertilizers over "storehouses" of underground water, and so forth;

protection of the animal world through the creation of preserves and refuges, the prohibition or regulation of hunting rare animals, the restoration and normal reproduction of the animal world, and so forth.

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The republic is doing a large amount of work for protecting the Caspian Sea. To this end the discharge of waste waters into the sea is limited to the sanitary norm, and the operation of oil wells and also the transportation of petroleum from the deposits to the refineries are limited by complete prohibition of discharging petroleum into the sea. A considerable amount of work is being done to prevent pollution of the atmosphere.

In the future it is intended to implement a number of special-purpose comprehensive programs for further stepping up the assimilation of the republic's natural resources. To this end, prospecting and searching for fuel in new regions are being expanded and principally new problems are being resolved for increasing the extraction of petroleum and gas from sea deposits. It is intended to create various industries on the basis of more comprehensive processing of raw material resources that are now being processed in order to considerably increase the output of final prepared products from them. The assimilation of new natural resources will play an important role in the future development of the republic's productive forces. Exceptionally important for the republic's further economic and social development will be the development of resources of the groups of deposits of semimetallic ores that were discovered in recent years in the northern and northwestern parts of the republic's territory. The composition of ore components in these deposits is very rich and, with comprehensive processing of the raw material, makes it possible to obtain many valuable products and create a large chemical-metallurgical combine. The assimilation of these resources will serve as an important impetus for further growth of the productive forces in the regions where the raw materials are located themselves and it will also bring about a certain change in the improvement of the structure of industry of Azerbaijan as a whole. Extensive assimilation of the immense resources of rock salt should play an important role in the development of the republic's productive forces. Their territorial proximity to large deposits of dolomite and the existence of all the necessary local production and economic conditions have determined the complete economic expediency of creating in the near future on the territory of the Nakhichevanskaya ASSR a large industry for producing soda ash, a metallurgical compound of magnesium, cooking salt and other important industrial products. We have begun and are continuing successfully to assimilate extensively and sequentially the hydroelectric power and iodobromine resources, non-ore construction materials and so forth. A qualitatively new stage in the efficient utilization of the soil and climate resources of Azerbaijan is the practice which is expanding each year of obtaining two or three yields a year and terracing the slopes of mountains in order to increase the areas of perennial plantings, particularly vineyards and fruit orchards.

Thus the example of the Azerbaijan SSR shows that, under the conditions of socialist utilization of nature, the development of natural riches is closely interconnected with the formation everywhere of numerous territorial complexes that are based on local mineral and raw material resources and are oriented toward secondary natural resources of other regions. Bringing natural resources into national economic circulation in a planned way ensues from the task of satisfying the public demand of the entire country on the basis of high rates of development of production and its increased efficiency, taking into account the coordination of all the main units and aspects of the highly developed economy of each region.

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**FOOTNOTES**

1. "Materialy XXVI s"yezda KPSS" [Materials of the 26th CPSU Congress], Moscow, Politizdat, 1981.
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