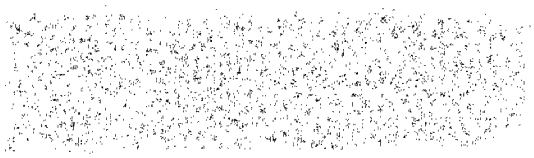
JPRS-UEA-88-034
19 SEPTEMBER 1988

FOREIGN BROADCAST INFORMATION SERVICE

JPRS Report

Soviet Union

Economic Affairs



Soviet Union
Economic Affairs

JPRS-UEA-88-034 *19 SEPTEMBER 1988*

CONTENTS

AGRO-ECONOMICS, POLICY, ORGANIZATION

Gosagroprom's Sizenko Answers Queries about APK Failings

18240108 Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 28 May 88 pp 1-2

[Article by I. Leshchevskiy under the rubric "The Minister Replies to You" "Towards Sufficiency on Our Table: A Conversation with the Reader Is Conducted by the Deputy Chairman of USSR Gosagroprom, Minister Ye.I. Sizenko"]

[Text] *—The readers, Yevgeniy Ivanovich, are disturbed by both the quality of food and the selection. The largest number of complaints, however, are about the fact that it is simply not on the counters. Z. Petrova from Dzerzhinsk in Gorkiy Oblast, for example, writes: "Previously in our city one could buy pork, beef, brisket and sausage. But then a swine-breeding complex was built. It works quite satisfactorily, but you do not see either meat or sausage on the counters." The editorial staff was informed about shortcomings in the supply of food products by G. Kramar from Orsk, M. Redlikh from Novokuznetsk, Z. Gamidov from Baku and many others.*

—The readers are correct in writing that previously—what is meant is the end of the 1960's and the beginning of the 1970's—there was food in the stores, and now shortages are experienced frequently. Why? Let us try to figure it out.

—First of all were there enough food products? And were they accessible to all?

In 1970 our per capita consumption of meat and meat products, for example, was 47.5 kilograms, while last year it was already 63. The corresponding figures for dairy products are 307 and 343 kilograms, for eggs 159 and 270 eggs, for vegetable oil 6.8 and 10 kilograms and for vegetables and melons 82 and 100. In other words our table has become considerably richer. There is still a long way to go, however, to reach complete satisfaction of the requirements. Then too the purchasing power of our people grows every year.

Let us think about the following figures. At the beginning of the 1970's the wages and salaries of workers and employees in the country amounted to 122 rubles, while already last year they were 201 rubles. In other words they rose by 64 percent. The demand for food products grew at the same rate, but the gross output of agriculture increased by 31 percent over this period. An obvious disproportion was created between the growing effective demand of the population and the rate of increase in the production of food products.

There is another side to this problem that needs to be taken into account when we talk about the development of the agroindustrial complex. What we have in mind is the growth in the population of the country and the structural changes in it. Since 1970 our population has increased by almost 20 million persons. In this regard the urban population rose by 50 million, while the rural population declined by 10 million. Thus the number of persons who need food products has become ever larger, while the number of those who produce them has become ever smaller. And this is a perfectly normal process. Thus life demands the acceleration of the development of agriculture. As is known, this was not done in time.

—Does it not seem to you, Yevgeniy Ivanovich, that we are justifying the existing situation?

We are not justifying but rather explaining it. It is necessary to show how and why it was created. Do you think that it is easy for us—those who work in the agroindustrial complex—to hear complaints every day about the shortages of food products? One continually feels guilty. It can be said with satisfaction, however, that in recent years there have appeared real possibilities for making a significant change for the better in the situation. The readers of course know that the party is attaching high priority to solving the food problem. The workers in the agroindustrial complex have been given a clear assignment—to make a substantial improvement in the situation with regard to supplying the population with food in the next two to three years.

This demand was also reflected in the Theses of the CPSU Central Committee for the 19th Party Conference.

We now have a significant potential. More than 480 billion rubles in fixed production capital are concentrated in the agroindustrial complex, and one third of the workers in the national economy are employed in its sectors. In a word enormous productive forces have been created, but the return has been much below their capacities. And here one cannot hide behind objective circumstances.

The reasons were talked about at the 27th Party Congress, at the 4th All-Union Congress of Kolkhoz Farmers and at the recent session of the USSR Supreme Soviet. They include administrative methods of leadership, cramping the initiative of the kolkhozes and sovkhozes, rigid regulation and petty tutelage over their activity. Economic levers are still used poorly. Intensive production methods are introduced slowly, and they conceal within themselves large reserves. One also cannot help noticing that the farmer has lost the feeling of being master of the land.

A way out of the situation is seen in fuller use of the new economic mechanism, which includes a whole complex of economic measures. First of all there are the transfer of kolkhozes, sovkhozes and other enterprises of the APK to full economic accountability and self-financing and the wide dissemination of contractual forms of

organization and payment of labor. An especially large role in this system of measures is allotted to the lease contract. At the recent conference in the CPSU Central Committee it was quite justifiably called the shortest route to sufficiency. Over the past two years a great deal has been done in this regard.

Starting in 1988 about 60 percent of the kolkhozes, sovkhozes and processing enterprises have been transferred to full economic accountability and self-financing. Starting next year the whole system of Gosagroprom USSR will be transferred to these principles. At present two-thirds of the productive divisions in the kolkhozes and sovkhozes are operating on collective, family or lease contracts. We see our main task as being to achieve a general transition to such farming methods and genuinely to implement the economic accountability principles in the organizations that have concluded contractual agreements. In my opinion this must play a decisive role in the accelerated growth of the production of food products.

—The question of quality and selection is no less acute. The Leningrad resident V. Tertyshnikov, for example, recalls: "What sausages we had in the 1950's and 1960's. Smoked sausages such as the Moscow, Rostov, Semipalatinsk, Ukrainian, domestic and hunters varieties and boiled sausages such as the doctors, tea and other varieties. You could smell the aroma along the whole Nevskiy Boulevard. And the taste—finger-licking good. Now there is not even a trace of this. N. Vasilyev from Kerch, G. Tikhomirov from Dnepropetrovsk and the Muscovite V. Yefimov report the low quality of output. Some readers write with indignation that too much starch, soybeans and other components are added to the sausage filling.

There really are a lot of complaints about the quality of output. And they are justified. At many enterprises the technological discipline is very low. The ingredients are often put in by eye, without measuring. The required temperatures are not maintained, and the specified periods for keeping finished products are ignored...

Why, for example, does the Velebeyevsk municipal dairy in Bashkiriya produce 84-85 percent of its output of the highest grade while at the Temkin butter and cheese plant in Smolensk Oblast Gostorginspektsiya rejected almost a fifth of the cheese produced last year, although these enterprises have approximately the same equipment. The same thing can be said about the Krasnogvardeyskiy and Cherkizovskiy meat packing plants in Moscow. There are a lot of such examples.

But again, let us look at matters realistically. In 1970 only 466,000 tons of cheeses were produced and now more than 860,000 tons. For sausage products the corresponding figures are 2.3 million tons and 3.6 million tons. And all this was done on practically the same production capacities. Almost no new enterprises were built, and very little equipment was renovated. Of course such an increase in output without an increase in production facilities could not help having an effect on quality.

Also one should not fail to take into account the low prestige of work at these enterprises. And the pay here is approximately 30 rubles lower than in other branches of industry. The labor often is not mechanized.

—But the operation of the enterprises after all depends on the agroindustrial committees, including the national committee.

Of course. Unfortunately our agroindustrial committees clearly devote insufficient attention to food enterprises. When people display initiative and are interested in their work a great deal can be accomplished, especially in the strengthening of production discipline. But this does not mean that an order will be issued in Moscow and everyone will start to work well. It does not work that way. The enterprises of the food industry require the constant attention of local government bodies and especially of the public. Recently our newspaper reported that a consumers' club is being formed in our country. It could also take up this matter. Next to the dairy and the meat packing plant there are often large enterprises from other branches. Why should their personnel not provide supervisory assistance to the food industry workers? Public supervision over the work of the meat plants, dairies and bakeries will be very useful. I already said that few branches work in conditions such as ours. Let us have a restructuring here too, pay attention to everything happening around us and feel ourselves to be in charge.

The great attention to the work of the food and processing enterprises on the part of the Central Committee of the party and the Government is gratifying. I shall tell you frankly: not long ago at all we practically did not have any clear prospects for the development of this sphere of the agroindustrial complex. It was considered secondary. Now the situation has changed radically. Measures have been spelled out for accelerating the development of the processing branches of the agroindustrial complex and increasing the technical level of equipment produced for them.

A program for increasing capacity has been developed and is being carried out actively. While last year the machinebuilding enterprises supplied us with equipment valued at 2 billion rubles, already by 1995 this figure will rise to 7.5 billion. The needs of the food branches for equipment will be covered by domestically produced machinery and devices. Their quality will be raised sharply. It is intended to bring the output of equipment meeting world standards up to 90 percent. The construction of new enterprises in the raw material zones is anticipated. Special attention is being devoted to the establishment of small plants and shops directly in the kolkhozes and sovkhozes. There will also be a transition to the most advanced production processes. A broad

program of raising the professional skills of the workers in the food branches is planned. An important lever for improving quality will be economic accountability and also state acceptance testing, which has already been introduced at 24 enterprises. Beginning next year many meat packing plants and dairies will be transferred to this method of operation.

—But still, Yevgeniy Ivanovich, what can be done about the additives used in the production of sausage products?

So much has already been said and written on this subject that it would be difficult to break down the entrenched prejudice with a few phrases. But since you insist, I shall tell you.

We process four million tons of meat into sausage. Out of them only 190,000 tons are replaced by equivalent additives of soya isolate, caseinate and milk protein, in all 4.8 percent. For what purpose? First of all not to reduce the use of meat but to increase the biological value of meat products. It has been proven scientifically and practically all over the world that the combining of meat with milk proteins and also with protein of vegetable origin when producing sausage products is necessary. It makes it possible to balance people's nutrition with regard to protein, fat and other vitally important substances.

In countries like the United States, the Netherlands, the Federal Republic of Germany and Denmark a high level of consumption of meat and meat products per capita has been attained. There too, however, various proteins of vegetable origin are widely used in the production of sausage products, prepared meats and canned goods.

I understand that for people not only the biological value of sausages is important but also the taste and aroma. And here everything depends on us, the agroindustrial workers and on the strict observance of technology. Unfortunately, as has already been said, there are many shortcomings here. We often, like a poor housewife, prepare an unsavory dish from good ingredients.

Here too we are trying to correct the situation. Recently we had a meeting of the directors of meat plants on the subject at Gosagroprom USSR. There was a very sharp conversation. Ways to increase the personal responsibility of the executives, specialists and all employees of the enterprises for raising quality were pointed out.

We shall strictly supervise the implementation of these measures.

—One last question, Yevgeniy Ivanovich. You probably guessed that it is about prices. This problem is touched one way or another in letters from N. Klimov of Staryy Oskol, Yu. Kuznetsov of Chelyabinsk, L. Vasserblogo of Dushanbe and many others. The readers write that prices are constantly rising.

Recently state prices for food products have not risen. It is necessary to explain why people have the impression that these products are becoming more expensive.

As you know, the decree of the CPSU Central Committee and the USSR Council of Ministers "On the further improvement of the economic mechanism of management in the agroindustrial complex of the country" permits the kolkhozes and sovkhozes and other agricultural enterprises to sell to consumer cooperative organizations and at kolkhoz markets at prices set by agreement up to 30 percent of the planned volume of state purchases of potatoes, vegetables, melons, fruits, berries, table grapes and also above-plan agricultural production. Then the decree of the CPSU Central Committee and USSR Council of Ministers "On transferring enterprises and organizations of the Gosagroprom USSR system to full economic accountability and self-financing" included citrus fruits, pond fish and products made from them, mushrooms, potatoes and several other kinds of APK products in the list of products that could be sold by businesses at prices set by agreement. It is natural that the prices on such products are somewhat higher than the state prices. But the quality is also higher.

In addition in recent years many agroindustrial combines, associations agrofirms and agrocommercial enterprises have been established. These new institutions also received the right to set prices on their brand name products. Finally the consumer cooperatives have invigorated their operations in the cities.

The thing is that there are now more channels for sales. And people draw a conclusion about the increase in state retail prices.

—Probably many people understand, Yevgeniy Ivanovich, that one cannot go on forever selling meat at a price that is half the cost. But here is the question that arises in this respect. There are farms where the production cost of a kilogram of meat is lower than two rubles. Does this mean that even under today's conditions livestock raising can be profitable, if a firm course is adopted for lowering expenditures and if all farms can be made to operate at the level of the best ones?

There have always been and there always will be advanced farms that achieve high results. But there will also be the mass of average farms. Therefore to set up the economy and methods of management looking only at the advanced enterprises is even theoretically incorrect. Marx himself wrote that the market price of an agricultural product must, as he expressed it, be higher than the cost of production on the worst land. Note that he said on the worst land and not on the best. This means that a peasant operating a farm in unfavorable conditions must receive some kind of profit, albeit a minimal one.

In our time too this demand remains in force. It found its reflection in the Law on Cooperation in the USSR, which was adopted by the ninth session of the USSR

Supreme Soviet. There it is stated directly that prices for the products of crop raising "must ensure the coverage of the costs of production and the obtention of the net income necessary for the expanded reproduction of kolkhozes located in the relatively worst climatic and economic conditions." By the way, in our country more than 60 percent of the arable land is located in the zone of risky agriculture. Much land has low natural fertility.

To put it briefly, no one expects all kolhozes and sovkhozes to have performance records on the level of the advanced ones, although we are justified in expecting that the new conditions of management will help to raise the effectiveness of production and increase profitability in a comparatively short time.

Such an approach to the matter seems more realistic.

12893

Academician Tikhonov Comments on Draft Laws for Cooperatives

18240099a Tashkent SELSKAYA PRAVDA in Russian 11 May 88 p 3

[Interview with VASKhNIL Academician V. Tikhonov by TASS correspondent: "The Road To Initiative and Enterprise"]

[Text] On 24 May, the 9th Session of the 11th Convocation of Deputies of the USSR Supreme Soviet convened in Moscow. It was faced with having to resolve the fate of the draft USSR Law Governing Cooperation, which is being discussed extensively by workers at the present time. If it is adopted by the high legislative organ, it will then become an innovative document which will be revolutionary in spirit and which will determine for many years into the future the development of the cooperative movement in our country. This is why the draft law is being given such fixed attention.

Rural residents are displaying increased interest in it as they express their opinions and comments. These recommendations are being thoroughly studied so that they can subsequently be presented to the deputies of the USSR Supreme Soviet. The group of specialists engaged in this great work includes VASKhNIL [All-Union Academy of Agricultural Sciences imeni V.I. Lenin] Academician V. Tikhonov. He agreed to provide answers for questions submitted by a TASS correspondent, questions of interest to rural workers and having to do with the statutes of the draft law.

[Question] **We note that the draft law presents broad opportunities for the democratic development of collective farms as modern soviet socialist cooperatives. In the form of a guarantee for the rights of a kolkhoz, this document calls for measures the use of which will make it possible to combat more successfully certain numb stereotypes which existed during the previous period and which paralyzed the independence of a kolkhoz in carrying out its agricultural activities. In particular, Article 30 points out that a kolkhoz is authorized, without hindrance, to engage in all types of activity provided they are not directly prohibited by existing legislation. There was obviously a good basis for the formulation of this article. Was this not so?**

[Answer] Actually, in the not too distant past the work of kolkhozes was limited only to agricultural production—they were not encouraged to engage in any type of business, industrial activity or trade. In essence, their functions were limited merely to the production of agricultural products. They were often even prohibited from carrying out processing work, with all of their products being shipped to processing enterprises as raw materials.

And indeed even Marx wrote about the unfortunate situation in Russia, where 65 million rural residents live in regions where all types of activity, with the exception of agricultural production, are forbidden for 8 months of winter after work has been completed out on the fields. It was as though Marx foresaw the possibility of such prohibitions and warned against them.

With the adoption of the law, the right to engage in any economically profitable activities, in addition to agricultural production, will be returned to the kolkhozes. To sew blouses, to produce parts for television sets and to prepare smoked sausages—as much as one wants.

[Question] **Certainly, it makes no sense to forbid this type of activity—so long as it does not lower interest in purely agricultural production. But is it not true, Vladimir Aleksandrovich, that there are other traditions of such a type in daily kolkhoz practice which Marx did not write about but which could be dealt a serious blow when the law is adopted?**

[Answer] Yes, this applies in particular to the forced inclusion of a kolkhoz in a different type of association or combine despite its interests. Let us take that section of the draft which states that kolkhozes have the right to enter inter-farm associations. We would note that emphasis is placed upon the voluntary nature of such entrance into various types of formations. This guarantee for voluntariness rather than actual coercion is of extreme importance at the present time. Today kolkhozes are being forced to join all types of formations even in those instances when it is economically unprofitable for them to do so. Meanwhile, the basis for such practice is the decision that was handed down in 1976 calling for the development of specialized agricultural production, based upon inter-farm cooperation and agro-industrial integration. The authors of this decree generally overlooked at the time the essence of Lenin's cooperative plan, declaring the forcible creation of inter-farm associations to be a new stage in its implementation. The draft USSR Law Governing Cooperation,

which contains a guarantee for action on a voluntary basis, will aid in averting the policy of forcibly including kolkhozes in economically unsuitable alliances.

[Question] **How is this guarantee expressed specifically?**

[Answer] But how else! It follows that if the economic interests and legal rights of a kolkhoz in such an association are infringed upon or if its work within a particular association is not sufficiently effective, then the farm, on the basis of a decision handed down during a general meeting, is authorized to withdraw from the structure of this association or system. The right to withdraw from an association is a guarantee that accompanies the voluntary entrance of kolkhozes into cooperatives. As is known, there are many inter-farm enterprises in operation today. But it often happens that, having been created based upon the resources of merged kolkhozes, they are isolated from these farms and for all practical purposes become independent. Moreover, at times they issue commands to their own shareholders, forcing them to carry out, for the purpose of inter-farm production, certain functions not called for in the regulation and nobody pays attention to whether or not the functioning of such an inter-farm enterprise is profitable or unprofitable for the kolkhoz shareholders.

The situation will change with the adoption of the law. A kolkhoz may be able not only to withdraw as a participant in an inter-farm organization but in addition it may receive back the amount of material resources which it invested for its creation. It is believed that such a guarantee for voluntariness and freedom in the adoption of decisions by a kolkhoz will serve as a powerful stimulus for achieving more efficient operations by inter-farm enterprises in the future.

[Question] **Judging by the discussion which arose regarding the draft Law Governing Cooperation, one important question today with regard to its vitality is that of the prices for agricultural products. Understandably, this is not only an economic but also a political problem, since we are discussing here the conditions for economic interaction between various social groups in our society, for example cooperation specialists and representatives of other layers of the country's population. Thus what can the prices be for agricultural products in light of the changes taking place in rural cooperative production? What does the draft law have to say on this subject?**

[Answer] If you please, in our economic life there is no more neglected system than the system of prices. In Stavropol Kray, we cultivate wonderful wheat and we pay on the order of 100-107 rubles per ton of it. And for the low quality wheat grown in Tomsk Oblast, where almost annually it does not ripen and suffers from frost conditions, we pay 170-180 rubles per ton. We are finding such mysteries in price formation in all areas. Moreover, a regularity is clearly apparent here—the lower the cropping power and the grain quality, the higher the purchase prices for it. The same holds true for sugar beets and potatoes! This can be explained only by the fact that the price formation system has developed based upon the principle of covering all of the expenses of a producer for a particular product and ensuring that he obtains a certain amount of profit, that is, net income. A savings is not implied here. But rather we have an unreasonable expenditure of resources and parasitism, with the producer becoming accustomed to unjustifiably high prices. Thus, for the very first time in the USSR, the Draft Law on Cooperation places the price formation system on a truly intelligent and economically sound basis.

In order to raise production efficiency throughout our country's vast territory, special zones for the large-scale production of certain types of products must be formed in the various regions of the country. More precisely, I would add that we need specialized zones for large-scale commodity production.

What does this mean? Let us take the steppe regions of the Ukraine, Russia, Kazakhstan, the southern Urals and western Siberia. Wonderful conditions are found here for the cultivation not only of grain but also food wheat, wheat possessing high baking qualities, the same wheat which since ancient times Russia has shipped to foreign markets, the same wheat which brought Russia the title of the breadbasket of Europe and that same wheat which we are losing today. We must restore the large-scale commodity production of food wheat in these zones to its former level. We have presently reached the point where such wheat is not available, not even in the Ukraine. In order to have good grain there, we are forced into having to import wheat so that it can be added to our local wheat and employed for the baking of tasty bread. Why? Because we have extended the sphere for the cultivation of wheat to Novgorod, to Ivanovo, to Tomsk and to Khabarovsk—to wherever we pleased, even to those regions which will never provide good quality.

And we are paying large amounts of money for it. What is preventing us from creating such specialized zones?

Precisely the fact that under all conditions we are paying peasants for the production expenses! They have adapted themselves to the wheat cultivation technology and are aware that although it is poor, the cropping power low and the grain expensive, they will nevertheless be paid back for all of the expenses involved in growing it.

[Question] **Could it be that we are disturbed over the production volumes for this product, that there is a shortage of grain and that we are forced to accept these expenses?**

[Answer] Let us return to the wheat. Wheat is a bread grain. It is not suitable for feeding to livestock, since it is poorly assimilated by an animal organism. It is not effective either from a physiological or economical

standpoint. As a matter of fact, the protein of wheat is the most expensive protein of all of the grain crops. As a food product, we require up to 36-37 million tons of wheat annually. We are growing up to 100 million tons annually. Moreover, just as in the past we are purchasing millions of tons on the foreign market. That is, we have at least two and a half times more of this wheat than we require for food purposes. Thus we know in advance that we are sowing and growing wheat for feeding to our livestock. With the exception of ourselves, no other large-scale producer has followed this path. It would seem that the reason for this lies not in the fact that we require more wheat, but rather that we are troubled by disorder and particularly by disorder and mismanagement in our price system.

[Question] **What can be achieved from the establishment of specialized zones for the large-scale production of this wheat?**

[Answer] We must decide in which regions we must cultivate wheat for satisfying the country's requirements. And these regions differ from one another. In some the bioclimatic conditions are more favorable and in others—less favorable. Thus, it is pointed out in the draft law that the prices for products of the principal specialization in these zones must cover the production expenses of kolkhozes which are operating under worse bioclimatic conditions in the given zones and they must be provided with the required savings. In other better regions of a given zone, the farms sell their products at a uniform price, but they make rental payments for their more favorable natural climatic conditions. According to our computations, the prices under the worst conditions in specialized zones and their level will always be such that kolkhozes in zones considered to be unfavorable for the particular product will refuse to produce the product. It will be unprofitable for them.

[Question] **Does this mean that a Tomsk kolkhoz member must give some thought to what he should grow in place of wheat?**

[Answer] Yes and he will easily find a solution for the problem. Feed barley grows very well in Tomsk Oblast—it is highly profitable. Oats, which are needed for a forage balance, also grow very well in Tomsk Oblast. Tomsk kolkhoz members will obviously specialize in these products, since favorable natural climatic conditions prevail for their cultivation.

It is my belief that the question concerned with the regulation of price formation has also been raised for the first time in our economic history and it has truly a scientific and truly rational economic basis in the draft law.

[Question] **Many questions are being raised with regard to just how the relationship between the economic independence of cooperatives and the state order system is being determined in the draft law. Is this not so?**

[Answer] Here is how Article 31 of the draft law reads: "Kolkhozes and other agricultural cooperatives conclude contracts with enterprises and organizations engaged in the procurement and processing of agricultural products for the delivery of said products, based upon a state order issued to the agro-industrial associations, agricultural combines and other agro-industrial formations, enterprises and organizations." The impression is created that this article can be used for the forcible delivery of tasks to kolkhozes, with the form of a state order being concealed.

And indeed, in the draft law emphasis is placed upon the fact that each cooperative independently forms the production plan and organizes the production and sale of its own products. Nobody is authorized to interfere in the economic life of a cooperative and nobody can dictate to it its structure or production volumes. Article 9 of the draft law provides a guarantee against such interference.

A kolkhoz, similar to any other cooperative, is authorized to find purchasers for its own products and to select the suppliers for its production-technical resources. And this right is also guaranteed by the draft law. In particular, it is stated that the principal document for regulating all of the economic relationships of a cooperative, including a kolkhoz, is a contract. Moreover, the guarantees for independence by kolkhozes, including kolkhozes, in concluding contracts are formulated in Article 15 of the draft law. If as a result of interference in its contractual relationships, a kolkhoz suffers a loss or sustains material damage, such loss or damage must be reimbursed by those organs or officials who interfered in their contractual relationships. The draft law is thus good in the sense that it establishes material and property limitations for various arbitrary actions. Moreover, it is pointed out in the draft that a kolkhoz can institute legal proceedings against any administrative organ that tolerates illegal interference in the affairs of the kolkhoz.

[Question] **This is a very important article. Is this not so?**

[Answer] Here another aspect comes to mind: the kolkhozes and other cooperatives must have the courage to make full use of the law. Indeed, the strength of any law appears only when those to whom it applies campaign for the accurate and absolute fulfillment of its norms.

With regard to Article 31, which we have just discussed, it is my opinion that its wording should be changed. In particular, I believe that the statute should be worded in the following manner: "Kolkhozes and other agricultural cooperatives have the right to conclude contracts with the appropriate enterprises and organizations, for the carrying out of a state order under conditions which are mutually advantageous both for the kolkhoz and for those enterprises which issued the state order in behalf of the state." Such wording would be considerably more accurate.

[Question] **But should the state present the kolkhozes with such freedom in the absence of grain, potatoes and other products?**

[Answer] This will never happen! This is a naive fear that derives from the conviction that only with the aid of a strong law can we force kolkhozes to work for the state. Indeed, kolkhozes are collective producers of goods. A kolkhoz cannot exist if its products are not sold. To whom will they be sold? Certainly, to those who will buy the products under the most profitable conditions. And who other than the state possesses the potential for providing the most profitable conditions? It is clear that there is nobody else. Thus the state order system must obviously be examined and the possibility of including products which are not needed in this system must be eliminated. The bulk of an order must be limited to those product types and volumes which are truly needed for satisfying state needs. And those enterprises which appear in behalf of the state as customers for these products should be allowed to maneuver their resources freely and profitable conditions should be created for the kolkhozes for the production and cultivation of high quality products and for the sale of such products to the state. In this manner, all of the fears which we have just discussed will be eliminated completely.

[Question] **It appears that an attempt has been made for the very first time in an official document—a legal document—to proclaim clearly the economic independence of a cooperative. This is of tremendous importance for the further development of kolkhoz democracy. Is this not so, Vladimir Aleksandrovich?**

[Answer] I am firmly convinced that all of the norms and rules governing the economic and social work of a kolkhoz are reflected and appropriately regulated in this draft. They are capable of providing a kolkhoz with true democracy and not just in words but also in its day to day activities.

7026

LIVESTOCK AND FEED PROCUREMENT

Feed Support for Animal Husbandry on Behalf of Food Production

Regional Self-Support in Food Products

18240098a Omsk ZEMLYA SIBIRSKAYA, DALNEVOSTOCHNAYA in Russian No 5, May 88 pp 2-3

[Article by L.B. Yermin, chairman of RSFSR Gosagroprom: "Based Upon Intensification"]

[Text] Today it is difficult to exaggerate the role played by the eastern regions of the country in carrying out the primary task established by the party—to achieve a substantial improvement in the supply of high quality and diverse food products for the population within the next 2-3 years. They account for one third of the gross agricultural output of the RSFSR. Siberia and the Far East are making a worthy contribution towards the production of grain, potatoes, meat, milk, eggs and wool. However the requirements for the principal food products, by means of internal production, are being covered only in certain oblasts, krays and autonomous republics. Up until now, the majority of the eastern regions have been importing milk, meat and vegetables—almost all from other regions of the country and at times even from abroad. Meanwhile the Food Program, the schedule for which calls for fulfillment within 3 years, underscores the need for achieving an increase in the effectiveness of all agricultural branches and a reliable supply of food goods for these regions based upon local production.

The operational results of oblasts, krays and autonomous republics were examined from this standpoint during a seminar-conference conducted in the city of Tomsk in response to an initiative by the CPSU Central Committee. The first secretaries of CPSU oblast committees and kray committees (chairmen of executive committees) and the chairmen of agro-industrial committees participated in the work of this seminar-conference. A maximum amount of attention was concentrated upon the intensification of feed production and animal husbandry—branches which furnish almost two thirds of the region's total gross agricultural output.

Analysis reveals that the work being carried out in Khabarovsk Kray and in Tomsk, Kemerovo and Omsk oblasts is better in this regard than it is in other areas. Here a large output of products has been achieved per 100 hectares of land and the productivity of livestock and poultry is higher with fewer expenditures per unit of output. But throughout the region as a whole, the branch is still troubled by a considerable amount of problems. I would like to direct attention to some of these.

Meat production. The majority of the rayons have favorable conditions at their disposal for expanding the production of this product and yet they are not making full use of these conditions. Last year the average production figure for the republic was 64 quintals (in live weight) per 100 hectares of land, on farms in Western Siberia—46, Eastern Siberia even less—35 quintals. For some oblasts, the differences are even greater: although Irkutsk Oblast produced 68 quintals, the neighboring Buryat ASSR—38 and Chita Oblast—only 18 quintals, less by a factor of almost four. A similar picture prevails in Western Siberia, where the residents of Novosibirsk Oblast produced 41 quintals, their neighbors in Tomsk Oblast—72, Kemerovo Oblast—79 and in the Altay Kray—only 35 quintals. On the one hand, this underscores the existence of different attitudes towards production organization and the use of the tremendous land resources and, on the other—to the large reserves which the region's farms have at their disposal.

In some oblasts, more meat is being consumed than is being produced and the numbers of livestock are declining under the guise of intensification and increasing productivity. Large losses are being sustained by those farms which are turning over low-weight (300 kilograms) cattle, as is being done in the Maritime Kray. Meanwhile, the expenditure of meat products over the past 13 years in this kray has increased by 14,200 tons, with one half of the market fund being formed by means of subsidies from state resources. The same holds true for Irkutsk Oblast. The expenditure of meat products during this period increased by 12,500 tons, including a 70 percent increase in deliveries from the republic fund. And in Tomsk Oblast a complete conversion was carried out over to self-support and the market fund for these products was increased by more than 10,000 tons.

The increase in the production of dairy products cannot be considered as satisfactory. Just as in the past, there are no free sales of butter in the cities and industrial centers and shortages are being experienced in cheese, cottage cheese and many other dairy products. The quality of the milk is arousing serious concern. The milk quality for the region is lower than that for the republic as a whole and we are encountering instances when it is impossible to obtain good quality cheese, butter and other products from the milk. And indeed there was a time when Siberian cheeses and butter were highly respected on the world market.

The expenses for milk production are excessively high. In Amur Oblast, the production cost for a quintal of milk is 64 rubles, roughly at the same level for the Maritime Kray. Other shortcomings and problems could be cited, all of which are restraining the development of dairy cattle husbandry. However, the chief shortcoming is poor utilization of the branch's potential. Allow me to cite specific examples. At the Komsomolets Sovkhoz in Sakhalin Oblast, more than 7,000 kilograms were obtained from a cow last year and from 120 cows—15,000 kilograms. For the region as a whole, the milk yield per cow does not exceed 2,500 kilograms. One out of every four farms is obtaining a milk yield of from 1,000 to 2,000 kilograms and 24 kolkhozes and sovkhozes are not obtaining 1,000 kilograms. In particular, there are many such farms in Chita and Amur oblasts and in the Yakut ASSR. An increase in milk production is seen as one of the chief reserves for improving the status of backward farms and rayons.

As is known, at the end of last year the CPSU Central Committee examined the problem of serious shortcomings in mastering the economic factors involved in the intensification of animal husbandry in Chelyabinsk Oblast. It was noted that the level of organizational and political work by the CPSU oblast committee and oblast executive committee in the development of animal husbandry is not in keeping with the vital tasks associated with branch intensification and, on this basis, improving the supply of meat and especially internally produced whole milk products for the population. The methods outlined in the decree of the CPSU Central Committee for Chelyabinsk Oblast, in connection with solving the problems concerned with the intensification of animal husbandry and introducing economic factors into operations, must be utilized in all oblasts, krays and autonomous republics throughout the region.

During the seminar-conference in Tomsk, the leaders of oblasts and agroproms became thoroughly convinced with regard to how it was possible to solve many problems concerned with implementing quality changes in the herd, improving breeding and zootechnical operations, completing the all-round mechanization of labor-intensive processes and introducing into operations on an extensive scale progressive production technologies and leading forms for labor organization and wages, including collective, family and lease contracts. The technological levers for intensification were revealed very clearly during visits to leading farms and enterprises in Tomsk Oblast. Scientists attached to the Siberian Branch of VASKhNIL [All-Union Academy of Agricultural Sciences imeni V.I. Lenin], farm and enterprise leaders and specialists and other participants in the seminar provided detailed comments on the results realized from the use of intensive technologies.

Feed is considered to be a decisive factor in the intensification of animal husbandry operations. There must be as much concern for feed as there is for grain. The cropping power of the forage crops must be raised throughout the region and we should not tolerate as low a figure as we have at the present time—15-16 quintals—and in the Tuva and Buryat ASSR's—less than 10 quintals. But our misfortune lies not only in the fact that we are obtaining only a small amount of feed. Of equal importance is the fact that this feed is of low nutritional value. And indeed "protein" programs have been developed in all areas and there has been much discussion centering around these programs. However, they are being implemented in the various areas in a poor manner. Over the past 2 years, not one autonomous republic, kray or oblast in the region fulfilled its plans for the procurement of pulse crops.

It is only recently that we have noticed increased activity out on the soybean plantations and this also applies to sunflower seed and other oil-bearing crops used in the production of high protein feed additives and yet we still do not have much to boast about here. At one time, oil-bearing flax and falseflax were the zone's traditional oil-bearing crops. But today the sowing areas for these crops have been reduced somewhat in size and thus intolerable harm has been inflicted upon the resources for vegetable oil and feed protein.

Proper use is not being made of one valuable high protein oil-bearing crop—rape. The all-round programs for the production of rape seed are being fulfilled only on farms in Omsk Oblast and the Buryat ASSR. In Novosibirsk and a number of other oblasts the established tasks were fulfilled only from 2 to 10 percent.

Attention should be directed to the production of nutrient yeasts from waste products obtained from the processing of timber, as is being done in Penza Oblast in the interest of eliminating the protein shortage in feed.

And certainly, increased attention must be given to the development of the grain economy, since forage grain constitutes a considerable proportion of the feed balance structure. At the same time, we must solve more actively the problem of augmenting the grain forage resources by means of corn. At the present time, experience is available practically in all areas in cultivating corn using a grain technology. The task consists of utilizing more fully the potential afforded by this crop.

Allow me to make some brief comments concerning the use of natural feed lands. As early as March 1983, the RSFSR Council of Ministers adopted a special decree dealing with this question. However, the established volumes for radically improving the region's meadows and pastures during the 1984-1987 period were realized by less than 50 percent and in the Tuva and Udmurt ASSR's—less than 10 percent. The work was held up in all areas as a result of a chronic shortage of perennial grass seed and it is in this area that we are hoping to receive a real contribution by workers attached to our numerous scientific-research institutes and farm and agroprom [agro-industrial committee] workers.

In short, all reserves for accumulating feed must be placed in operation such that each oblast, kray and autonomous republic will be able to procure during the current year 3-4 more quintals of feed units per standard head than has been the case in the past. And in addition to raising and procuring this feed, it must be conserved and maintained in a high quality state.

More complete use must be made of the potential of private plots and the subsidiary farms of industrial enterprises. Valuable experience has been accumulated throughout the region in accelerating the development of peasant yards and the production of animal husbandry products on private plots, particularly in Omsk, Kemerovo, Kurgansk, Tomsk, Magadan and some other oblasts. Some of the region's cities possess interesting experience in organizing cooperatives for the production of animal husbandry products.

Mention must necessarily be made of the potential of farms belonging to nationalities in the north, where the traditional branches are reindeer breeding, fishing, hunting and fur farming. These branches produce food products and other goods for which there is a strong demand.

An object of special concern must be substantial improvements in the processing of animal husbandry products, as is being done in Tomsk, in the quantity and quality of the food products being produced by processing enterprises and in achieving more efficient use at these enterprises of the raw material resources and productive capabilities.

The initial operational results from converting over to self-financing and complete cost accounting reveal that solutions have still not been found for many problems associated with improving administration and reducing the size of the administrative structure. The formation of combines, firms and associations at the rayon level within the republic has commenced. The agroproms of oblasts, krays and autonomous republics are familiar with the experience of the Novomoskovsk Association in Tula Oblast. They sent specialist-technologists from RAPO's [rayon agro-industrial associations] to aid in carrying out production operations at field crop husbandry, animal husbandry, construction and agricultural service cooperatives, retaining only services within the administrative structure: bookkeeping, planning-economic, financial and control-auditing. But the agroprom leaders are not displaying proper interest in this experience. In November of last year, during a scientific-practical conference conducted by the CPSU Central Committee, it was noted that there was not one agro-kombinat [agricultural combine] in the Altay Kray or in Kemerovo or Perm oblasts. Nor are there any today, many months later.

Or another example. The Kukuruza Scientific-Production System is operating effectively in Kurgansk Oblast. Its experience has been approved and recommended for dissemination on an extensive scale and yet no noticeable progress has been observed in this regard.

Under the conditions imposed by complete cost accounting and self- financing, special importance is being attached to the problems of production specialization and concentration. As a rule, large specialized farms enjoy stable economic situations. The leaders of agroproms could become convinced of this fact at meeting of the board in Penza Oblast, where a great amount of attention is being given to the problems of specialization and concentration. It is believed that use must be made of this experience in all oblasts, krays and autonomous republics throughout the region.

There are many problems associated with converting over to the new operating conditions and yet the most difficult of them is that of solving the problems of unprofitable and low profitability farms. They must be provided with the required logistical resources, they must be supplied with economically knowledgeable and skilled personnel and production, housing, cultural-domestic and highway construction must be carried out on these farms. It is possible that other measures will have to be employed in some areas.

The Solutions for the increasing tasks which the party is assigning to the republic's agro-industrial complex require the mobilization of all forces and resources. The successful carrying out of these tasks is dependent to a decisive degree upon how the daily work is organized in all of the elements and in each labor collective, upon the successful completion of the livestock wintering period,

upon thorough preparations for the spring sowing campaign and upon solutions being found for all other problems. The republic's Gosagroprom [State Agro-Industrial Committee] is confident that workers attached to the APK [Agro- Industrial Complex] for Siberia and the Far East are doing everything possible to ensure the successful fulfillment of the tasks for the current year and the five-year plan as a whole and to worthily prepare for the 19th All-Union Conference of the CPSU.

Importance of Summer-Pasture Period for Dairy Farms

18240098a Minsk SELSKAYA GAZETA in Russian 12 Jun 88p 1

[Interview with L.V. Magonov, deputy chief of the Main Administration for the Production and Processing of Animal Husbandry Products of Gosagroprom for the BSSR, by correspondent L. Kolbasko; date and place not specified]

[Text] The livestock breeders of our republic are steadily and consistently forging ahead to their cherished goal—an annual milk yield of 4,000 kilograms per cow. This year they must reach the goal of 3,200 kilograms. The majority of the farm collectives have made a fine start—they completed their livestock wintering campaign in a successful manner. At the present time, a new and decisive stage along the path to reaching their high goal is at hand—the summer-pasture period. The overall annual success of these collectives will be largely determined by the manner in which this campaign is organized and conducted.

In this article, L.V. Magonov, deputy chief of the Main Administration for the Production and Processing of Animal Husbandry Products of Gosagroprom for the BSSR, discusses with our correspondent the peculiarities, problems and tasks of this year's season.

[Question] **Leonid Vladimirovich, how would you describe the beginning of summer for the labor collectives of our dairy farms?**

[Answer] Today each day is important for deciding whether or not success will be realized. Work must be carried out in each sector in a manner so as to ensure the production of a maximum amount of high quality products. It is pleasant to note that precisely this trend serves to describe the work of a large number of farms throughout the republic, farms which have achieved high daily milk yields. Improvements have been noted in the work of "average" farms and farms which earlier had fallen behind in their yields. All of this has made it possible, on the average for the republic as a whole, to achieve an unprecedented daily milk yield in excess of 12 kilograms. We have thus overcome a type of psychological barrier, we have verified the reality of the tense plans and we have begun searching for methods for implementing them. Here we see the result of efforts expended by livestock breeders over a period of many years aimed at improving the herds and creating a strong feed base, in coordination with the overall technological complex of factors affecting the outcome of farm operations.

[Question] **But as noted on the basis of many years of practical experience, the middle of June is characterized not only by a peak in the daily milk yields but also by the commencement of a decline in productivity. What are the specialists forecasting for this season?**

[Answer] Certainly, we would like to maintain a high productivity for the dairy herd for as long a period of time as possible. And if we base this upon objective factors, then this would also appear to be realistic. In the final analysis, the summer's "peak" is still not near at hand and the physiological condition of the milking herd is making it possible to solve this task in a successful manner. But judging on the basis of a number of years, a reduction in milk yields during this period has become almost a regular occurrence. I believe that we will not succeed in avoiding such a decline this year if an entire complex of recommended measures is not undertaken in the various areas aimed at ensuring the efficient and intensive use of pastures. This includes around-the-clock pasturage and technological grazing of areas with the aid of electric fencing and the introduction into the ration of a top dressing in the event of a shortage of pasture feed. Special attention should be given to the operation of the milking equipment, which at the present time is bearing a double workload.

[Question] **If such a situation is being repeated from year to year—the graph curve for milk yields falling prematurely—should this question not be studied more thoroughly in this republic which has a widely dispersed network of scientific institutes?**

[Answer] This question is truly deserving of more thorough and detailed study. There is no simple solution for it. Each specific incident has its own practical solution. But it is here that we are obviously encountering the theoretical level of the problem and thus science must play a role.

[Question] **Thus, is it your opinion, Leonid Vladimirivoch, that this is a random happening and that the cow productivity coincides with the completion of the first cycle of pasture grazing on the one hand and with the commencement of hay mowing time on the other, when the best periods prevail for harvesting the grasses for winter feed but at which time the summer base is exhausted and appears so in the form of a deteriorated grass stand?**

[Answer] If you please, here we have the primary cause of failure on the part of a majority of the farms—inability to maintain a high productivity for the milking herds during the summer months. In any case, only poor results ensue from unskilled and wasteful use of pastures.

It must be confessed that the practice of carrying out an early May mowing of pasture grasses has not taken root in all areas. Many have developed the habit of viewing these areas as additional haying lands. Many farms still do not have adequate pasture areas and thus they are limited insofar as being able to utilize them with the aid of modern technologies. However, good returns are being realized in those areas where the pastures are viewed exclusively as a source for summer feed. This is borne out by the experience accumulated in Minskiy, Nesvizhskiy, Zhitkovichskiy, Cherikovskiy and Goretskiy rayons, where a large portion of the output is being obtained during the summer period. Good quantities of milk are being obtained on those farms where use is being made of various technologies: regular rotational grazing areas, consistent mowing of the areas, organization of a regular water supply for the herds and farms and progressive payments for the livestock breeders based upon output.

Unfortunately however, we are still encountering incidents in which surplus pasture areas are being used simply as haying areas, with the boast being made that haylage and silage are being added to the transitional funds with each passing year. One looks at this feed at times and finds it difficult to refer to it as feed, since the return from it is minimal. In short, summer is a thrifty period for livestock and yet it is possible to obtain more high quality products with fewer expenditures of labor and feed.

[Question] **Figuratively speaking, although our chief summer concern is feed for the winter campaign—from the standpoint of finished product—it can nevertheless be said that a bird in the hand is worth two in the bush and this would be the pastures. Is this not so?**

[Answer] Here our psychology serves as a strong braking factor. Yes and at times the economic factors still act as a brake. Some farms could obtain more milk, and their leaders and the livestock breeders are aware of this fact, but they are not conscientiously striving to achieve the maximum potential of their milking herds. Our incentives are based upon the level achieved. A "far-sighted" economic leader is interested in moving forward, but how is it possible for him to take even a half step if the following year there is neither forward movement nor incentives. We must still adjust our economy such that an economic leader is fully interested in obtaining maximum output today and not postponing this important work until tomorrow. A popular saying holds that that which is postponed until tomorrow if often left unfulfilled.

Summer is the most favorable period for the production of goods. And in creating the feed potential for winter, we must not overlook the summer feeds and summer output, the cheapest, least labor-intensive and best quality products. Thus, today the question as to whether or not there will be a large quantity of milk or not must be answered by each specific livestock breeding sector.

7026

TILLING, CROPPING TECHNOLOGY

Scientific Support for Increased Crop Production in Nonchernozem Zone

18240091 Moscow SELSKAYA ZHIZN in Russian 13 Apr 88 p 2

[Article by V. Mineyev, chairman of the Presidium of the VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin] Department for the RSFSR Nonchernozem Zone: "Potential of the Nonchernozem Zone"]

[Text] Party and state concern for the development of the Russian nonchernozem zone, for an advance of this vast region, and for its overall outfitting in all respects is well known. As a consequence, the production and economic potential is being accumulated and the capital available per rural worker now totals almost 17,000 rubles. This is twice as much as 10 years ago. Central homesteads of many farms and brigade settlements have become more attractive and revitilized and the local population, which at one time left its homes of many years, has begun to return to them. Nevertheless, the hearts of the Soviet people, as before, bleed for the nonchernozem zone.

This bitter reproach is also addressed to VASKhNIL scientists. First of all, we lag behind the demands of restructuring in the chief thing—in the development of specific differentiated ways and methods of increasing the efficiency of farming with due regard for the characteristics of every farm, specialization of crop rotation, and field cultivation and fertility. Scientific recommendations as yet do not reach every rural worker.

Selection work needs to be improved fundamentally. Grain crop varieties developed by scientists and introduced are noted for a late ripening, are damaged by pests and diseases, and lodge against a high fertilizer background. The selection of early ripening potato varieties is carried out poorly. Work on developing varieties of perennial, especially leguminous, grass with an increased seed productivity is expanding in an inadmissibly slow manner. If farms in the nonchernozem zone are not provided with clover seeds in the next 2 or 3 years, it will be impossible to master scientific farming systems and to sharply raise the productivity of plant growing and animal husbandry. Apparently, it is necessary to speed up the development of "klever" [clover] scientific production systems everywhere.

The most urgent economic problems, that is, an improvement in cost-accounting relations of sovkhozes and kolkhozes in the system of the agro-industrial complex and an evaluation of the efficient utilization of the production potential and social development of rural areas, are being solved slowly. The list of such shortcomings can be continued and the conclusion can be only

one. During the period of reforms science and scientists of different specializations and ranks should become not only generators of advanced ideas, but also active participants in their realization through advanced forms of management—scientific production associations, scientific production systems, production systems, and others.

Over what should our heads "agonize" primarily? For example, over one of the key problems of the scientific farming system—mastering of crop rotations. Whole generations of scientists have been talking about it, but the matter progresses very slowly. To this day, according to statistical data, mastered crop rotations occupy only three-fourths of the arable land and in some oblasts less than one-half. In fact, the situation is worse. And this despite the fact that farms need no expenditures on developing crop rotations. They need only knowledge and a desire! However, directives for changing the structure of sown areas have been given in a number of places up to now, although crop rotation is the foundation and basis for scientific cultivated farming. If there is no crop rotation, there is no elementary order on land!

All other agricultural measures are highly effective if they are applied in crop rotation. In this case the return on fertilizers increases by 20 to 30 percent and more. Without crop rotation it is impossible to apply the integrated plant protection system and the differentiated soil cultivation system, to realize the program for increasing soil fertility, and to obtain the proper return from the introduction of highly productive, new varieties.

Moreover, intensive technologies as the most important link of the scientific farming system will be truly effective if they are applied with a stable crop rotation. Meanwhile, many farms especially select the best fields for intensive technologies to the detriment of basic land areas. This is a faulty practice. In order to get rid of it, it is important to assign crop rotations to collectives working on the basis of a contract everywhere. True masters of fields will never permit disturbances in the crop structure, which occur owing to different, often contradictory, directives from above. Economic forms of incentives for farms, not the administrative strong-willed method, are needed.

More than 120 varieties of different agricultural crops from the selection of the scientific research institutions of our VASKhNIL department have now been regionalized. Many are noted for a high resistance to lodging and their yield reaches 80 quintals per hectare. They include "voskhod 2" winter rye, "luch" barley, and "moskovskaya 35" spring wheat. A high productivity—up to 600 quintals per hectare—is characteristic of "gatchinskiy" and "nevskiy" potato varieties. The new "izora" variety is promising. Nevertheless, the average yield of grain and potatoes is severalfold lower. What is the point here? The point is that there are flaws in seed growing.

As is well known, elite producing farms in the zone annually deliver 120,000 to 130,000 tons of grain of the highest reproductions and produce more than 200,000 tons of the same potatoes. With the proper reproduction these seeds are more than sufficient to fully provide all commodity areas in the zone. In practice, nonregionalized varieties and even nonvarietal crops occupy about one-fifth of the total area of grain crops on farms. For potatoes this share makes up one-third of all the plantings. The main reason lies in the fact that seeds of the highest reproductions are often used for food purposes, not for reproduction, and the zone annually receives up to 600,000 tons of grain and 800,000 tons of tubers less than envisaged.

The scientific farming system envisages an expanded reproduction of land fertility on every farm. This is attained primarily through the liming of acid soil and the application of organic and mineral fertilizers, soil protection technology, and other agricultural methods. However, liming rates in the zone do not yet meet practical requirements. In order that things may be different, during the 12th Five-Year Plant it is necessary to increase the annual delivery of lime fertilizers to 50 or 60 million tons and to bring the liming area, with due regard for the recommended doses, up to 6 or 7 million hectares. Such a volume will make it possible to change over to the recommended 3-year cycle of maintenance liming. Now, however, only one-half of the zone's need for lime is met. Furthermore, lime materials themselves are often applied to soil without due regard for scientific requirements. Deposits of loose carbonate rocks, which can be mined by the forces of oblast and republic agroproms, are of significant interest for making up for the shortage. Considerable reserves of such raw materials exist in Volgo-Vyatka and Ural regions.

A direct relationship between the standard of farming and the attitude toward organic fertilizers exists. The zone's farmers face the task of sharply increasing their application—from 180 to 300 or 320 million tons. It is important to utilize all available methods and sources of replenishing soil with the organic substance. First of all, this is an expansion of areas sown with leguminous grass or grass mixtures with the predominance of the leguminous component in crop rotations, the sowing of alternate, especially leguminous, crops for green fertilizer, plowing in soil surplus straw with an addition of nitrogen fertilizers, and replacement of clean fallow with green fallow, especially on light weakly cultivated soil. Other resources can also be utilized.

Of course, the application of organic fertilizers will give a genuine effect only in combination with all other methods of scientific farming systems. I repeat, they have been developed essentially for every farm in the zone. Unfortunately, their mastering is still in the nature of recommendation. The scientific farming system should be legalized for every farm. It should become the basis for the development of annual and long-term plans, which is especially important under the new conditions

of economic independence and self-support. Consequently, more efforts and responsibility on the part of farm managers and specialists and scientific workers are needed.

In connection with this systematic personnel training acquires special importance. We will make experimental-model, base, and advanced farms schools for improving primarily the skills of those working directly on land and on the farm and those fulfilling the Food Program.

Such research as the development of new methods for an expanded reproduction of soil fertility and the further improvement in all links of the scientific farm management system and in advanced technologies of agricultural crop cultivation now acquires special significance for the further increase in the efficiency of farming on the farms of this zone. Of course, with due regard for the solution of ecological problems of farming chemicalization, protection of the environment against pollution, and improvement in the quality of agricultural products.

The overall approach is the most important direction in scientific research and the main potential for the further development of the vast nonchernozem region.

11439

POLICY, ORGANIZATION

New Mechanism of Price Formation

18210013a Moscow EKONOMIKA STROITELSTVA in Russian No 5, May 88 pp 311-38 and No 6, Jun 88 pp 57-61

[Articles by A. N. Yezhov, candidate of economic sciences and sector head of USSR Gosstroy's TsNIIEUS (Central Scientific-Research Institute for the Economic Administration of Construction) under "Theoretical Problems of Restructuring the Administration of the Economy" rubric: "A Genuinely New Mechanism for Price-Setting in Construction"]

No 5, May 88 pp 31-38

[Text] Restructuring the construction sector's economic relations is an objective necessity as well as being a complicated process. One of the primary directions in this restructuring is the radical reformation of price-setting in line with CPSU Central Committee and USSR Council of Ministers Decree No 820 of 17 July 1987: "Basic Directions for Restructuring the Price-Forming System Under the New Economic Mechanism".

The journal EKONOMIKA STROITELSTVA initiated its discussion of this topic with G. M. Khaykin's article, "Price Formation Within the System of Economic Methods Used to Manage the Construction Sector" (Nos 11 and 12, 1987).

The author suggests that the prevailing price-setting mechanism, which uses estimated norms and prices to evaluate planned work volumes and resources to calculate the cost of each construction project, cannot produce the greatest final results. It is too far off target to achieve final national economic results, and first of all to reach the goals and perform the tasks incorporated into the investment policy which is designed to technically renovate the national economy through using the latest techniques and technology. He concludes that the primary thrust of restructuring price formation should be to set up a qualitatively new system of prices (No 11, p 25).

And how exactly does he suggest that this primary problem be solved? The author's suggestions can be reduced to three points: ceiling price, estimated cost and contract price. Let us take a look at them.

1. Using Obsolete Approaches

A ceiling price is the upper limit of a price for goods, and must not be exceeded. The notion of the ceiling (limiting) price is not new. Industry has used ceiling prices for years with conflicting results. And this is in spite of the fact that this sector evaluates new products from their blueprints, which are based on experimental product models. Using ceiling prices in the production sector makes economic sense only at the pre-planning stage, in the TEOs [feasibility studies] and TERs [technical and economic calculations]. But here there are no blueprints (no plan), nor can there be; moreover, there are no experimental product models. Construction produces individual, complex output. At the pre-planning stage, its use value remains undefined, even in terms of its general features, making it practically impossible to ascertain its value at this stage. This also makes it impossible to set a scientifically substantiated ceiling price using the present system of economic mathematics. This is why the construction sector's practice of taking its ceiling prices from "Gosplan Ceiling Prices" produced negative results, with these prices soon rescinded.

The methodology proposed by the author to set ceiling prices is based on consideration of the effectiveness of capital investments. The methodology which is now used to set a contract price (a ceiling price being its upper limit), and which calculates estimated value by the cost method, fails to give requisite consideration to the effectiveness of capital investments.

The qualitative difference in the methodologies and conditions for determining these two different price categories is the objective cause of their quantitative divergence which, as practice has shown, is great enough to negate the value of the ceiling price.

A ceiling price is not a price in the economic sense. A price, seen as an economic class of money-exchange relationship, is a function of three basic factors: value (price is the monetary expression of value), expessed by publicly-necessary labor inputs; use value (value and use value are combined in goods) and socialist market conditions (price is a market category), which make their presence known during the exchange of goods. A ceiling price takes none of these factors into account, nor can it, in principle. In fact, not only does use value not exist on the level of the ceiling price, but neither are there even any more or less concrete expressions of it (no use value), and the factor of market conditions cannot be taken into account.

This is why the ceiling price—in the proposed form—is not so much an economic as a declarative category.

Under the new system of economic management, it can be an additional link in the braking mechanism on the way to developing relations of full economic accountability [polnyy khozyaystvennyy raschet] and self-financing: as is well known, the CPSU Central Committee and USSR Council of Ministers Decree No 971 of 14 August 1986 "Measures to Improve the Economic Mechanism in Construction" adopted the contract price as a cost ceiling for construction. The suggestion that one more limit be put on this ceiling in the form of a ceiling price is equivalent to putting a bar across the road to developing full cost-accounting and self-financing relations between those participating in the investment process.

At the same time, we believe it advisable to improve the methodology, methods and system used to determine the RSS [calculated construction value] used, in feasibility studies and technical and economic calculations, to compare the economic effectiveness of planning decisions with decisions on whether to proceed with construction.

The "novelty" of the author's second suggestion to restructure the price-setting mechanism stems from the retention of the "traditional scheme" for drawing up local, objective estimates and estimating calculations. Let us see where this leads.

"The estimated **construction cost** for enterprises, buildings and structures," as stated in the SNiP [Construction Standards and Regulations], "is the total moneys, as determined in the estimating documents, needed to carry out the construction according to the plan (manufacturing plan)." The estimated value which is derived by calculating outlays has nothing in common with the objective process of forming public value or with the value which forms the basis of the theory of labor value and planned price-setting.

Estimated value is a mix of embodied labor and living labor, with the elements of this newly-created value unlawfully disrupted. "Cost" value contains a duplicate account, which does not permit use value parameters, consumer effect, or market factors to be given proper consideration when forming prices. The unjustified dependence of overhead cost calculations, outlays for temporary buildings and structures, price increases for work done in winter, procurement and storage costs, planned accumulations and so-called miscellaneous outlays for construction materials costs (which comprise almost two-thirds of the estimated cost for construction and installation work) unjustifiably inflate estimated costs and lead to a gap between the cost method of construction output and its real substantial content, to the appearance and growth of "false value" in construction, and to fictional profitability and distorted calculations of the economic effectiveness of planning decisions.

The unacceptability of the cost-based procedure for determining the estimated value of a new price-forming mechanism is graphically evident in the following example: the profitability of a construction complex in 1986 came to roughly 16 percent at a norm for planned accumulations (profits) of 8 percent and with over 13 percent of construction organizations operating at a loss. Here, construction equipment efficiency has diminished by 3.5-4 percent per year, construction materials have not been economized, the revolution in planning affairs has not taken place and long-term construction projects continue to predominate. What causes high profitability? This "miracle" was wrought by the cost-based principles for setting estimate standards, which would be a mistake to introduce into the new economic mechanism.

In this connection, let us examine the practice of using contract prices, the third element of the author's new price-forming mechanism, which are based on the prevailing "cost-based" methodology of setting standards for estimates.

The construction sector's practice of changing over to contract prices has produced unexpected results. A contract price differs from the estimated cost which has hitherto been used as a price primarily in two substantial moments: the contract price is set at the "plan" stage and its amount is fixed rigidly in the turnkey contract; the mechanism in the contract price for distributing profits heightens the motivation of participating investors in the final results of the work. These are precisely the two circumstances which favorably set the contract price apart from the estimated cost (price). However, the fact that the contract price is based on the "cost-based" estimated value and the estimating procedure for norm-setting hinders the progress of this new category, and often by and large compromises the correct ideology of contract prices.

The "cost" approach hinders the process of setting standards for estimates and price-formation in construction, and leads to serious negative consequences in the construction industry and in other sectors of the economy. Construction is one of the economy's sectors which produces capital. As construction, renovation and capital repairs on buildings and structures become more expensive, so does the output of all other sectors. Analysis has shown that the overall reason for increased purchase and wholesale prices for the output of all sectors of the economy, which raise retail prices, is the increased cost of the passive portion of basic productive capital, i.e., buildings, structures, construction projects, which carries over to the cost of the output of the corresponding sector. Here, increased construction costs exceed all the other types of savings or price reductions, since we are talking here about billions in national assets.

Contract prices which are based on the "traditional" scheme for setting norms for estimates, retain the substantial flaws in the estimated cost (price) and thus show little promise.

We agree with the author that there is a need "...to bring the prevailing system of setting norms for estimates into line with the new principles for using contract prices, which can function effectively only when the independence of those involved in construction is considerably expanded and when they are made more responsible for the final results of production" (No 12, p 9).

However, the author's solution to this problem raises serious objections: "...the prevailing system of estimate norms which has become established within the framework of the old economic mechanism should be kept, but is in need of considerable improvement" (No 12, p 10). Let us examine the problem in greater detail.

The "restructuring" of price formation in the "retro" style, by qualitatively recalculating the norms (which comprises their "substantial improvement"), guarantees the contractors a more or less easy life, but threatens not only to disrupt the construction sector's transition to the new economic mechanism, but the stabilization of price formation throughout the entire economy, the strengthening of the ruble and the implementation of the Party's social policy.

It is not the departmental, but the national economic approach which should be made the basis for restructuring the construction economy and the entire system of categories. We shall consider norms and estimates from these positions.

The "Fundamental Estimating Norms (ESN's) for Building Constructions and Operations"—which are the basis of estimating norms—need to be restructured (not merely qualitatively recalculated). Embodied and living labor are mixed within these norms, and construction machinery is "averaged" for literally every insignificant type of job, even though the use of construction equipment for the most part makes economic sense in construction. We end up confronted with a paradox: every builder knows from experience how much and what type of equipment is needed to construct this or that project, and by and large the ESN's produce, with regard to the estimate, a consistent several-fold increase in the types of equipment used (cranes, for instance). Hence also the substantial financial expenditures between the fact and the estimate, for which the contractor must "hunt" to pay off.

At the present time, over a third of our construction machines have been used beyond the standard service period. There is still a stubborn tendency to exceed rates (mass) for aging equipment beyond the rates (mass) of its renewal (this is a common problem in the national economy). Foreign-made construction equipment, the proportion of which is growing, is not taken into account in the ESN's. Under the impending objective need to retool the sector, the ESN's which will be introduced in 1991 and which will remain structurally unchanged will be in effect until at least 1996, and will regulate builders' outlays for...non-existent equipment.

An evaluation of building materials at estimated prices distorts economic relations, sometimes making it unprofitable to use materials which are more widely distributed within the construction sector, and which are found right alongside the construction project, and in other cases promising unsubstantiated profitability. For example, the estimated price for the Grade 1000 crushed cleaned sand used in construction operations was 23 percent lower than the wholesale price, and 307 percent higher for the same sand from screenings. This paradox (which has spread to estimated prices) stems from another paradox: the people who work up estimated prices averaged the transport schemes for delivering materials to construction projects. This resulted in a loss of all meaning in the struggle to cut transport costs: in some cases there will always be financial losses (the averaged transport scheme losing out to the actual scheme), and in other cases there are always very high profits (the averaged transport scheme surpassing the actual scheme). Averaging out transport schemes for deliveries of materials to construction sites distorts the essence of the publicly-necessary labor inputs category and has nothing in common with the theory of labor value. The banner of "estimated prices" actually conceals "legalized" add-ons to "averaged" wholesale prices and transport schemes. Calculations show that averaged indicators for the construction complex are higher than the actual indicators, and are inserted in contractors' estimated prices.

Higher job prices which include low productivity for non-existent equipment foster the reproduction of negative price-forming processes. Something like this, for example, is contained in SNiP-84, as it applies to many types of hydraulic dredges, hydraulic jacks, pumps and other equipment. Thus, the job prices for using scrapers to lay pipelines include three types of scraper buckets: 0.75 cubic m 1 cubic m and 1.5 cubic m. The technical and economic parameters for construction machinery were lowered to keep the job prices high, since estimates have to be lowered when equipment productivity is raised.

Many job prices are unreasonably high, which unjustifiably inflates the estimated cost. Thus, when welding 1,420-mm-diameter pipe, the job prices for using construction machines in flat country are 3-fold higher than for welding 1,220-mm-diameter pipe. The job price for installing a single 1,420-mm branch pipe is almost 5-fold greater than the job price for 1,220-mm pipe, even though there is hardly any difference in the array of mechanisms used and the labor-intensiveness required for the two jobs*.

Norms and job prices have been far from completely analyzed, but the above allows us to conclude that they must not be brought into the new economic mechanism without being fundamentally restructured.

*See: I. Ya. Tanklevskiy. "Komu vygodno vvodit v SNiP neobosnovannye rastsenki?" [Who Profits From Introducing Unsubstantiated Job Prices Into SNiP?] STROITELSTVO TRUBOPROVODOV, No 9, 1987, pp 42-44.

No 6, Jun 88 pp 57-61

2. Using the Cost-Cutting Method

[Text] The price-setting mechanism now used in the construction sector is based on an obsolete cost methodology. This is why the cost-cutting approach should constitute the primary thrust for restructuring price formation in construction.

The problem of cutting costs is complicated and permeates all categories of money and goods relations and all elements of the economic mechanism. It is a problem which must be solved in coordinated fashion.

The changeover to using cost-cutting methods of economic management does not imply a turning away from the general use of costs as a reference point when forming cost or value categories. Moreover, cost-cutting necessitates taking into account all types of costs which meet public demand on a publicly necessary level, and taking into account valid deadlines for repaying these costs. This should eliminate the influence of materials-intensiveness on output cost and price and duplicate accounts and take the consumer effect into account. These general requirements on cost-cutting should be put into effect when restructuring price-formation.

Objectively, the scope of the problems of restructuring price-formation determines the stage structure of this process. But the foundations for the future price-setting mechanism should be laid right now.

New estimated prices and construction job prices will be introduced on 1 January 1991. They will have extremely tight deadlines. This is why the prevailing system for setting construction prices will have to be curtailed in the years ahead. At the same time, the system will have to be changed to permit the impending changeover to the new economic mechanism.

First, the unjustified influence of materials-intensiveness on the level of costs must be eliminated. This negative aspect can be eliminated by changing the basis for augmenting quotas. According to the tenets of the theory of labor value, this basis must consist of the total of workers' basic wages and the cost of using construction machinery.

There is still a serious flaw in the methodology used at present. It lies in the unwarranted inclusion of planned accumulations, which should round out the estimated cost, into the basis for forming costs for temporary buildings and structures, the increased price of work done in winter, and other costs. Planned accumulations have no relation whatsoever to forming these components of estimated cost.

The next important trend of the ongoing restructuring of price formation is the economic substantiation of payments for land, water, manpower resources and allocations for environmental protection. These problems are new to the construction economy, and have not yet been refined in the scientific literature.

In view of their economic essence, the above types of payments can be joined together into a single group—rent payments. Land, water, manpower resources and the environment as a whole possess common characteristics: they are either generally non-renewable, or their reproduction requires an extraordinarily long time and extensive capital outlays, which imparts to them the character of a monopoly.

Not having the opportunity here to elucidate these questions in detail, we will say that on the basis of the main points of the theory of labor value, with regard to rent payments, the above types of payments are components of a surplus product and should be taken into account via the norm for planned accumulations.

Self-financing involves increased demands for reliable cost evaluations for construction materials in estimates and for the creation of mutually advantageous economic operating conditions when using a variety of interchangeable materials in construction, which are delivered different distances. Here, the primary drawback is the averaging of transport scheme materials at estimated prices. Conclusion One: to change over to real transport schemes, having separated the transport component from the estimated prices for materials. Transport schemes for each construction project are common knowledge. They should be used to compile an "atlas of transport schemes". The materials list is also commonly known. Knowing volumes of work and quotas for materials expenditures, it would require little effort to make the appropriate calculations on a computer. Under full economic accountability, eliminating the errors caused by unjustified averaging in the calculations, as is presently the case, becomes crucially important. The changeover to real transport schemes makes it possible to organize efforts to cut transport costs, to supervise the validity of materials expenditures in construction and to expose write-ups, which is practically impossible at present within the framework of estimated prices for materials.

YeRYeR's [Unified Regional Individual Job Prices] are needed in the structural restructuring. The costs of using construction machinery need to be taken out of the ESN's and YeRYeR's and taken into account via individual norms and job prices in estimates generally by individual project. This will improve the reliability of both ESN's and YeRYeR's. The conflict between estimated and planning and accounting prices will be resolved. The contractor will concentrate on making more efficient use of his equipment, the payments for which will be made on the publicly normal level. Individual norms and job prices for using construction machinery will be adjusted according to the amount of new equipment introduced, which is extremely important under full cost-accounting.

In order to prepare for the impending changeover to a new price-forming mechanism, the structure of estimates should immediately be reoriented towards economic elements. This can now be done as follows. Along with changing the basis for determining relative norms, planned accumulations should be removed from local

estimates, since it makes no economic sense to determine them here: the surplus product is created by and large per completed project and it is advisable to determine the planned accumulations in accordance with the project estimates. Exceptions can be subcontracting work completed within the local estimate and thus representing the conventional finished product for which the subcontractor needs to have his share of the profits apportioned. The "Summary of Actual Costs" in which not estimated data, but real data on types of jobs and projects are to be entered automatically and with a cross-section of their economic elements, needs to be applied to local and project estimates. A summary of these data and their analysis is a mandatory condition for working up a normative basis (price lists and other consolidated norms) for contraact prices for finished construction output, as well as for developing a system of individual norms for costs to set up intra-economy accounting of construction and installation organizations during the upcoming changeover to the new price-setting mechanism. Doing this requires that provision be made in the FSS [possibly Federation of Socialist Unions] AIS's [automated information systems] which have been developed for use as a suitable block for accumulating and summarizing actual data on the country's construction projects. To miss this opportunity is equivalent to disrupting the fundamental restructuring of construction sector's price-forming mechanism.

During the current price-setting period, restructuring will create the prerequisites needed for the upcoming changeover to a new price-forming mechanism. What sort of impression will it make?

The strategy of the economy's price policy allows price-forming to be guided by finished construction output (an enterprise, building, structure or entire construction complexes). We recall that only those types of construction output which are ready to operate and which satisfy public demand conjoin public consumer value and cost, and thus comprise a form of goods, or an object for which a price can be set. Thus, in the construction sector, the central link in the new price-forming mechanism will be contract price for finished construction output. And the primary types of calculations between those involved in the investment process will be those for finished output turned over and accepted, respectively, by the client.

The normative basis and methodology for price-formation must be restructured as to quality. Calculating individual types of costs to which a number of estimated value elements comprising a percentage of the calculated base have been added is inferior to consolidated norms for all types of finished construction output and their individual uniform parts. The norms themselves (price lists or other types of consolidated norms) should be defined not by a representative project and not based on estimated costs, as is now the case, but by correlating the total actual costs for most finished construction output and its individual uniform parts and types of jobs. Only by thus correlating real economic practice can a system of norms be set up on a collectively normal level for most construction and installation organizations.

The cost-accounting activities of construction and installation organizations as they pertain to the turnkey contract and control of the general contractor's relations with subcontractors should be based on contract prices for types of work as components of the contract price for finished output of construction as defined in the working plans and specifications.

Cooperative construction is expanding as is, correspondingly, the setting of prices for the output of cooperatives. In capital construction, the price-forming mechanism for the output of cooperatives need not differ radically from the mechanism used to set prices for output of state enterprises. It seems advisable, outside capital construction, to grant freedom to set prices based on the law of supply and demand and having made the norms recommendatory in nature.

The current restructuring of the price-setting system used in the construction sector and the new system of economic operation will concretize the directions for price-forming work and will make construction prices a lever for economic coercion for implementing the state investment policy, which combines the interests of society, the construction sector and the workers' collectives.

12659

ENERGY COMPLEX ORGANIZATION

Psychological Aspects of Training Energy Personnel Discussed

18220082 Kiev ENERGETIKA I ELEKTRIFIKATSIYA in Russian No 2, Mar-May 88 pp 28-31

[Article by V.V. Kalnish, candidate of biological sciences, T.V. Kudinova, candidate of medical sciences, and Ye.S. Druzhinina, psychologist (Kiev). NII [Scientific-Research Institute] for Labor Hygiene and Occupational Diseases (Donets). NII for Labor Hygiene and Occupational Diseases: "Psychophysiological Aspects of the Training Session for Power-Enterprise Operating Personnel"]

[Text] In the modern era of power-engineering development, a set of the problems of improving methods for training operating personnel has been formed which are associated with the appearance of new types of interaction between man and highly automated systems for controlling equipment.

Traditionally, personnel have been trained by instructors who, based upon personal experience and knowledge, perfected with the operator a list of the necessary procedures for controlling the equipment. At present, because of the need to get highly qualified specialists, a unified method of training is being developed that is based on the use of modern computer equipment.[1] Training drills are included in the instructional complex, both during the initial teaching stage and while raising qualifications. The training session, under traditional training methods, was limited to the development of basic skills and habits, and, despite the successes achieved and the experience built up[2,3] in practice, another important aspect of training—improvement of vocationally important qualities—has been ignored, as a rule. The system of vocationally important qualities (PVK's) has a complexly organized hierarchical structure which is specific for any activity. It can include physical, physiological, psychophysiological and personality parameters (for example, sensitivity, sharpness of vision, short-term memory, anxiety, emotionality and conformability). The forming of an individual style, as the highest degree of a person's adaptation to an activity, is possible only on the basis of highly developed skills and habits, in combination with a comprehensive system of vocationally important qualities. The PVK training session is essentially a psychological intensification of the process of improving skills and habits, since, as K. K. Platonov writes: "...any habit, in being exercised, develops the qualities on which it is built, and any quality exists in the form of the various habits."[4]

It is known that the basic intricacy in the drills for skills and habits is the creation of habits of conduct that are adequate both for the regular course of the process and for emergency situations, and also the carry-over of habits to groups of similar situations and the exclusion of errors of recognition, and the adoption of decisions and actions in situations of essentially different groups, the development of which occurs in identical form. The problem of carry-over in the training session for PVK's is not as severe as in the training session for habits, since this training is more universal. The training session for PVK's lacks another negative phenomenon—interference of the habit (automatic use in a changed situation). The PVK training session, in addition to improving direct indicators of activity (increasing information-processing speed, and effectiveness), lead to many positive phenomena: it stimulates the person's psychic activity, creates a good background for instruction and the execution of measures for raising the qualification level, and improves the subjective state. It is easier to impart a game form, which sustains a high level of motivation, to the drills being examined.

Still another important advantage of the PVK training session consists in the diversity of methods for organizing the process. While skills and habits can be perfected solely during special drills or during actual activity, a wide arsenal of methodologies is used for the PV training session: the blank-form and instrument methodologies, which are implemented on microcalculators or on equipment that is standard for power enterprises. Training sessions can be conducted under production conditions (directly at the workplace, digressing from the main activity for 10-15 minutes), or in psychological counseling offices or places of recreation. By means of certain methodologies, drills can continue also in home situations (for example, using a methodology for a training session in emotional-volitional self-control that the authors worked out).

The perfecting of skills and habits, as well as the development and maintenance of PVK levels, are two organically connected, mutually supplementing tendencies in the process of forming and improving a professional. The question of the use of one type of drill or another should be resolved in integrated fashion in each specific case, taking economic, production and socio-psychological factors into account. No one raises doubts that at the instruction stage it is impossible to get along without developing skills and habits on special trainers, while the matter of raising qualifications is more complicated. A precise system of diagnostics that will enable the basic cause of a reduction in professionalism to be determined is required. Where there is a breach of the knowledge structure, training on special trainers is probably necessary. If the informational component of professional suitability is retained, a diagnosis of the PVK development level must be made. Where it has been reduced, a conclusion is drawn about the necessity for a training session in one, two or a whole set of professionally important qualities.

Still another important aspect of training in PVK's must be examined. As is known, the work of power-enterprise operating personnel is marked by high nervous and emotional stresses. Fairly often negative emotions are manifested. Where the emotional tension is protracted

in nature, a redistribution of the overall emotional excitement occurs through the triggering of internal organs: the heart, the gastrointestinal tract, the exocrine glands, and so on, an intensification of the signals of which lead to additional agitation of the brain's subcortical areas. A self-reinforcing persisting excitement arises. Another factor that sustains the unfavorable persistent circulation of the excitement is the forming of bonds with irritants of the medium. Bonds form not only on account of existing unfavorable irritants but also where there is change of the brain's functional state.[5]

In M. M. Khananashvili's opinion,[5] retraining the brain by forming new functional bonds is a promising method for treating informational neuroses, the development of which are promoted by: the necessity for processing a large volume of information, a constant shortage of time, and a high level of motivation toward the activity. A PVK training exercise is one of the methods for "reteaching" the brain. The author hypothesizes that the new temporal bonds being cultivated help to eliminate from the long-term memory unfavorable bonds that have already been formed, help to raise the general functional state, and help the impeding influence of newly created bonds on the suffering mechanisms and the structure of the brain.

Research that we have conducted at the Burshtynskaya GRES has shown an interesting dependence between the effectiveness of production activity and an evaluation of the degree of success during the technical instruction, and an examination evaluation and a commission of experts' evaluation of the work's effectiveness. The multiple coefficient of correlation (R) between the average current evaluation of the success rate for exercises in technical training and the complex that contains the average commission of experts' evaluation of the effectiveness of the labor and the average examination evaluation of vocational knowledge was 0.73 (p is equal to or less than 0.05). The connection between the average commission of experts' evaluation on the one hand and evaluations of the success rate for the instruction on the other was also substantial (R = 0.64; p is equal to or less than 0.05). An evaluation of the effectiveness of production activity (according to an objective indicator—burnout of fuel—computed for the period of 1 year) proved to be associated poorly with the commission of experts' evaluation of the activity and the indicators of the success rate (R = 0.16; p is equal to or less than 0.05). At the same time, a considerable dependence of fuel burnout on the complex of psychophysiological characteristics (R = 0.57; p is equal to or less than 0.05), particularly upon scatter of the indicators of the amount of short-term memory and the degree of their change during the work shift, was observed.[6] In our view, this testifies to the considerable influence of the psychophysiological component of PVK's on the effectiveness of the operator's activity. An analysis of the bibliographic data also led to the conclusion that training exercises are necessary in occupations of the operator type for a whole complex of psychophysiological functions: the speed of sensorimotor reactions, the characteristics of attention and memory, the diversity of practical thought, and emotional-volitional self-control.[7] Based upon what has been said, and also upon our own psychological analysis of power-enterprise operators, we singled out the following PVK's which are needed during the training exercise: the speed characteristics of the sensorimotor reactions, the sense of time, short-term and operational memory, the capability for systematized intellectual activity, emotional-volitional self-control, the shifting of attention, the distribution and amount of attention, and emotional stability.

Methods for a training session for psychophysiological functions—the characteristics of attention (switching, distribution and amount), short-term memory, and emotional stability—which were developed at the Donetsk NII of Labor Hygiene and Vocational Diseases—were introduced at power enterprises. Conduct of the training exercise was supported by specially constructed instruments. Two indicators—the characteristics of the power units' parameters and a commission of experts' evaluation of the successfulness of the activity—were considered as criteria of the effectiveness of the operators' professional activity. Improvement of the important psychophysiological functions of the operators helped to raise their vocational success rate; self-control of actions rose, work interruptions caused by fluctuations in attention characteristics disappeared, the rapidity of orientation to various situations appeared, and, as a consequence of this, violations of the power units' operating parameters through the fault of the said persons disappeared.[8]

A set of training exercises developed at the Kiev NII GT i PZ [Scientific-Research Institute for Labor Hygiene and Occupational Diseases] included a methodology for training the sense of time (accomplished with the help of a stopwatch and a computer), short-term memory (blank forms), capabilities for systematized intellectual activity (modified forms of the Raven progressive matrices), and emotional-volitional self-control.

At present, certain methodologies for evaluating the level of development and exercises for training psychophysiological functions have been implemented on the SM-1420 minicomputer, the Iskra-226, the M-6000/6/ and MK-54 calculators. For example, a methodology based on the Iskra-226 computer for training short-term memory and attention characteristics has been developed. Three types of figures were put on the display in random order: a square, a square with diagonal or a square with two diagonals. The subject counts the number of figures of each type presented and, upon appearance of the next frame, enters the answer on the computer's keyboard. If a mistake is made in counting the number of figures of any type, the subject should begin the training exercise from the start. At the end of the training period, data on the quality of the work—average duration of the sequences solved, the number of

errors, and so on—are shown to him on the computer's screen. The training exercise set, which includes the described methodology and the modified A. Ye. Khilchenko methodology, which is realized on the same computer and the M-6000 computer [9], and the improvement in emotional-volitional self-control, have been approved for production conditions at Armenergo [Armenian SSR Administration for Regional Power-System Management] and can be recommended for introduction.

Diagnostics of the level of development of professionally important psychophysiological functions precede conduct of the drill. Then the training methodologies required are selected from the existing set. During the training session, its effectiveness is monitored. A conclusion about the sessions's effectiveness is made, based upon improvement of the indicators of the training activity itself, and it is confirmed by improvement of production-activity indicators. If there is no benefit from the training session, a conclusion is drawn about the inadequacy of the training measures and the diagnostic procedure is repeated. If obtaining data about increase in effectiveness of production activity causes difficulties, objective physiological parameters are used (electrocardiograms, electroencephalograms, and so on), change in the indicators of which testify to a reduction of the physiological cost of the activity, and the effectiveness of the training process is thereby confirmed. Also testifying to the training session's efficiency is improvement in the values of the indicators obtained by subjective questionnaires about one's condition.

The authors' research enabled a conclusion to be drawn about one more phenomenon of the training process's effectiveness, which is provisionally named the phenomenon of smoothing out (stabilization). It was observed when an improvement in the training activity did not occur but the spread of the results was significantly reduced from training session to training session. The data obtained are well interpreted within the framework of B. G. Ananyev's concept about the psychic characteristic as mutually functional and operational mechanisms.[10] Functional mechanisms constitute an absolute reflection of an attribute. Improvement of training activity indicators is explained by change of functional mechanisms. Operational mechanisms are the methods for showing the given attribute. The smoothing out effect of the training session is explained by improvement of operational mechanisms.

The form of organization and conduct of training sessions influences training-process effectiveness considerably. The training should be an active process that requires of the operator a firm purpose, substantial effort, and an emotional lift. It should be conducted according to an individual plan, taking into account the success rate for carrying out previous assignments. When planning a training session, nonuniformity in people's display of efficiency at various times of the day must be considered. Thus, it has been shown that a lift in efficiency is observed from 0800 hours to 1200 hours and from 1700 to 1900 hours, and a dropoff in efficiency from 0200 to 0300 hours and from 1300 to 1500 hours. During the week, the most favorable days are Tuesday, Thursday and Friday, while the least efficient are Monday and Saturday.[11] The most complicated exercises should be held during the lift in efficiency.

The effect of fading of trained functions, habits and skills also must be considered. The time of this fading varies for each function and depends upon the person's individual potential and the nature of his daily activity. Thus for operating procedures that involve close monitoring, the critical time for lack of practice approximates one month. The number of permissible errors is minimal for two weeks, and then in the interim, from two weeks to 1.5 months, it grows rapidly.[12] Therefore, the training session for the most important psychophysiological functions must be repeated within definite intervening time periods, which depend upon the person's individual potential and the nature of his work.

Thus, the training session for professional habits must be combined with a training session for the set of psychophysiological functions, the list of which should be chosen to take into account the attributes of the individual worker and the nature of his activity.

Footnotes

1. Samoylov, V. D., Romanenko, Ye. V. and Smetana, S. I. "An Automated System for the Construction of High-Level Adaptive Interfaces." Tez. dokladov Vseysoyuz-.nauch.-tekhn. konf. "Problemy sovershenstvovaniya upravleniya narodnym khozyaystvom na osnove sredstv bychislitelnoy tekhniki" [Theses of Reports of an All-Union Scientific and Engineering Conference on "Problems of Improving Computer-Aided Control of the National Economy"]. Moscow: VNIIPOU [All-Union Scientific-Research Institute for Problems of Organizing Management]. 1986, pp 170-173.

2. Shadrikov, V. D., Psikhologicheskiy analiz deyatelnost [Psychological Analysis of Activity]. Izd-vo Yaroslav. un-ta [Publishing House of Yaroslavl University], 1979, 92 pages.

3. Lebedeva, N. N., Seltsovskiy, P. P. and Shitikov, A. A. "Dynamics of Indicators of Psychophysiological Testing on Teaching the Habit of Driving a Motor-Vehicle." Metodika i tekhnika issledovaniy operatorskoy deyatelnosti [Methodology and Technology for Research of Operator Activity]. Moscow: Nauka, 1985, pp 78-83.

4. Platonov, K. K. "Basic Problems of the Ground Training Session During Flight Instruction." Istoriya sovetskoy psykhologii truda [History of Soviet Labor Psychology]. Moscow: Izd-vo MGU [Publishing House of Moscow State University], 1983, pp 191-192.

5. Khananashvili, M. M., Informatsionnyye nevrozy [Informational Neuroses]. Leningrad: Meditsina. Leningr. otd-niye [Leningrad Division], 1978, 144 pages.

6. Buzunov, V. A., Kalnish, V. V. and Khomik, A. P. "The Connection of Effectiveness of the Work of Power-Station Operators with Their Psychophysiological Characteristics." GIGIENA TRUDA [Labor Hygiene], No 20, 1984, pp 43-49.

7. Kundiyev, Yu. I., Navakatikyan, A. O. and Buzunov, V. A., Gigiena i fiziologiya truda na teplovykh elektrostantsiyakh [Hygiene and Physiology of Work at Thermal Electric-Power Plants]. Moscow: Meditsina, 1982, 222 pages.

8. Vliyaniye usloviy truda na rabotosposobnost i zdorovye operatorov [The Influence of Working Conditions on the Efficiency and Health of the Operators]. A. O. Navakatikyan, G. T. Chukmasova, A. A. Shaptala et al; edited by A. O. Navakatikyan. Kiev: Zdorov'ya [Health], 1984, pp 119- 126.

9. "Diagnostics of the Current Functional Condition of Power-Enterprise Operating Personnel." V. A. Buzunov, V. V. Kalnish, V. N. Bedyy, et al. ENERGETIKA I ELEKTRIFIKATSIYA [Power Engineering and Electrification], No 3, 1986, pp 31-33.

10. Ananyev, B. G., O problemakh sovremennogo chelovekoznaniya [Problems of Human Knowledge]. Moscow: Nauka, 1977, 380 pages.

11. Nikolayev, A. I. "Obucheniye i zdorovye." [Training and Health]. Moscow: Vyssh. shk. [The Higher School], 1985, 104 pages.

12. Bedzyuk, S. V. "Analysis of Methods for Preserving and Restoring Vocational Habits of Operators During the Operation of Technical Complexes under Special Conditions." Psikhologicheskiye problemy deyatelnosti v osobykh usloviyakh [Psychological Problems of Activity under Special Conditions]. Moscow: Nauka, 1985, pp 222-230.

11409

Rostopstroy Conversion to Khozraschet, Self-Finacing Viewed

18220086b TORFYANAYA PROMYSHLENNOST in Russian No 5, May 88 pp 7-13

[Article by Yu. M. Seliverstov, Rostopstroy chief: "Rostopstroy's Measures for Transition to Full Cost-Accounting and Self-Financing"]

[Text] In the field of capital construction, cost-accounting [khozyaystvennyy raschet] is a method of economically managing construction which provides construction organizations and enterprises with a combination of central planning and economic independence. It has as its basis thoseinter-organizational economic relations and links which put all the economic system's levers—financing, credit, price-setting, profit, profitability and the provision of incentives—into operation.

Cost-accounting, as it relates to the construction organizations—the basic management link—is characterized by the following features:

—smoothness—the availability, to a trust, of a stable plan which is balanced in all indicators, high-quality planning estimates for projects under construction which ensure that the contract price is correct, normal material and technical supply to construction projects, prompt conclusion of turnkey contracts with clients, subcontracting organizations and suppliers;

—an adequate supply of capital—a trust is allocated fixed and circulating capital which is used to form its state fund, which shows up in a separate balance;

—economic independence—a cost-accounting trust fully exercises the rights and responsibilities granted by its charter, as well as by the Statute on the Construction and Installation Trust. The trust enters into economic circulation and mutual relations with state organs (ministry, financial and banking and other organizations) as an independent legal entity, i.e., it has a final balance, as well as current and other accounts in banking institutions;

—material incentives for workers, which depend on the results of the organization's work. The incentive is provided on the basis of the established system of wages, indicators and bonus prerequisites, job and workers categories, quotas set by norms, schedules, the manner in which economic incentive funds are to be used;

—self-recoupment and self-financing—i.e., reproduction capability using one's own resources. The basic elements of this system are the setting, by all trusts, of stable norms for making deductions from the profits at their disposal, to be used to finance capital investments, pay off bank loans with interest, and form economic incentive funds; leaving 50 percent of the above-plan profits at the disposal of the trust, setting estimated contract prices on project construction when concluding a contract; determining mark-ups to contract prices when turning a high-quality construction project over; putting ministries' and departments' budget assets and centralized funds into circulation for trusts.

Middle-level construction-sector management organs should cover their costs with earned revenues. This will increase the share of state budget revenues in the total profits earned from their subordinate construction organizations.

During the planning of capital construction projects, including contract jobs, all those participating in the investment process need to be guided by the list of basic documents needed to formulate a capital construction plan, by the timetables for submitting these documents and by the procedure for dealing with differences between the client, the contracter, planning organizations and equipment suppliers.

Integrated uninterrupted planning is the primary prerequisite for improving the capital construction planning system while introducing full cost-accounting and self-financing in contracting organizations. In essence, this consists in concentrating the organizational, coordinating and supervisory functions of managing flow-line construction into a single center (ministry). Planning is integrated through the interaction of all phases of the investment process and the operational plans of all the administratively discrete parties involved in the construction project.

The two-year planning period allows construction planning to proceed without interruption. Every five-year plan is broken down into two-year periods. During the last two-year period, the second year extends beyond the current five-year plan period and begins the next. The plan for the first year of a two-year period is a working plan and is directive with regard to the aggregate indicators. The plan for the second year is a start-up, preparatory plan. The plan for the next two-year planning period is developed in the middle of each year, when the last preparatory plan is refined and, beginning with the new year, becomes the working, stable plan.

The two-year plan provides the calendar timetable networks for constructing projects, the timetables for developing design plans and specifications, makes provision for freeing up construction areas and for getting together all the equipment needed for the project. The plan includes the drawing up of Itemized Lists for the planning operations and the construction of projects. Here, the flow-line construction timetables which have been worked up remain practically unchanged, and can only be for construction projects scheduled for the years immediately ahead.

Two-year plans are drawn up on the basis of the five-year plan control figures for capital outlays.

In the industrial construction sector, clients and contracting organizations should develop drafts of the two-year plans for putting production capacities and construction projects into operation on a yearly basis at the same time the draft annual plans for developing the national economy are developed. The drafts for these plans include all productive and non-productive capacities and projects, both those which are and are not included in the nomenclature of the annual plan for developing the national economy, and whose construction and putting into operation are stipulated for the two plan years.

In order to ensure that construction projects are promptly supplied with the equipment needed to put production capacities and projects into operation in the second year, clients should make suggestions to their superior organizations regarding deadlines for delivering basic production equipment for their construction projects at the same time they submit their two-year plan drafts.

A stricter procedure has been defined for ordering equipment for construction projects during the second year of construction. It takes into account the time needed to manufacture and install the equipment, and will enhance the role of the two-year plan in industrial construction.

High-quality planning estimates need to be included in plans for contract jobs. A check of construction and installation trusts carried out by Rostopstroy [RSFSR Mintopprom (Ministry of the Fuel Industry) Republican Associationi for Fuel Enterprise Construction] planning and estimating groups in 1987 revealed cases of lowered estimated construction costs caused by incorrectly-used estimate quotations and discrepancies between actual and planned transport schemes for delivery of local and imported construction materials.

Lowering estimated costs leads to above-estimate project construction costs and causes contract organizations to lose money.

The Kirtorfstroy Trust checked the planning documentation for 62 projects costing a total of R27 million. Errors were found in 47 projects which lowered estimated costs by R1.8 million. Remarks made by the contractor about 30 of the projects were acknowledged as being justified and more than R1 million in corrections were inserted in the estimates.

In 1987, while drawing up a capital construction contract agreement, Pskovtorfstroy [Pskov Peat Industry Construction Trust] complained to its client about the lowered contract prices set by Lengiprotorf [Leningrad State Planning Institute for the Comprehensive Use of Peat in the Nationial Economy]. After the trust's complaints were investigated, the contract price was raised by R344,000 (3.8 percent of the total amount of the contract work).

In 1986, the Kalinintorfstroy Trust's Batkovsko-Olkhovskiy PMK [Mobile Mechanized Column] informed Giprotorf of the need to turn an impractical draft transport scheme into a real one, which allowed the PMK to eliminate the yearly losses incurred by having about R50,000 in building materials delivered.

Various type designs are used in the construction of fuel industry facilities, and this forces builders to greatly expand their array of reinforced concrete, metal, and wood products and designs, to prepare a large volume of production accessories and to search for new building materials.

Increasing the size of products and structures in an association's industrial enterprises raises the cost of the building materials and structures, and increases labor inputs and the amount of metal, cement, lumber as well as the thermal and electrical power needed to produce them. The planning organizations affiliated with the Kirtorfstroy Trust alone used 9 different type designs for 18-, 24- and 27-unit apartment houses, three type designs for 140-place kindergartens, and two designs for stores having identical trade areas.

When planning peat enterprise, differing designs are generally used for the settlement heating-system boiler houses, the cleaning facilities, the sewage and water-pipeline manifold structures, the field production bases and the drainage and fire-prevention pumping stations.

During selection of the type designs, too little emphasis is placed on reducing the amount of materials used in construction projects. Thus, the designs for peat enterprise mechanical repair shop blocks capable of handling some 600 regular repairs per year call for huge, difficult-to-manufacture reinforced concrete structures with 18-meter spans which use a total of 1,750 cubic m of reinforced concrete and 335 t of metal.

The materials and structures for a block of repair shops at the Meshcherskiy Peat Enterprise cost R430,000, or 42 percent of the total estimated cost of R1,033,000.

The unheated storage sheds used to store peat briquettes are also designed from huge industrial-series reinforced concrete structures which use up to 93 cubic m of reinforced concrete. The estimated cost of one such shed at the Serpukhov Municipal Fuel Sales Trust's fuel storage facility was R34,000 (12 percent of the estimated cost of the entire construction project).

The planning organizations are slow in solving problems related to raising the level of use of industrial construction methods and reducing the labor intensiveness of construction and installation work. For example, projects such as sewage purification facilities, apartment building foundations, social and cultural facilities and industrial projects are built, in accordance with the designs, with poured in-situ concrete elements which are highly labor-intensive. The storage structures and other auxiliary production facilities are built of small-unit wall materials and the size of the roof slabs does not match the buildings and structures.

In order to reduce labor inputs and shorten construction time, construction organizations must reexamine their design decisions while jobs are under way. Thus, redoing the structures of the bearing walls and the floor of the sports and spectators' halls, and the stage and vestibule sections of the Ulomskiy Peat Enterprise's Palace of Culture, which was done during construction, reduced the labor inputs needed to erect this facility by 145 man/days.

On the basis of a proposal put forth by Rostopstroy and the construction and installation trusts, the planned cast in-situ aeration tanks for the Dedovo Pole, Polistovskoye-II, Kamskoye, Bolshoye Orlovskoye and Chistoye Borskoye peat enterprise sewage-treatment plants were replaced with Biokompakt prefabricated aeration tanks. Preliminary calculations indicate that this will reduce the construction labor inputs for the sewage treatment plants by a factor of 2.8.

Planners are not giving full consideration to the level of equipment of the ministry's construction organizations are or to the peculiarities of construction projects on the heavily-flooded and subsiding peat-forming soils. The sewage treatment plants and pumping stations, the sewage- and water-line networks, the intake bins for boiler houses and peat-loading stations are often set on soils with rugged hydrogeological conditions. This necessitates pumping out a large volume of water, peat removal, bringing in fill soil, and greatly complicates the performance of jobs for construction workers who have no special equipment and mechanisms. It also lowers the operational reliability and efficiency of the engineering networks.

The wrong choice of the site for the Dedovo Pole Peat Enterprise's sewage treatment plant necessitated removing the peat and bringing in 10,000 cubic m of soil.

Full cost-accounting prevents the plan for contract jobs from being out of balance with the availability of material and technical resources.

It should be mentioned that the structure of Rostopstroy's contract construction and installation jobs had changed considerably by 1988: the number of materials-intensive projects had increased. However, Glavtekhsnab [USSR Main Equipment Supply Administration] quotas for basic construction materials expenditures have fallen off every year: for 1988 they were 742 t of cement and 135 t of metal against 930 and 180 t respectively per R1 million in construction and installation work in 1981.

Material resources for major overhauls of in-house fixed capital (at an R3 million for 1988) have been allocated in accordance with low operating and repair norms—from an estimated 2.5 t of cement and 12.2 t of metal to restore fixed capital at a cost of R1 million. No material resources have been allocated for major overhauls for fixed capital belonging to clients (R2.7 million), for recultivating fallow areas (R1.7 million) and start-up operations (R0.8 million). No building materials have been provided for the start-up program for constructing housing and social welfare facilities.

Rostopstroy's construction and installation trusts have been given economic independence, are making full use of the rights and obligations laid down in the regulations approved by RSFSR Mintopprom, are entering into

economic circulation and mutual relations with state organs as independent legal entities, and have final balances and current and other types of accounts in banks.

Construction and installation trusts have been charged with providing the sort of organization and wage system which will give workers material incentives dependent on the results of the work done by the construction subdivision. At present, capital construction uses the collective contract to organize labor and pay wages. It replaces the brigade contract, which is ineffective under full cost-accounting.

The basic thrust of the collective contract is to strengthen the economic motivation and the responsibility of all PMK [mobile mechanized column] (SMU) [construction and installation administration] personnel and every individual employee for putting production capacities and projects into operation on schedule, speeding up the growth rates for labor productivity, improving construction quality and cutting the prime costs of jobs.

The collective contract is characterized by the following basic features:

—it unites and orients all personnel in a construction organization towards putting projects into operation within prescribed deadlines and with high quality by getting away from narrow specialization within the framework of the PMK (SMU). This is done through the widespread practice of doubling up occupational skills and doing away with dividing labor into profitable and unprofitable classifications.

—it ensures the collective motivation and responsibility of all PMK (SMU) personnel for achieving high final results through the use of a guaranteed general wage fund, which is formed in accordance with a completely stable norm for a completed volume of construction and installation work, regardless of the actual labor inputs or the number of workers used to complete the work;

—use of the KTU [coefficient of labor participation] to evaluate each worker's individual contribution to the final results of the collective labor;

—continued development and expansion of the democratic procedures for bringing all members of the collective to control of production through the economic councils which operate on the basis of the USSR Law of Labor Collectives.

In 1987, Rostopstroy and its construction trusts conducted a major organizational effort to prepare the association's construction organizations for the changeover to operating on the collective contract.

In 1986 the main engineering trusts, chiefs of technical production departments and Rostopstroy specialists became acquainted with the work done by Glavmosoblstroy's [Main Moscow Oblast Construction Association] Trust No 7, several of whose organizations had changed over to operating by the collective contract method.

The management of the trust, the Krivandinskiy PMK and the Shatur SMU held classes in which the fundamental principles of working by collective contract were discussed in detail, as were the conditions favorable to introducing it, and its advantages: putting projects into operation within the deadline, increasing labor productivity by 10-15 percent in the first months of operation, improving labor and production discipline, increasing employee activity etc. Attention was also paid to the difficulties the collective encountered when introducing and putting this method into operation. The collective contract has been used successfully in conjunction with two-year plans, and rules out disruptions in material and technical supply.

The next stage on the way towards introducing the collective contract was to provide subordinate organizations with the necessary methodological literature. Rostopstroy developed and provided all construction subdivisions with recommendations on introducing the collective contract. The recommendations were based on those used by Gosagroprom and Glavmosoblstroy: The Temporary Statute on Wages for Management, Engineering and Technical Personnel and White-Collar Workers; Use of the Coefficient of Labor Participation When Distributing Wages in Contract Participation; Distribution of Responsibilities Among the Individual Services Preparing Necessary Documentation Under the Collective Contract; Calculating Wage Assets for an Organization's Employees; Distribution Collective Incentive Fund Assets Among Brigades by Project; Operational Monthly Brigade (Link) Plan; Minutes of a Meeting of Brigade (Link) Soviet Meeting; Standard Collective Contract Agreement.

One of the most labor-intensive processes involved in introducing a contract is totalling the labor inputs and wages for each project in accordance with the planning estimate documentation. To speed up this work, Rostopstroy aquired the Consolidated Norms for Labor Inputs and Wages developed by the Glavmosoblstroy TsNIIB [Central Scientific-Research Institute for Paper]. Their use cut the time needed to do the totals by a factor of 3 to 4. Classes were held to teach the use of these norms to workers of construction and installation trusts and base organizations.

The association has now developed comprehensive measures for introducing the collective contract in its subordinate organizations, has set deadlines within which each of them is to introduce it and has appointed the persons responsible for introducing it.

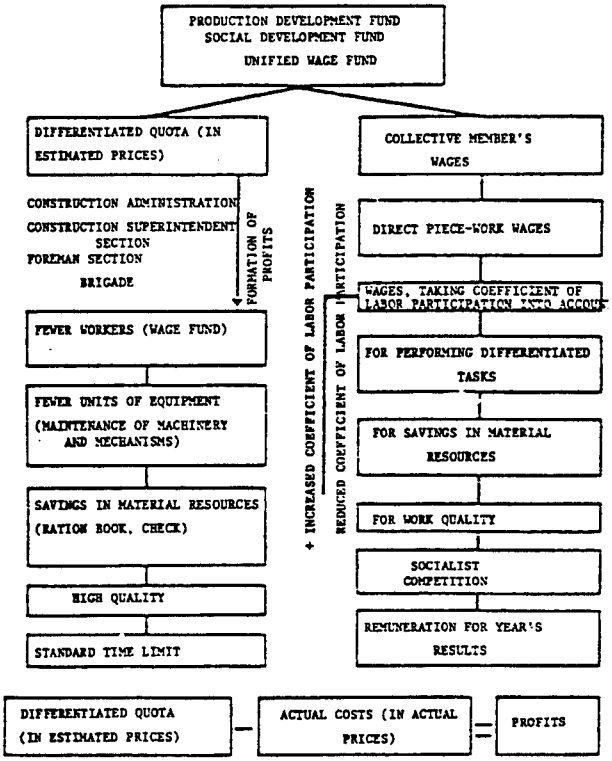
When the collective method of organizing labor and wages has been introduced, the interests of the individual members of the working collective become identical with the interests of the entire labor collective. In conditions such as these, the system of providing labor incentives for the members of the labor collective depends on the amount and quality of labor contributed and the amount in the incentive funds (see Figure).

Under full cost accounting, a construction organization has to use its own assets for reproduction and its residual profits to finance capital investments, to pay off bank loans and interest and to form economic incentive funds.

According to USSR Gosstroy-approved normative and methodological directives on changing construction organizations over to full economic accountability and self-financing, the association and its trusts have calculated the amount of profits necessary to change construction organizations over to full cost-accounting.

Under full cost accounting, the total income of a construction organization (including profits) is formed in accordance with a well-known scheme: proceeds (assets received from the client to cover material outlays and other production costs).

The scheme for full cost-accounting and self-financing (in 1000's of rubles) for the Rostopstroy Association is shown in the table.



Line diagram of the mechanism of the economic influence of amounts in incentive funds on the results of a material evaluation of a collective and each of its members under full cost-accounting.

Indicators	1987	1988	1989	1990	1991
Earnings					
Cost of contract jobs done using in-house forces and determined in accordance with prevailing procedures	33,362	40,000	46,000	52,000	55,000
Earnings from sales of services and materials supplied to outside organizations in accordance with established procedure	300	300	300	300	300
Assets received from clients as compensation and not included in the contract price	1,678	1,880	2,162	2,444	2,585
Compensation Fund					
Cost of expended materials, including manufacturing-storage and transport costs	—	—	15,756	21,333	21,674
Production cost of materials supplied to outside organizations	—	—	300	300	300
Depreciation allowances earmarked for full restoration of fixed capital and capital repairs	—	—	5,900	5,900	5,900
General overheads and production costs, except for basic and extra wages	—	—	3,400	3,500	3,700
Other costs	—	—	1,300	1,500	1,600
General Income					
Payment for production funds, and manpower and natural resources	—	—	3,110	3,160	3,210
Interest payments on bank loans	331	331	331	331	331
Allocations into the State (Local) Budget	—	—	934	937	937

Indicators	1987	1988	1989	1990	1991
Earnings			934	937	937
Deductions of superior organizations made to form a central fund for the development of production, science and technology and reserves	—	—	17,704	17,011	17,011
Wage fund*	—	—	2,000	2,000	2,000
Production Development Fund	197	200	4,370	4,400	4,400
Social Development Fund	582	591	2,970	2,970	2,970
Material Incentive Fund*	—	—	20,674	19,981	19,981
Unified Wage Fund**	1,110	1,122	14,649	14,735	14,785
Required profits needed to settle accounts with the budget, bank and ministry	159	1,800	4,002	5,200	7,700
Actual profits (anticipated)					

*—with standard distribution of profits (Version I); **—with standard distribution of income (Version II).

It is recommended that the general income be distributed in accordance with two versions, which differ only in the manner in which they distribute the wage fund.

In the first version, wages are part of the expenditure section and are allocated as part of a separate type of outlays. In the second version, wages plus the material incentive fund form a unified wage fund.

Rostopstroy must change over to full cost-accounting and self-financing as of 1 January 1989. In order to implement this measure in compliance with the deadlines determined by the ministry, the association needs to make R14,649,000 in profits in the income portion and to ensure 31 percent profitability of its production.

The implementation by the association and its trusts of measures to increase production volumes, strengthen the construction industry's base, increase the profitability of its production and the actually attained level of profitability of construction production by 1989 (8.7 percent) will earn them profits of R4,002,000. Thus, as of 1989 Rostopstroy can change over to cost-accounting and self-financing in accordance with the incomplete scheme and free the association from making payments into the budget for production funds, manpower resources and allocations into central funds. A state subsidy is needed to form incentive funds amounting to R5,669,000. According to estimates, the amount of this subsidy will be reduced every year, and will not be required by the association in 1992.

The successful implementation of the program to change the association over to full cost-accounting and self-financing will depend to a great extent on taking steps to increase production volumes and strengthen the construction industry base.

Growth in the program for contract jobs during these years will come about primarily through increasing the amount of finished production, setting up new construction organizations and performing small amounts of profitable work for outside clients.

The program for expanding production provides for a yearly increase in finished production of at least 4.5 percent per worker. There are plans to bring three operating construction organizations (the Moscow RSU [Repair and Construction Administration] and the Monetnyy and Losinyy RSU's) into the Rostopstroy system, and to set up five subdivisions in new economic areas. Implementing these measures will boost the production program to R55 million by 1992.

Rostopstroy's construction industry will be expanded by putting new industrial enterprises into operation and renovation operating enterprises. Thus, renovating the Gorktorfstroy Trust's Borskiy reinforced concrete products enterprise, the Smolensktorfstroy Trust's reinforced concrete products plant and putting the Kalinintorfstroy Trust's reinforced concrete products manufacturing plant and the Pskovtorfstroy Trust's Polistovskiy Construction Administration into operatioin will increase the overall production of prefabricated reinforced concrete for the association to 60,000 cubic m per year by the end of the five-year plan period.

In order use wood wastes more effectively, Rostopstroy is taking measures to initiate production of wood concrete products used in residential and civil construction projects. The introduction of an experimental mobile plant for producing wood concrete wall blocks by the Pskovtorfstroy Trust will make it possible to produce 7,200 cubic m of wood concrete per year by 1991.

Renovating the Kirtorfstroy Trust's Kirovo-Chepetskiy Enterprise's keramzit shop will increase production of keramzit products to 8,000 cubic m per year. Plans call for the production of joiner's products and lumber to be greatly increased by the end of the 12th Five-Year Plan period.

Collectives of the Rostopstroy Association's construction and industrial organizations are presently at work on implementing the program for changing over to full cost-accounting and self-financing.

12659

FUELS

Peat Industry Prospects for 1988 Outlined

18220086a Moscow TORFYANAYA PROMYSHLENNOST in Russian No 5, May 88 pp 2-5

[Unattributed article under "Putting the Decisions of the 27th CPSU Congress Into Practice" rubric: "In the Board of the RSFSR Ministry of the Fuel Industry"]

[Text] The Board of the RSFSR Ministry of the Fuel Industry has held a meeting. Board member and Chief of the RSFSR Peat Extraction Production Association P. M. Gurko delivered his report entitled: "The Preparedness of Peat Enterprises for the 1988 Peat Extraction Season and Fire-Hazard Period."

The 1988 State Order calls for Rostorf [RSFSR Ministry of the Fuel Industry's Republican Industrial Association for Peat Extraction] to extract 50,500,000 t of peat, including 38,800,000 t for agriculture and 11,700,000 t to be used for fuel. Of this, 400,000 t is to be in lump form and 2,200,000 t in briquettes. Peat industry enterprises have over 20,000 units of production equipment and tractors to do the work, as well as 108,000 hectares of productive area and 10,100 machine operators.

By the beginning of the extraction season, 70,277 out of 92,000 hectares of the above area had been repaired. The quotas for deep-cutting the peat deposits and making canal repairs have been overfulfilled, 29,000 hectares of productive area (40 percent) have been prepared by a complex of MTP-26, MTP-81, MTP-24 and MTP-52 machines, which helps our equipment operate more reliably and productively when extracting peat; 3,230 hectares of fields have been set up for crevice drainage, which reduces the moisture content of the upper cut layer of the peat deposit by 1-2 percent, and allows the area to be put into operation more quickly after rains.

After inspecting its condition, the Lentorf, Novgorodtorf, Vologdatorf, Pskovtorf production associations and a number of Central Economic Area production associations put over 8,000 hectares of area into operation after completing a minor amount of basic repair work.

A common flaw in the maintenance of production areas is the low percentage (10-15 percent) of grid crossing-bridges which are re-laid, particularly by the Lentorf, Novgorodtorf, Pskovtorf, Kalinintorf, Shaturtorf, Gorktorf, Kirtorf and Sverdlovsktorf production associations.

Some 2,338 hectares of fields have been prepared to make up for the areas which have been taken out of production, and 16 new remote peat-extraction sections have been organized for agriculture with a 600,000 t program.

The Lentorf, Kalinintorf, Shaturtorf, Yartorf, and Kirtorf production associations failed to meet their assigned quotas for preparing areas so as to keep their capacities in operation. Neither the Novgorod or the Pskov production associations prepared a single hectare of new area.

The lag in preparing new areas and expanding peat extraction geography has resulted in reduced field areas for 26 peat enterprises of the Orekhovotorf, Yartorf, Smolensktorf, Udmurttorf and Gorktorf production associations. In keeping to the tenets of the general program, the associations are increasing the large peat extraction enterprises' plan for extracting agricultural peat, and are thus helping to increase its carry-over surpluses.

On March 1 large volumes of unshipped agricultural peat were left at the Smolensktorf, Gorktorf, Kirtorf, Sverdlovsktorf associations. Overall, Rostorf has over 12,000 hectares of fields being used to stack unshipped peat.

At the same time, in 1987 these associations paid little attention to expanding their peat extraction areas, which practice was practically brought to a halt by the Kirov, Yaroslavl and Orekh associations. The Ivanovskoye, Pskov or Udmurt associations also failed to organize this practice on the required level.

The dearth of remote sections and the negligible amounts of peat extracted from them are keeping Rostorf's 20 major enterprises from solving the problem of selling all their agricultural peat.

Repairs of productive areas, and of the equipment used to extract lump and briquette peat have been completed.

All the associations have scheduled far fewer routine repairs and major overhauls of basic production equipment for 1988 than for 1987. This stems from most of the associations' having written off surplus equipment and from the negligible amount of time the equipment was operated during the 1987 season.

Thus, plans throughout Rostorf called for repairing 13,316 units of equipment, or 3,648 units fewer than in 1987. This saved roughly R3.5 million in repairs.

In 1987, the Kalinintorf Production Association put a main shop—for rebuilding support rollers on harvesting machine—into operation in Vasilyevskiy Mokh. The associations have been allocated 190 fully-equipped repair stations for rebuilding support rollers. The Ozeretskiy Peat Extraction Enterprise has begun installing equipment in its mechanical repair shop's plasma spraying section. The use of diagnostic equipment to determine the technical condition of equipment and needed repairs is being more widely disseminated.

Funds have been received for 400 T-150K tractor wheels from the Kharkov Tractor Plant. This will equip 100 tractors with dual wheels. The plant has agreed to produce the needed number of sets of wheel-doubling equipment in the next few years.

Every year, Rostorf enterprises manufacture over R7.5 million worth of peat-industry production equipment, as well as spare parts and fire-prevention equipment.

Some 40 units of new MP-6 stump-gathering equipment and 36 railcar dormitories were delivered in time for the 1988 season. Four types of fire-prevention equipment costing R540,000 have been manufactured, at a plan quota of R440,000. The Ivanotorf Komsomol Experimental Machinery Plant has repaired R540,000 in hydraulic units, which completely met the demand of the ministry's entire excavator park.

In order to repair, upgrade and improve the operation of the production equipment used by Rostorf enterprises, R1.5 million in spare parts, of a planned R1.8 million, were produced in time for the extraction season.

Rostorf did a great deal of work setting up the peat-extraction machine-building cooperative between Minstroydormash [Ministry of Construction, Road and Municipal Machine Building] plants and the Ivanovtorf, Vladimirtorf, Yartorf and Kalinintorf production associations. They have produced over R0.5 million in cooperative output.

In 1987, the measures for introducing new equipment released 665 persons for other work, thus deriving an economic effect of R1,790,000. Raising the technical level of production reduced output production costs by R2,148,000.

Plans for 1988 call for output production costs to be lowered by R2,900,000 and for 980 persons to be freed for other duties. There are plans to introduce schemes for extracting peat by dividing the peat harvest among four production associations (Leningrad, Vladimir, Smolensk and Novgorod).

More widespread dissemination of this procedure is being delayed by shortages of equipment, which is supposed to be manufactured by Minstroydormash peat-extraction machinery plants.

Over the years, Lentorf's Irinovskoye and Selivanovskoye peat-production sections have developed a production method by which cut peat is extracted in separate peat harvests from consolidated windrows. Industrial harvesting methods were used to extract 140,000 t of peat, which produced an economic effect of R58,000 and freed 14 workers for other work.

In 1988, the Kalinin, Vladimir and other production associations will examine a bridge-less drainage network design, and the Lentorf, Shaturtorf and Kalinintorf production associations are looking at two versions of a design for counters on MTF-43A machines.

In accordance with the RSFSR Mintopprom [Ministry of the Fuel Industry] decision to change over from using caterpillar-track to wheeled tractors to extract peat, preparatory work has been done for the purpose of setting up peat-extraction production sections equipped with T-150K tractors in the Kalinintorf, Vologdatorf, Kirtorf, Vladimirtorf, Novgorodtorf and other production associations. Tractors are to be subsequently used to take peat out to consumers.

Of all the peat extracted in 1987, 24 million t were hauled out before the 1988 season began. By the beginning of the season, there were 6 million t of agricultural peat left in the fields. This is in an area of over 8,000 hectares. The Sverdlovsktorf, Smolensktorf, Gorktorf, Kirtorf, Tyumentorf and Shaturtorf production associations have especially large surpluses.

Peat removal is being delayed by the refusal of agroindustrial farms to conclude delivery contracts and by shortages of motor transport vehicles and MPS [Ministry of Railways] railcars.

In 1987, 68,400 square m of living space were made available at a plan quota of 66,100 square m. This improved the living conditions of 4,500 people and made it possible to bring in additional peat-extraction workers. The 1988 plan called for building 68,000 square m of housing. To improve our peat enterprises' social and domestic conditions, a 400-place club was put into operation at the Chistik Peat Enterprise and kindergartens were set up at the Karin and the Gatchina peat enterprises.

Efforts are continuing in 1988 to improve social and domestic conditions for those employed in the peat industry. Plans call for the construction of clubs at the Ulom, Vyshnevolotskiy and Mistsevsk peat enterprises, kindergartens at the Solotcha, Dymnoye, Batkovsk-Olkhovskoye and Vishchur peat enterprises and outpatient clinics at the Nyurdor-Kotya and Vishchur peat enterprises.

Enterprises are working on reducing the shortage of machine operators. In order to bring their numbers up to strength, 297 machine operators are being trained in the training course system, and there are plans to hire 850 experienced VUZ, tekhnikum and GPTU [state trade and technical school] workers, over 500 people will be transferred from other shops and production facilities, and about 900 persons are expected to be brought in to work for wages. All these measures will bring the number of machine operators up to 13,000.

However, not all the association and enterprise directors are taking the requisite measures to increase the numbers of machine operators in the work-force, they are not carrying out the prescribed assignments for training these people in the system of training courses, and are not completely ensuring their transfer from other shops to the peat- extraction sections. The machine-operator situation in the Vologdatorf, Shaturtorf, Kalinintorf and Lentorf production associations is particularly acute.

Peat extraction during the 1988 season will be carried out by cost-accounting [khozraschetnyy] integrated and contract brigades. Of the 645 brigades which worked during last year's harvest season, 506 were cost-accounting and 168 were contract brigades. Peat extraction in Smolensktorf, Vladimirtorf, Kirtorf and Udmurttorf production association enterprises was organized totally by cost-accounting brigades, while only 53 percent of the Pskovtorf PO enterprises, only 38 percent of the Novgorodtorf PO, 55 percent in the Orekhovotorf PO and 65 percent in the Ivanovtorf PO operated on a cost-accounting basis.

Rostorf peat-extracting enterprises have been charged with extracting peat during the 1988 season using only cost-accounting brigades. The working experience of the Vladimirtorf Production Association's Melenkovskiy Peat Enterprise contract cost-accounting brigade (production section) has been disseminated to help with this task. This brigade performs the entire gamut of peat-harvesting operations: extraction, repair and preparation of productive areas. The working experience of the Smolensktorf Production Association's Roslavl Peat Enterprise cost-accounting brigade, under the leadership of USSR Prize Winner I. A. Aksenov, continues to be disseminated.

The establishment of benefits for machine operators involved in peat extraction and peat-bog preparation work has greatly improved the level of organization of labor and has kept the work-force up to full strength. In 1987, benefits were received by more than 9,000 persons, who were paid R2,936,000, including R2,344,000 paid for length of time spent working in their specialty, with individual workers receiving R1,000. As a result, machine operators who had previously left have been returning to peat enterprises, and workers in other peat enterprise shops are requesting transfers to production sections during the harvesting season. Conditions favorable to setting up double-shift peat-extraction operations are being created.

Chief of the Administration for Extraction and Utilization of Peat in Agriculture Yu. K. Burak gave a report on the state of preparedness of the dual-subordination peat industry for the extraction season. He noted that the 1987 season had had a great many problems. All the same, the administration managed to cope with the season's peat extraction quota. The plan for peat briquette production was fulfilled and the economic indicators for prime production costs and profits were met as well.

Yu. K. Burak touched on questions related to changing the sector over to cost-accounting; specifically the prompt conclusion of contracts with kolkhozes and sovkhozes. He was critical of the view held by certain Western Siberian scientists regarding the supposedly low level of effectiveness of using peat in agricultural production, since in many years of practice, the Vladimir Oblast's State Breeding Farm imeni 17th International Youth Day, and others, attests to the opposite: high yield through skillful peat utilization.

Considerable work has been done in time for the 1988 season to make the peat enterprises safe from fire hazards. I. I. Belokrutov, chief of the Enterprises' Fire Equipment and Safety Department, discussed this subject. Reserve water supplies, the availability of fire-prevention equipment and training workers and the populace help to create confidence in the full preparedness of our labor collectives to carry out the peat-harvesting season.

VNIITP [All-Union Scientific-Research Institute of the Peat Industry] developments have played a significant role in equipping the sector with fire-fighting and prevention equipment and in setting up production of this equipment at Rostorf enterprises. At the same time, vigilance, day-to-day preventive measures, constant work with the labor-force and increased exactingness in observing fire-safety norms and regulations are still the primary tasks of peat enterprise directors and labor collectives.

The speeches of association general directors I. K. Voronin (Kalinintorf), A. B. Strukov (Lentorf), A. I. Seleznev (Shaturtorf), A. G. Bryukhanov (Sverdlovsktorf), G. R. Yegorov (Yartorf) and A. I. Bodrov (Novgorodtorf) revealed concern about providing enterprises with machine operators. The present situation has come about because of many reasons, primarily the inadequate work done by enterprise directors to mobilize machine operators among the machine-building and metalworking collectives, the poor training of workers via in-house courses and the insufficient emphasis on solving social problems.

The general directors reported to the board on the degree of preparedness for the peat-harvesting season of the enterprises under their administration. They brought up the lag in repairs to the drainage network and bridge-crossings and the lag in collecting pulled stumps. They reported on the measures taken by associations and enterprises to promptly complete preparatory work by the beginning of the extraction season. At the same time, new developments from the VNIITP, particularly the separate peat-harvesting method, are being introduced sluggishly. Minstroydormash machine-building workers

are doing a poor job of initiating series production of the machinery used in the separate-harvesting method: loaders, cutter-bundlers and trailers. Drainage and water discharge mechanisms from the grid drainage network are being introduced too slowly.

Those addressing the meeting of the board of Kursk Oblispolkom and Mary ASSR fuel industry administration directors assured the board that the organizations under their administration were completely prepared for the upcoming season and asked about stepping up production of spare parts for block peat extraction machinery, creating a radically new complex of machines for extracting lump peat in the lowland type deposits and speeding up the expansion of peat- processing products in enterprises with dual subordination.

Minister V. G. Arkhipov, First Deputy Minister B. N. Sokolov and RSFSR Council of Ministers Deputy Chairman L. A. Gorshkov set important tasks before the peat industry employees.

Successful fulfillment of the harvest season plans depends completely on the labor collectives, on the degree to which their party organizations are mobilized and on strengthening the exactingness with which norms and regulations, and labor and production discipline are observed. The principles of full cost-accounting need to be introduced everywhere, as do the principles of the brigade and, in many instances, the family contract. The questions related to operating on cooperative principles in peat and peat-processing enterprises need to be examined. Enterprise and association directors have been charged with completing all preparatory work prior to the official beginning of the season. This work includes bringing the work-force up to full strength and assigning workers units of machinery, since setting up the required operations on a prompt and widespread basis at the very beginning of the season is a prerequisite to successfully carrying out plan assignments. The experience of the Vladimirtorf Production Association has corroborated this in practical fashion. The sector's scientific and production potential needs to be more widely used to lower manpower demands by technological means. The peat sector's research and planning institutes are still doing a poor job of solving this problem.

Our scientists and production workers are faced with the colossal task of propagandizing the effectiveness of peat and peat products to the prime peat consumer—agroindustry. This, in large part, will also ensure the success of the contract campaign for the future.

With regard to the question under discussion, the collegium made a well-thought-out decision in mobilizing the labor collectives to unfailingly fulfill the season's peat extraction plans and socialist obligations in honor of the 19th All-Union Party Conference.

12659

Recent Coal Sector Infrastructure Developments

18220088a Kiev UGOL UKRAINY in Russian No 5, May 88 pp 1-4

[Editorial: "Acceleration of the Country's Economic and Social Development Needs the Miners' Support"]

[Excerpts] Coal-industry enterprises and organizations are getting ready to convert in January 1989 to full economic accountability and self-financing, in connection with which the industry has taken some steps to prepare for operation under the new management conditions. Special attention is being paid to improving the economic education of the workers. Seminar conferences have been conducted with the participation of supervisors and specialists of associations, enterprises and organizations and party, trade-union and Komsomol workers, and everywhere economic study is being organized. Today each worker should know what is required of him and of the collective in which he works, in order to reduce the prime cost for producing coal and the labor intensiveness of the work being done; he should know where profit comes from and how economic incentive funds are formed. Economist personnel are obligated to play a special role in meeting this task, and their efforts should be aimed at seeing to it that the industry's blue-collar workers, engineers and technicians learn properly and as quickly as possible how to think in terms of economics. Time losses and a formalistic approach to solving this problem will not enable working collectives to work effectively under the new conditions. At underground mines, preparation plants and coal machine-building plants, work places are being rationalized and certified, many brigades and sections have already converted to economic accountability, and forms for material incentives for work are being improved, primarily for its final results. Much work has been promoted on converting enterprises and organizations to the new terms for pay. For the first time, wages, salaries and rates for the industry's workers are being raised through and within the limits of funds earned by the collectives themselves. The sources of these funds are basically savings of the wage fund obtained as a result of implementing additional measures for raising labor productivity, reducing labor intensiveness, reducing manning, cutting worktime losses, and also, thanks to growth of the wage fund, through an increase in the volume of output and the material incentives fund, which are aimed at these goals with the concurrence of the laboring collective.

The collectives of 5 associations, 43 mines, 31 preparation plants and more than 100 other enterprises and organizations have fully converted to the new pay system. It is planned to transfer more than half the industry's workers to increased wage rates by the end of the year. The steps taken are already yielding tangible returns. At most enterprises the level of fulfillment of

production plans has risen noticeably, material, financial and labor resources are being used more rationally, and the quality of the output produced is improving.

Much has been done within the Karsnoarmeyskugol Association, which has been operating under the new management terms since January 1986. Purposeful daily work is being done here to formulate the workers' economic thought, to instill in each worker the feeling of a conscious proprietary attitude toward his work. Right now more than 80 percent of the association's blue-collar workers are covered by brigade forms of organizing the work, all the mining and 90 percent of the development brigades have converted to economic accountability, and 40 percent are working with use of the labor-participation coefficient and two-thirds with pay according to the final result. All this has increased the collective's responsibility for stable operation.

Economic transformations in production work cannot be accomplished without close interdependence in the solution of the social problems that have accumulated in the industry. These are primarily the provisioning of miners' families fully with housing, therapeutic institutions, recreation centers and kindergartens, the development of subsidiary agriculture, and many other problems, the timely solution of which will promote order and a high state of organization, improve morale, and raise the effectiveness and quality of the miners' work. Such an approach to the matter is characteristic for many of the industry's advanced collectives. Take, for example, the Underground Mine imeni Gazeta SOTSIALISTICHESKIY DONBASS, where the collective has been operating stably for two decades now. What is the secret of its success? Here, besides paving the way for highly productive labor at breakage and development faces, economic supervisors and party, trade- union and other social organizations in all production elements pay great attention to social problems. The mine has erected an entire settlement—more than 300 apartments—by the in-house method. They have built the best games hall in Donetsk, have equipped a therapeutic mudbath, and so on. In their five-year plan are the expansion of a palace of culture, the erection of a recreation center with a winter garden, athletic and dance halls, and a swimming pool, and the construction of a greenhouse and an apiary. All this, in the final analysis, also governs the enterprise's work rhythm. The collective met the plan for the first two years of the five-year plan ahead of time, on 24 October 1987. Technical and economic indicators are being overfulfilled also in 1988, and all sections and brigades are coping with production goals. The collectives of the underground mines imeni M. Gorkiy, Krasnolimanskaya, imeni Lenin (Voroshilovgradugol), imeni Kirov (Stakhanovugol), No 10 of Velikomostovskaya, and many others have supported matters in a similar fashion.

It must be noted that the industry has intensified the attention given to solving social problems: more preschooler institutions and Pioneer camps, dispensaries and recreation centers, stores, dining halls and greenhouses are being built. Enterprises will erect by their own efforts more than 1 million square meters of housing, which will double the amount of the 11th Five-year Plan. Grants for overhauling apartments and for bringing workers' hostels, palaces of culture and other facilities for social, cultural and domestic-services purposes to the proper state have been increased. However, it is not everywhere that proper attention is being paid to these important problems. Construction of housing is being developed but slowly in the Torezantratsit, Stakhanovugol, Pervomayskugol and other associations. Funds allocated for erecting facilities for social purposes are not being fully assimilated by the Aleksandriyaugol, Dzerzhinskugol, Antratsit and Sovetskugol associations. The amount of housing construction by individuals has practically not increased, and sluggishness in creating youth housing complexes is manifesting itself.

Experience indicates that success in the matter of perestroyka and acceleration of social and economic development depend decisively upon personnel, their ability to act without waiting for instructions from above and to take responsibility on themselves, and their boldness in taking justifiable risks. This is especially important in regard to the coal industry, where people often must work under extreme conditions, where the fulfillment of tasks that have been set can be provided for only through strong discipline, a high state of organization, high professionalism, and close solidarity of all members of the collective.

Good results are being achieved precisely where management includes active, highly qualified specialists who are able to stand up for the interests of the collective and are bold enough to express their opinion. Ye. L. Zvyagilskiy—director of the Underground Mine imeni Zasyadko—is an example of this. When he took up this post about 10 years ago the enterprise had not met the plan for mining coal and arrears were counted in the hundreds of thousands of tons. Today the Underground Mine imeni Zasyadko is one of the republic's best enterprises. The secret of success of this manager is the fact that he, as an organizer, knew how to attract scientists, specialists and experienced workers in solving problems that arose during production. As an engineer he competently managed, using advanced experience, to fine-tune the work at the mining and development faces and to organize precise interactions of all the enterprise's services. And, finally, as a communist, he could arouse in people a deep faith in their creative forces. In posing to the collective the most complicated problems of developing and reequipping the mine and in consolidating its productive and economic potential, the director did not forget either about the necessity for solving urgent social problems.

The enterprise is tackling the problems of increasing mining of the coal, increasing labor productivity, reducing the prime cost of producing the fuel, increasing the amount of construction of housing and facilities for

cultural and domestic-services purposes by the in-house method, and developing subsidiary agriculture with an identical degree of responsibility. As a result, during the 12th Five-Year Plan alone, the annual amount of coal mined has increased by 217,000 tons, or by 10 percent, and the miners' labor productivity rose by 13 percent. In 1987, by reducing the prime cost of producing the fuel, 2.4 million rubles was saved and profit exceeded 22 million rubles.

Managerial personnel are showing a high yield precisely where the principles of collegiality and glasnost have been strictly observed in selecting and assigning them. Therefore, the practice of electing managers has spread everywhere today in coal-industry enterprises and organizations. Openness in evaluating and promoting managers of all ranks and the people's monitoring of their work are reliable methods and forms by means of which, as a rule, many mistakes can be avoided.

Work on saving and rationally consuming materials, including raw materials, and energy resources has been intensified at coal-industry enterprises and construction projects. Measures are being taken to increase the amounts of introduction of progressive technologies for mining and preparing coal, the repeat use of arch timber members, mine rails, pipelines and other metal articles and structure, the utilization of associated gas, the combustion of high-ash coals in fireboxes with a fluidized bed, and the use of cement substitutes for plugging and for reinforcing excavations. During 1986-1987, about 6,000 tons of rolled ferrous metal, 5,900 tons of cement, 77,000 cubic meters of timber, 43,000 tons of boiler and furnace fuel, and 700,000 gigacalories of heat were saved above the goal, and the specific consumption of materials in mine construction was reduced by 7-10 percent.

However, not all the existing reserves for saving resources have yet been activated to the proper extent. At many underground mines, cases of the combined taking of coal and rock when transiting excavations and, often, chopping into side rocks are permitted when mining longwalls, as a result of which additional electricity is spent on transporting and cleaning up the mined mass. As experience indicates, the use of ash slag and dolomite dust in preparing concrete and plugging mortar reduces cement consumption by 20-30 percent. However, the minebuilders' saving of cement by using these production wastes does not exceed 3-5 percent. A still insignificant portion of the waste of coal-preparation is used for making brick and other building materials.

With expansion of the sphere of economic accountability and rise in the role of qualitative indicators in the branch, the organization of socialist competition is being raised to a new and higher level. Labor competition is gathering strength directly in the miners' collectives, and agreements on competition are being concluded between neighboring sections, brigades and elements that will enable the main Leninist principles of its organization—glasnost, a comparison of results, the possibility of using advanced experience, and the replication and exceeding of record achievements—to be activated fully. The glow of the drive for fulfilling 12th Five-Year Plan tasks ahead of schedule is rising constantly. In the vanguard of the competing collectives are the underground mines imeni M. Gorkiy, imeni Korotchenko, imeni Stashkov, the Bogucharskaya, the Velikomostovskaya No 10, and also sections and brigades under the well-known miners A. R. Arkushin, A. L. Safarov, V. V. Kupriyashin, G. D. Pronin and others.

For a long period of time the breakage-face mineworkers' brigade from the Underground Mine Molodogvardeyskaya of the Krasnodonugol Association, which A. Ya. Kolesnikov, Hero of Socialist Labor and member of the CPSU Central Committee heads, is an example of highly productive and selfless work. During the 10th and 11th Five-Year Plans this collective mined more than 8 million tons of coal, and the plan for the first two years of the 12th Five-Year Plan was met on 28 August 1987. During the past year, the amount of mining from one longwall exceeded 1 million tons and the labor productivity of the brigade's members was brought up to 760 tons per month. By reducing the prime cost of producing the fuel, 129,000 rubles were saved. The republic school of advanced experience is operating on the basis of A. Ya. Kolesnikov's brigade. The collective is filled with resolve and in 1988 will surpass the million mark for mining.

The breakage-face mineworkers brigade under V. S. Kuznetsov from the Krasnolimanskaya Mine of the Krasnoarmeyskugol Association, which also has attained constant membership among the "millioneers," also has high achievements to its account. And another 12 of the republic's mining brigades are laboring under a strenuous operating schedule, each brigade yielding annually more than 500,000 tons of coal.

The Ukraine's miners have widely promoted competition for a worthy greeting to the 19th All-Union Party Conference. The collectives of 14 enterprises, 142 sections and departments, 97 brigades, 1,368 mine-face workers and 911 machine-tool operators have resolved to meet the goals of at least the first three years of the five-year plan by the day of the conference's opening. Unfortunately, socialist competition still has not been organized to the proper extent at all the republic's coal-industry enterprises. The paramount tasks of the republic's committee of the Trade-Union of Cola-Industry Workers and of regional, local and lower-echelon trade-union elements are to rid socialist competition of all that is far-fetched and to intensify its effect on the economy, the strengthening of discipline, and growth of the mine workers' professional qualifications.

The experience of the advanced collectives under V. M. Gvozdev and A. P. Potapov—initiators of the socialist competition for worthy completion of 12th Five-Year Plan tasks ahead of schedule—must be used more fully.

The positive processes of perestroyka, which are gaining momentum at coal-industry enterprises and construction projects, the growing labor and political activeness of the coal miners, and their striving to make a worthy contribution to the development and strengthening of the country's economy are exerting a beneficial effect on the work of the whole industry. During the 12th Five-Year Plan the republic mined more than 10 million tons of coal above the established plan, and tasks on labor-productivity growth, reduction in prime production costs, and improvement of quality of the coal mined were overfulfilled. In 1988 the Ukrainian SSR's miners, taking into account the adopted counterplan, are to mine 192.3 million tons of coal, which exceeds the amount mined last year by 400,000 tons. There are reserves and the potential for fulfilling this important task, but the miners will have to act more energetically and economically.

11409

Abstracts of Articles in UGOL UKRAINY, May 1988

18220088b Kiev UGOL UKRAINY in Russian No 5, May 88 p 48

Requirements for Systems for Displaying Information for Tunneling Machines

[Abstract of article by V. V. Sinenko and A. V. Dolinnyy in UGOL UKRAINY No 5, 1988, pp 16-18]

[Text] Research of the working conditions of a tunneling cutter-loader operator and the requirements for visual-control devices and for information-display systems. A possible variant of a model of such a system, based on an IMG-type matrix indicator. 1 illustration, 1 reference.

Increase in Throughput of Underground Mines for the Rock Cycle

[Abstract of article by V. I. Prorochenko, N. A. Fedosenko and V. F. Ovchinnikov in UGOL UKRAINY No 5, 1988, pp 18-19]

[Text] A method for reequipping cage shafts (holes) as skip-cage or skip shafts, which will enable the costs and time for constructing horizons to be cut, multiple-step single-end haulage of rock in cars to a central unit to be precluded, and further development of mines to be provided for. 1 illustration.

Results of Industrial Tests of the SPTs-162 Flight Conveyor

[Abstract of article by K. K. Kogan and G. A. Litvinov in UGOL UKRAINY No 5, 1988, pp 19-21]

[Text] Peculiarities of the design of the SPTs-162 conveyor. Results of tests, as part of a KD-80 longwall mining machine, at the Ternovskaya Underground Mine of the Pavlogradugol Association. 2 tables, 2 illustrations.

Flaw Detection in Main Shafts of Underground-Mine Lifting Machines

[Abstract of article by N. M. Revyakin and K. M. Matangin in UGOL UKRAINY No 5, 1988, pp 22-23]

[Text] Technology for detecting mine-shaft flaws in ShchPU's [underground-mine lifting installations] which permit the shaft to be monitored during overhaul and after service-life expiration. 1 illustration.

Idle Time of Longwall Mining Machines Because of Rough Landing of Sections

[Abstract of article by V. A. Svetlichnaya, N. I. Chichikalo and V. I. Vatis in UGOL UKRAINY No 5, 1988, pp 23-24]

[Text] Results of an analysis of idle time of longwall mining machines caused by crushing of mechanized supports at breakage faces.

Linear Components of a Remote-Control Complex of an Underground Mine Surface

[Abstract of article by S. P. Tutunov and N. P. Vakulenko in UGOL UKRAINY No 5, 1988, pp 24-25]

[Text] Analysis of linear components used in the Obzor equipment of Konotop's Krasnyy Metallist plant and of components developed for the TPSh longwall mining machine. Functional scheme of the transmitter, receiver and submodules of a compatible linear component. 1 illustration, 3 references.

Use of Microcomputers in Instruments for Monitoring the Ash Content of Coal

[Abstract of article by K. S. Klempner, V. F. Klyuyev and V. N. Shamshin in UGOL UKRAINY No 5, 1988, pp 26-27]

[Text] Functional potential of a high-speed analyzer of the ash content of coal that is based on a microcomputer and was developed by Donugi [Donets Scientific-Research Institute for Coal]. 1 illustration, 3 references.

Unification of Pumping Equipment of Coal-Preparation Plants

[Article by A. S. Terekhovskiy and B. A. Spineyev in UGOL UKRAINY No 5, 1988, pp 27-28]

[Text] UA type pumps for unifying coal-preparation plant equipment. 1 table.

Ventilation of a Cul-de-Sac Excavation of Great Length at the Underground Mine Yubileynaya

[Abstract of article by P. A. Nemtsov and V. N. Sulima in UGOL UKRAINY No 5, 1988, pp 28-29]

[Text] Experience in organizing ventilation of a long cul-de-sac excavation by means of VMP [local pneumatic-drive ventilator] and ventilation pipes in the environment of the Underground Mine Yubileynaya of the Pavlogradugol Association. 2 illustrations.

Esthetics-Engineering Improvement of a Siren for Warning of Blasting

[Abstract of article by P. P. Batsylev in UGOL UKRAINY No 5, 1988, pp 29-30]

[Text] A new and esthetically appealing design solution for the PV-SS blasting-warning siren with improved esthetic-engineering indicators. 1 table, 2 illustrations.

Control of Gas Emission by Means of Stationary Drainage Excavations

[Abstract of article by M. P. Popkov and I. D. Mashchenko in UGOL UKRAINY No 5, 1988, pp 30-31]

[Text] Diversion of gas from the excavated space of active and worked-out longwalls by means of drainage excavations. Diagrams of a diversion, their effectiveness, and recommendations. 1 illustration, 1 reference.

Computation of Productivity of a Foam-Generator Installation for Extinguishing Fire in a Cul-de-Sac

[Abstract of article by A. I. Kozlyuk, V. B. Sinyavskiy and V. P. Zasevskiy in UGOL UKRAINY No 5, 1988, pp 31-32]

[Text] Methods and tactical measures for extinguishing fire in cul-de-sacs by mechanically generated foam. Calculation of the minimally required productivity of a foam-generating installation for fire extinguishing. Evaluation of the effectiveness of using PSh, GPS-600, GPS-2000 and PPU Burya installations. 1 illustration.

Fire-Sprinkling Water Supply for Underground Mines with Automated Pumping Installation

[Abstract of article by G. V. Grin and Yu. V. Gavrish in UGOL UKRAINY No 5, 1988, pp 32-33]

[Text] Use of pneumatic-pump stations for a water supply for sprinkling fires in underground mines. The methodology for determining the main hydraulic parameters of the installation and its economic effectiveness. 1 illustration, 3 references.

The Desirability of Constructing Central Compressor Stations at Donbass Underground Mines

[Abstract of article by V. S. Mochkov and V. A. Zuyev in UGOL UKRAINY No 5, 1988, pp 33-35]

[Text] Analysis of variants for rebuilding compressor stations and diagrams for the air supply of underground mines of the Donbass's Central Region. 2 tables, 1 illustration

What Is New in the Design of Stairway Divisions of Vertical Shafts

[Abstract of article by G. O. Vestfal and Ya. D. Abakumov in UGOL UKRAINY No 5, 1988, pp 35-36]

[Text] Experience in reinforcing vertical shafts with stairway divisions of various designs. A new design for an anchor proposed by VNIIOMShS [All-Union Scientific-Research Institute for the Organization and Mechanization of Mine Construction] for attaching reinforcing members. The results of industrial testing of attaching a stairway- division module in a shaft. 1 illustration.

Selection of Schedule of Reliability Indicators for Underground-Mine Firefighting Equipment Articles

[Abstract of article by V. G. Velichko and G. E. Vorobyev in UGOL UKRAINY No 5, 1988, pp 36-37]

[Text] List of group and individual indicators of the reliability of articles of underground-mine firefighting equipment, based on the established criterion of effectiveness, the consequences of failures, and the nature of their influence on effectiveness according to the GOST [All-Union State Standard]. 1 table, 2 references.

Distribution of Coal-Bearing Formations of the Middle Carboniferous Throughout the Area

[Abstract of article by V. T. Vodolazskiy in UGOL UKRAINY No 5, 1988, pp 38-39]

[Text] Analysis of coal-bearing formations of the Donbass's Middle Carboniferous, taking into account the metamorphosis of sedimentary strata. 1 illustration, 2 references.

Determination of the Moisture Content of Sandstones for Calculating the Degree of Filling of Pores with Gas

[Abstract of article by V. V. Lukinov, K. A. Bezruchko and V. G. Surovtsev in UGOL UKRAINY No 5, 1988, pp 39-40]

[Text] Comparative assessment of the results of laboratory determinations of the bulk moisture content of sandstone samples which were prepared on a coal-cutter and removed manually by cleavage of the core. Substantiation of the potential for using the moisture content of samples prepared on a coal-cutting machine tool for calculating the explosion-vulnerability indicator—the degree of filling of the pores with gas. 1 table, 2 illustrations, 3 references.

Potential of the Seismoelectric Method for Locating Tectonic Faults of Coal Seams

[Abstract of article by S. I. Skipochka, T. A. Palamarchuk and Ye. V. Bykov in UGOL UKRAINY No 5, 1988, pp 40-42]

[Text] Results of study of seismoelectric properties of rock. The seismoelectric moduli of the basic types of rocks and coals, their dependence upon moisture content and strain-deformed state, and the attenuation of electromagnetic waves. A physical model of the method and nomograms for calculating the maximum depth of action of the seismoelectric method. 3 illustrations, 3 references.

Elimination of Emergency Condition of Multistory Housing When Undermining Under Complicated Mine-Geology Conditions

[Abstract of article by Yu. N. Gavrilenko, V. S. Molkov and H. M. Kalashnikov in UGOL UKRAINY No 5, 1988, pp 42-44]

[Text] Results of observations during deformation of the earth's surface, and the mine-geology conditions for undermining the region of the Donetsk being examined. Leveling of a nine-story apartment house during undermining without displacing the residents, by using jacks. Recommendations for the construction of apartment houses on lands with complicated mine-geology conditions. 3 illustrations, 2 references.

11409

Minnefteprom Transport Head on Organizational Needs

18220087a Moscow NEFTYANIK in Russian No 5, May 88 pp 6-8

[Article by A. Gorskiy, chief, USSR Minnefteprom (Ministry of the Petroleum Industry) Transport Administration, under the "Technological Transport: Methods of Restructuring" rubric: "After the Contradictions, What?: Another Look at Expanding a Subsector Under the Present Economic Conditions"]

[Text]

The State of Transport Servicing

The changeover of this sector to a new system of economic management necessitates comprehensive solutions to the problems of improving the effectiveness of transport use. There are considerable reserves here, the use of which would cut the production costs of recovering oil without the need for additional capital outlays. Today, transport costs comprise more than 20 percent of overall oil recovery operating costs.

It is understandable that in conditions such as these, it is important that the level to which transport equipment is organized be raised drastically. What resources have we for doing so?

First of all, we must improve transport operation planning, material incentives and the cost-accounting [khozyaystvennyy raschet] system.

Technological transport is the one link in our sector whose work is evaluated with no regard whatsoever for the final results, i.e., well construction and oil recovery. This subsector operates via a system for planning and evaluating economic activity which has been transferred intact from general-purpose transport, even though production transport performs a specific operation and employs the most diverse equipment to do so. The practice of planning an economy on the basis of what "has been achieved" orients transport workers towards improving gross indicators (tons, ton-kilometers, KIP [space utilization factor], machine-hours, etc.). These indicators fail to reflect how completely and with what degree of quality basic production's needs for transport services are met, nor do they permit a precise determination of the demand for transport services needed to fulfill the state plans for well drilling, oil recovery etc.

Our associations are suffering considerable financial losses due to unsatisfactory utilization of available equipment.

Basic transport enterprise operating indicators are not being coordinated with recovery and drilling indicators. There is a lack of needed balance in the planned work

volume and assets to carry it out. This attests to the serious contradictions between the economic interests of basic and auxiliary production.

This system of economic management fails to provide drivers and transport organizations with personal interest in the final results of their work, i.e., prompt and high-quality servicing of basic production at reduced transport costs.

Another negative feature is the present state of clients' planning and accounting work. In fact, transport services are usually planned on the basis of what "has been done in the past."

The primary accounting documents used in transport work (trip tickets, bills of lading etc.) are extremely complicated and lengthy and require a great many workers to fill them out and process them. In general, no accountability is required for special equipment use.

Transport organizations are poorly equipped with computers, association-level economic services do a poor job of handling our specific problems and the production transport and special equipment administrations of most associations do not generally provide these services.

Nor is it possible to speak of introducing real cost-accounting in all basic and auxiliary production subdivisions without "all-process" planning, accounting and evaluation of the work of transport organizations.

There are flaws in the system of methods now used to determine the demand on the freight-handling fleet.

The changeover to cost-accounting also presupposes a review of the existing price-setting system per machine-hour for those types of equipment whose prices are not on the all-union and sectorial price-lists.

The system of planning profits for transport organizations in accordance with the "removed-from-the-fact" principle is imperfect. The system of interrelations between the various subcontractors involved in oil recovery provides no way to cut transport costs.

A positive example of the change in the interrelations of UTT's [technological transport administration] and NGDU's [oil production administration] is the many years of experience of the Tatneft [Tatar Petroleum] Association in using checks in their mutual calculations (the Leninogorsk UTT and the Leninogorskneft Association), which allowed them to cut their per-well transport costs by 20 percent during the 11th Five-Year Plan period. The experiment in planning transport services on a by-the-operation basis, introduced by the Almetyevsk and Yelkhovsk UTT's, is also of interest.

Advanced production experience shows that the greatest effect can be derived by finding comprehensive solutions to the problems of improving the economic mechanism within the overall framework of a UTT. The Surgutneftegaz Production Association's UTT-6 is an example of this approach. The results of its work in 1987 were positive, in that it's transport costs were cut by R1,050,000 over the year before.

Thus, the practice itself suggests the need to break away from stereotypes in our economic work.

How To Break Away From Stereotypes?

In order to achieve this goal, we feel the following things should be done:

—improve the system of planning and evaluating economic activities and material incentives;

—expand mutual relations between transport and auxiliary enterprises and organizations;

—develop intraproduction cost-accounting;

—expand the use of the brigade and collective contract;

—improve current production control of the transport servicing process;

—improve transport organizations' organizational procedures;

—improve the organization of rolling stock repairs and maintenance.

Determining subdivisions' normative demand for transport and special equipment and the optimal structure for the UTT park is the basis for planning association subdivisions' demand for transport equipment and for putting cost-accounting principles into effect. The normative demand for transport and special equipment is determined for all subdivisions, production processes and individual enterprises with the participation of a broad circle of specialists from all shops, brigades and services. Determination of the normative demand for technological transport and special equipment is based on the normative documents now used to define the periodicity and duration of jobs, association-approved plans of operations, UBR's [drilling operations administrations] and NGDU's, and PPR [regularly-scheduled preventive maintenance] schedules. Unscheduled and unanticipated operations are handled according to expert appraisals.

A comparison of estimated demand with the transport and special equipment actually provided is used to determine the degree to which shops and subdivisions are outfitted with equipment, and this makes it possible to determine the park structure. This is precisely the way the Tatneft and Kuybyshevnheft Associations operate. Optimally consolidated norms should show up in the

overall long-term planning of transport costs for enterprises. SurgutNIPIneft [Surgut Scientific Research and Planning Institute for Oil], in particular, is working on this problem.

The amount of transport costs for facilities involved in providing services for basic production, as determined on the basis of transport's participation in production processes according to the norms, is equal to the amount of the revenues earned by transport sector enterprises.

Transport enterprise orders can be used when formulating the client plan, which is defined in terms of cost, and which is the basis upon which contracts are concluded.

Planned accounting prices should be agreed upon by the client and approved by a superior organization.

Under the new system, the volume of transport work will be limited by the ceiling on transport costs incurred by the auxiliary organizations. Here, transport workers' profits can be increased by cutting the prime cost for transport work.

Wage funds and economic incentive funds should be formed in accordance with stable norms which depend on the indicator which shows the level to which the transport enterprise has developed. This level can in turn be established by certification.

With regard to the changed planning system, the material incentive system also needs to be changed. The system of bonuses and raises should provide drivers' work with economic incentives regarding double- and triple-shift work, driving with trailers and holding two jobs.

Economic incentives to improve transport services can be increased by executors and clients using radically new estimating methods. Every month, an "acceptance of completed work" act is drawn up which states, in compliance with a yearly contract, the monthly value of the work. The other side of the "act" shows the actual production costs. The amount the actual production costs exceed the planned amount is assigned to the transport enterprise. Where there have been savings in monetary assets, a portion (large) is left with the transport organizations and a portion is transferred to the client.

The changeover to a new system of planning and regulating the mutual relations of economic partners necessitates using new forms for initialaccounting of completed jobs and material, power and manpower resources.

The primary prerequisite for internal cost-accounting is that the necessary normative base be developed for all planned, accounting indicators and cost elements. Progressive, technically-substiantiated norms should also be developed which cover: expenditures and stocks of all types of materials, available supplies of technical resources, the labor intensiveness of doing various types of jobs, and the time needed to perform individual operations. Intraproduction planned accounting prices for goods and services should also be worked up. The makeup of the approved planning indicators for production units and their subdivisions (up to and including brigades) should be of the integrated process type, and should orient production collectives toward the final results of their work.

The system of cost-accounting interrelations should encourage people to economize on transport expenditures. The check system should be used as a control measure when performing jobs.

Combining the aims and tasks of transport workers and clients will make it possible to change their operation over to working on a contract basis. This will allow transport organization capacities to perform individual types of jobs for clients from start to finish and to be paid only for the work done and at a pre-approved cost. This will increase the level of transport sector employees' responsibility, will shorten the length of time needed to perform their work, will take the volume of hauled loads more precisely into account, will reduce freight hauling costs, and will cut oil recovery costs.

We need to develop new, or refine existing instructions, statutes and methodical directives in the shortest possible time. VNIIOENG [All-Union Scientific-Research Institute of the Organization, Administration and Economics of the Petroleum and Gas Industry] and its affiliates, as well as sectorial scientific research institutes, have a tremendous amount of work to do in this area.

12659

ELECTRIC POWER GENERATION

VVER-440 Works Under Varying Pressures in the Second Loop

18220083 Moscow ELEKTRICHESKIYE STANTSII in Russian No 5, May 88 pp 15-19

[Article by Engineers Ye. N. Videnev, S. A. Andrushechko and S. O. Koltsov, Candidates of Engineering Sciences and A. G. Proskuryakov, and Yu. N. Pytkin and Engineer V. I. Romanyuk of VNII AES [All-Union Scientific-Research Institute for AES's] of the NPO [Science and Production Association] Energiya (Kolskaya AES): "Operation of a VVER- 440 During Extended Refueling-Cycle Operation with Varying Pressures in the Second Loop"[1]]

[Text] A specific feature of the operation of AES's with VVER's [water-moderated water-cooled power reactors] is the need periodically to shut down the power units for

planned-preventive maintenance [PPR] of the equipment and for reloading of TVS's [fuel assemblies]. These shutdowns are extremely undesirable during the fall-winter peak of the power system's load curve. Therefore, AES operation is planned in such a way that in fall and winter the curve is maximal and during the spring and summer period, when PPR is performed, the curve is reduced to a level determined by power-system requirements. Error in the estimated forecast of duration of the refueling cycle of a VVER reactor between refuelings now is about 5 percent, so the probability that the moment that a reactor's reactivity reserve is exhausted will fall within the period that is unfavorable from the point of view of the power system's requirements becomes fairly substantial. In this case it becomes necessary to search for methods for prolonging the reactor's refueling cycle.

For a VVER this problem is solved by using the power and temperature effects of reactivity in order to compensate for burnup. Negative values of power and temperature effects enable an additional reserve of reactivity to be obtained during reactor operation at reduced parameters of the first and second loops and, as a consequence of this, to extend the time between refuelings beyond the design value. Moreover, extending the VVER's refueling intervals increases nuclear-fuel utilization effectiveness and gives the national economy a considerable economic benefit.

As evaluations indicate, operation of a VVER-440 power unit during an extended refueling cycle (RPK) based on varying parameters is more economical than with RPK at a constant or restricted minimally permissible magnitude of pressure in the second loop.

Definite positive experience in the extended operation of power units with the VVER-440, based on varying parameters in the second loop, (operation of unit V-230 in 1977 [1] and of unit V-213 in 1986) has been gained at the Kolskaya AES. The engineering-economics indicators for Kolskaya AES power-unit operation during RPK, based on temperature and power effects of reactivity at varying pressures in the second loop, are cited further.

	V-230 unit in operation, Dec-Mar 1977	V-213 unit in operation, Apr-Jul 1986
Electric capacity, MW	445-279	461-300
Heating capacity, MW	1,385-615	1,395-750
Steam pressure, MPa:		
in steam generators	4.7-2.4	4.7-3.0
in regulating stage	2.8-1.6	2.8-1.8
Average first loop coolant temperature, degrees C	278-231	284-252
First loop pressure, MPa	12.5-9.3	12.3-10.1
Feedwater temperature, degrees C.	220-155	220-164
Net efficiency, percent	30-25.9	20-25

While operating at varying parameters, in both 1977 and 1986, the equipment and systems of the second loop provided continuous and troublefree operation of the power unit. During PPR, which was performed after shutdown of the power unit, no defects associated with equipment operation at the reduced parameters were observed.

However, introducing RPK at varying second-loop pressures at existing VVER power units requires solution of a number of engineering problems, such as: revision of for setup of technological protections and interlocking, which provide for safety of power-unit operation; and substantiation of the strength of the most important constructional members of the equipment as a consequence of operation outside the designed temperature range.

Based upon an analysis of the VVER-440 design and the power units' operating conditions at varying pressures in the second loop, new values were selected for settings for the technological protections and interlocking during operation of the power unit during RPK at varying second-loop pressures (table 1).

Table 1.

		Second loop pressure, MPa		
Main technological protections and interlockings, subject to adjustment during RPK*	4.4	3.9	3.4	2.94
		First loop pressure, MPa		
	12.3	12.3	11.6	10.3
No 1. AZ-1 for reducing pressure in first loop to 120 kg-force/cm^2 and level in KD# to 3.26 m	120	120	110	100
No 2. AZ-1 for reducing pressure in first loop to 95 kg-force/cm^2	95	95	85	75

No 3. Protection for SAOZ for reduction of pressure in first loop to 110 kg-force/-cm^2 and level in KD# to 3.26 m	110	110	103	95
No 4. Protection for SAOZ for reduction in pressure in first loop to 85 kg-force/-cm^2	85	85	80	75
No 5. Fit of emergency stop valves:				
of first of two operating turbines at pressure in GPK** reduced to 40 kg-force/cm^2	40	34	29	24
of second of two operating turbines with pressure in GPK** reduced to 38 kg-force/-cm^2	38	32	27	22

RPK*Extended refueling cycle operation.
KD#Pressure compensator.
GPK**Main steam header.

Change in settings during RPK touches basically on technological protections in regard to reduction in pressure in the first loop, which is linked with reduction in average temperature of the first-loop coolant. In the given situation, the pressures in the first loop are chosen from the conditions that provide for a temperature difference of no more than 70 degrees C between the "cold leg" and the pressure compensator, based upon the strength requirements. New values for the settings were chosen in the following way. The values for settings for the "small leak" factor (item 1.3, table 1) were chosen from the conditions for providing for an adequate reserve up to boiling of the first loop's coolant (not less than 25 degrees C). In so doing, the reserve up to first-loop coolant boiling was determined as the difference between the saturation temperature, which corresponds to the first-loop's pressure, and the temperature of the coolant on the "hot leg." The values for the settings for the "large leak" factor (item 2.4, table 1) were chosen from the condition of response of the shield prior to the moment of coolant boiling.

New values for settings for closing the turbines' emergency stop valve also were selected (item 5, table 1), in order to preclude substantial heat removal from the reactor when there is a false response of the AZ-1 (below 210-220 degrees C.) during RPK.

Calculations were made for situations involving violations of normal operating conditions and for emergency situations (NNUE i AS) in order to substantiate fulfillment of the operating safety criteria for the VVER-440 during RPK at varying pressures in the second loop, for selected values of settings for technological protections and interlocks, while the computational analysis examined fulfillment of the following basic criteria for reactor operating safety [2]:

—an absence of departure from nucleate boiling on the surface of the most heat-stressed tvel's [fuel elements]; and

—impermissibility of a rise in the temperature of the fuel cladding above 1,200 degrees C during emergencies, with loss of integrity of the first loop.

Evaluation of the core's heat-engineering reliability during NNUE i AS was performed according to the limit approach. The parameters of the worst operating conditions, with simultaneous deviation of the main reactor operating parameters (P_{1k}, t_{BK} and N) to the more unfavorable side, was taken as the reactor's initial state.

In accordance with [2], in each of the NNUE i AS conditions, the initial events that resulted from isolated damage of the arrangements for normal operation, with overlapping of the breakdown of an active or passive protective device, were examined. Figures 1-3 show change in basic AES parameters in the more typical circumstances: seizure of one GTsN [main circulation pump], breaking of the main steam header [GPK] and pipeline of the first loop D_y = 13 (the solid lines denote the initial state 100 percent of N_{HOM}, the broken lines—80 percent of N_{HOM}. On the whole, the course of NNUE i AS conditions, both as to spectrum of change of AES parameters and the algorithm for RPK under varying parameters, does not differ from the course of similar circumstances during operation at nominal parameters [3]. Excepted only are those circumstances associated with violation of coolant mass flow.

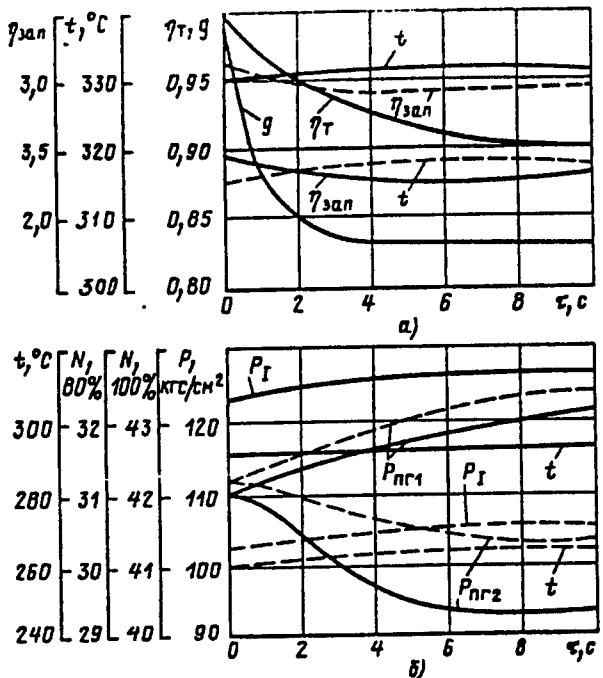


Figure 1 Condition of seizure of one GTsN [main circulation pump]

Key: a. Change of relative consumption g, heat capacity $_T$, maximum temperature of the fuel-element cladding t, and minimal reserve before dry-out or burn-out $_{zap}$ b. Change of pressure in the first loop P_I and in the operating P_{pg1} and emergency P_{pg2}PG's [steam generators], and temperature at the reactor outlet

In the given operating setups, unlike the designed algorithm, reactor power is limited as a result of the "work" of the temperature effect of reactivity. The reactor, when operating during RPK, possesses a great self-regulating effect through reactivity coefficients that, in terms of coolant temperature, are higher in absolute value.

In conditions where there is an operational incident of coolant consumption during RPK, the conditions for cooling the core are better as a result of higher margins prior to burnout because of reduction of the inlet temperature. Where there are breaks in steam lines during RPK, maintenance of the level in the pressure compensator within the controlled limits and prevention of deep afterheat removal of the first loop's coolant (the minimal temperature of the first loop coolant is less than 200 degrees C) are provided for. Despite the higher reactivity coefficients in terms of coolant temperature, subcriticality of the reactor during the whole transient process is ensured when steam lines are broken. In emergency situations during RPK operation that result from a reduced level of accumulated heat, the conditions for core cooling are no worse in the reference state than during operation at nominal parameters.

An analysis of NNUE i AS conditions during RPK that has been performed confirmed the correctness of choice

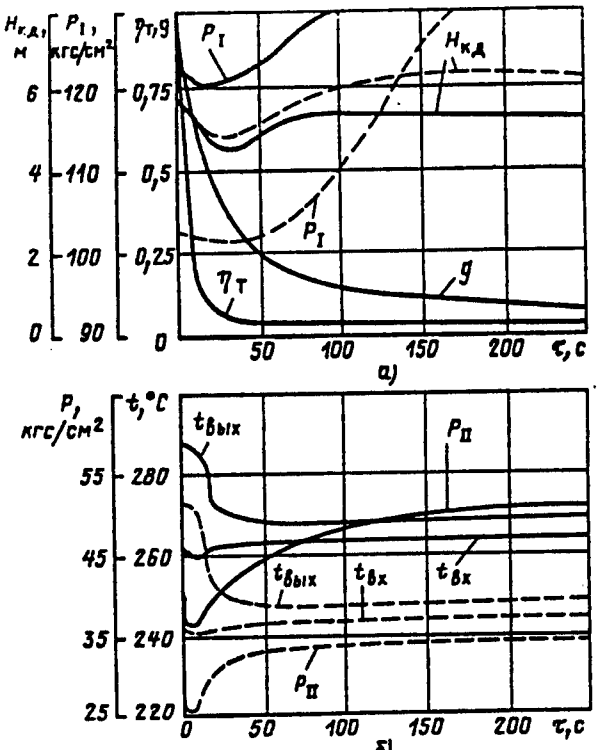


Figure 2 Breaking of Main Steam Header:

Key: a. Change of relative consumption g, heating capacity , pressure in the first loop P_I, and level of coolant in the pressure compensator H_{kd} b. Change of coolant temperature at the inlet t_{vkh} and outlet $t_{/vykh}$ of the reactor, and pressure in the second loop P_{II}

of values of the settings for the technological protections and interlocking and indicated that the level of reactor safety during RPK is not lower than during operation at nominal parameters.

Reactor operation during RPK at reduced parameters for the first and second loops can lead to more intense embrittlement of the reactor- vessel metal through

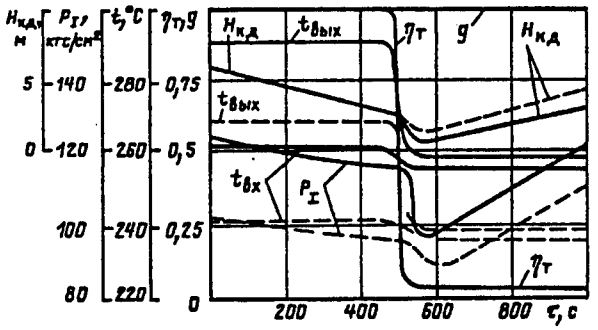


Figure 3. Condition of Breaking of Pipeline of First Loop D_y = 13 (for key see figure 2).

increase in the coefficient of radiation embrittlement A_F [4]. The metal's radiation embrittlement coefficient depends upon the temperature of the irradiation, and when it is reduced the value of A_F increases. Despite the reduction in neutron fluence on the reactor vessel during RPK, the critical temperature, according to calculations, grows more intensely than during operation at nominal parameters.

The results of computation of the critical temperature of vessel brittleness for the Kolskaya AES's V-213 units of the Kola AES at the end of the design operating life (40 years) are shown in table 2.

Table 2

Power unit	Metal	Critical temperature of brittleness, degrees C. Without RPK*	With RPK*
+	Basic	64	67
	Weld	24	30
++	Basic	28	31
	Weld	104	110

Note: +, ++ is the sequence of introduction into operation.
RPK*Extended refueling cycle operation.

A rise in the critical brittleness temperature does not impose limitations on the reactor vessel's radiation reserve, but it leads to the need for a small increase in the hydraulic-test temperature at the end of the designed operating period (3 degrees C for the reactor vessel of power unit (+) and 6 degrees C for power unit (++)) in comparison with what is shown in the existing directive for operating a power unit with VVER-440.

The use of RPK with varying pressure in the second loop leads to an additional thermodynamic load for the reactor installation's basic equipment. The effect of the temperature stresses, which are variable with time, creates in the equipment's members a buildup of fatigue. Thermal-strength calculations and calculations of the cyclic strength of the more stressed members were performed in order to show the possibility of operating the reactor installation's basic equipment during RPK. Analysis of the results of the calculations indicated that the prerequisites for static strength of the members being examined during NNUE i AS were met, while the estimated susceptibility to damage above the design level that is brought about by the introduction of RPK with varying second-loop pressures will not exceed the value 0.4×10^{-4} in 40 years of operation. The introduction of RPK does not impose restrictions on the equipment's radiation and operating reserve.

According to the results of the computed validation of safe operation and strength of the VVER-440 power unit during RPK, a technological directive has been developed for VVER-440 operation during RPK, based on the power and temperature effects of reactivity, the essence of which consists of the following (figure 4).

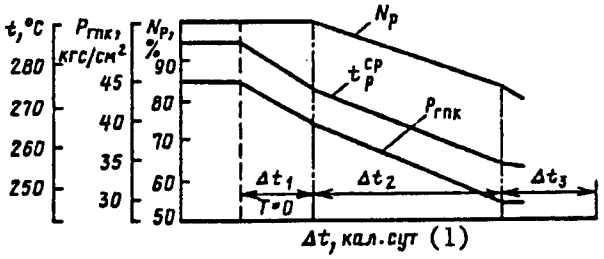


Figure 4 Graph of Change of Reactor Power N_p, the Average Coolant Temperature t^p_{cp}, and the Pressure in the Second Loop P_{gpk} During Extended Refueling-Cycle Operation of a VVER-440.
Key: 1. Calendar days.

In the initial stage, the power unit operates at nominal power through the temperature effect with a gradual reduction of pressure in the second loop (to approximately 4.0 MPa) through full opening of the control valves of both turbine generators.

Later, when the turbine-generator control valves are fully opened the power unit operates on the power and temperature effects of reactivity, with smooth reduction in the reactor's thermal capacity and in second- loop pressure to the permissible boundary value (about 3.0 MPa).

During RPK, the technological protections and interlocking are reset periodically for each reduction of 0.2 MPa in second-loop pressure.

The power unit's performance of the maximum possible load under these conditions is supported by the operation of all the basic and auxiliary equipment.

As research has indicated, the proposed conditions provide for the largest generation of electricity for any time interval prescribed in advance in comparison with other possible AES operating parameters, using power and temperature effects [5].

The proposed RPK, with varying pressure in the second loop, was realized on the Kolskaya AES's V-213 power unit in April-July 1986, as a result of which an additional 67.5 eff. sut [effective days] (79 calendar days) were generated.

It must be noted in conclusion that the operation of a power unit at varying parameters requires thorough preparation of the operational directive and the establishment of new instructions for settings of the protections and the blocking, it being desirable to change the

settings to an automatic mode, for which the special development of algorithms and diagrams and choice of the appropriate equipment are required.

Conclusions

1. The operation of a VVER-440 in the condition of extended refueling- cycle operation at varying pressures in the second loop (to about 3 MPa) was examined.

2. Fulfillment of the basic criteria for safe operation under parameters that violate normal operating conditions and emergency situations and the prerequisites for static and cyclic strength of the equipment members and the brittleness strength of the reactor vessel during extended refueling-cycle operation is indicated.

3. An algorithm for operation of a power unit with a VVER-440 reactor during extended refueling-cycle operation at varying pressures in the second loop was presented.

Footnote

[1]By way of discussion. The editor.

Bibliography

1. "Operation of Power Unit I of the Kolskaya AES Based on Temperature and Power Effects"/Volkov, A. P., Trofimov, B. A., Ignatenko, Ye. I., et al. In the book, Atomnyye elektricheskiye stantsii [Nuclear Electric Stations]. Moscow: Energiya, 1979.

2. "General Principles for Providing Safety During Design, Erection and Operation." ATOMNAYA ENERGIYA, Vol 54, No. 2, 1983.

3. Bukrinskiy, A. M. Avariynyye perekhodnyye protsessy na AES c VVER [Emergency Transient Processes at an AES with VVER's [Water-Cooled, Water-Moderated Power Reactors]. Moscow: Energoatomizdat, 1982.

4. Normy rascheta na prochnost elementov reaktorov, parogeneratorov, sosudov i truboprovodov atomnykh elektrostantsiy, opytnykh i issledovatelskikh yadernykh reaktorov i ustanovok [Norms for Computing the Strength of Members of Reactors, Steam Generators, Vessels and Pipelines of Nuclear Electric-Power Stations and Experimental and Research-type Nuclear Reactors and Installations]. Moscow: Metallurgiya, 1973.

5. Proskuryakov, A. G., Kalinov, V. F. and Videneyev, Ye. N. "Economic Effectiveness of the Operation of a Nuclear Power Unit with VVER's During Extended Refueling-Cycle Operation". ELEKTRICHESKIYE STANTSII, No 9, 1987.

11409

PIPELINE CONSTRUCTION, OPERATION

Compressor Station Construction in Donbass

18220089 Kiev UGOL UKRAINY in Russian No 5, May 88 pp 33-35

[Article by Engineers V. S. Mochkov and V. A. Zuyev (Dneprogiproshakht [Dneprovskoye State Institute for the Design of Underground Mines]): "The Desirability of Building Central Compressor Stations at Donbass Underground Mines"]

[Text] Pneumatic energy continues to lag in terms of safety behind the main type of energy at underground mines of the Central Region of the Donbass [Donets Coal Basin]. At present each mine has its individual compressor station. The matter of centralizing the pneumatic activity was raised back in the 1930's. Thus, at that time it was proposed that the German firm Demag (and somewhat later VUGI [All-Union Scientific-Research Institute for Coal]) develop a design for central compressor stations (TsKS's) for the Artemugol Trust's underground mines. The firm developed four variants which differed in number of compressor stations. Specific air consumption was 70 m^3 per 1 ton of coal mined, and the air pressure at the mine's surface was adopted as not less than 0.6 MPa. The stations were equipped with turbocompressors and piston compressors for oil treatment of the inner walls of pipelines. An analysis of this design drew an interesting conclusion: the most suitable distance from the TsKS to the customer was 3-5 km, the maximum permissible distance 8 km. However, not one of the Demag firm's variants was implemented because of lack of the necessary equipment.

A design for centralization of the compressor activity was later developed by VUGI and approved, and the supplying of the region's underground mines with air was to be executed from one, four and seven stations (table 1). Air consumption was assumed to be 110 m^3 per ton of coal. The first variant, that is, supplying underground mines with compressed air from one station, proved to be unsuitable, while the second (with four stations) and the third (with seven) were economically desirable.

Table 1

Indicators	Second variant (4 stations)	Third variant (7 stations)
Number of units by variant, ea	16	31
Productivity of a unit, m^3	500	250
Length of trunk pipeline, km	60	48
Power of central compressor stations, m^3/min:		
minimal	3x500	6x250
maximal	6x500	10x250

Centralization of the pneumatic activity was dictated by the necessity for replacing the low-powered compressors of a variety of types that were installed at each mine as mining volume increased. On 1 July 1934 there were 88 compressors of 39 types of 17 firms at Artemugol Trust mines with a total productivity of 1,845 m^3/min. Because of the large number of various types of compressors, servicing and repair of them were complicated. But, despite the clear advantage (production costs of the compressed air was cut in half), the VUGI design was not implemented because of the lack of equipment and the large capital investment. As a consequence, the weak compressors of foreign firms were gradually replaced by more powerful domestic piston-type compressors (basically with a productivity of 100 m^3/min). But in the 1950's turbocompressors with a productivity of 500 and 250 m^3/min began to arrive. The mines's demand for compressed air rose sharply. Productivity of the compressor stations in the region during the next 25 years was increased to 40,000 m^3/min (1,200-2,000 m^3/min per mine). In 1985 the specific compressed-air consumption of large underground mines of the Artemugol and Dzerzhinskugol associations varied between 730 and 1,667 m^3 per ton of coal (table 2).

(1) Шахта	(2) Добыча за 1985 г., тыс. т	(3) Максимальная глубина разработки, м	(4) Кол-во рабочих горизонтов	(5) Количество средств угледобычи: Отбойные молотки (6)	Агрегаты АШ (7)	Комбайны (8)	(9) Протяженность поддерживаемых выработок, км	(10) Расход сжатого воздуха, м³/мин	(11) Удельный расход на 1 т: сжатого воздуха, м³/т (12)	электроэнергии, кВт·ч (13)
«Кочегарка» (14)	814	1080	3	13	6	—	66	2000	1000	167,7
Им. Ленина (15)	961	980	2	12	5	—	60	1800	740	134,4
«Комсомолец» (16)	568	960	2	8	5	—	45	1850	1100	144,6
Им. Изотова (17)	860	870	2	12	5	—	64	2000	730	127,8
Им. Гагарина (18)	747	830	2	11	5	—	66	1850	1050	163,0
Им. Калинина (19)	704	960	2	9	3	2	65	1220	1000	182,5
Им. Румянцева (20)	850	970	3	10	8	—	74	1800	950	130,0
Им. Гаевого (21)	948	860	2	9	7	—	52	1850	820	126,5
Им. Дзержинского (22)	511	916	2	8	6	—	67	1600	1533	242,3
Им. Ворошилова (23)	433	1050	2	5	5	—	56	1600	1667	243,8
Им. Артема (24)	445	1050	1	7	7	—	51	1900	1153	227,1

Table 2

Key:
1. Underground mine
2. Mined during 1985, thousands of tons
3. Maximum depth of excavation, meters
4. Number of horizons operating
5. Number of coal-mining equipments
6. Jackhammers
7. AShch units
8. Cutter-loaders
9. Length of workings supported, km
10. Compressed-air consumption, m^3/min
11. Specific consumption per ton
12. Compressed air, m^3/ton
13. Electricity, kW per hour
14. Kochegarka
15. Imeni Lenin
16. Komsomolets
17. Imeni Izotov
18. Imeni Gagarin
19. Imeni Kalinin
20. Imeni Rumyantsev
21. Imeni Gayevoy
22. Imeni Dzerzhinskiy
23. Imeni Voroshilov
24. Imeni Artem

More than 330 compressors with an annual capacity of about 14 billion m^3 and with a total air-duct length of 2,000 km have been installed at Artemugol, Dzerzhinskugol and Ordzhonikidzeugol Association mines. The stations are equipped with 2VG and 55V piston-type compressors and K500 and K250 turbocompressors, the greater portion of which were installed a fourth of a century ago. They have suffered considerable wear and operate at parameters unlike their rated parameters. The compressors at the mines are gradually being replaced, but the air pressure remains inadequate for the recipients.

Dneprogiproshakht has developed a feasibility study of the desirability of constructing central compressor stations for mines of the Central Region of the Donbass. Various variants for rebuilding the stations were compared: rebuilding and retaining stations at each mine—the base variant, rebuilding stations at each mine and uniting their trunk pipelines—variant I, and the construction of central compressor stations—variant II (figure 1). The principle of grouping of the mines for the TsKS variant was adopted at the recommendation of VNIIGM imeni Fedorov. The construction of five central compressor stations, each of which would serve from three to six mines, was planned for the whole region.

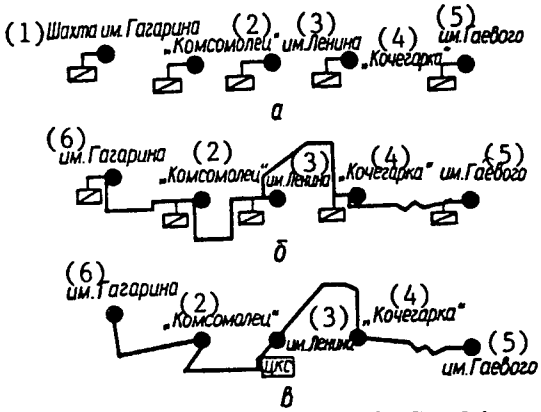


Figure 1 Variants of Schemes for Supplying Compressed Air to Underground Mines of the Gorlovka Southern Group (Total Compressed Air Requirement of 9,400 m^3/min):

Key:
a. Base variant (33 compressors in operation)
b. Variant I (Trunk pipeline length L = 22.6 km, diameter D = 530 mm; 29 compressors)
c. Variant II (L = 22.6 km, D = 1,000 mm; 10 compressors
1. Underground Mine imeni Gagarin
2. Komsomolets
3. Imeni Lenin
4. Kochegarka
5. Imeni Gayevoy
6. Imeni Gagarin

The variants have been evaluated in regard to minimum adjusted expenditures. A feasibility study was made of the construction of a TsKS's for underground mines of the Donbass's Central Region which takes into account the variants examined. The advantages found for the TsKS's included a 33-65 percent reduction in tending personnel and a 9-percent reduction of electrical consumption. However, under the specific conditions for their construction, they proved to be less effective than the base variant in terms of adjusted costs. This is explained by the fact that Variant II requires substantial capital investment, which is caused by the construction not only of the compressor stations themselves but also of new high-voltage lines to them and the laying of huge trunk pipelines. It must also be considered that construction of the stations and the service and utility lines involves the allocation of additional scarce land area, the tearing down of apartment houses, and the relocation of numerous service and utilities lines which oversaturate the region. For the Dzerzhinsk group of mines, variants I and II, according to an evaluation of the limit costs, proved to be practically equal (100 and 99.4 percent). For the Yenakiyevo Southern Group of underground mines, variant II has even a small (5 percent) advantage over the base model; this is explained by the lower level of the technical equipping of these mines' compressor stations. The given situation does not change the main conclusion about the uneconomicalness of the construction of TsKS's, since, under even the most favorable assessments, significant advantages for them were not found.

Conclusions. The economic desirability of constructing central compressor stations is defined by the specific conditions: the higher the technical level of the existing stations at the various mines, the lower the benefits of centralization, other conditions being equal. The infrastructure (power transmission lines, communications, highways, pipelines on supports, and so on) in the region's industrially developed zone exerts a great influence on the construction of TsKS's in the Central Region of the Donbass. What is economically and technically justified for the mines' compressor stations is not a centralized air supply but modernization of the existing compressor pool, improvement of the pneumatic grid, and centralization of repair and adjustment work and the utilization of heat.

11409

DEMOGRAPHY

Birth Rate, Life Expectancy Statistics in LaSSR Detailed

18280074a SOVETSKAYA LATVIYA in Russian
4 May 88 pp 2-3

[Article by P. Eglite, head of the LaSSR Academy of Sciences Department of Manpower Resources under the "Conversations With Readers" rubric: "A Model for the Future—The Family As Seen by a Demographer"]

[Text] Fairly recently, the LaSSR ranked a strong last place among the other union republics in birth-rate and natural population growth figures, and first place for the number of divorces per 1,000 marriages.

This is because, at the time, our country was undergoing a general trend which was exacerbating our demographic situation: the number of people born was not completely replacing the members of the older generations, and the average life-span was getting shorter.

According to data from research conducted as far back as the 1960's by the Central Statistical Administration and the republican Ministry of Health, republican demographers had found the basic reasons for the low birth-rate: contentment with the existing number of children (less than two, on average), the difficulty of finding places for them in pre-schools, crowded living conditions, low per-capita incomes in families with several children, the total number of people employed and undergoing training, family conflicts....

Consequently, proposals were formulated on measures for increasing the number of children in families. Propaganda programs were set in motion to encourage families to have three children. Some kolkhozes began paying benefits to young mothers. In May 1980 a decree designed to improve the demographic situation was adopted by the LaSSR CP Central Committee and the republican Council of Ministers. It provided certain benefits for families with three children, outlined plans for expanded production of children's goods and for increasing trade in these goods, provided facilities for marriage ceremonies etc.

Results have not been long in coming. As long ago as 1981, before the all-union measures to aid families with children were put into effect in November 1982, more second and third children were being born, and the overall birth-rate began increasing. When mothers began receiving partial paid child-care leave, one-time birth benefits for the first three children and a number of benefits for mothers with two or three young children, the birth-rate and the natural growth of the population showed marked increases and reached the highest levels attained during the 1950's. The average number of children born per woman increased from 1.9 at the end of the 1970's to 2.09 in 1985-1986. According to this indicator, we no longer rank last among the union republics, are ahead of the UkSSR (2.07) and are practically even with the BSSR.

However, it is still too soon to talk about a final breakthrough. It has been estimated that at the younger generation's present rate of marriage, infertility and death, in order to accomplish full generation replacement (and the corresponding constant renewal of the numbers of the entire able-bodied population as well as the natural movement of the population), every woman needs to have 2.15 children, or at least 2.5 per family.

So we can see that this goal has not yet been reached. And the negative factors cited above are still making themselves felt. This is why continued efforts are needed to overcome hindrances to increasing the number of members in families with three and more children. This is precisely the aim of the comprehensive program, "The Population of the LaSSR," in force in the republic since 1986. The program calls for the provision of a full complement of places in preschool institutions and extended day-care classes, improvements in housing distribution, the setting up of family services, the provision of counseling for family conflicts, improved methods for treating infertility, upgrading of the list of jobs proscribed because of hazards to women, and for setting up work-places with shortened work-days for mothers of young children. More emphasis will be put on propaganda related to the moral values which our children can acquire only through education.

To be sure, the creation of the necessary material and moral prerequisites has an effect primarily on the behavior of families who want to have several children. But it is no simple matter to form such socially-oriented behavior. Although a certain percentage of couples prefer not to have children, almost 20 percent lean towards limiting themselves to an only child. This choice is not determined only by opportunities, but by a great many other reasons as well.

Thus, families living in rural locales traditionally have more children than urban families. The former have already attained the level which, in the language of the demographers, ensures full generation replacement. (Thus, the migration of recent years of rural residents into the cities, which has practically ceased, has proved to be an objective aid in improving the general demographic situation.) As for urban families, 2.6 for men and 2.4 for women represent not the actual, but the desired (with the necessary favorable conditions) number of children.

The widespread opinion that less-educated women have a greater desire to have children has not been corroborated. Our data irrefutably show that the increase in the

birth-rate runs parallel to the rise in the educational level. Nine out of ten newborn children in Latvia are born to mothers with college or full middle-school educations.

According to data from a random sample survey conducted in 1978-79 by the LaSSR Academy of Sciences Institute of Economics, urban women with higher educations want even more than the average number of children, with women who failed to complete their middle-school educations wanting fewer. It is another matter altogether that all the desired conditions, including giving educated women the opportunities to successfully combine their professional work with the raising of their children, have not been provided. Since increasing efforts have been made under restructuring to improve these conditions, the level of women's education has also failed to hinder increases in the number of children in families.

Along with the increased birth-rate, each newborn child needs to be ensured of a long and productive life, so that everything it took for the family to care for, and which society had to pay to form this person can be paid back with interest. Unfortunately, we have thus far had only modest successes in this matter. True, the infant mortality rate in Latvia—13 per 1,000 newborn—is almost half the average for the country and is higher than just the LiSSR (11.6 per 1,000, as of 1986). However, 18 European countries have lower levels than ours, and in some of them—Iceland, Sweden and Finland—it is less than half as high.

Thanks to its relatively low infant mortality rate, the average life-span of the Latvian population is also above the average for the country. However, in this case, the infant mortality indicator (which is relatively favorable), does not show the big picture. It is a case of our being 7th with regard to life-span among the union republics—after Armenia, Georgia, Lithuania, Belorussia, the Ukraine and Estonia. Consequently, the rate of premature death for our mature population is higher than in the above-named republics. The average life-span for men here is 65.5 years, or 5 years less than for men in the Armenian SSR, 9 years less than for our women and 9.5 years less than for Iceland, whose men live longer than other Europeans.

One of the main reasons for this short life span is a widespread unhealthy way of life. Prior to our stepping up the war against drunkenness and alcoholism in 1985, the average life-span in our country was even lower, at 63.6 years for Latvian males. Thanks to the limits on alcoholic beverage consumption, the frequency of accidental deaths, injuries and traumas to men fell by 27 percent, as did deaths from diseases to respiratory organs, though only by 13 percent. These are the reasons that reducing the number of fatalities has lengthened the life-span. However, as has already been mentioned, this is still far lower than what is possible, and the few measures already taken to combat drunkenness and smoking are clearly not enough for us to achieve further successes.

The measures called for in the above-mentioned goal-oriented program "The Population of the LaSSR" and aimed at improving the state of our population's health and lowering the premature death rate, will expand the material base for active leisure, improve students' diets and better inform our young people about possible ways to live a healthy life, will eliminate unhealthy conditions in industry, and will make the urban environment more healthy. The latter measure will obviously be considerably enhanced by our recently-developed environmental protection program.

Every collective, every family and every person can and must join in the struggle to create healthy living conditions. Only then will we have any hope, not only for consolidating the thus-far-achieved improvements in the demographic situation, but also for continuing to advance towards full replacement of generations and for long and healthy life.

12659

ORGANIZATION, PLANNING, MANAGEMENT

Economist Urges Creation of Regional Machining Centers

18230050a Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 5, May 88 pp 41-46

[Article by S.N. Smirnov, Candidate of Economic Sciences at the Central Scientific-Research Economic Institute of RSFSR Gosplan, Moscow: "Dogmas and Machinebuilding"]

[Text] In supporting the important statutes in the article by A.P. Butenko entitled "Rejecting Dogmas and Studying Contradictions,"[1] I will use the machine building complex as an example, since it underscored ignorance of the dialectics involved in the development of productive forces and production relationships.

Over the course of an extended period of time, machinebuilding and metalworking appeared to remain beyond the criticism that was being directed to certain branches of the national economy. To the contrary, we learned from the press about the new machinebuilding enterprises which had been placed in operation and which were answered the high international requirements. The production of modern equipment which threatened to overshadow the best foreign models, in terms of their consumer properties, had been mastered in the machinebuilding complex. And even if certain difficulties were noted (failure on the part of allied workers, builders, transport or others), the problem was not too great. An appeal could always be made to the party and economic conscience of the leaders of those subunits which failed and thus the situation could be corrected—allied workers raise the quality of component parts, builders transfer workers and equipment from other projects and transport operations are carried out in a rhythmic manner. It is noted that all of these measures were carried out only briefly: after a short period of time, the same problems were repeated and in many instances on a much larger scale.

We will not negate the successes: they certainly did occur. During the past three five-year plans alone the proportion of the machinebuilding complex, compared to the country's overall volume of industrial output, increased by more than 11 points—from 16.3 percent in 1970 to 27.4 percent in 1985.[2] During these years, 53,000 new types of machines, equipment, devices, instruments, automatic machines and machinebuilding products were mastered in series production and 24,000 types of equipment were removed from production. In addition, approximately 17,000 completely mechanized and automated sectors, departments and production operations and 54 such enterprises were created in machinebuilding and metalworking.

However, on the whole there still has been no decisive breakthrough in the area of raising the efficiency of machinebuilding production. In a report issued during the 5th Session of the USSR Supreme Soviet, 11th Convocation, the chairman of the USSR Council of Ministers, N.I. Ryzhkov, placed emphasis upon the need for overcoming the technical lag that has developed in domestic equipment: today only 29 percent of the country's serially produced machinebuilding products conform to the international level and in some branches this indicator is even lower: in Minstankoprom [Ministry of the Machine Tool and Tool Building Industry]—14 percent and in Minpribor [Ministry of Instrument Making, Automation Equipment, and Control Systems]—17 percent.

But the quality of the equipment cannot be raised merely on the basis of accelerating the rates for the development of machinebuilding. This, in essence, is extensive growth. Indeed, our rates are calculated on the basis of cost indicators and, it follows, they can be achieved by "playing with the prices."

This is not an unsubstantiated statement. Here is a typical example: during the years of the 9th through the 11th five-year plans, the average cost for metalcutting machines produced in our country increased from 4,200 rubles to 14,700 rubles and that for forging and pressing machines—from 5,700 rubles to 12,500 rubles. Certainly, talk can center around the progressive advances realized in the production structure for metalworking equipment (accelerated development in the development of machines with NC, processing centers and others), but nevertheless the growth in the cost of equipment is not being compensated by an increase in its productivity.

Another important question—how long must we maintain the leading rates in the development of machinebuilding and metalworking? This is by no means an idle question, since an increase alone in the rates of growth in the production of products of the machinebuilding complex may lead to absurdities.

What are the consequences of constantly increasing rates of development for the machinebuilding complex against a background of rather stable consumer properties in the equipment being produced and an unchanging organizational structure in machinebuilding and metalworking? First of all, there will be a swelling of the production staff in the machinebuilding and metalworking branches, a fact which EKO has written about repeatedly.

It is no secret that the pool of metalworking equipment in our country is the largest in the world and yet the output we obtain with its use is less than it should be. And this testifies to the fact that production relationships are beginning to hold back to a considerable degree the development of a key branch of the national economic complex.

Truly, the shortcomings in the overall structure of those machinebuilding enterprises that have a complete set of departments in their structure—from procurement to mechanical-assembly—have been discussed on more than one or two occasions in scientific literature.

Naturally, in the majority of instances (we do not have in mind large-scale enterprises similar to VAZ [Volga Automobile Plant] or KamAZ [Kama Truck Plant]) the capabilities of the departments and particularly the foundry, instrument and repair shops are far from optimum. In the final analysis, this is reflected in the production costs for the products of general machinebuilding use, instruments and repair equipment. And one very surprising development is the fact that an enterprise is not disturbed by a raised production cost for its products; with the expenditure method for price formation, the expenditures are included in the price for the final product and as a result we pay for this product out of our own consumer pockets!

Overhead expenses are costly for us and for the state: experience has shown that there are over-expenditures of live and materialized labor in production operations characterized by less than optimum capabilities.

The possible methods for raising the efficiency of the production operations under review have been validated repeatedly in works by scientist-economists. In the machinebuilding sector of TsENII [Central Scientific Research Institute of Economics of RSFSR Gosplan], emphasis was placed upon preparing recommendations for organizing interbranch (more exactly, inter-departmental) structures for the machinebuilding complex. With the participation of workers at the Rostov-on-Don Institute of the National Economy and the Chelyabinsk Polytechnical Institute imeni Leninist Komsomol, such forms for organizing machinebuilding production operations as oblast mechanization centers and banks for machine time reserves were validated from an economic standpoint.

The oblast mechanization center is an independent cost accounting organization with a unified state plan for ensuring the production, installation and repair of mechanization equipment, in the interest of reducing the amount of manual labor being carried out at enterprises of non-machine building branches that are located on a territory serviced by the center (oblast, kray, ASSR).

A bank for machine time reserves, which is a form of interbranch coordination in the production relationships of enterprises and organizations and which has at its disposal a pool of metalworking equipment, resolves by way of the chief task the use of temporarily idle equipment of some enterprises for carrying out orders for the production of needed machinebuilding products at other enterprises.

It is easy to see that the creation of both mechanization centers and banks for machine time reserves is infringing upon the interests of many ministries and departments. And it is by no means an accident that complications have arisen in connection with their introduction into operational practice.

Actually (this thought was not expressed in the article by A.P. Butenko), the production relationships, even their most obsolete forms, are being protected by the appropriate organizational structures at a time when the new forms for organizing these relationships are having to forge a path through the old organizational structures, the functions and roles of which may change substantially in the process. But indeed, not every organizational structure will produce such a result! And if we take into account the human factor? Generally speaking, the greater the number of old organizational structures that must be coordinated with the new ones, the fewer the chances of a new structure being introduced into true economic practice.

This thought is obviously not beyond question and yet it springs to mind when one analyzes our experience in the operation of mechanization centers and banks for machine time reserves.

Despite the mountains of written material (scientific reports, articles, recommendations and business transactions), the question concerning the creation of both the former and latter remains unresolved. And this occurs under conditions in which a categorical "no" was not expressed by one of the coordinated departments. Everything was coordinated "generally," and yet when it came down to "particulars" the question was posed in the following manner: "more work must be carried out in this regard and it must be defined more precisely. But in no way is it in agreement with the existing instructions." But the flow of refinements is choking of the creation of new regional forms for organizing machinebuilding production operations which will be of inter-departmental importance.

Another example is recalled in this regard. At one time, in conformity with a task assigned by the higher planning organs, our sector was concerned with the preparation of methodological instructions for the development of special purpose all-round programs for raising the efficiency of use of metalworking equipment in the RSFSR ministries and departments. The goal of this work was of exceptional importance—the methodological instructions must orient the developers towards the validation and implementation of programs which will promote better use of the machinebuilding potential concentrated in the non-machine building branches (as a rule, more than one half of the country's pool of metalworking equipment has been installed at machinebuilding and repair-mechanical plants of non-machinebuilding ministries and departments and in the repair-mechanical departments and sectors of non-machinebuilding enterprises).

The first variant of the methodological instructions, which appeared to be an overall approach for solving the problem, was exceptionally detailed and called for the development of measures aimed at raising the effectiveness of use of metalworking equipment on an interdepartmental regional basis. But this plan was rejected: a branch science is not capable of ensuring an economic justification for the measures (we would note that it is truly incapable) and, in addition, there is the absence of a coordination center which could examine the problem on the whole, summarize the materials of the ministries and departments, prepare a summary program and also be responsible for its implementation (and truly, no such center exists).

The picture which emerged was well known: a fine idea and yet nobody to implement it. The old organizational structures are not changing, nor can they change their approach for the vital problems concerned with developing the productive forces and new structures simply do not exist in our economic life. Our specific problem was solved through the development of a second and more primitive variant for the methodological instructions. The RSFSR ministries and departments are now oriented towards the development of recommendations for raising the effectiveness of use of metalworking equipment that is considered to be of special branch importance. The work is proceeding in a so-so manner. But there have been no basic advances in improving the use of equipment or in raising the level of satisfaction of the requirements of the non-machine building branches for products and services of a machinebuilding nature and there simply cannot be any so long as the existing approach is employed.

These then are the productive forces—a pool of equipment and the machine building personnel: but full use cannot be made of them, since we are unable to organize our production relationships in a particular area (emphasis is placed upon the fact that we are still unable to do this). And this is a clear example of conservatism in economic thought and a lack of understanding of the dialectical interaction of productive forces and production relationships (we will attempt to solve the new problems using traditional methods), which was discussed by A.P. Butenko in his article in EKO.

What then is the solution for this problem or the way out from the blind alley that has been created? While making no claim to originality, we maintain that this solution certainly consists of the rapid introduction of the new economic mechanism, one which is in keeping with the level achieved in the development of the productive forces. For it is precisely the latter which creates the prerequisites for eliminating those factors which are restraining the development of the productive forces, but only in those instances where dots are placed on all of the i's in the basic model.

In conformity with the developmental problems examined above, the creation of organizational forms in the machinebuilding branches is not an end in itself; they are needed by us mainly as an external and infrastructural condition for raising the effectiveness of the profile production processes for the branches. And only under the conditions of cost accounting relationships in the economic system or in a more general sense—the interests of the ministries and departments in increasing their contribution towards the final national economic results, which exists now in their "natural" machinebuilding economy, may be replaced by more effective forms of specialization and cooperation for those machinebuilding production operations which provide services for the non-machinebuilding branches.

What will these forms be like—banks for machine time reserves, oblast mechanization centers and enterprises for collective use and administration, the creation of which has been proposed by scientists attached to the Leningrad Financial-Economic Institute imeni N.A. Voznesenskiy—to be determined not by a "center," but rather by the production enterprises (associations). The work of a "center"—to develop a flexible economic mechanism which will promote not an accumulation of contradictions between the production forces and productive relationships (as was the case in the recent past), but rather a dialectical solution for them.

7026

PRODUCTION

Problems in Republic's Tool Building Enterprises Chronicled

18230040 Yerevan KOMMUNIST in Russian 29 Apr 88 p 2

[Article by F. Nakhshkaryan: "Levers"; first four paragraphs are KOMMUNIST introduction]

[Text] **Misha Galstyan, leader of the brigade of construction electricians from the milling plant, spoke with undisguised resentment:**

"Earlier we had cases when a machine tool did not leave the shop, but figured in the report. The client was upset and sent us telegrams: 'Where is the machine tool?' We tried to wriggle out of the situation: 'By mistake we sent it to another address. We apologize...' Report padding, you know yourselves... And now? It would seem that everything is in our hands. We work for ourselves. For some reason, however, things do not turn out right. The plant lags continuously. We again have to wriggle out... This has a strong effect on people, who say: 'After all, we are trying...'"

The difficult situation of the milling plant is not an exception, but confirmation, of the economic and moral clutches, out of which enterprises of the republic's machine tool and tool building industry as yet cannot

break. A total of 9 out of 12 enterprises disrupted deliveries based on contracts during the first quarter of the current year. Output worth 4,474,000 rubles was underdelivered.

Will Armenia's machine tool builders be able to overcome the difficult situation? This is a question of extreme importance: After all, the republic turns out one-tenth of the entire range of 130,000 machine tools produced in the country—from lathes and milling machines to heavy drills. Today without high-quality, efficient, and advanced machine tools and machines not a single national economic sector will be able to boldly raise and solve problems of acceleration and the economic reform... It is clear to everyone: In order to make a thing, an object, or an article, it is necessary to have a machine tool. And what is needed in order to make a machine tool? Machine tool builders refused to give a clear answer.

For the Sake of the Plan, Give us a Circular Grinder...

And not only it, but also dozens of other machine tools, without which it is impossible to manage today, under the strict conditions of requirements for the quality of output of machine tool builders! It is impossible! Because the accuracy count is in microns, that is, hundredths of a fraction of a millimeter, but a significant portion of the equipment of many enterprises has turned out parts without a change for more than a decade.

Avetik Saakyan, like Misha Galstyan, is a brigade leader at the assembly shop of the milling plant. Both of them came to the plant in 1960—2 years after the birth of this enterprise. They and their colleagues are long-timers. They have being growing together with the plant for three decades. They do not recall any significant changes at the enterprise during any period—for example, retooling or modernization of products. Days, years, and five-year plans rolled by and from young novice workers (even unmarried) they grew into production veterans and reached a solid age (Saakyan has a grandson in second grade), but they found out about technical progress only from newspapers. It did not "alarm" the capacities and products started in 1958. This circumstance accustomed people to the thought that this would always be so: One out of two machine tools is operational—just to show the plan....

Pyetr Lavrentyev, plant director, said the following:

"In the chase after units and the production volume people forgot completely about the future. The rare attempts to renovate products did not give positive results, because the production of new products simultaneously required a significant renovation of fixed capital, that is, a disruption in the plan, and this was always punishable.

"Not a single ruble has been invested in the retooling of our enterprise in the last 20 years (not taking into consideration the negligible renovation of the machine tool pool). As a result, we have approached state acceptance, cost accounting, and the new conditions of management and relations with the bank with equipment, 40 percent of which is over 20 years old, and with products, whose low quality lowered their price and, in fact, forced us to give every fifth machine tool out of 1,800 free of charge to clients annually. And what about the quantity and the plan? Were we able to cope with it?"

Most of the republic's machine tool and tool enterprises are in such or almost such a situation. Recently, we have had occasion to visit some of them and to talk with workers. Notes of bewilderment are heard persistently in their discussion of the economic reform: They again read in the press and in articles by economists that the green light has now been given to machine building, but where is it? How to get to it? Where is the priority of the sector, which provides all the others with "clothes and shoes"? Workers said that their enterprises had an acute need for finishing precision equipment, test stands, and special machine tools, which would enable them to make high-precision machine tools themselves. However, according to the testimony of specialists, the capital of machine building enterprises is still renovated five or six times more slowly than at many other sectors.

N. Panichev, minister of the USSR machine tool and tool building industry, became acquainted with the situation of enterprises in December of last year. Together with the leaders of the republic's government he signed a joint statement on the stabilization of the production activity of Armenian machine tool builders in 1988 under the conditions of full cost accounting and self-financing and the further development of enterprises.

In accordance with the statement the Equipment and Acquisitions Administration of the USSR Ministry of the Machine Tool and Tool Building Industry was ordered to examine and allocate on a priority basis the necessary equipment, as well as measuring facilities, for eliminating bottlenecks in production and improving the quality of products under state acceptance conditions.

More than one quarter has passed. Machine tool builders are disrupting plans. Not long ago a telegram was sent to minister Panichev from the Razdanskiy Raykom. It stated that the raykom plenum expressed concern in connection with ensuring the fulfillment of the plan by Charentsavan machine tool and tool building associations owing to the lack of the necessary technological equipment.

Probably, Yerevan, Kirovakan, and Leninakan could sent telegrams of the same content to the same address. After all, 14 percent of the republic's machine tool and tool building enterprises are over 20 years old.

Workers argue: We cannot make machine tools in the necessary quantity (the state order is a 100-percent order almost everywhere!) and of the necessary quality on our old equipment and we do not receive wages on time

owing to underdelivery. But what does the ministry pay for the fact that with the state order and equipment it has placed us in a hopeless situation? In fact, it also underdelivered machine tools to us and did not ensure qualitative planning.

It turns out, nothing. Words, strong-willed pressure—this is how workers evaluate the restructuring of the Ministry of the Machine Tool and Tool Building Industry.

"Dissociation," "Armstanok," and Others

The Charentsavan Machine Tool Association closed the first quarter of this year inauspiciously. The plan was fulfilled 81.5 percent and the delivery plan, 88.8 percent. One of the reasons lies in last fall, when the Armelektroapparat Production Association unexpectedly renounced the contract with its long partners and stopped delivering electric cabinets for electric stations of administrations.

Once again workers at the Charentsavan Machine Tool Association were in a hopeless position. Once again, as always, when partners disappointed them, they began to organize unfamiliar production, in which they were not specialized. At one time they learned to make electric engines and special flexible couplings serially and mastered the production of electronic boards. And now in the village of Sasnashen they urgently began to organize and in the process of organization, nevertheless, to produce electric cabinets. Were they able to compete right away with Armelektroapparat workers? Were they able to meet state acceptance requirements?

Of course, in the end they will be, as they were, able to produce engines, couplings, and boards... However, of course, in the end. But for now, a burning plan and justly indignant state acceptance.

Grigoriy Yeritsyan, general director of the Charentsavan Machine Tool Building Association, chairman of the council of directors of the republic's machine tool and tool industry, explains:

"The modern highly productive machine tool-module is a machine developed by a synthesis of three complex systems of precision mechanics, hydraulics, and electronics, each of which breaks down into subsystems containing hundreds of accessories. Machine builders perforce organize the production of accessories for themselves, filling the vacuum of business partnership and production cooperation among themselves and with enterprises of electronic, electrical engineering, and instrument making industries. The same affiliates of enterprises could undertake on a cooperative basis the concerns and problems of their specialization.

"Then it would be easy for machine tool builders themselves to make arrangements to unify their production so that, for example, pistons are produced for all in one place and couplings, in another. But for now everyone builds up and produces a closed subsistence economy."

Spartak Geodakyan, general director of the Armstanok Scientific Production Association, utterly and completely supports Grigoriy Yeritsyan's opinion. He believes that many of our associations were born as a result of an arithmetic addition of enterprises and in no way on the basis of production expediencey or economic need. After all, the form of association presupposes a more efficient utilization of the scientific and technical potential and item specialization of production cooperation and combination. In fact, however...

For example, a milling plant was added to the scientific production association a year ago. The scientific production association is the head association in the sector in the development of electrochemical and balancing machine tools and abrasive-liquid equipment. Its production volume totals 4 million. **The milling plant does not at all join in the essence of tasks of the Armstanok Scientific Production Association. Furthermore, its production volume exceeds the volume of the scientific production association fourfold—16 million.**

With what can the scientific production association help the plant? With technology? With design? Institutes also helped with this before. To undertake part of their accessories on the basis of cooperation? There are no capabilities at pilot plants and, moreover, experimental products for other purposes are produced at them. Then why to associate? This turned out to be a dissociation, not an association!

We would like to add that the Yerevan Machine Tool Building Assocation and the Oktemberyan Machine Tool Plant are in the same relations. This plant, which previously was successful and stable, has bent under the disbalance of "dissociation" and makes ends meet with difficulty.

The Firm Is Industrious...

But it wastes itself on trifles. You can imagine: Since last November 21 huge horizontal-boring machine tools began to accumulate in the assembly shop. All together 1 million rubles, no less, no more, stand. Clients are waiting. Assemblers are becoming irritable: It is impossible to move in the shop because of the crowded conditions. The plan has been disrupted. You pay fines and are deprived of bonuses. Nevertheless, you do not send them. Poland, Mozambique, Romania, and Yemen are waiting, so do Yugoslavia, the Chinese People's Democratic Republic, Thailand, and Ethiopia. You are also waiting in vain for young pine, not for larch persistently offered by Armlesbumsnabsbyt. The pine is supposed to be 6-meter long with a diameter of 30 cm. Tyumen refuses: Its pine is short. With the minister's

help you get to Soyuzles. Permission is given to make a selection of timber from the forest. However, the situation is still bad, because of the lack. A total of 300 cubic meters have been allocated for the first quarter of this year and again, 0.

The most curious thing is that the ministry's scientific research institute was instructed to devise a new type of packaging for machine tools, but Gossnab, to reduce the timber allocation. The former makes us wait, but the second does not. However, the enterprise, which is independent and self-financing and lives on what it can earn, that is, to the extent that it can sell products, feels these sins of thoughtless planning most of all. Alas, its situation evokes deep sympathy, especially when one realizes that the described sin of planners is not the only one and by no means the most terrible.

Aleksandr Avanesyan, deputy general director of the Charentsavan Production Machine Tool Building Association, said that the All-Union Scientific Research Laboratory of Technical Normatives conducted research at the enterprise, made a calculation of capacities, and arrived at the following conclusion: **The plant can produce 400 machine tools annually. The Ministry of the Machine Tool and Tool Building Industry adopted this figure for 1989. Meanwhile, plans were made for workers at the Charentsavan Production Machine Tool Building Association to produce 616 machine tools last year, that is, in 1987, and 520 this year!**

It would seem that production workers are well familiar with the classic unrealistic plan from past times. However, nothing of the kind. **For 2 years the enterprise will be disentangling the most difficult economic situation owing to the crude acrobatics of planners with respect to capacities and the state order and owing to the inability of the sectorial ministry to follow the Law on the Enterprise.**

Moreover, last year workers at the Charentsavan Production Machine Tool Building Association ordered and received raw materials and accessories worth 9 million rubles for an unrealistic plan and, of course, were unable to put them to use, for which it is also necessary to pay from the collective's pocket. These are not non-disposable items, these are items in excess of the norm, which will be gradually used before the end of the year (they turned down many orders for this year), but pennies are added duly.

To these debts on credits add another 6 million rubles of debts, which the ministry incurred from the enterprise last year for mastering new equipment, for covering the gap in circulating capital, and for immobilizing capital for major repairs, and the picture will be complete!

This results in 16 million artificially created debts and, moreover (owing to nonpayment) growing... Is the enterprise to be greatly blamed for the fact that its own ministry arbitrarily and peremptorily doomed it to the inevitable pit of debts, from which it will only begin to get out in 1989, of course, if it is not helped...

So That People May Have Faith

It seems incredible, but at the milling plant everyone knows Vsevolod Ivanovich Abankin, deputy chief of the Main Scientific and Technical Administration of the USSR Ministry of the Machine Tool and Tool Building Industry, by his family name, first name, patronymic, and personally. He has not left the plant's shops for 3 months. He is refining the units, parts, technological processes, and individual operations of a more advanced, new machine tool, which is at the level of the highest market requirements and can also be exported.

Vsevolod Ivanovich came to the plant at the most difficult time for it—when the collective decided to take a risk and to change over to the output of a new machine tool, shortening the stage of its introduction from 2 years prescribed by rules and from 5 or 6 years dictated by practice to 3 months. This decision revolutionary in its significance set difficult goals for the plant: To carry out on its own a fundamental modernization of an old machine tool in an incredible time, so that a machine tool, which meets All-Union State Standard requirements and the level of the best world models, preserves the basic body parts of the old machine tool and, of course, is profitable, could be produced as of 1988.

In December the state commission accepted the experimental model with a recommendation that it be certified in the highest quality category! As of 1 January it was put into series production at 19 special machine tools instead of the promised 94.

Therefore, it is not surprising that only in March did state acceptance accept the first 14 machine tools, on which the entire collective, designers and technologists at the Armstanok Scientific Production Association, and Abankin worked.

However, such a record in no way has improved the plant's situation. It seems that the new product is successful. In 2 or 3 months it promises a significant financial improvement. But the cost-accounting enterprise must live today, it must retain personnel. Workers have begun to receive wages, which have been lowered as it is, with delays.

Abankin says:

"It is difficult to see to it that people have faith in their strength and are able to muster it, but this is necessary in order to live through this critical period for the plant. For this everyone must learn—workers, scientists, economists, jurists, and engineers. They must learn to overcome the barriers of old thinking, inveterate habits, and laxity.

"At the enterprise production must be organized in a new way, so that the operation of five or six machine tools is performed and controlled every day. It is necessary to attain an adjusted technological flow, to eliminate manual labor, to have fewer consultations in offices, and to make engineering and technical personnel come to shops. They must be able to organize the performance of every worker and every work place thoughtfully and with the greatest efficiency and expediency.

"We must not get away from problems. Conversely, they must be solved on the spot, at the shop. It is also important to learn to protect the enterprise's financial interests. These are present requirements for economic and legal services.

"In general, I would advise Armenian machine tool builders and the council of directors of enterprises of the republic's machine tool and tool industry to establish a bank of ideas for an efficient organization of production, a bank of errors made in pretentious economic work, and a bank of people, through whose efforts it would be possible to promptly rectify technological, design, and any other mistakes. Then every enterprise will not have to pay dearly for answers, which the problems of today's production require."

Resource for the Plant

Albert Oganesyan, general director of the Yerevan Machine Tool Association imeni Dzerzhinskiy, has just received long-term credit, owing to which he, together with the collective, intends to eliminate the bottlenecks in production. This circumstance disposed Albert Khachaturovich to laconism. He uttered only one, but deeply sincere, phrase:

"All the diseases of machine tool building enterprises are characteristic of all machine tool building enterprises."

Of course, this is not a pun. The priority of machine building is still the priority of promises, not of action. For example, at the milling plant people have been waiting for housing since 1972 and at the Charentsavan Association there are 500 people in line for an apartment... The trained worker is torn into pieces, enticed, and cajoled. With what is he enticed? With what is he cajoled? Only with promises... Personnel turnover is growing. The tight knot of problems around machine building and machine tool builders cannot be cut without a real—not for the record—help of the USSR Ministry of the Machine Tool and Tool Building Industry. This is clear, especially as it itself, that is, the USSR Ministry of the Machine Tool and Tool Building Industry, which has not yet been able to overcome the barrier of bureaucratic administration, has played a significant role in the sector's complex situation.

However, it is too early to finish. We must discuss another—decisive—production resource. Therefore, I will recall a recent meeting at the machine tool association. The general director explained the situation created at the enterprise, familiarized people with calculations, cited figures on rejected products of shops and sections, and showed in detail how carelessness and hackwork on the part of only one worker easily results in a payment by the entire collective. When he finished, questions poured:

"Why were wages delayed again?!"

"When will I get an apartment?!"

"This means that bonuses are not to be seen?!"

It is to be hoped that the machine tool industry will be retooled, planners will learn to plan according to capacities and with due regard for the maneuver, and the ministry will cease to engage in bureaucratic administration and the bank, only to exact. However, the situation will never improve if everyone is not profoundly aware of the following: I am the restructuring lever, the machine tool begins from me, from the quality of my work, and only after this—genuine—quality will there be wages, a bonus, an apartment, a pass, and a kindergarten.

11439

INTERSECTOR NETWORK DEVELOPMENT

New Ministry of Transportation Construction Structure

18290142 Moscow TRANSPORTNOYE STROITELSTVO in Russian No 7, Jul 88 pp 2-4

[Article by S.S. Voytovich, deputy minister of Transportation Construction, V.S. Sazonov, chief of Main Production Administration, and G.L. Boroda, head of sector at the Central Scientific Research Institute for Construction: "The New General Management Scheme for Transportation Construction"]

[Text] Several provisions in the new economic mechanism and the USSR Law on State Enterprises (Associations) will help in determining the general management structure for transportation construction. The sector's conversion to a two-level management system is the pivotal point in the new management structure.

The USSR Law on State Enterprises (Associations) resulted from the need to convert the entire national economy to a two level (ministry-enterprise) management system. A broad range of rights are given to enterprises. The complete responsibility and high level of independence given to them will in most cases make any intermediate management organs superfluous. The conversion to primarily economic methods of management substantially expands the range of manageability in large production systems, opening possibilities for introducing the two level system. Moreover, eliminating intermediate management stages in the national economy is now considered a guarantee of the effectiveness the new USSR Law as a measure to release enterprises from unjustified petty tutelage and will expand their independence.

In preparing the general management structure for transportation construction all these general tendencies were linked to sector specifics. The sector's multiprofile nature and its highly specialized construction organizations had the greatest effect upon the decisions made. We will examine the basic decisions in the general structure approved.

Prior to converting to the new structure, the Mintransstroy management structure was: Ministry—construction-installation trust. In the ministry's centralized apparatus the two management levels (functional units and production main administrations) were somewhat merged into one. Altogether the central apparatus had 33 independent structural units, 21 of which were functional and 12 production (11 main construction administrations and Glavstroyprom [Main Construction Administration]). The inclusion of a given unit in a functional or production group was very conditional. Thus, in addition to functional tasks Glavstroymekhanizatsiya [Main Mechanization Administration] also handled production work, being in charge of several associations, trusts and other organizations. Glavtransproyekt [Main Transportation Design] and GlavURS [Main Administration for Worker Supply] could have been production units. On the other hand, those main administrations which were included as production ones—construction main administrations—were also very important parts of the ministry's functional apparatus, because in addition to solving purely operational production tasks and organizational functions, they also had technical and economic staffs for large specialized transportation construction subsectors. Therefore, in preparing a draft to the new general structural scheme the question of main construction administrations became central. The main concept was that when there were several subsectors fundamentally distinct with regard to the resources, equipment and processes used, it was necessary to combine specialized construction organizations into single profile complexes in order to conduct a unified technical policy and to assure rapid technical development in each subsector. However, directive documents state that ministries cannot have production main administrations or create or maintain three level management systems. Under these conditions this solution was found: eliminate production main administrations, but set up, for each type of transportation construction , new functional forms—main coordination-technological administrations. These main administrations' primary function will be to develop progressive production structures for subsectors, organize work to improve technical standards, make comprehensive engineering preparations for production, manage construction quality, coordinate planning, and allocate and monitor the filling of state orders. In contrast to a production main administration, coordination-technological main administrations are not on cost accounting. Several of their predecessors' functions—finance, accounting and others—are entrusted with other functional units at the central apparatus.

Altogether seven coordination-technological main administrations have been created. Construction-installation trusts, construction associations and administrations and other organizations at the basic level will be subordinate to these main administrations.

Very thorough changes have been made in the remaining components of the central apparatus. The main one is the consolidation of structural units and their concentration into large units which are homogenous with regard to their character and goals. Primarily this includes economic functions. It has been traditional in the organizational apparatus at various levels to organizational distinguish planning, financial, bookkeeping and other functions. The conversion of sectors and enterprises to full cost accounting and self-financing showed the shortcomings in this fragmentation and the need to combine economic units. The general structural scheme for the management of transportation construction calls for

combining previously independent units—the Financial Administration, Bookkeeping, Accounting and Control Administration, Labor and Wages Administration, Legal Department and Arbitration—into a Main Economic Administration. The Estimation-contract, Price, and Normative Estimation Department has been transferred from the Main Technical Administration to the Main Economic Administration. Centralizing financial and bookkeeping functions previously performed by main production administrations in the Main Economic Administration creates a powerful economic center for the sector.

The planning of economic normatives and indicators will be concentrated in the Main Economic Administration. However, the planning of state orders is entrusted with the Main Production Administration. This main administration will monitor, at a general sectoral level, the fulfillment of state orders and be in charge of the development of a progressive production structure for the ministry and further improvements in the management system.

Based upon the Main Administration for Design and Research Work and the Administration for Major Construction, a unified Main Administration for Design and Major Construction has been created. In addition to assuring high technical standards for transportation project designs, it is to dynamically develop the ministry's production base, social sphere and residential construction.

The ministry's Main Technical Administration has been converted into a Main Scientific-Technical Administration. This stresses its role as an organ assuring the efficiency of sectoral scientific research. Also, the Main Scientific-Technical Administration includes the previously independent Department for Technical Safety and the Scientific-Technical Council.

The Main Administration for Cadre and Educational Institutions has been transformed into the Main Administration for the Management of Cadre and Social Development. This administration strengthens the social focus and centralizes functions previously performed by production main administrations.

A Main Administration for Mechanization, Energy and Transportation is based upon the Main Administration for Construction Mechanization and the Transportation Administration. There have been no important changes in the remaining services at the central apparatus.

The central apparatus staff has been reduced by 35 percent (including the 1987 reduction). The main reason for these reductions was to centralize several management functions and consolidate structural units.

Even a short description of these structural transformations shows how substantial perestroyka has been in the sector's management system. It requires new techniques for all management activity. Therefore the most important stage in introducing the new management system is working out the provisions for structural units. Possibly this work should be done by stages, as many functions will be adjusted during the work process.

Organizational improvements at the main level are an important part of the general management scheme. A whole series of transformations are intended here.

The Main Administration for the Construction of the Baykal-Amur Mainline is being reorganized into a design-industrial-construction Association. Essentially what this transformation involves is that Glavbamstroy, which was the main administration for the central apparatus andcorrespondingly a middle level management organ is being converted to the main, primary element. It will have the USSR Law on State Enterprises (Associations) at its disposal. Operating under this law, associations have the right to centralize a number of functions and can set up the needed funds and reserves.

A design-industrial-construction association is a unified production-economic complex which, as a rule, in addition to erecting buildings and installations, compiles the design-estimation document (primarily for objects built by enterprises themselves or in the social sphere; and, upon agreement of the client—for production projects) builds and outfits structural components and their parts. This is an organization capable of constructing "turnkey" buildings and installations, and of combining various stages of the construction process into a single technological flow.

Because the Design-Industrial-Construction Association at Bamtransstroy is based upon a main administration it will include construction-installation trusts.

In addition to the above, additional design-industrial-construction, design-construction and other associations should be formed in Mintransstroy, either on a sectoral or territorial-sectoral basis. Large highly mobile, construction associations should become an important component in the sector's production structure. By the five-year plan's end the ministry intends to create several various kinds of design-industrial-construction associations, primarily for highway and metro construction.

It is also very important for the ministry to consolidate construction-installation trusts and associations, taking into account the dynamics of construction-installation work volume in various regions.

Today in the ministry there are sufficiently high average indicators for the annual volume of construction-installation work accountable to each trust or done on general contract (41.6 million rubles) and for work done with the enterprises' own resources (33.5 million rubles). At the same time the percentage of small and lightly loaded trusts is still great. Thus, 30 percent of trusts in in the ministry do less than 20 million rubles work on their own

annually, while 10 trusts do less than 15 million. Larger trusts in a given profile and working under similar conditions have better economic indicators and work more steadily. This is an important reserve for improving efficiency. By the end of the five-year plan the number of management units at the basic level should be reduced by at least 50 percent.

One way to solve this task is to merge small, lightly loaded construction-installation trusts into an association.

There have been substantial changes in the system for managing industry, although in a purely structural sense they do not seem very significant. Today in the ministry part of the industrial enterprises in an association are in industrial trusts, while the others are subordinate to construction-installation trusts. It is intended to retain this principle, but to create production associations based upon the existing 12 industrial trusts. It should be noted that this reorganization radically changes the economic situation of industrial trusts and converts them into organs of economic management at the basic level, operating under the USSR Law on State Enterprises (Associations). This should help improve production efficiency and the quality with which the ministry's industrial products are supplied to projects.

In recent years in the sector there has been active work on converting industrial enterprises within construction-installations to their own contract balance sheet. This work should accelerate with the conversion of trusts to full cost accounting and self-financing. A trust should be a unified complex, all its units should have their own final goals and economic interests. Striving to maximize total profit and obtain higher returns from each ruble of depreciable fixed capital will lead to the best use of all production potential, including industrial enterprise capacity. A trust resources will now contribute to its development, which will also promote the full use of available capacity. By the end of the five-year plan, of all the enterprises which are part of construction trusts only those which deliver sizable volumes of output to other trusts and associations will remain on an industrial balance sheet.

The approval of the general structural scheme for managing transportation construction is an important component of perestroyka in the sector. The further development of productive forces and improvements in the economic management mechanism require changes in management structure. The structural improvement process should be continuous and provide, at each stage in transportation construction, the best conditions for the collective's effective work and social development.

A sector council has been formed to more effectively combine one man management and colleagiality, to deepen democratization and to attract labor collective representitives to the management of transportation construction. This council includes workers, specialists and scientific workers, organization leaders, representatives of party and trade union organizations, the press and workers from the ministry' central apparatus

StructuraL Units of the USSR Ministry of Transportation Construction:

Main Scientific-Technical Administration (chief, V.N. Zimting); Main Economic Administration (chief, G.I. Terikidi); Main Production Administration (chief, V.S. Sazonov); Main Administration for Design and Major Construction (chief, V.V. Moroz); Main Administration for Material-Technical Supply (deputy minister—chief of main administration, E.V. Dubinin); Main Administration for Cadre and Social Development (deputy minister—chief of main administration, A. P. Garkusha); Main Coordination-Technological Administration for Construction Industry (chief, G.Ya. Sorokin); Main Coordination-Technological Administration for Railroad Construction (chief, V.T. Narotnev); Main Coordination-Technological Administration for the Construction of Marine and River Facilities (chief, V. I. Kulikov); Main Coordination-Technological Administration for the Construction of Metrolines and Tunnels (chief, Yu.P. Rakhmaninov); Main Coordination-Technological Administration for the Construction of Bridges (chief, V.G. Pavlov); Main Coordination-Technological Administration for the Installation of Automation Equipment (chief, E.Ya. Morits); Main Administration for Labor Supply (chief, V. N. Logunov); Main Administration for Mechanization, Energy and Transportation (chief, A.I. Yegorov); Administration for External Ties (chief, I.S. Adashev); Economic Management Administration (chief, V.N. Shuravlev); Administration of Affairs (chief, A. R. Sinegovski)

11574

RAIL SYSTEMS

Poor July Performance Cited

18290154a Moscow GUDOK in Russian 4 Aug 88 p 1

[V. Chistov report: "In Order To Avoid Getting into Debt"]

[Text] During July they managed to cope with the state plan for freight movement on only six railroads. For the railroad network overall they failed to deliver 7.5 million tons of industrial and agricultural output to clients. State orders for the movement of iron ore, timber and fertilizers were not fulfilled. Some 725,000 tons of "organic fertilizers" [organiki] were not delivered to field workers last month.

These facts were cited in a speech delivered to a network switching meeting by first deputy minister of railways V.N. Ginko. The meeting was attended not only by

captains of production but also the secretaries of party organizations, trade union workers, and chairmen of the labor collectives' councils. It took place on the even of the upcoming professional holiday for railroad workers. And just two or three years ago at this kind of pre-holiday roll call it was mainly a question of the kind of labor gifts with which the railroad collectives were greeting Railroad Workers' Day. There was something to say about successes even now: workers on the iron rails had coped ahead of schedule with the tasks for the first two-and-half years of the five-year plan and for the first 7 months of this year.

However, we must be concerned by the fact that in June and, particularly, July, the tempo of freight movements that had been maintained since the beginning of the year slowed down sharply. What is the reason for this, and how can the situation be corrected? There was thorough and sharply critical discussion of this.

Of course, even now there are commanders who are trying to shift all the blame for the plan failure onto others. And so they are explaining the failures in July by the fact that the industrial enterprises did not always have their freight ready for dispatch according to their orders for rolling stock. There is some truth in this: those dispatching freight really did sometimes let down the railroad workers, and are still doing so.

But who else but themselves is accountable for the fact that in July the railroads failed to deliver all the freight cars that could have been used to carry the additional 9 million tons of output and thus not only fulfill but also overfulfill the plan for the month. Thus, railroad workers failed to deliver 190,000 tons of cement for the construction workers. Even though cement cars are laid up on every main line. All that is needed is to clean out the remnants of old freight promptly and refit them.

On the Northern Railroad and Gorkiy Railroad the movement of timber was performed poorly. The very timber that not only the construction workers but also the railroad workers themselves are waiting for: at many depots and transport plants there is a shortage of timber, and because of this repairs to covered cars and open cars are being disrupted so that now there is a shortage of them.

The October and Kuybyshev main lines failed to cope with the dispatch of agricultural machinery—mowing machines and grain combine harvesters. And this at the height of the harvesting work. The railroad workers are failing to carry grain from the new harvest in Krasnodar Kray and Volgograd Oblast.

"The railroad workers have brought us to our knees. Help with freight cars, give us empty cars." Telegrams like this are coming in from various parts of the country to all levels of authority.

There really is a shortage of rolling stock. And there is only one solution: take more care of every freight car and operate it more efficiently. Otherwise no matter how much new equipment industry provides, there will still be little enough of it. The facts indicate that we are mismanaging things. In July as a whole across the network car turnaround time was delayed 1.3 days. Each day up to 8,500 covered and open cars remained unloaded. On the Lvov Railroad alone up to 727 cars have become warehouses on wheels.

Loading figures on the network have declined 270 kilograms overall, but on the Lvov Railroad each car is 670 kilograms under weight; the figure for the Transbaykal Railroad is 920 kilograms, for the Leningrad-Vitebsk section up to 2.5 tons, the Surgut section more than 5 tons, and the Mogochinsk section up to 6 tons.

Other means of transport are being used just as inefficiently. Each day up to 260 electric locomotives and 400 diesel locomotives are undergoing repairs between trips, and each day there are up to 30 cases of damage to locomotives, with interruption of train movements. Because of holding open "windows," railroad engineers were to blame for the loss of about three days in July. Neither has the situation improved with regard to safety; there were seven wrecks (including three on the Alma-Ata Railroad and two on the Sverdlovsk Railroad) and six accidents in July.

What do these facts indicate? That there must be a decisive improvement in matters on the railroads. Under the new management conditions these kinds of losses are simply intolerable.

Even more stepped-up work must be done in August. It is necessary to double movements of grain from the new harvest and insure deliveries of coal and metallurgical raw materials for the winter reserves. And it will be necessary to build up rates for the transport conveyer at the very peak of passenger usage. So there is no time to build up for this.

In the very first days of August no noticeable change has been noted. Moreover, a lagging of 300,000 tons of freight was noted in the plan. If we do not succeed in releasing the brakes and building up the tempo the railroad workers may "eat up" all the "above-plan millions" of reserves acquired through the shock labor during the first 5 months, and by the end of the year will be in debt. This must not be allowed to happen.

09642

10

Foreign Broadcast Information Service (FBIS) and Joint Publications Research Service (JPRS) publications contain political, economic, military, and sociological news, commentary, and other information, as well as scientific and technical data and reports. All information has been obtained from foreign radio and television broadcasts, news agency transmissions, newspapers, books, and periodicals. Items generally are processed from the first or best available source; it should not be inferred that they have been disseminated only in the medium, in the language, or to the area indicated. Items from foreign language sources are translated. Those from English-language sources are transcribed, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [ ] are supplied by FBIS/JPRS. Processing indicators such as [Text] or [Excerpts] in the first line of each item indicate how the information was processed from the original. Unfamiliar names which are rendered phonetically or transliterated by FBIS/JPRS are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear from the original source but have been supplied as appropriate to the context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by the source.

SUBSCRIPTION/PROCUREMENT INFORMATION

The FBIS DAILY REPORT contains current news and information and is published Monday through Friday in 8 volumes: China, East Europe, Soviet Union, East Asia, Near East & South Asia, Africa (Sub-Sahara), Latin America, and West Europe. Supplements to the DAILY REPORTs may also be available periodically and will be distributed to regular DAILY REPORT subscribers. JPRS publications generally contain less time-sensitive information and are published periodically. Current JPRS publications are listed in *Government Reports Announcements* issued semi-monthly by the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161 and the *Monthly Catalog of U.S. Government Publications* issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

U.S. Government offices may obtain subscriptions to the DAILY REPORTs or JPRS publications (hardcovers or microfiche) at no charge through their sponsoring organizations. DOD consumers are required to submit requests through appropriate command validation channels to DIA, RTS-2C, Washington, D.C. 20301. (Telephone: (202) 373-3771, Autovon: 243-3771.) For additional information or assistance, call FBIS, (703) 527-2368, or write to P.O. Box 2604, Washington, D.C. 20013.

The public may subscribe to either hardcover or microfiche versions of the DAILY REPORTs and JPRS publications through NTIS at the above address or by calling (703) 487-4630. Subscription rates will be provided by NTIS upon request. Subscriptions are available outside the United States from NTIS or appointed foreign dealers. Back issues or single copies of the DAILY REPORTs and JPRS publications are not available. New subscribers should expect a 30-day delay in receipt of the first issue.

Both the DAILY REPORTs and the JPRS publications are on file for public reference at the Library of Congress and at many Federal Depository Libraries. Reference copies may also be seen at many public and university libraries throughout the United States.