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CONTENTS

ECONOMIC DEVELOPMENT OF SIBERIA, FAR EAST DISCUSSED

Regional Development

Moscow PRAVDA in Russian May 78 p 3

[Article by G. Tarasov, director of the Institute of Economic Research of the Far Eastern Science Center and doctor of economic sciences, and Z. Klyuchnikov, correspondent: "The Strategy of a Region"]

[Text] The availability of enormous natural wealth in the Far East made it an important raw material base for the country. The region's nonferrous metallurgy, fishing, and lumber industry have become nationally important. However, they frequently have only the primary elements of production and lack the "higher stages." This occurs because processing raw materials in the local area is not always efficient; there is a shortage of skilled labor, expenditures to establish the infrastructure are high, and the construction of enterprises is still more expensive here than in the western regions of the country.

Thus, specific features of the Far East had a largely unfavorable effect on shaping the region's economic potential. And as a result, the region's rich natural resources have been used selectively, often taking only unique and scarce resources. Industry has been located at a few centers in the region. Other components of the economic complex have not grown in step with the development of the sectors of specialization, and this has reduced the overall efficiency of production.

The time has now come to move to a new stage. The policy defined by the 25th CPSU Congress envisions not just building up the economic potential of the country's eastern regions, but turning them into a major industrial base, raising its role in the national balance, and significantly improving production efficiency. Therefore, the primary economic strategy for the Far East in the current phase is comprehensive development of productive forces on the basis of intensive and more complete development of natural wealth. There are many problems ahead of us here which will require extensive research. The final result of the research should be formulation of the fundamentals of regional economics.

Scientists of the Far Eastern Science Center, above all the recently organized Institute of Economic Research in Khabarovsk, should be actively involved.

In the past attention has often focused only on what might be called the sectorial viewpoint. But what is advantageous for a ministry or department does not always insure maximum efficiency for the entire region. As a result, new disproportions are sometimes added to existing ones. It is clear that the planning of comprehensive economic development for large economic regions requires further improvement. We believe that such comprehensive research should be conducted under the direct leadership of and with coordination by USSR Gosplan.

Our conception of the future development of the Far East envisions formulation of the scientific foundations for insuring not only a high growth rate of industrial production but also better siting of productive forces, development of the social infrastructure, and a rise in the efficiency of capital investment.

Experience has shown that the most progressive form for organizing enterprises and developing unsettled regions is the establishment of large territorial production complexes. They offer an opportunity to make optimal use of the particular features of the given locale with minimum expenditures to exploit natural resources, build new production facilities using up-to-date machinery, and consolidate different enterprises with a common production infrastructure and social-domestic sphere. It has been calculated that this produces an average savings of up to 20 percent on capital investment, greatly reduces prime cost, and cuts construction times.

Several such territorial production complexes are now being built in the Far East. They are the South Yakut, West Amur, Svobodnyy, Urgal'skii, Sovetskiy Gavan', and Komsomol'sk complexes. Successful development of the complexes, however, is feasible only with normal functioning of the entire socioeconomic organism located in this territory. It was exactly this kind of unity that V. I. Lenin meant when he pointed to the need for exemplary organization of a small "unit." "Unit" is exactly what he meant ; not one economy, nor one economic sector, nor one enterprise, but rather the sum of all economic relations, the sum of all economic circulation, even for a small region.

The complexes being built today, however, are often unified in name only. They do not have a single master and they have not become distinct objects of territorial planning; lack of departmental coordination is characteristic of them. This leads to unproductive expenditures, delays in the times of construction and launching capacities, and a reduction in economic efficiency.

It seems apparent that we need special superdepartmental bodies in the regions of new development. These would be like regional committees

or coordinating councils subordinate to USSR Gosplan. Their job would be to coordinate the efforts of all ministries engaged in building the complex. The time has also come to broaden the rights and enlarge the role of territorial planning commissions and to increase the accountability of the republic State Committee for Capital Construction for the development of master plans. Every complex needs to have a single master planner, a head construction organization, and a single initiator of the order to create the social and production infrastructure.

Nature has given the Far East varied, and in places unique, resources. Access to them, however, is made much more difficult by the harsh natural and climatic conditions. Additional expenditures for capital and housing construction, erection of social and cultural-domestic facilities, utilities, and transportation, and enlargement of the wages fund are essential in this region. But several ministries are approaching the problems of development of the Far East from the standpoint of payback as quickly as possible. Of course, the economic development of new territories requires advance expenditures to accumulate fixed industrial productive capital and complete return from these facilities takes some time. The departmental position often operates as a restraining factor when studying the need to build large production complexes.

This also occurs because of problems with the methods now used by USSR Gosstroy and various ministries for technical-economic substantiation of the planning and construction of complexes in eastern regions. These methods occasionally fail to reflect the efficiency of certain expenditures when determining payback on capital investment and do not take account of certain resources, for example the water and land resources for which the new regions are outstanding. The influence of scientific-technical progress is not always taken into account.

In a remote region workers are particularly precious. Replacing human labor with machines can have a significantly greater effect there than in other regions. But sectorial scientific and planning organizations are not yet devoting much attention to creating "northern versions" of machines and mechanisms. Therefore, the prime cost of operating them in the North is 2.54 times greater than in the middle belt of the country, primarily because of frequent malfunctions, accidents, and breakdowns. This illustrates the need to work out a regional economic conception of scientific-technical progress.

Establishing ways to provide the regions with labor resources is a major problem. This was pointed out by General Secretary of the CPSU Central Committee and chairman of the Presidium of the USSR Supreme Soviet Comrade L. I. Brezhnev during the meeting of the first secretaries of kray and oblast CPSU committees of the Far East. He also observed that worker transience can be explained by the shortage of housing, lag in cultural-domestic construction, and climatic conditions which demand improved supply of warm clothing and other goods. The State Committee for Labor and Social Problems, working with the

sectorial ministries, should determine long-term labor needs. On the other hand, it is necessary to foster immigration to the region and keep people here. Among the foremost measures we could mention instituting privileged rates for transportation and domestic and municipal services, a wage supplement depending on time of service in the Far East, which was envisioned in the decisions of the 25th CPSU Congress, and accelerated housing construction. We should also study the question of establishing higher norms for deducting a share of profit for sociocultural activities and the material incentive fund and for improving domestic services.

The prominent Soviet scientist Academician V. Komarov called the Far East the "maritime world." The resources of the seas bordering it are an important factor in the national importance of the Far East in the near future. Therefore, the need to develop a comprehensive regional program for development of these resources is undoubted. The Institute of Economic Research has already begun studying the ocean economy and formulating the theoretical foundations of economic development of the vast sea and coastal regions. To solve these problems, however, we will need active help and support from the State Committee for Science and Technology and coordination of the efforts of the many specialized scientific institutions, ministries, and departments. A similar program is needed to create an export base in the region with the objective of developing and improving foreign economic ties with the countries of the Pacific Ocean basin.

The production potential of the Far East has achieved great dimensions, considerable complexity, and broad scope. It has become one of the most important economic regions of the country, playing a significant role in formation of the nationwide balance. As Comrade L. I. Brezhnev said in his meeting with the working people of the city of Komsomol'sk-na-Amure, development of the region will continue with greater intensity following the program for development of Siberia and the Far East. Successful realization of this program depends significantly on timely and efficient solutions to the scientific and economic problems arising from comprehensive development of the natural wealth and accelerated growth in the economic potential of this most remote region of our country.

Unique People's Control System

Moscow PRAVDA in Russian 18 May 78 p 3

[Article by V. Somov, chairman of the Sovetskiy Rayon people's control committee, Novosibirsk: "The People's Controllers of Akademgorodok"]

[Text] It would be hard to find another rayon like Sovetskiy not just in Novosibirsk but probably in any city of the country. There are 22 institutes of the Siberian Department of the Academy of Sciences of the USSR, a university, and some 15 research and planning-design institutions concentrated in this one rayon. Therefore, the concerns

of the rayon people's control committee are also largely unique. For example, we have set up an independent science division. Of the 18 volunteer inspectors in the division two are doctors of sciences and 14 are candidates of sciences.

The successes of the Siberian scientists are widely known. Nevertheless, reserves for increasing the efficiency of their work in all areas of pure and applied research are far from exhausted. The CPSU Central Committee decree on the activities of the Siberian Department of the Academy of Sciences USSR set down major challenges whose realization depends in some part also on the people's controllers.

The people's control system has 85 groups and 180 posts involving 1,810 persons at the academy and sectorial institutes and planning-design and technological bureaus of the rayon. I mentioned above that control work has unique characteristics under our conditions. What are they? For example, we do not simply evaluate the situation at a scientific research institution. They do not have the system of economic indexes usually found at a production site. Work on a major topic is planned in stages covering several years. Just try to get an idea of one or several stages in the progress of research. The same thing is true with the introduction of research results. There is no one criterion for evaluating the activities of an academy institute. What should we consider the results of its work on a topic: a publication, an experimental model, or a series of manufactured parts? Sometimes you feel that more could be done, but you cannot summon the determination to call them to account...

It was apparently owing to these complexities that certain groups of controllers, especially in the first years of existence of Akademgorodok, became carried away with analyzing economic activity. It is an important matter, of course, and it has not been forgotten today. Nonetheless, we do not think it should be overemphasized. We try to direct the efforts of the groups to accomplishing our primary tasks: monitoring performance of scientific research plans, introduction of research results in production, and the efficiency of use of equipment and labor resources.

This can only be done with active participation by a broad group of specialists who are capable of a solid understanding of professional problems and can see problems that others would not.

Experience has shown that the most useful method under Akademgorodok conditions is mass inspections following a single program. They are usually preceded by small surprise inspections. These are a test of our strength and allow us to develop a correct approach to the problem and establish evaluation criteria. Then we work out the program of the mass inspection.

This was exactly how we began studying the question of the supply of scientific equipment to institutes and design bureaus and the

efficiency of its use. This is one of the important aspects of research activity and has a large effect on the labor productivity of scientists.

At first an inspection was made in three institutes: heat physics, inorganic chemistry, and automation and electrical measurements. Analysis of the findings confirmed the need for a broad study of the situation. Controllers from 24 scientific research and planning-design organizations, a total of about 450 people, went to work. The project took more than a year. The result was that we found instruments and equipment worth11.3 million rubles that were not in use. Some instruments had not been used for 10 years! The institutes of nuclear physics and geology and geophysics had especially large amounts of such equipment.

During the inspection controllers gave extensive information to the collectives and organized exhibits of instruments not in working order and uselessly neglected. The results of these actions were discussed at party and production meetings at the institutes and at a session of the rayon people's control committee. The presidium of the Siberian Department of the Academy of Sciences USSR received a complete report on the results of the inspection and passed an extensive decree on its basis to put the acquisition and use of equipment in order.

People's controllers are also doing a great deal to cut the time required to pass the results of scientific research on to practice. An inspection concerned with this question was held at four biological institutes. At the chemical institutes we looked at performance of plans for economic contract work. Major difficulties were identified. They were discussed in the collectives and at a session of the committee and this helped improve things.

In addition to participating in mass inspections the people's controllers of scientific institutions work on their own plans. For example, the head people's control group of the Institute of Theoretical and Applied Mechanics made an interesting analysis of the use of time by scientists. First they distributed questionnaires with more than 20 questions. After studying the questionnaires they carried out checks and talked with laboratory heads. As a result it was learned that scientists spend about 20 percent of their time drawing graphs and diagrams, filling out reports, and doing other things that are entirely within the capability of laboratory assistants.

The party bureau of the institute reviewed the results of this inspection and the learned council adopted a resolution. A handbook for laboratory assistants was published and a series of lectures given on debugging programs and solving problems by computer. Work was begun to automate the collection and processing of information on experiments underway. Standard requirements for filling out reports and writing articles were ratified.

We must admit that there are still people's control groups and posts at scientific research and planning-design organizations of

Akademgorodok whose work is not up to current requirements. In many cases the participants in "raids" and inspections have limited themselves to identifying problems. But this is only the beginning; it must be followed by recommendations and real work.

In short, the party organizations of the scientific research institutions and our committee have by no means exhausted all opportunities for improving the activities of the controllers. These reserves, our accumulated experience, and our new challenges were the subject of discussion at a rayon meeting of communist scientists involved in people's control. The words of Comrade L. I. Brezhnev addressed to the collective of the Novosibirsk Science Center were taken as an important mandate for work: "We must continue to manage things so that the activism of scientists helps us solve the problems of combining science and practice and thus promotes growth in the country's productive forces."

Problems, Goals of BAM

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 16 Jul 78 p 2

[Article by A. Aganbegyan: "Development Programs"]

[Text] The main way to increase the efficiency of development of new regions is to see that their economic development is comprehensive. Experience has clearly demonstrated that the most efficient form for development of the productive forces of Siberia and the Far East is not isolated construction of individual enterprises or selective development of particular deposits; it is creating integrated production-territorial complexes. Combining different enterprises in one area with common production and social-domestic infrastructure saves 8-15 percent of capital investment with the same production results.

It is especially important here to keep in mind several factors that, in a certain sense, play the role of efficiency reserves.

The first is the rate of building the production infrastructure, above all roads. It must be accelerated. Siberian experience has demonstrated that a poor road doubles and triples expenditures if we consider the results not of one year, but at least of a decade. For example take the Baykal Amur Mainline [BAM]. It has been demonstrated that it is economically advisable to build permanent highways alongside the railroad, not temporary ones as is presently being done. A good deal has been spent, but the temporary BAM highway is already becoming unusable in certain segments. And in the future the lack of reliable highways in this zone may reduce development efficiency.

The second factor is the comprehensiveness with which raw materials are used. For example, we should not just log trunks; we should establish lumber industry complexes with thorough wood processing and wood chemistry. Calculations show that production efficiency doubles under this

approach. Here is another example. Most of the mineral deposits along the BAM route are complex. Many of them are completely unique. The effect of using these deposits depends directly on how many useful components we can extract during processing of this valuable rock.

The third factor is more consistent use of industrial methods of development. The country has rich and interesting experience here. For an example let us look at construction on the Zeya. How did they do things there? They brought in a prefabricated modular panel production plant. It was launched and in three months, instead of spending considerable capital on the construction of temporary housing, they began constructing good permanent buildings. The settlement of Zeya hydroconstruction workers can be called a model for construction of a working region today. There have been similar cases in development of the northern regions of Tyumenskaya Oblast. In a number of regions, however, in particular along the BAM, they continue to be oriented primarily to temporary construction.

The fourth factor is consistent implementation of a rational regional technical policy. On the BAM, for example, they have a great deal of up-to-date, heavy-duty equipment. We can certainly say that never before in our country has such machinery been used in transportation construction. This machinery, operated by highly qualified specialists, makes it possible to sharply raise labor productivity. But it is sometimes used poorly and on occasion unqualified people operate such equipment.

There is no question that intersectorial, nationwide comprehensive programs of economic development are necessary to successfully meet the great challenges of economic development of the new regions. As an example, let us consider the problems of efficient use of resources available in the BAM zone.

In Irkutskaya Oblast, primarily in Verkhne-Lenskiy Rayon, timely development of the wood processing sectors of industry is paramount. This is the oblast that has the best complexes in our country for comprehensive use of wood. Here too is the Nepsko-Botuobinskiy arch, a very interesting geological formation. Flows of gas and petroleum have already been obtained there and a promising deposit of potassium salts has been found. Giving greater attention to this arch will secure a raw material base for East Siberian petroleum extraction and thus raise the efficiency of development of the entire BAM zone.

The problems of Chitinskaya Oblast are related to Udokan. The main difficulties in developing this famous copper deposit are, in our opinion, technical-economic: what is the cheapest method of removing tens of millions of cubic meters of overburden, how can extraction efficiency be achieved on a large scale, what methods should be used to concentrate the ore, and so on. An experimental production facility must be built to resolve these questions.

In Southern Yakutia it appears advisable, in addition to developing the coal deposits, to continue the railroad to the north. Such construction would be efficient not only because the railroad would pass near rich deposits of iron ore, apatite, and nonferrous metals, but also because it would complete the Yakut transportation network.

The main thing in Amurskaya Oblast, we feel, is development of manufacturing sectors. This oblast is the center of the BAM. It is here, it seems to us, that large petroleum refining and petrochemical capacities, machine building complexes, a transportation-distribution center (in Tynda), and an agrarian-industrial complex should be created. In addition, this region is the main energy base of the central segment of the BAM. The Zeyskaya and Bureyskaya hydroelectric power plants are located there.

Comprehensive wood processing, development of petroleum refining and machine building, and in the future opening the way to the natural riches of the Tuguro-Chumikanskiy and other rayons appear to be the main lines of development in Khabarovskiy Kray today.

The Scientific Council on Problems of BAM of the Siberian Department of the Academy of Sciences USSR considers its primary practical objective to be preparation of a comprehensive program for economic development of the BAM zone. During the preparation of the scientific foundations of such a program a large information base for development of the BAM plan for the next 10 years has already been created.

Complexes Need Clear Structure

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 16 Jul 78 p 2

[Article by Academician N. Nekrasov: "Precision of Structure"]

[Text] The economy of Siberia and the Far East is a component of the country's unified national economic complex. And the principle of comprehensiveness in resolving economic and social problems in it is a national principle. This means that the approach to development of productive forces east of the Urals should be comprehensive, determined not by departmental interests but by national economic interests.

This is also demanded by the heavy concentration of diverse and highly efficient fuel-energy, iron ore, timber, land, and water resources in the vast regions of Siberia. During the current and next five-year plans development of these resources will bring about major changes in the geography of virtually all sectors of industry. Suffice it to say that during the Tenth Five-Year Plan the industrial bases beyond the Urals will produce all growth in petroleum and aluminum, about 80 percent of the additional copper, and 90 percent of the additional coal extraction.

Rational inclusion of the vast resources of Siberia and the Far East in economic circulation is possible and advisable only on the basis of harmonious multisectorial development. Territorial production complexes make this possible.

Such complexes are being formed on the basis of raw materials available in definite regions. Their structure envisions proportional development of the production sphere and all essential elements of the infrastructure: transportation, auxiliary and service enterprises, utilities, housing, and cultural and domestic facilities. Coordinated, comprehensive development of the constituent elements of the territorial production complex is a key condition for reducing current and capital expenditures, timely and complete incorporation of production capacities, and raising their rate of return.

These advantages of the territorial production complex are obvious to all. But we often encounter cases where they are not being used efficiently. For example, within the framework of the complex the launching of some particular installation may be delayed, raw materials may not be processed thoroughly, or natural resources might be exploited thoughtlessly.

Why does this happen? What is slowing the development of the territorial production complexes? In our opinion the reason is that many points in the organizational structure of planning for the development and management have not been worked out yet.

The suggestion has already been made numerous times that territorial production complexes should have a more precise organizational structure. It is perfectly clear that all of the disproportions come about because these complexes do not have coordinators. Who should coordinate them? A coordinating body of USSR Gosplan or a USSR Gosplan representative for the complex? Or perhaps it should be a council of the directors of large enterprises in operation and under construction that belong to the territorial production complex? Possibly it would be reasonable to set up an administration for the territorial production complex during its developmental stage, as was done for the Volga Motor Vehicle Plant and the Kama Truck Plant?

In any case, this must be a working body capable of following a centralized policy in the territorial production complex, monitoring fulfillment of plans, and seeing that sectorial disproportions do not arise and that the resources of the region are used harmoniously and evenly.

At the same time, we must employ every effort and means to increase the role and broaden the sphere of activity of local (oblast, kray, and republic) economic planning bodies in shaping and managing the complexes. They should have a coordinating influence not only in shaping the social infrastructure but also on the production activities of the complexes.

The territorial production complex as an economic system will produce the highest return when it develops and is managed on a comprehensive basis. Only then will it be possible to establish the conditions necessary to find rational solutions to all the problems of turning the regions of Siberia and the Far East into a major industrial base for the country.

Tomskaya Computer Benefits

Moscow IZVESTIYA in Russian 20 Jul 78 p 3

[Article by Yegor Kuz'mich Ligachev, first secretary of the Tomskaya Oblast CPSU Committee: "The Tomsk Version"]

> [Text] The city of Tomsk was a kind of milepost for the IZVETSIYA and Aeroflot agitation tour: we had 10,000 kilometers over West Siberia behind us, Tomskaya Oblast is part of the West Siberian Economic Region, which has considerable natural resources. As everywhere else in Siberia, in this oblast socio-economic changes are occurring rapidly and on a large scale. Complex processes are taking place whose consequences must be precisely forecast, anticipated, and regulated. Under these conditions, the party emphasizes, the demands for planned economic management increase immeasurably. And in our opinion, the experience of the people of Tomsk in developing and realizing a comprehensive, special-purpose program of economic development for the oblast based on the use of modern computer technology, mathematical methods, and the systems approach is very valuable. Specifically, we are referring to the automated control system for the economy of Tomskaya Oblast, the ASU Tomskaya Oblast. Yegor Kuz'mich Ligachev, first secretary of the oblast CPSU committee, tells about this system in the article below.

The idea that the path to production efficiency lies in improving management is stressed in key party documents and in the statements of General Secretary of the CPSU Central Committee, L. I. Brezhnev. This was our starting point in 1972 when we began development of the ASU Tomskaya Oblast.

The city had already accumulated some experience with the introduction of automated control systems for industrial processes and production facilities. The capabilities of modern electronic computer technology were being used skillfully at plants such as the pressure gauge plant and the mathematical machinery plant. This know-how was to be used to solve a much more complex problem, building an oblast ASU.

The head developer was the Tomsk Institute of Automated Control Systems and Radio Electronics. To be more precise, a scientific research institute of automation and electrical engineering was created within this academic institute which trains ASU cadres. The research institute was headed by candidate of technical sciences F. I. Peregudov. A great enthusiast, he became the chief designer of the system. A multifaceted scientific-technical group was formed, a kind of general staff. It included doctors of sciences G. A. Medvedev, V. N. Sagatovskiy, V. P. Tarasenko, and V. Ya. Yampol'skiy, candidates of sciences V. A. Gladskikh, V. M. Monakhov, A. A. Savenko, N. R. Sapunov, and F. P. Tarasenko, as well as other specialists from the most varied fields of knowledge. The oblast party committee manages this work at all times.

The initiator of the order for the ASU was the executive committee of the oblast Soviet of Workers Deputies. This is natural, for as the new USSR Constitution states, our Soviets direct all the agencies of state, economic, and sociocultural building directly or through agencies which they create. Within the limits of their authority they insure comprehensive economic and social development of their territory. The interests of many departments are intertwined in the region. It is very difficult to coordinate them. Here modern methods of management using computers come to the rescue.

Before building the ASU its content and structure had to be defined. This made it necessary to consider our oblast as an integrated system. On the one hand it was viewed as a part of the unified national economic organism; on the other hand it was studied from within and the multiple internal interrelationships were decoded on the basis of the "three cornerstones": production, the population, and the natural world. This made it possible to determine which functions should be performed by the oblast ASU. This gave rise to the three models: logical, mathematical, and cybernetic. They were used to test problem situations and optimal ways to achieve the final objective of improving the efficiency of public production.

Needless to say, the introduction of an ASU on the oblast level testifies to a certain stage of economic development in the oblast. In recent years we have had rapid development of productive forces. Let me only recall that in the last 12 years 2,5 times as much capital has been invested in the development of the oblast as in the preceding 20 years. The formation of new industrial sectors such as petrochemistry and forest chemistry has also created favorable preconditions for setting up an ASU. The social-domestic infrastructure has developed with extraordinary speed. Finally, the technical level of enterprises has been leveling out in recent times.

We were also inspired to work out an oblast OSU by the difficulties of administration, many of which resulted from the rapid rate of our advance and the broad scope of work here. I will mention just one factor, that which above all compels us to improve the system of management. This is the frequently encountered gap between sectorial management of industry and the existing territorial division. Production is broken

down by sectors, but labor reserves, domestic services, transportation, and housing are administered territorially. We long ago went beyond the question of giving preference to the sectorial or territorial principle. The thing is to find an optimal interaction of the two. In practice, unfortunately, this is not always achieved.

For example, the USSR Ministry of the Motor Vehicle Industry built a new bearing plant in Tomsk. When work began it was written that 30,000 square meters of housing, a general school, two kindergartens, a vocational-technical school, and a polyclinic would be built alongside the plant. But not a single one of these projects has ever been begun. Such an attitude toward housing and social-domestic construction, of course, has never promoted good work in a new collective. In this case it is obvious that the USSR Ministry of the Motor Vehicle Industry violated its obligations.

But it would also be mistaken to think that those who represent territorial interests always make sound decisions. Sometimes the desire to begin construction on a new enterprise as quickly as possible forces people to think primarily of production and to give less thought to the labor reserve, possibilities of delivering raw materials, the service sphere, and the like. Many complications arise here because we do not always have the necessary information. Collecting it by traditional means is practically impossible. We receive data concerning sectors or territories, but what we need are data that combine the two. There is no question that the oblast ASU will help handle this difficulty. With it it becomes possible to achieve an optimal combination of the interests of both sides.

We were able to resolve the question of the hardware base of the ASU. A single computing center with the latest equipment was set up. Construction is now being completed on a new building. We plan to set up three more group computing centers. All these things taken together turned an idea that very recently was a daydream of enthusiasts into a very concrete project that is now directed and financed by the USSR State Committee for Science and Technology.

But how is the "electronic brain" connected in to the complex and very laborious work of management?

Planners know how much effort and time is required to prepare a variation of the annual plan that envisions comprehensive economic and social development of the oblast. Frequently there are two, three, or even more plan variations. The computer with its automated system of planning calculation is now coming to the rescue. It reduces the labor-intensive procedure to a minimum.

For example, compiling programs for capital construction is a very important "duty" of the ASU. Many factors are taken into account here: the customer's needs, the availability of materials, and the capacities

of construction organizations and construction industry enterprises. The machine proposes different optimal variations. Then the computer monitors construction of the projects, in particular the construction of housing in Tomsk by the flow method. It keeps track of conformity to the timetable and gives warning signals when it is violated.

The automated system is also beneficial in controlling municipal facilities in Tomsk. The ASU helps regulate the work regimes of the heat and water supply networks and, if necessary, suggests what to do in emergency situations. Another job is to analyze patterns of settlement and movement in order to regulate traffic. The computer selects routes and plans schedules considering fluctuations in passenger flows during 24-hour periods, days of the week, and seasons. The ASU analyzes the condition of the streets and roads, plans city sanitation depending on the season, and draws up a schedule for picking up containers.

A good economic impact has been achieved using the computer for problems of job placement. All information about job openings is stored in the computer memory; thanks to computer recommendations the time required for placing people in work has been cut to one-third or one-fourth of what it was.

The ASU helps make comprehensive evaluations of the activities of industrial enterprises, which help determine winners in socialist competition. The machine not only calculates percentages of plan fulfillment but also analyzes some 15 other indexes. Among them are use of fixed capital, materials-intensiveness of articles, and losses of work time. The computer compares results achieved with past results.

Not long ago the executive committee of the Tomsk city Soviet monitored performance of its decisions as follows. One copy of the decision was put in a file and an entry was made in the registration log. At the same time check certificates were made out; one was kept by the official and the other was sent to the performer. There were many of them, a great many, and this meant that a key aspect of management, inspection of performance, suffered. Now all information is recorded in computer memory. The machine regularly reports on assignments fulfilled or, unfortunately, not fulfilled, gives advance warning of the approach of check times, and does not stop following the project until it is completed. The computer not only summarizes various data, but also helps analyze trends and evaluate particular services and employees, their punctuality and practicality. These things have already become standard practice in the work of the executive committee of the city Soviet and systems are now being developed to monitor fulfillment of voter mandates and to review letters and complaints from working people in all the organizations of Tomsk.

In short, the ASU is already doing a great deal and we have even greater hopes for the future. The system will help us carry out party decisions in the field of economics better, and it goes without saying

that we all consider this work a matter of paramount importance. There is even a kind of moral aspect to it, Leonid Il'ich Brezhnev's trip through Siberia and the Far East drew the attention of all Soviet people to our region. The country is generously sending capital and material resources for the development of Siberia. For our part, we must make the best possible use of these means and resources. And here there is a special need to improve the management system.

It should be observed that even with the great popularity of control systems in our day, they also have their opponents. These opponents say that when we are experiencing difficulties with material-technical resources, when suppliers frequently violate their obligations and supply practices in many cases could be much better — that under such conditions it is hardly possible to achieve that work precision which is essential for an automated system.

But such views are dying out as the years pass. Work to set up automated systems is underway in various other krays and oblasts. Our system will become an organic part of the ASU Russia, which is also being put together. In a sense we have been a testing ground. That is how it should be; after all, it is not easy to establish an innovation immediately throughout the enormous territory of our country. Things go well when an innovation is worked out and tested under the conditions of an enterprise, rayon, or oblast. We hope that what we have developed will be useful for other regions.

The desire to make maximum use of scientific-technical advances to improve management reflects characteristics of the party approach to solving major national economic problems, based on bold experimentation and persistence in working toward assigned goals.

Siberian, Far Eastern Development

Moscow IZVESTIYA in Russian 19 Jul 78 p 2

[Article by Academician G. Marchuk, chairman of the Siberian Department of the Academy of Sciences USSR: "A Region That Looks to the Future"]

[Text] The participants in the IZVESTIYA agitation tour, I. Dement'yeva, A. Yezhelev, A. Illarionov, O. Pavlov, A. Plutnik, and Ye. Yakovlev, visited Akademgorodok.

In the meeting hall of the House of Scientists the presidium of the Siberian Department of the Academy of Sciences USSR gathered. Among those present were Academician G. Boreskov, director of the Institute of Catalysis, Academician V. Kuznetsov, deputy chairman of the Scientific Council on Problems of Economic Development of the Baikal-Amur Mainline, and Academician V. Sobolev, president of the International

Mineralogical Association. The scientists spoke of the work of the Siberian Department in resolving the key economic problems that determine the economic development of the enormous region east of the Urals.

Academician Marchuk looked at a map of the agitation tour going from Moscow to Siberia and on to the Pacific Ocean. "Let us take a mental tour of the vast Siberian land," Guriy Ivanovich suggested, and then, as if he were giving a scientific report, told about the searches and discoveries, the work of many different scientific expeditions from various points along our route. We are publishing a short version of his story in the article below.

Accelerated economic development of Siberia and intensive incorporation and rational use of natural resources are national challenges. Their historic importance for the destiny of our entire country was emphasized by the assessments and concrete recommendations made by Leonid Il'ich Brezhnev during his trip to the eastern regions.

I would like to observe first of all that scientific solutions to the problems of Siberia became possible thanks to the establishment of a far-flung network of science centers and institutes in the region. Let me just mention the cities where academy centers are located: Novosibirsk, Irkutsk, Yakutsk, Ulan-Ude, Krasnoyarsk, and Tomsk.

So, the first stage in the agitation tour was West Siberia. Its major problem is rapid development of the fuel and energy sectors. This is a problem of national importance. During the current five-year plan Siberia will account for all growth in petroleum extraction in the country, nine-tenths of the growth in gas extraction, and four-fifths of the rise in coal extraction. This is being done mainly in the petroleum-gas regions in the northern part of Tyumenskaya and Tomskaya oblasts. More complete study and incorporation of petroleum, condensate, and gas resources and specifying geological reserves are extraordinarily important at the present time. The assumption suggested earlier by Siberian scientists concerning the presence of petroleum in Paleozoic layers that are deeper than the present extraction horizons may now be considered proven. The first Paleozoic petroleum has been received in Tomskaya and Novosibirskaya oblasts.

Together with the problems of economic and social development of the petroleum regions we must give special attention to the very important problem of creating social conditions for people to work and live, because an ever-growing stream of people is coming to these regions. Establishing such conditions is the key to solving the problem of keeping workers in all the regions of vigorous development.

I should mention that the southern part of West Siberia, in particular the Kuznets Basin with its enormous reserves of solid fuel, will also grow in national economic importance in the future.

To the east of the Kuznets Basin in Krasnoyarskiy Kray, the new Kansk-Achinsk fuel-energy basin is taking shape. It is true that the coals there are brown and have a fairly high ash content as well as a significant amount of water, but the coal reserves are enormous and they will provide a strong support for our economy. Several large thermal electric power plants will be built in the basin. However, scientists and specialists still must find technologically new, efficient and modern, concepts of fuel use. Scientists from the Siberian Department are working with their colleagues from Kraskoyarsk University on studies of a comprehensive, no-waste scheme for energy and chemical processing of brown coals. The coal will be used to obtain heat and to produce valuable chemicals. This project is of great national importance.

Noril'sk is our emerald on the northern margin of Krasnoyarskiy Kray. A great deal has been done in this amazing city to develop natural wealth and it has been done well. A great deal is also being done today. The Siberian Department of the Academy of Sciences USSR has a special program for problems related to Noril'sk. It covers the entire range of pressing problems, among which are new methods of separating polymetals, new methods of extraction, automation of industrial processes, and automation of management. By solving them we are attempting to bring major reserves into play.

The Sayan-Shushenskoye industrial complex deserves very serious attention. It is based on using energy from the world's largest hydroelectric power plant, which is under construction in the Sayan region, and the mineral products of this region. About 200 enterprises are to be built here, among them a plant to produce turbohydrogenerators and a large electrical machinery plant. But the main thing is not the number of enterprises; it is the fact that the shaping of the Sayan-Shushenskoye complex must be done in a systematic manner, with a carefully balanced infrastructure. Moreover, complete, comprehensive development of mineral products is to be achieved here. This is the first time that these problems have been posed on such a broad scale.

In the Irkutsk leg of the agitation tour's journey the processes typical of development of the Bratsk-Ust'-Ilim industrial complex are certainly interesting. It was here that Siberian scientists first tested goal-oriented planning methods in practice. The scientific decision for Ust'-Ilim had such a safety margin with respect to time that plans drawn up 10 or even 15 years ago are being carried out as conceived, without significant alterations, and they remain entirely modern.

The Baikal-Amur Mainline begins in Irkutskaya Oblast. It is radically changing the vast region from the Baikal to Primorskiy Kray.

The plan for economic development of the BAM zone was worked out by a collective of scientists from the Siberian Department of the Academy of Sciences USSR. But even today there are many unresolved questions for scientists in connection with the BAM. We must determine the most rational order for putting the capacities of the line into operation and bringing natural resources into economic circulation. I mean that the country must have real benefits from the BAM as quickly as possible.

The first "benefit" is expected in a few months. This will be the possibility of transporting coal from the South Yakut territorial industrial complex to the Pacific Ocean. The Southern Yakut region is attracting the attention of specialists because iron ore deposits have been found not far from the coal beds. If the prognoses of geologists are confirmed, we will have the main ingredients for establishing our own metallurgical base in the East.

There are many very promising regions for industrial development in the zone of the BAM. Large reserves of raw material for nonferrous metallurgy have been discovered, primarily the Udokan deposit of copper ores and the Kholodnyy polymetallic deposit. An enormous deposit of potassium-aluminum ores, called synnyrites, has been discovered in the northern Buryat ASSR. They can substitute for bauxites in aluminum production. Scientists are now working on the problem of developing a technology for using synnyrite which would not require a major re-equipping of aluminum plants.

The regions of active development have certain common problems, and we must admit that some of them are difficult. For example, there is the personnel problem.

A person will stay here to live if all necessary conditions for study, leisure time, and cultural and intellectual development have been created. That is why it is essential to observe the principle of accelerated development of social-domestic conditions and capital cannot be scattered. In Siberia we must do things as they were done during the construction of the Volga Motor Vehicle Plant. At Tol'yatti, and also at the Kama Truck Plant, good conditions were created and then in a short time excellent collectives formed.

The 25th party congress emphasized the role of science as a productive force. This obligates us to do a great deal. The CPSU Central Committee assigned the Siberian Department of the Academy of Sciences USSR to become more actively involved in resolving concrete economic problems. We have worked out regional programs for the development of Siberia and begun to carry on pure research. Putting them together, we have drawn up a single comprehensive program for studying and using the resources of Siberia. This is a mighty project which will be the pivot of our activities for many years into the future. I am confident that the press will also make its contribution to carrying out our plans. We consider the organization of this agitation trip by journalists to represent a desire to give a thorough explanation of the events taking place in Siberia and we sincerely welcome it.

GOAL, PROGRAM PLANNING MANAGEMENT DISCUSSED

Moscow EKONOMIKA I MATEMATICHESKIYE METODY in Russian No 4, Jul-Aug 78 pp 626-638

[Article by N. P. Fedorenko (Moscow): "Problems of Program-Goal Planning and Control"]

[Text] In the current stage under the conditions of a mature socialist society the solutions to the main problems of socioeconomic development are effected in two major interconnected directions: further acceleration of scientific and technical progress and improvement of the system of planning and control over the country's economy and its individual parts. "We are now faced with the task," said General Secretary of our party's central committee, L. I. Brezhnev, at the 25th CPSU Congress, "of raising the level of planning work and making it correspond to the new scope and image of our society, with the new requirements of the times." ["Materialy XXV s"yezda KPSS" (Materials of the 25th CPSU Congress), Moscow, Politizdat, 1976, p 59]. In carrying out the instructions of the congress economics and the practice of planning are doing a good deal to increase the efficiency of planning and control.

It is possible to single out four main constituent parts of the solution to the problem of improving the system of national economic planning and control: improvement of the process of centralized planned management, development of the system of economic stimuli and levers, improvement of the organizational structure and development of the material and technical base of the system of planning and control itself.

Improvement of centralized national economic planning presupposes comprehensively embracing all lines of "science-production" (from predicting the development of fundamental scientific research to the sale and assimilation of the new products) and more fully accounting for the interaction between production, on the one hand, and sociopolitical and sociodemographic processes and the natural environment, on the other. It becomes especially crucial to improve the production-technological structure of the plan and to increase the role in it of factors of intensive management directed

toward increasing the efficiency of public production. All this makes it necessary to increase the significance of long-range planning and to expand the planning horizon. The decisions of party congresses and plenums orient planning agencies toward the development of long-range plans along with medium-range and short-term plans, as well as the incorporation of the mechanism of prognostication in the process of planning. The changeover to long-range planning involves further strengthening of the goal-oriented principle of planning, whereby the point of departure is the formulation of goals of social development, and the distribution of resources should serve the achievement of these goals.

The second direction in the development of the system of planning and control involves improvement in the system of economic stimuli and levers that are called upon to ensure unity of the interests of all national economic areas when solving socioeconomic problems. This includes, above all, problems of combining centralized planned management with the economic initiative of the enterprises, organizations and individual performers of work; stimulation of higher rates of scientific and technical progress; and, on the whole, improvement of the economic mechanism itself.

The third direction leads to improvement of the organizational structure of national economic control, which requires the implementation of a broad group of measures -- from reducing the number of levels in the structure of administration and forming interbranch and interdepartmental complexes to introducing the latest organizational forms into the lower levels of the national economy.

Finally, the fourth direction involves a stage-by-stage changeover of the system of planning and control of the national economy to a scientific and technical base, which presupposes broad and comprehensive utilization of economic and mathematical methods and modern computer equipment.

The methodology of program-goal planning and control serves primarily to improve the actual process of national economic planning and its implementation is directly related to problems of development of the system of economic stimuli and levers as well as the structure and methods of control of the national economy. Program-goal methods are a pivotal point, around which the multifaceted work for improving the entire system of planning and control of the economy can be concentrated.

The country's economy has now achieved an unprecedented upsurge. Along with the gigantic growth of the production and technical potential, deep qualitative changes have taken place in productive forces. Under the influence of scientific and technical progress, there has been an essential increase in the dynanism of the entire reproduction structure and the interdependency and mobility of its elements. Intensive factors are becoming the main source of growth of public production. This brings to the foreground problems of improving product quality and increasing the economic effectiveness of production, optimizing decisions made at all levels of the economic system, and directing them toward final national economic results.

Under these conditions, new and greater demands are placed on the process of improving the system of planning and control of the national economy. There has objectively arisen a need to organize the process of unified comprehensive socioeconomic planning, which relies on an economic mechanism in which adminstrative and economic levers of the development and implementation of the plan are optimally coordinated. Along with the changeover of planning and control to a new scientific and technical basis, as a result of the extensive utilization of economic-mathematical methods and models, modern computer and organizational equipment, means of transmission, processing and storage of information, there arise tasks of comprehensively improving methodological and organizational forms, methods, criteria and the work of all parts of the control system.

The main features of the existing system of national economic planning and control took form in the 1930's during the period of rapid industrialization of the country, when large capital investments with a lengthy process of assimilation were required. The economy was relatively easily "visible," which made it possible for central control agencies to maneuver resources directly in the majority of cases. The goals of the country's development made it possible to directly determine priorities in the development of the branches. Since the role of lengthy, complexly interwoven chains of economic ties was insignificant and the economy's inertia was not great, it rapidly reacted to planning influence and individual mistakes caused significant disproportions. Under these conditions, there arose the resource-branch principle of controlling the economy, which is successfully in effect even today. At its basis lies balanced planning of the output of products in the branch cross section.

This approach has many merits -- realistic evaluation of concrete tendencies in a relatively short period of time, accessible analysis of processes at various levels (in various branches, industries and regions) that are, to a certain degree, independent of each other, a correspondence between the scope of the proposed measures and the level of aggregation of economic indicators, and so forth.

The degree of implementation of all proposed measures is limited at each point in time by material and financial resources, personnel, and production capacities. Hence there arises a need to coordinate the earmarked goals of development with the possibilities of the national economy. To do this, balances are compiled in terms of all articles of incomes and outlays for each financial and material-substantial flow, adjustments are made in planning when disbalances are uncovered, new checks are made, and so forth. This totality of iterative actions is an important peculiarity of the utilization of the balance method in planning work. Let us note that we owe the great successes and the rapid rates of the development of the Soviet economy, to a considerable degree, to the application of precisely these methods of analysis of the tendencies in the development and formation of planning decisions.

But nonetheless this method of economic and planning thinking cannot fully satisfy us at the present time. The structure of the goals of socioeconomic development and their internal interconnections have become considerably more complicated. Goals set by the party for social development which are subordinate to the goals of production are becoming increasingly important.

Socialist planning has always involved the solutions to certain social problems and the formation of the "desired condition," which must be achieved in sequential planning periods (mainly the five-year period). But under the conditions of developed socialism, the social aspect of planning has especially great significance because of the fact that at this time improvement in the well-being of the Soviet people is acquiring primary significance. The highest goal of socialist production in the period of developed socialism is manifested in a more mature and developed form.

Yet this peculiarity creates a persistent need for scientific development of those concrete goals and tasks which, on the one hand, would correspond to the overall goals of all-around development of the individual under the conditions of a communist society and, on the other, would comprise a target program for the country's long-range development. The formation and implementation of this complex of goals advance problems of a multifaceted nature which require coordinated measures in many areas of the social mechanism. Hence there arises a need to strengthen the goal-directedness in planning.

Program-goal planning and control, which are based on the selection of scientific and technical progress and a production structure that corresponds to the complex of the country's socioeconomic goals, is becoming an important means of improving the system of national economic control. As in any developing scientific trend, in research and practical introduction of program-goal methods there are methodological and organizational problems whose correct formulation contributes to their effective solution and the most rapid introduction of the results into practice.

The utilization of the program-goal approach requires further development of the organization of the process of drawing up a unified national economic plan which is a decisive part of the entire system of the economy's functioning. A variant of a scheme for the process of planning which comprehensively combines the goal and resource aspects in the process of planning has already been suggested [1,2]. Without repeating it, let us emphasize only the main points, which pertain to the problems of the program-goal approach under consideration here.

The application of program-goal methods is oriented toward the development of the following features of the national economic plan:

expansion of the planning horizon -- through an essential increase in the role of long-range perspectives (up to 15 years), the development and introduction of a system of variant prognoses of national economic development (more than 15 years), the development of a long-range plan every 5 years,

while retaining the leading role of five-year plans for the development of the national economy as stages in the implementation of tasks of the long-range plan;

goal-direction -- through the development of the goal aspect of planning and its combination with the branch and territorial aspects;

balance and proportionality with the help of the coordination of goals of development with the possibilities for their achievement and the application of better methods of distribution of all kinds of resources on the basis of national economic programs and more effective utilization of economic levers;

optimal decisions -- on the basis of the development of national economic criteria for the effectiveness of various large-scale measures and more precise evaluation of their social usefulness;

overall social direction -- through taking into account more fully the social consequences of the planning and economic decisions that are made.

The national economic plan should provide for production and distribution of resources which would contribute to the greatest degree to reaching the goals of our country's development. This has always been the main task for planning and control agencies, but in this stage, with the existing complexity of the economic system and the scope and rates of change in social, economic and technological processes, its implementation insistently requires improvement in the methods of development of the plan, especially in the goal-setting stage, in which the planning concept is formed, and also the development and inclusion in the plan of comprehensive national economic programs.

The long-range plan, while determining the goals of the country's development and the directions and methods of achieving them, provides for the succession and coordination of indicators of all levels of planned management of the socialist economy. The internal unity of its content is ensured by centralized statewide planning of the strategy for the development of the national economy in combination with program, functional, branch and territorial aspects.

The principal task in the development of a draft of the long-range plan is to balance the comprehensive programs selected in the stage of its inception and the nonprogram part of the plan with respect to resources and stages of its implementation. Detailization and balanced coordination of program and summary indicators of the first five-year period make it possible to create an outline of the main directions of the five-year plan as a constituent part of the long-range plan. From this overall scheme there arises a complex of program indicators and also procedures for coordinated activity of the ministries, departments and subdivisions of planning agencies when drawing up the program and nonprogram sections of the plan.

In the goal specification stage of the development of the long-range plan, one should provide for the determination and the compatibility of its goals with the tendencies in the development of the national economy, sociopolitical processes and scientific and technical progress, which characterize the possibility of achieving these goals.

The goals of the plan are formed on the basis of general goals which are formulated in our party's program documents. In the final analysis, the country's general goals will be concretized on the basis of these within the framework of the planning period in the form of the selection of goal normatives. Based on the properties of the totality of the socioeconomic system, the complex of goals of the national economic plan is manifested in the requirements in which primary and secondary individual, collective and institutional needs and interests are interwoven and should be coordinated. This complex can be represented as a tree or a system of goals.

The construction of the complex of goals in the form of a tree causes no problems in principle. It not only provides for the coordination and agreement of goals of the plan in the qualitative sense, but also makes it possible to make a certain estimate of their relative importance and significance. Such an estimate can be obtained by arranging the goals in a sequence between the upper and lower limits. But the rigid structure of a tree, which presupposes the same subordination of each subgoal to a single goal of a higher level, leads to an artificial separation of the many complex interrelationships of actual processes when revealing and fixing the most significant links. Therefore in a number of cases, in order to fully represent the aforementioned interactions, it is necessary to formulate various aspects of the interconnections of the corresponding processes and subsystems which they actualize in the form of individual subgoals.

The formation of a complex of goals is a necessary element in program-goal planning. The tree of goals of the plan is essentially its framework which, to a significant degree, determines the structure of prognoses, programs and divisions of the plan and makes it possible to compare, evaluate and coordinate them. It orients the development of the national economic plan as a whole and individual programs as "leading links" in it. Here the tree of goals is important as a methodological instrument of planning.

The goal-oriented approach to planning presupposes concentration and comprehensive utilization of resources for the achievement of the most important goals of the national economic plan with the help of comprehensive programs. Each such program is a directive and assignment document which coordinates, with respect to resources, performers of work and time periods, the accomplishment of the complex of socioeconomic, production, scientific research, organizational-economic and other measures that are directed toward solving the most important (one or several) national economic problems and the achievement of the long-range goals of economic development.

The main features of the programs can be formulated in the following way:

the programs are developed for the achievement of those goals whose implementation within the earmarked time periods requires essential changes in the tendencies and proportions of the corresponding parts of the national economy;

they are oriented toward the performance of certain socially necessary functions which are formulated as goals (sets of goals) of the plan;

when they are being developed, social factors in the development of the society and social consequences of their implementation are taken into account equally with economic and production-technological changes;

the programs can have individual time periods for implementation which do not necessarily have to coincide with the accepted planning periods;

they are characterized by clearly expressed final results -- a set of program indicators;

the structure of the programs constitutes a hierarchical construction that is formed by subprograms of various levels and elements which strictly coordinate goals with resources and reflect the qualitative and quantitative transformation of the initial resources in each stage of the achievement of the final program results;

in terms of their content, the programs have an interbranch and interdepartmental nature and therefore the process of their development and implementation can be related to certain changes in the existing organizational structure of control.

The many aspects of the problems of national economic development, which require program solutions, make it possible to speak about a number of types of programs which differ in terms of their composition, content, time characteristics, levels of administration and scale of utilization of national economic resources. Long-range goal-oriented programs of an intergovernmental nature which are developed jointly by the CEMA countries represent a special group.

The programs should become the most important parts of the long-range plan. When developing long-range plans of interbranch programs and when evaluating and selecting them, one determines the main directions of the influence of scientific and technical progress on the proportions of the national economic plan and reveals the main principles of the distribution of capital investments and structural changes, and evaluates the social consequences of their implementation. The development of programs cannot have the goal of replacing territorial and branch cross sections; the role of the programs is that of an additional structure which reinforces those parts of the "building" of the economy which have the greatest load and require special attention because of their technical innovation or social significance and promise to be especially effective as a result of important changes in the structure of production and so forth.

Consequently, we are speaking about coordinated joint development of the territorial-branch scheme of planning and the development of the program section of the plan. A principal point in compiling and coordinating various programs in the process of national economic planning is the determination of the system of goal indicators that reflect the national economic direction of the most important measures and make it possible to evaluate their effectiveness.

Goal-oriented forms of control of the resolution of large state problems has been a typical feature of socialist planning in our country since the first steps of its establishment. The GOELRO [State Commission for the Electrification of Russia] plan, with which the planning activity of the young socialist state began, the plans for industrialization, the creation of industrially developed zones and the second coal-metallurgical base in the eastern part of the country, the assimilation of virgin and long-fallow land in Kazakhstan and Siberia, the creation of the first atomic electric power station in the world and the exploration of space are large landmarks in the development of the goal-oriented methods of control. All these historically unprecedented successes in comprehensively solving immense problems can be considered to be analogs of programs in our present understanding of them. This is precisely what created prerequisites for the extensive utilization of program-goal planning and control.

These problems have been developed comprehensively and then taken into account in the plans of the branches, territories and individual industries and have been resolved in their various parts by ministries, departments and enterprises. Moreover, each of them could have been divided into small, relatively separate parts, which permits individual control of their implementation.

Under modern conditions in which the scientific and technical revolution has developed, significant changes have taken place in the national economy. There has been a stronger interbranch nature in the majority of problems that arise in planning and their scope has increased, as a result of which their solutions frequently come under the competence of not only one, but two or three ministries or departments. For example, in order to decide how to satisfy the needs of the national economy for power, it is necessary to have joint work on the part of practically all production ministries and departments and the majority of nonproduction ministries and departments in the country.

The number of problems that go beyond the existing territorial boundaries has also sharply increased. The tasks of assimilating the petroleum and gas deposits of Western Siberia, the diversion of water from nothern rivers into Central Asia and other tasks cannot be carried out within the boundaries of one oblast or kray. For example, 29 oblasts and autonomous republics are participating in the upsurge of agricultural production in the nonchernozem zone. All this makes it necessary to further improve the instruments for centralized interbranch and interregional planning and to develop a mechanism for program planning and control.

At the present time, the development and implementation of many large national economic programs of statewide significance have been started: the development of agriculture in the nonchernozem zone of the RSFSR, the Western Siberian territorial industrial complex, and so forth. Under the last five-year plan, for the first time in the practice of planning the economies of the union republics, an attempt was made to create and implement a number of goal-oriented comprehensive programs simultaneously. We are speaking about the work done in the Latvian SSR for drawing up and implementing comprehensive programs directed toward the fulfillment of the most important assignments for the development of the republic's national economy. And although not all tasks that arose here were fully resolved, a certain amount of positive experience was obtained in applying the program-goal approach.

Large-scale national economic programs presuppose simultaneous solutions to a broad group of problems; they have an interbranch and interdepartmental nature; and, as a rule, they are long-range and involve large capital investments. Therefore it is now especially important to conduct all-around research and to solve methodological and organizational problems of the program-goal approach immediately.

Despite the general recognition of the importance of program-goal control, there are many unsolved problems in its methodology, not to mention specific problems having to do with methods and organization. Up to this point, initial premises for the formation and utilization of a complex of goals for social development in planning have not been adequately developed; there is no single understanding of the position and role of programs in the system of control; there is no unified idea of national economic criteria for evaluating the social usefulness and the final results of the program; many problems of including programs in the national economic plans have not been solved; and the mechanism for controlling their implementation is not completely clear. Many scholars, scientific research collectives and practicing economists here and in other socialist countries are working on solving these problems.

Some writers are making suggestions about changing all planning over to a program basis, with the plan as the totality of programs. They say that this would provide for the achievement of all goals of social development, eliminate problems that exist at the places where branches and territories meet and eliminate the difficulties of introducing the achievements of science and technology into production. We cannot agree with this idea. Apparently the authors of these proposals do not fully comprehend the importance of balance of all sections of the plan for normal development of the economy and an instrument for interprogram balance has not been created yet.

Attention should be drawn to the fact that the so-called problems at the "places where branches meet" arise because of the complexity of distributing limited resources. Since the overall volume of primary resources does not increase with a changeover to "fully" programmed planning, this approach can lead to a retardation of the rates of implementation of the program

for relatively theoretical goal requirements and to a reduction of their role as an instrument in the preferential development of individual spheres of the economy. And if individual goals are reached at the expense of an inadmissible delay in reaching others, this will cause more problems at the "places where the programs meet." Taking this into account, it is necessary, in our opinion, to strictly limit, at least at first, the overall number of programs being implemented at the same time. Thus there arises a new problem of selecting comprehensive national economic programs which are to be implemented first.

The formation of a list of programs to be implemented in the forthcoming planning period is fraught with a number of difficulties. So far, there is no ready mechanism for drawing up this list. And, of course, here it is not a matter of a shortage of problems, but of the complexity of formulating them and selecting the most important ones and also establishing the overall volume of resources to be allotted for their implementation. When selecting these problems, in addition to their importance, one should take into account the volume of mobilization of resources, the need for ensuring a normal reproduction process in all areas of the national economy, and the possibility of planning maneuvering in the future, taking into account new problems that arise. Consequently, only a certain limited part of the resources earmarked for the national economic plan as a whole should be used for implementing the programs that have been adopted.

The inclusion of programs in the unified national economic plan is a separate problem. This is the only way it is possible to implement them. The complex of program indicators, the place of the program in the plan, the procedure for combining the development of programs with traditional sections of the plan and organizational-legal problems of program-goal planning that affect functional planning agencies and their subdivisions also become disputed issues here. A unified coordinated process of developing programs as part of the plan also requires the creation of methods for formulating programs for subsequent inclusion in the plan.

The actual formulation and practical implementation of the programs and their inclusion in the national economic plan presuppose assignment distribution (for interbranch complexes, regions, branches and so forth) in terms of time for all kinds of required resources (financial, material, labor and so forth) and strictly established responsibility at all levels and in all stages of the development and implementation of these programs.

There is an independent group of problems related to the implementation of the programs. General Secretary of the CPSU Central Committee L. I. Brezhnev noted at the 25th CPSU Congress: "It is important in each case to have specific agencies and specific people who bear full responsibility and coordinate all efforts within the framework of one program or another." ["Materialy 25 s'yezda KPSS" Moscow, Politizdat, 1976, p 61]. Despite the significant amount of experience that has been accumulated by the system for controlling the socialist economy in solving large-scale problems of the

development of the national economy and creating immense production facilities, problems of organizing control of the implementation of programs have not been sufficiently investigated. The tasks of improving the economic mechanism should be coordinated with the resolution of organizational-legal problems and with the creation of modern information-technical means of control; and economic and administrative methods of control should be combined.

The development and introduction of effective economic stimuli and levers which provide for the unity of the interests of all areas of the national economy in the process of working out and implementing comprehensive programs for development are extremely important for practical utilization of methods of program-goal planning and control.

Taking into account the role of programs in the development of the national economy, it is expedient to raise the question of preparing provisions for the development, approval and implementation of comprehensive national economic programs in which one would formulate not only general methodological, but also organizational-legal norms which establish their position in the system of planning and control of the national economy and regulate the rights and responsibilities of economic units involved in their implementation. The development of such provisions will contribute to implementing the decisions of the 25th Party Congress concerning the need to introduce long-range comprehensive programs into the system of control of the national economy.

The problem of program-goal planning has attracted the attention of leading scientific collectives in recent years. The Central Institute of Economic Mathematics of the USSR Academy of Sciences has prepared methodological recommendations for the development of comprehensive national economic programs which have been approved by the Council for the Consideration of Large Social and Economic Problems under the USSR Gosplan. But so far these recommendations do not contain answers to a number of principal problems which must become the subject of further research. As the discussion of these problems at the all-union conference in December 1977 showed (see our magazine, issue 2 for 1978), the program-goal methods are being applied in many branches and spheres of activity for solving the most varied problems. Thus they discussed problems of developing programs at the republic (Latvian SSR) and regional levels of administration (the program for the economic assimilation of the zone of the Baykal-Amur Mainline, the program for the development of the agro-industrial complex of the nonchernozem zone of the RSFSR), and problems of a scientific-production nature (the "Okean" program, programs for scientific and technical progress, scientific research). These developments, which so far have been carried out without the necessary organizational-methodological unity, again emphasize the importance of the main directions of research related to the development of program-goal methods.

The implementation of large national economic programs that combine efforts in decisive directions of socioeconomic development are becoming a most

important feature of the modern development of the country's productive forces. Under these conditions, the task of scholars is to investigate the typical features of methods of program-goal planning, to develop them and, in conjunction with planners, to introduce them into the practice of planning and control.

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SOVIETS TO DEVELOP AREA OF BAYKAL-AMUR MAINLINE

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[Article by Yu. Sobolev, Section Chief, TsENII [Central Scientific Research Institute of Economics], attached to RSFSR Gosplan: "National Program for the Economic Development of the BAM [Baykal-Amur Mainline] Area"]

[Text] The large-scale comprehensive programs include the economic mastery of the BAM area and the formation there of very important territorial-production complexes. The BAM not only will substantially improve the transportation ties between Siberia and the Far East (a fact which, for the eastern regions, is of particular importance), but will also play an important role in the national economy. "The BAM," as General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet L. I. Brezhnev noted, "will help to make more complete use of the very rich treasurehouse of mineral resources in that area, and to resolve in a new way the question of developing the productive forces. It is a program of great national importance" (PRAVDA, 5 April 1978). Following the construction of the mainline itself (and, for certain projects, simultaneously with it) it will be necessary to fulfill a volume of work involving an even greater amount of capital investments, for the construction of new industrial projects, for the mastery of agricultural land, and for the formation of a network of projects in the everyday-services and social infrastructure. In the BAM area there will appear, with the passage of time, a new, powerful industrial belt, the creation of which, even at the first stage, will require 3-4 times more expenditures than the construction of the mainline itself.

The economic mastery of the BAM area presupposes the solution of complicated interrelated tasks which will have to be implemented on the basis of the long-term program that was worked out. This, in its turn, will require the setting up of a broad work front for the preliminary scientific and design "softening up" of the territory around the mainline. Among the most important economic tasks of the Tenth Five-Year Plan, the 25th CPSU Congress deemed it to be necessary "to intensify the geological-prospecting and scientific-research work on the comprehensive development of the productive forces in the area gravitating toward the Baykal-Amur Mainline" ("Materialy XXV s"yezda KPSS [Materials of the 25th CPSU Congress], Moscow, Politizdat, 1976, p 227).

To execute this requirement, in the regions around the mainline dozens of scientific and design institutes have set up broad research projects. Within the system of the USSR Academy of Sciences there has been created a Scientific Council on BAM Problems, headed by Academician A. G. Aganbegyan. The council coordinates the research being carried out by numerous institutes of the academy. Within the system of planning agencies, work is being carried out by the Council for the Study of the Productive Forces (SOPS), attached to USSR Gosplan, and the Central Scientific Research Institute of Economics (TsENII), attached to RSFSR Gosplan. Also taking part in the preparation of the program for the economic assimilation of the BAM area over the long-term view are numerous construction-planning institutes in various ministries and departments.

The long-term program for the assimilation of the BAM area is supposed to contain recommendations for the development of branches of industry, agriculture, and the transportation network, and stipulate the solution of many interbranch problems with a consideration of the specific peculiarities of the particular region located along the itinerary. Simultaneously it has been called upon to provide an answer also for a number of questions of a social nature, for example, the methods for involving the indigenous nationalities of the North in the overall process of national economic development of that territory. A special section of the program will be devoted to questions of the territorial organization of the economy and, correspondingly, to problems of the formation there of major territorial-production complexes.

The peculiarities of the BAM Program are of a multibranch nature, the high amount of capital investment required, and the large size of the territory that it encompasses. As a result of the appearance of the new railroad mainline, an area of approximately 1.5 million square kilometers will become involved in national economic turnover; that area constitutes approximately one-twentieth of the area of the Soviet Union and exceeds the area of Great Britain, France, and Italy, taken together. And this is with the condition that the only regions included in the zone being considered are those being newly assimilated (23 administrative regions in Irkutskaya and Chitinskaya Oblasts, Buryat and Yakut ASSRs, Amurskaya Oblast, and Khabarovskiy Kray), although the mainline will also exert an indirect, but extremely tangible, influence upon the economic development of the entire northeastern part of the USSR.

An indispensable requirement for the development of the program for the economic assimilation of the BAM zone is the careful consideration of its local peculiarities, which, to a large extent, determine the entire economic outlook of the production complex to be created.

The sharply continental climate is one of the reasons for the large temperature difference over the course of the year. For example, in the Baykal and trans-Baykal parts of the BAM zone, the average January temperature varies from -19 to -34° [Celsius], and the absolute minimum reaches

-57°. But during the summer the temperature rises in places to 35-40°. Almost the entire territory of the BAM zone is distinguished by an increased seismic rate.

A serious complication for construction is the permafrost, with the overwhelming majority of the territory being located in the zone of unbroken permafrost, and the temperature of the rocks that have been frozen for many years varies from 0° to -2°.

And whereas today the natural peculiarities create serious difficulties for the construction workers, the consideration of these factors in the plans for the long-term development of the productive forces of the BAM zone is completely mandatory. Even at the stage of preplanning operations it is necessary to take into consideration all the necessary coefficients that can increase the construction costs: the climate, the seismic rate, the nature of the soils, etc.

These correction coefficients are distinguished by an extremely broad range of variations for individual regions in the BAM zone. For example, the cost-increase coefficient, with regard to purely territorial conditions, varies from 1.15 in Irkutskaya Oblast to 2.7 in the Aldanskaya zone of Southern Yakutia. But the overall corrective coefficient for construction-and-installation operations, which was computed at TsENII attached to RSFSR Gosplan, and which represents the combined accounting of the more specific coefficients (for climate, seismic rate, etc.) constitutes 1.3 for Irkutskaya Oblast in the BAM zone, 2.2 for Zeyskiy Rayon, Amurksya Oblast; and 3.1 for Southern Yakutia.

A considerable increase in the cost of construction is influenced by one of the most important methodological conditions for the drawing up of the BAM Program -- the careful selection of the industrial projects recommended for construction. It is necessary to limit oneself only to those enterprises which either are dictated by the requirements of the nationwide shortage of a particular kind of output, or are vitally necessary for the development of the BAM zone itself. Consequently, it is necessary to draw up a list of deposits that are of first priority for exploitation. That list should not include depositions whose exploitation can be recommended beyond the limits of the period being computed. Thus, it is necessary to take into consideration not only the potential opportunities for the use of resources of minerals and raw materials, timber, water, and other resources, but also the economic desirability of their involvement in national economic turnover specifically in the period under consideration.

Moreover, in the period being considered, it is necessary to establish a strict sequence of exploiting the selected deposits, so as to avoid excessively large peaks in the construction-and-installation operations, that is, to provide for a distribution of all the construction projects which is more even with respect to time.

The reduction in the expenditures of human labor, the drawing up of a scheme for the development of the productive forces in the BAM zone with the least requirements for labor resources, constitutes the second main methodological basis for the construction of the program as a whole. The fact of the matter is that, while it constitutes in area a tremendous territory, the BAM zone is, for the time being, populated very sparsely. The average population density here constitutes less than one person per square kilometer. Consequently, the encouragement of additional population to come here and to remain here is a mandatory condition for developing construction on a broader scale and for the assimilation of the capacities to be created at various enterprises. The construction of housing and of a broad network of enterprises to provide everyday services, the improvement of the medical and biological conditions require increased expenditures to serve the necessary contingent of manpower. The specific expenditures for the creation of all the elements of public-services and social infrastructure, in terms of per capita of the newly arriving population, exceed the analogous indicators for the southern regions of the Far East by a factor of 2, and, in the central regions of the country, by a factor of 3. The computations of the inner structure of the TPK of the BAM zone by TsENII attached to RSFSR Gosplan and by IE [Institute of Economics] and by OPP SO [Department of Industrial Establishments, Siberian Branch], USSR Academy of Sciences, include the average cost of bringing and setting up every inhabitant newly arriving here, 18,000 rubles (as compared with 5000-7000 rubles in the central regions of the European part of the USSR). As was indicated by the discussion at the 2nd All-Union Conference of Scientific Practice as Applied to Problems of the BAM (September 1977, in Blagoveshchensk), if one has to correct that figure, it is only in the direction of increasing it.

The data cited here attests to the fact that, when developing the BAM Program and the assimilation of its zone, it is necessary to orient oneself on the bringing here of the least number of inhabitants possible. This presupposes the necessity of the very rigid selection of the branches of industry and enterprises that are recommended for location there, which selection should be made on the basis of the amount of labor that they would require, and it is one of the reasons for the "counterindication" of this territory for the creation, for example, of such types of production as many branches of basic organic synthesis, machine building, etc.

For example, when developing the recommendations for development of machine building here, it is desirable to take into consideration the creation of the repair base for the providing of only current and preventive repair of the machines and machinery engaged in the mining and timber branches of industry. The capital repair of machines in the regions of the BAM zone will be carried out by several rear-area support bases in the more southerly regions of the Far East and Eastern Siberia. The same methodological approach is necessary when developing the recommendations for the development of light industry. The assortment of its output should not include types of articles that are distinguished by their high labor requirement.

The chief, most important reserve for reducing the amount of labor required for production in the BAM zone should be the maximum automation and mechanization of the processes at all enterprises; this will result in a noticeable reduction in the normative amount of manpower in all the main branches of the future national-economic complex.

Yet another problem that is present in all aspects of the BAM Program consists in the rigid accounting of the tasks of preserving the environment, which environment here is not only a complicated one for the economic mastery, but also is easily "vulnerable," and difficult to restore. For example, the restoration rate of the forests in the BAM zone constitutes not 70 years, as had been previously hypothesized, but 120-130 years (according to estimates made by specialists at the Institute of Forests and Wood, Siberian Branch, USSR Academy of Sciences). This requires a special approach when developing the recommendations for the exploitation of the timber resources of the BAM zone. It is necessary to set aside a considerable part of the forest areas in a special protected category. For example, unjustifiably large volumes of timber felling along the Chara, Kirenga, and Selemdzha Rivers can sharply change the hydrological regime and cause either the freezing of the rivers or, conversely, high floodings and the intensification of the soil erosion. In mountainous regions, large fellings of timber will create the threat of increasing the floodwater and salt-fluctuational phenomena, and of creating avalanches.

At the present-day stage of development of the program, it is especially important to determine correctly the basic branches in the future production specialization of the BAM territory.

Proceeding from modern ideas of the mineral and timber resources of the BAM zone, one gets a rather clear-cut idea of the scope of the industrial branches that are most promising for development, which will constitute the basic economic "skeleton" of that zone. They include the mining industry (mining of coal, iron ores, ores of nonferrous metals, chrysotile-asbestos), lumbering and wood processing, and, in the more remote future, ferrous metallurgy.

Of first priority is the organization here of a major coal base for the country. Among the large number of coal deposits, one deposit that stands out is the Neryungrinskoye Deposit of coking coal varieties, the reserves of which make it possible to provide for the construction of a major mine that will satisfy not only the domestic needs, but also the needs for exporting it to Japan and other countries in the Pacific Ocean basin. Agreements have been signed with Japanese companies concerning shipments of Neryungrinskoye coal, with the first coal scheduled for shipment to Japan by 1983. During subsequent years the shipments of coal to Japan will increase from 3.2 to 5.5 million tons, and the overall volume of those shipments during the 20-year period will exceed 100 million tons.

However, the basic purpose of the exploitation of the Neryugrinskoye Deposit, obviously, consists in providing for our country's own needs for

coke and fuel. Despite the abundance and variety of the types and grades for Far East coal, the sole source for obtaining metallurgical coke in the Far East is the Neryungrinskoye Deposit. The needs for coke have already been determined, inasmuch as it will be necessary to create a major metallurgical base in the Far East.

The extensive region to the east of Lake Baykal has experienced for a long period of time a tangible shortage of ferrous metals. The rapidly growing machine building in the trans-Baykal area and the Far East, the appearance here of major centers of agricultural, transport, and energy machine building, the development of ship repairing and shipbuilding determine a large demand for metal. And yet, until the present time this extensive territory has not had a complete-cycle metallurgical plant. The only plants operating here are two relatively small reduction plants -- the Petrovsk-Zabaykal'skiy Plant in Chitinskaya Oblast, and the Amurstal' Plant in Komsomol'ske-na-Amure. Despite the major remodeling of the Amurstal' Plant, the shortage of ferrous metals in the indicated regions will increase from year to year. The computations made by the construction-planning and scientific-research institutes (Gipromez; Sibgipromez; SOPS, attached to USSR Gosplan; TsENII attached to RSFSR Gosplan; etc.) indicate that within the very near future this shortage will constitute no less than 6-7 million tons a year.

At the same time, the Far East has all the real prerequisites and opportunities for the creation of its own major metallurgical plant. In addition to the existence of coking coal varieties, it has several deposits of iron ores of high quality, with reserves that would satisfy for many tens of years the needs of a new metallurgical plant. The most promising are the Tayezhnoye, Pionerskoye, and Sivaglinskoye iron-ore depositions, which are situated in direct proxmity to the sources of coking coals, and that fact facilitates the planning of such a plant in South Yakutia.

One should also consider as a possible iron-ore base the Gare-Kimkanskaya group of deposits, which was well prospected and which is almost prepared for industrial exploitation. In this instance one can consider the possibility of the construction of a metallurgical plant on the territory of Amurskaya Oblast, and consider as a probable point for its location the city of Svobodnyy.

Two basic competing versions of locating the plant -- the Svobodnyy version and the Chul'man version -- differ insignificantly in their technical and economic indices. For example, the cost of producing the metal and the specific capital investments for the Svobodnyy version prove to be only 6-7 percent lower than the Chul'man version, and therefore the comparison of simply the economic indices does not allow one to make the final decision. However, the construction of the Baykal-Amur Mainline is creating a number of additional economical and geographical advantages for the Chul'man version. The BAM zone will, with time, become a fairly large consumer of metals as a result of the development there of the industry to produce repair machinery, and as a result of the construction of

industrial enterprises, housing, and communal structures. Therefore one should no longer speak of the great remoteness of the Chul'man plant from the major consumption regions, which, for the time being, are located in the southern part of the Far East. Whereas previously the average distance of metal shipments with the location of the plant in Chul'man was computed to be 1160 kilometers, at the present time a considerable part of the metal will be consumed in the nearby regions of the BAM zone, including immediately in Southern Yakutia.

Specialists at the Yakutsk Branch of the USSR Academy of Sciences also note another significant advantage of the Chul'man version of locating the plant -- the fact that this region is well provided with additional types of raw material which are necessary for metallurgical production. For example, there are sufficient quantities of refractory and molding clays and sands close to the Sivaglinskoye Iron-Ore Deposit, as well as dolomite refractories in the upper strata of the Pionerskoye Deposit. However, the elaborations worked out by the Yakutsk Branch of the USSR Academy of Sciences do not determine the water-supply system for the future plant, and, according to preliminary estimates, sufficient water sources do not exist here. And yet a large-scale metallurgical plant is an enterprise that consumes an extremely large amount of water, so that this gives serious advantages to the Svobodnyy version for the location of the plant.

An area that is extremely promising with regard to reserves of iron-ore raw materials is Charo-Tokkinskiy Rayon in Yakutia. Thus, one can offer the construction-planners a choice from several interesting regions for the location of the future metallurgical plant.

The development of the coal-mining and iron-ore industry should be carried out as the first-priority stage in the implementation of the entire Program for the Economic Construction of the BAM Zone.

An important branch in the mining industry is the BAM Zone will be the mining and concentration of copper ores. The construction of the mainline will provide "transportation accessibility" to the Udokanskoye Deposit of copper-bearing sandstones, which deposit is one of the largest in the world and is commensurate with the reserves in entire countries which, for many years, have been recognized in the world economy as being major copper producers (United States, Chile, Zambia). Moreover, the average copper content in the Udokan ore is higher than, for example, in the ores from the U. S. deposits.

Situated close to the Udonakskoye Deposite are a number of other copper deposits, the prospecting of which could greatly increase the overall reserves of copper in the particular region. Within the near future it will be necessary to complete the secondary prospecting of the Udokanskoye Deposit and give an evaluation of the neighboring deposits, and to carry out detailed technological studies of the concentratability of their

ores, in order to prepare all the technical-economic documentation for the construction here of one of the world's largest mines with respect to the scope of open-pit operations.

An important type of resources that determines the production specialization itself in the BAM zone is timber; therefore, in the total national economic complex of the BAM zone, an important role will be played by the timber and wood-processing industries.

The timber resources here are tremendous and make it possible to anticipate a considerable volume of production. However, the overwhelming majority of the forest composition by species is represented by larch, which is inconvenient for technological processing. Technologists and engineers are confronted by the task of developing within the shortest amount of time possible new technological schemes for the processing of larch into woodpulp. It is necessary to analyze carefully the experience gained by the Siberians, for example, the process of processing larch at the Bratsk Woodpul and Paper Combine and at the Baykal Woodpulp Plant. At the Ust'-Ilimskiy Wood-Processing Combine, large volumes of larch will be processed to obtain woodpulp, plywoods, and a number of other products. The experience gained at these enterprises should be carefully studied in order to determine the opportunities for applying similar technological schemes at the future timber-processing combines in the BAM zone.

In addition to the development of the main branches of specialization that were listed above, in conformity with the program for the economic development of the BAM zone there will be created a broad complex of service-type and auxiliary production entities, the main task of which will be to assure the normal functioning of enterprises that are of nationwide importance (repair machine building, electric-power engineering, the building-materials industry, a number of branches of the agrarian-food complex).

The necessity of assigning new population under the complicated natural conditions requires the taking of a particularly attentive attitude toward the formation of the branches in the social and public-services infrastructure. For these areas it will be necessary to establish increased norms for medical service, housing, and social and everyday-services enterprises.

The Program for the Economic Development of the BAM Zone which is being elaborated provides for major social measures, in particular, norms for providing housing which, in terms of the individual inhabitant, are higher than the average for the country, and also increased comfort rate in the homes. The work of creating favorable working and housing conditions for the BAM workers is being carried out intensively. For example, in the city of Neryungri a clubhouse, middle school, a day nursery, and post office are already in operation, and hundreds of families of miners and construction workers have received new apartments with all the amenities.

Like any other major regional economic program, the Program for the Economic Development of the BAM Zone will contain, in addition to the branch and interbranch recommendations, proposals dealing with the territorial organization of the productive forces. The practice of the socialist assimilation of new areas has confirmed the effectiveness of the formation, on the basis of a uniform plan that has preliminarily been worked out, territorial-production complexes (TPK). Correspondingly, in the BAM zone the basic form of the territorial organization of the economy will be large-scale TPKs and industrial centers. At the present-day stage in the elaboration of the program for the economic assimilation of the BAM zone it does not appear possible to provide a precise scheme for the TPKs. However, even today one can discern the outlines of eight territorial-production formations (Verkhne-Lenskiy, Severeo-Baykal'skiy, Udokanskiy, Yuzhno-Yakutskiy, Zapadno-Amurskiy, Zeysko-Sbovodnenskiy, Ural'skiy, Komsomol'skiy), each of which will participate in the interregional distribution of labor in its branches of specialization.

The TPK that will become the largest one in the long-term view and that is the first-priority one with regard to the creation deadlines is the Yuzhno-Yakutskiy [Southern Yakutsk]. Its formation, in conformity with the decisions of the 25th Congress of the CPSU, was begun during the Tenth Five-Year Plan. On the territory of the Yuzhno-Yakutskiy TPK one can isolate two industrial centers: Tsentral'no-Aldanskiy and Chul'manskiy, which differ according to the present-day economic development and the specifics of their mineral and raw-material resources.

The Tsentral'no-Aldanskiy [Central Aldan] industrial center is distinguished by a comparatively high level of economic development on the basis of the existing branches of the mining industry. The production, for example, of phlogopite-mica is of nationwide importance. The Aldanslyuda Combine is one of the largest in the country. The total mica-bearing area here is almost 200,000 square kilometers, and although only half that territory has been prospected in detail, 42 deposits have been located, and their reserves make it possible to anticipate in the future high growth rates in the production of mica. However, within the immediate future the most vital task in the mica industry of Southern Yakutia is the improvement of the technical-economic indices pertaining to the operation of its enterprises. For example, the profitability rate of production here during individual years has been from one-third to one-half that at analogous enterprises in another very important mica region in the country, Murmanskaya Oblast.

In the future the industrial center will develop, for the most part, as a result of the expansion and modernization of those branches of specialization, the improvement and remodeling of the auxiliary and serving branches, represented by enterprises of the timber industry (Aldanskiy Forestry Farm, Aldanskiy Timber Point), the construction industry (the Khuranakhskiy ZhBI [reinforced concrete products] Plant), and the food industry (Aldanpishcheprom), as well as projects in the production and social and everyday-services infrastructure.

In the remote future, considerable changes in the structure of the industrial center can occur as a result of the development of the mining industry on the basis of the Seligdarskoye Apatite Deposit that is being prospected, as well as the timber and timber-processing industry in the area of Tommot. The apatites from the Seligdarskoye Deposit are especially valuable. The Far East is in great need of phosphorous fertilizers, but the region does not yet have its own production, although the reserves of high-grade Seligdarskiye apatite ores are great. The average content of useable substance in them constitutes 15-30 percent, and in some sectors is as high as 70 percent.

The Chul'manskiy [Chul'man] industrial center at the present time is a region of pioneer development with a weakly developed economy. Situated on its territory are deposits of coking coal varieties in the Aldano-Chul'manskiy Coal-Bearing Region (Neryungrinskoye, Chul'manskoye, Muastakhskoye [deposits], etc.) and deposites of iron ores in the Aldanskaya Iron-Ore Province (Tayezhnoye, Pionerskoye, Sivagli, etc.). Their assimilation will constitute the basis of the production specialization of the entire South Yakutsk TPK.

The coal industry will provide output for the needs of the Far East and export. The construction of a large-scale coal complex has already begun on the Neryungrinskoye Deposite; that complex consists of a coal pit with a capacity of 14 million tons of production a year, a concentration factory that will process 9 million tons of coal mines, and the Neryungrinskaya GRES with a first-phase capacity of 630,000 kilowatt-hours.

As has already been pointed out, the favorable combination of coal and iron-ore resources in a single region makes it possible to create here a base for ferrous metallurgy and to construct a very large plant for the production of pig iron and steel and for the obtaining of rolled metals. The creation of the Chul'manskiy Timber Management will serve as the basis for the development of the timber industry in Southern Yakutia.

The TsENII attached to RSFSR Gosplan and the IE and OPP, Siberian Branch, USSR Academy of Sciences, have developed three possible versions of developing the South Yakutsk TPK.

According to the first of them it is planned to carry out the maximum possible development of the branches of specialization that are represented by the Neryungrinskiy Coal Complex, the iron-ore GOK [mining and concentration combine] on the basis of the Tayezhnoye Deposit, the first phase of the metallurgical combine in the settlement of Chul'man, and the timber industry (the Chul'manskiy Timber Management). It is planned to create a base for the construction industry and the building-materials industry, the construction of the first phase of the Neryungrinskaya GRES, a number of machine-repair shops, as well as the development of a foodstuffs base and nonproduction sphere.

In the second and third versions it is proposed to create a coal industry with a different ratio in the levels of development of the auxiliary and

servicing branches, and the production and social and everyday-services infrastructure. The primary task is the organization of a centralized production base for construction within the confines of the TPK in order to assure the construction and installation operations both for the industrial projects and for the projects in the social and everyday-services infrastructure. The region's electric-power-supply base will be the Neryungrinskaya GRES.

The purpose of the initial phase of the formation of the Southern Yakutsk TPK is the creation of the prerequistes for its further development and improvement. An important role in this regard can be played by the further expansion of the railroad network in this region, which will make it possible to develop more effectively the mining, mica, and woodworking branches of industry in the Central-Aldanskiy industrial center.

In the Chul'manskiy industrial center, in the more remote future, it is possible to envision the further development of the coal-mining and iron-ore industry on the basis of the additional prospecting and assimilation of the deposits of coking coals in the South Yakutsk Basin (the Chul'manskoye, Yakokitskoye, Denisovskoye, Muastakhskoye [Deposits], etc.) and the iron-ore deposits (Pionerskoye, Sivagli, Desovskoye, etc.).

The South Yakutsk TPK which is forming is a major concentration of industry and it will contribute to the accelerated development of the production forces not only of Yakutia, but also of the Far East, and thus will contribute to the buildup of the economic potential of the country's eastern regions.

The construction of the Baykal-Amur Mainline and the creation of the conditions for the powerful development of the productive forces in the BAM zone represent a new stage in the carrying out of one of the important trends in the long-term economic policy of the party -- the course aimed at the further building of the economic potential in the country's eastern regions and the increase of their role in nationwide production. The Materials of the 25th Congress of the CPSU contain the statement, "We attach special importance to this construction undertaking, since the BAM has been called upon to become a might level in the economic development of our Far Eastern regions" ("Materialy XXV s"yezda KPSS," p. 149).

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END