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20 September 1984

# USSR Report

CONSTRUCTION AND RELATED INDUSTRIES

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20 September 1984

# USSR REPORT

## CONSTRUCTION AND RELATED INDUSTRIES

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## CONSTRUCTION PLANNING AND ECONOMICS

### DANILENKO ON AGRICULTURAL CONSTRUCTION PLANS

Moscow EKONOMICHESKAYA GAZETA in Russian No 34, Aug 84.p 2

[Article by USSR Minister of Rural Construction V. D. Danilenko: "On the Rural Construction Projects of the Country"]

[Text] On the rural construction projects of the country, great approval is greeting the CPSU Central Committee and USSR Council of Ministers decree "Improving the Planning, Organization, and Administration of Capital Construction." This document brings many new ideas to the activity of our subdivisions, and demands a more exacting attitude toward internal reserves for intensifying the construction industry.

In the 11th Five-Year Plan the annual volume of construction-installation work completed by the USSR Ministry of Rural Construction was more than 6 billion rubles. In housing alone, we are putting up more than 6 million square meters every year.

We face the task of raising the planning of capital construction to a new level.

In working out plans, capital investments will be directed primarily toward implementing measures relating to the economic adoption of the latest scientific-technical achievements, and retooling and reconstruction of existing enterprises. It is planned to sharply reduce the number of projects being constructed simultaneously, which will make it possible in the near future to bring the volume of uncompleted work down to established norms.

Plans should be intensive, but realistic. Everyone knows this, but unfortunately they do not always follow the principle. A number of construction organizations are establishing targets lower than already achieved levels; others plan growth as high as 30 percent, which is unrealistic and leads to disorganization in the construction industry and the use of resources.

In adjusting the plan according to the results of work during 1983, these negative phenomena were partially corrected. In the future, such things will have to be eliminated completely.

The decree precisely determines tasks for improving the development of five-year plans.

Every republic ministry of rural construction already knows its control figures for the 12th Five-Year Plan. Now it is essential to step up the work with clients in formulating five-year plans in the context of territories and large construction projects and to determine the structure of the work. The ministry is encouraging its organizations to manifest initiative, considering a wait-and-see attitude ("whatever they give us will be fine") unacceptable.

The decree notes that it is necessary well in advance to include in five-year plans a section on the development of the base of the construction organizations. We have created such a system. Now it is being refined.

The USSR Ministry of Rural Construction system has 396 enterprises which make it possible to produce annually 14.5 million cubic meters of precast ferroconcrete, 3.9 million square meters of prefabricated buildings, and 560,000 square meters of construction projects intended for social use. There has been a substantial rise in the production and use of laminated wood structures (more than 115,000 cubic meters). Advanced pile-supported foundations of various types are widely used. The volume of their use is more than 170,000 cubic meters per year.

On rural construction projects in 1984 builders will assemble about 3.4 million square meters of integrated flooring and roofing slabs, more than 4 million square meters of industrial partitions, 80,000 square meters of extrusion panels, and 1.9 million square meters of high-quality plasterboard sheets. For the rural construction specialist these figures sound like music. Until quite recently the use of advanced materials and structures was scanty, and had a more experimental than practical nature.

We expect to redirect the unused capacities of precast ferroconcrete enterprises to manufacture structures for residential and social buildings in fully assembled form. Certain plants have already begun manufacturing such products.

A great reserve for improving work is the adoption of 2-year continuous planning of construction. The experience of the Belorussian and Lithuanian ministries of rural construction, the Orelsel'stroy and Sverdlovskobl'stroy trusts, and others demonstrate their high effectiveness.

In 1985 we plan to combine forces with clients to complete the transition to this method of planning the construction of residential buildings and public and consumer projects in all regions.

In accordance with the CPSU Central Committee and USSR Council of Ministers decree, a greater role will be played by the basic cost-accounting link of administration--the general construction trust.

The decisions of the trust (as general contractor) for questions relating to the fulfillment of plans and schedules are binding on all participants in capital construction, regardless of their departmental affiliation. The economic performance of subcontracting organizations will be evaluated based on the final results of the work. All of this is very important, being vital to us rural builders.

Currently most of the ministries of rural construction of the union republics, as required by the decree, are operating on a three-link system. There are still occasional deviations in the ministries of rural construction of the RSFSR, the Ukraine, Uzbekistan, and Kazakhstan.

In deciding questions of administration, we must take into account the main requirement--the need for maximum coordination of the structure of the Ministry of Rural Construction with the structure of the agroindustrial complex.

In every oblast there should be an administration having the status of [na pravakh] a trust or a rural construction trust; in the rayons--mobile mechanized columns or construction-installation administrations. We face the task of carefully examining the activities of rural construction combines. In places where they act as general contractors, use the rights and conditions of material-technical supply granted to them, and work on a unified construction balance--the returns from them are large. We will be elaborating this form of organization, considering the rural construction combine and the trust the basic link of administration of rural construction.

We think it is worthwhile to examine locally all questions about transferring into the USSR Ministry of Rural Construction those construction organizations of other ministries and departments which are doing work on projects of the agroindustrial complex, also combining the forces of our subunits with those of interkolkhoz units in a number of oblasts and republics. These measures would completely resolve the task of improving the structure of administration and eliminating parallelism in the work of builders, and create practical opportunities for enlarging and setting up a unified organization in every region of the country with optimum workload, which would significantly raise work effectiveness.

The decree maps out measures to improve the material-technical supply in construction.

This is an urgent matter requiring painstaking everyday work. Much depends on USSR Gosplan and Gossnab, but no less depends on us, the builders. Above all, we must rationally and thriftily use what has been allocated to us. Otherwise it is senseless to talk about fulfilling the plan, or effectiveness.

Commission of Mill Capacities  
(thousands of tons of grain processing per day)

1984 (plan)	6.8
1983	3.1
1981	2.9

Saving resources under current conditions means fulfilling new equipment plans, adopting resource-conserving equipment and using effective materials, increasing plant fabrication of manufactured articles, testing norms and standards, and disseminating advanced experience.

We are implementing measures (based on innovations of the sectorial scientific-research institutes) to adopt chemical additives, make porous cement

using plentiful foaming agents, modernize steam curing chambers in ferro-concrete product plants, use perlitic sand as the aggregate in lightweight concretes, use light expanded clay aggregate, and introduce semiautomated lines for rebar welding and cutting.

But that's not enough. It is time to stop distributing resources to trusts in terms of "millions" [millionniki]--counting on an abstract million rubles of construction-installation work. Construction organizations should receive materials based on their needs, which are determined by plans and estimates. Complete deliveries must be provided in terms of the necessary products list and assortment. We need to radically improve the work of administrations involved in providing trusts with complete sets of production and technology equipment so that they can fulfill their intended function.

The CPSU Central Committee and USSR Council of Ministers have deemed it worthwhile to implement, beginning in 1985, by way of experiment, the construction of a number of industrial projects, residential buildings, and public consumer service facilities to be handed over "turn key."

This experiment, in particular, is planned in the Belorussian Ministry of Rural Construction. In essence, it is to ensure stable work by all construction-assembly organizations in putting capacities and projects into operation after providing for their planned profitability. Plans call for the practical validation of more efficient methods of planning and adjusting the interaction between clients and other partners, strengthening the role of credit, determining more effective forms of material incentives, and expanding the independence and raising the responsibility of participants in construction at all stages of the investment process.

Other economic experiments are also being implemented via the approved program (the adoption of advanced methods of organization and forms of payment for work in cost-accounting brigades; planning, supplying, and inventorying material resources for the brigade; the use of unified, stable prices; calculations for technological sets of material resources completely supplied to the site; adoption of a system of administration of labor productivity, and so forth), directed at increasing the effectiveness of construction.

The decree calls for implementing model construction [obraztsovy] in the next 3-5 years, based on advanced domestic and foreign experience, of a number of projects which are to become a standard in organizing construction and works progress.

In addition to the 12 support-demonstration organizations confirmed in the USSR Ministry of Rural Construction, it has been decided to create, in each republic ministry and trust, construction-installation subunits and enterprises which will be models for the use of new technology and advanced equipment, economizing on material resources, and ensuring high productivity and quality of labor.

On the whole, the USSR Ministry of Rural Construction has met the targets of the first half-year for commissioning capacities and projects of the national economy plan list.

Plans provide for stipulated completion of livestock and poultry facilities, poultry plants for egg production, mixed feed enterprises, storehouses for vegetables and fruits, silage and haylage structures, warehouses for mineral fertilizers, enterprises for the service and repair of agricultural equipment, and light industry facilities. At the same time, we still have organizations which are failing to meet established construction deadlines. Labor productivity can and should rise more rapidly. There are many reserves for lowering the prime cost of the work.

The plan for 1985 is now being formed.

In working out the program for commissioning production capacities and construction projects, we face the task, along with clients and supplier organizations, of realistically coordinating the time of start-up with the equipment delivery, and ensuring rhythmic completion of facilities while giving priority to residential and public consumer service projects.

6854

CSO: 1821/561

## CONSTRUCTION PLANNING AND ECONOMICS

### GDR EXPERIENCE IN ENTERPRISE RECONSTRUCTION EXAMINED

Moscow STROITEL'NAYA GAZETA in Russian 11 Jul 84 p 3

[Article by Candidate of Technical Sciences V. Bol'shakov, deputy director of the Scientific-Research Institute for the Organization of Administration in Construction at the Moscow Construction Engineering Institute imeni V. V. Kuybyshev: "Both Incentives and Penalties"]

[Text] At the current stage of the economy's development, great significance pertains to reconstruction and technical retooling of existing enterprises. Of interest in this regard are the many years of experience of builders in the German Democratic Republic, which we were able to study during an extended official visit to that country.

For a number of reasons, reconstruction in the GDR has long been a general trend in capital construction. By the end of 1985 the proportion of outlays for reconstruction in the total volume of capital inputs will exceed 70 percent, while no more than 10 percent is allocated for new construction, and 20 percent for capital repairs. Judging by all this, the trend will continue in the foreseeable future.

Taking this into account, our German friends have created a harmonious system of norms and regulations which stipulate the priority of reconstruction over other forms of renewing fixed assets. In order to provide incentives to enterprise collectives which are leaders in reconstruction, they have established definite benefits. In particular, such collectives are released from the obligation to pay for fixed capital for the entire period of reconstruction plus 2 years after its completion. This amounts to a considerable fraction--12 percent of the total cost of the assets. Staying in the enterprise, these funds improve the economic indicators of the work of the enterprise collective.

The success of construction largely depends on accurately determining the estimated cost of construction-installation work. In the GDR, at the first stage of the investment process, the cost of industrial construction projects is determined approximately on the basis of similar practice elsewhere in the world. In planning construction they never fail to take into account the factor that it should not be more costly than new construction for the same stipulated volume growth of production or services.

At the stage of drafting an estimated cost of any construction project, especially industrial ones, contractors determine the cost while taking into account all factors that push up costs. It is very important that they rely on its project-planning organizations which are included in the GDR's construction combines. They coordinate it with the client rather than the client with the builders as is usually done. If there are no disagreements, the estimated cost of the project is confirmed automatically when the capital construction contract is concluded.

To ensure that the planners have no material interest in inflating the estimated cost of construction projects, 20 percent is deducted from the savings yielded by specific assignment [tselevoye naznacheniyе]--for providing incentives to the project developers. As for guarantees of objective determination of the cost of projects, this is provided by the impeccable reputation of the planners. Of course, there is also a control system: internally by specialized subunits of the construction combines, and externally by specialists of the Central State Inspectorate of Prices under the GDR Council of Ministers.

The GDR Ministry of Construction order "Applying Normatives Which Take Into Account Complications and Snags in Carrying Out Reconstruction in Industry" established five groups of factors which take into account the special characteristics of each project. Correction factors for the estimated cost of construction-installation projects range from 1.04 to 1.30, which is much higher than similar increases determined in accordance with the USSR Gosstroy decree of 15 August 1983. In addition, the size of the reserve for the estimated cost is higher--up to 10 percent.

This system of measures makes it possible for our German friends to establish a solid and firm estimated cost for the entire period of construction. Instances in which it is revised are extremely rare, which, naturally, has a positive effect also on the quality of planning.

In addition, the GDR has a strict system of penalties for parties which violate obligations stemming from the contract agreement. The amounts are impressive--they can reach 10 to 12 percent of the total damages incurred. This measure is enforced irreversibly, which helps to enhance contract discipline. The penalty has a negative effect on the material well-being of the entire collective.

Finally, the cadre problem. In a number of higher educational institutions of this country, students study the specialized discipline "Reconstruction in Industrial and Residential Construction." Up to 75 class hours are spent on this, which is much greater than the amount of study devoted in our VUZes to the complete course "Organization of Planning and Administration of Construction" in the "Urban Construction" specialty.

It seems that much may be drawn from the positive experience of our German colleagues, especially from their many years of practice of successful enterprise construction.

## CONSTRUCTION PLANNING AND ECONOMICS

### POOR USE OF LABOR, EQUIPMENT SLOWS CONSTRUCTION IN RSFSR

Moscow SOVETSKAYA ROSSIYA in Russian 11 Jul 84, p 1

[Article: "Starting Structures"]

[Text] It is time to step up the pace at starting structures in the Russian Federation. As statistics testify, work as a whole at the most important projects for the year is now somewhat ahead of schedule. Construction of the pipeline portion of the Urengoy-Tsenter-1 gasline, which has a length of more than 3,000 kilometers, was also completed ahead of schedule as was specified by republic guarantees. The distance remaining until the "golden link" is laid on the main route of the Baykal-Amur mainline is rapidly being reduced. The tempo of installation work at the starting complexes at the Balakov AES, the Neryungri Enrichment Factory, the Sayano-Shushensk GES, and at many other industries now under construction whose initial operations are scheduled for the fourth year of the five-year plan, is increasing.

At places where they were able to effectively gear up power operations from the first days of the year noticeable progress has been made. Unfortunately, conditions for successfully fulfilling plans and obligations were not created everywhere by far. For example, the start up of large capacities at the Ordzhonikidze Brick Plant was planned for the fourth quarter. At the same time, the starting complex was not approved until almost the middle of the year and contracts for the delivery of equipment and materials have not been concluded even at the present time. The start up of the Irkutsk Brewery has been hampered for the same reason. There are a number of similar facts at the Ministry of the Building Materials Industry, the Ministry of the Food Industry, the Ministry of the Textile Industry and at other republic and union ministries. Based on data from the Russian Bureau of USSR Sroybank, at present more than 20 percent of the 855 starting capacities for this year have not been provided with everything necessary to complete the work.

Where this is heading may be judged by the results of the first half year. Only 67 of the 189 most important starting production projects have been put into use. The start up of such projects as the Pomary and Staroyuryevskiy gas compressor stations, capacities for producing sodium bicarbonate at the Zima Chemical Plant and polyethylene at the "Angarsknefteorgsintez" Plant, and others has been delayed. The situation is aggravated by the fact that the disruption of the first half year goals adds to the workload of the succeeding months. Thus, more than 70 percent of the starting structure program for the

year must still be completed during the remaining period. In other words, the pace of work in constructing production, housing and everyday projects must be more than doubled. This indeed requires extreme measures.

The chief goal, which will not allow any delay, is to quickly rearrange the forces so that sufficient labor, technical and material resources are concentrated at starting structures. At the same time it is especially important that each crew and machine works at peak efficiency and workload without any idle time. It must be kept in mind that one of the main potentials for improving matters given the labor shortage that has come about is to improve the output of construction and installation workers. Unfortunately, many ministries, construction superintendents, and even local party committees do not fully grasp the essence of the given problem. Construction and installation collectives lag substantially behind the goals for rates of growth in labor productivity. Why is this happening?

First of all the reasons are unsatisfactory organization of construction production. Losses of time due to a lack of prepared work space and disruptions in the delivery schedules for materials and equipment are most frequently named in reports from the sites. All of this leads to the majority of cranes, excavators, bulldozers and other mechanisms operating, as a rule, no more than half of a shift, and highly productive plastering and painting units are used only 30 to 40 percent of the time. Such a situation creates favorable conditions for a lack of organization and a breach of labor discipline. Suffice it to say that over the course of a year tens of thousands of construction workers do not take part in work every day due to idle time and loafing. At the same time very many projects, including starting projects, remain without a full complement of personnel for a long time. This is what happens--on the one hand there is an acute shortage of labor resources and on the other they are often used extremely poorly. Today the key goal of construction and installation collectives is to decisively improve labor productivity. How can this be achieved?

The following item is now contained in the duties of almost every construction and installation subdivision--to improve labor productivity by one percentage point above the plan and reduce the cost of labor by 0.5 percent. Based on estimates this is equivalent to adding 300,000 workers which would provide almost the entire planned growth for the construction program. The major potential is concentrated here. But meticulous and specific work on the part of party, trade union and economic agencies is needed in order to put it into action. Vast positive expertise in such work has been accumulated in constructing main gas pipelines. The administration and specialists at the Ministry of Oil and Gas Pipelines have used theoretically new labor technology having formed continuous flows in which each crew, regardless of departmental specifications, aims at the final result. An ideological security group was formed at sector headquarters which has been charged with creating normal working conditions along the line and organizing determined, enthusiastic competition.

The results of initiative and enterprise are widely known--the construction workers on the main gas pipeline reached the level of labor productivity for

the last year of the five-year plan ahead of schedule. A high level of organization and discipline make it possible to improve on the schedules for starting up new gas pipeline capacities. USSR Gosstroy studied in depth and correlated the expertise of the Ministry of Oil and Gas Pipelines and held several meetings and conferences related to this. Yet no further propaganda about this fine example has resulted--affairs are moving slowly. This is occurring, evidently, because the state committee that determines the strategy in the area of construction is limited mainly to making recommendations. There is nothing wrong with them but a request that they be adopted is, obviously, still not enough. The expertise of the Ministry of Oil and Gas Pipelines is used more often in reports than in practice.

Housing, cultural and everyday construction is given exceptional importance. A goal has now been set of making up the deficit in housing units and structures for social purposes put into use that was permitted in previous years so that the five-year goals are completely met. Party, soviet and economic agencies are now noticeably giving more attention to housing and everyday development in cities and villages. However, there are still many miscalculations and deficiencies in this important matter. It was not by chance that problems in improving the administration of non-production construction were voiced quite strongly at the recent session of the RSFSR Supreme Soviet. Deputies made serious accusations against a number of ministries and ispolkoms of local soviets of people's deputies. This was reflected in the questions by deputies from Kirov and Pskov Oblasts to the RSFSR minister of agricultural construction, V. P. Batrakov. Take, for example, the RSFSR Ministry of the Textile Industry. The disruptions in schedules for turning over housing and children's institutions at starting production complexes has become a chronic sickness here which has brought about negative social and economic consequences. Here is a characteristic example. The textile spinning factory at the Donetsk Textile combine in Rostov Oblast became operational more than three years ago yet it has not yet reached its design capacity. The fact is that a stable collective has not been achieved by any means since there are not sufficient apartments to build up personnel and less than two thirds of the funds for civil construction have been utilized.

In this regard it should be remembered that the responsibility for solving the complex and multi-faceted problems of capital construction and for improving its efficiency rests, first of all, with the ministries, members of the boards and administrators of territorial construction and installation organizations. Along with this it has been repeatedly emphasized in CPSU Central Committee documents that, under the conditions that have come about, improving matters at industrial and social projects must also occupy one of the most important places in the activities of local party and soviet agencies. The Sverdlovsk obkom of the CPSU and the ispolkom of the oblast soviet are acting precisely in this manner. Party activists and deputy commissions are not simply controlling the pace of constructing shops and housing units but are energetically working directly in the construction collectives. It is no accident that contract subdivisions and crews in Srednyy Ural have acted as initiators of interesting new approaches that are aimed at stepping up the pace of construction and reconstruction of enterprises and housing

microrayons. While in Khabarovsk Kray, for example, they often strive to overcome the lag in housing and communal construction by actively using various fines and penalties. However, such an approach, as practice shows, brings few benefits--the plans for putting housing, social and cultural projects into use are systematically disrupted.

Intense and responsible work is going on at republic construction sites. It is especially necessary today to attentively analyze the results of the first half of the year using the favorable summer conditions to establish the maximum effort at each construction site and in each contract collective to reach a level where workers, machines and mechanisms are not distracted by irrelevant non-planned work. It is necessary to do everything to increase the pace of construction.

The implementation of the program of measures specified in the CPSU Central Committee and USSR Council of Ministers decree "Concerning an Improvement in Planning, Organizing and Managing Capital Construction," which was recently approved, has theoretical importance. Clear devices for improving the effectiveness and quality of investment activities on state, national economic sector, union and construction collective levels are given in this important document. The steady and energetic realization of the planned measures will make it possible to reduce construction time and ensure that plans for putting production capacities and structures for social purposes into operation are met.

9495

CSO: 1821/155

## CONSTRUCTION PLANNING AND ECONOMICS

### DIRECTIVE ON FINANCING AND CREDITING OF CAPITAL INVESTMENT

Moscow EKONOMICHESKAYA GAZETA in Russian No 18, Apr 84 p 18

/Text/ The following has been approved by the USSR Sroybank in agreement with USSR Gosplan and the USSR Ministry of Finance on 2 November 1983 and after revision and amendment on 16 April 1984.

The USSR Sroybank reports that the following guidelines are to be adopted in the financing and crediting of capital investments in an economic experiment in the Ukrainian SSR Mintyazhmash /Ministry of Heavy and Transport Machine Building/, Minelektrotekhprom /Ministry of the Electrical Equipment Industry/, Minpishcheprom /Ministry of the Food Industry/, the Belorussian SSR Minlegprom /Ministry of Light Industry/ and the Lithuanian SSR Minmestprom /Ministry of Local Industry/ aimed at expanding the participation of production associations (enterprises)\* in planning and administration and in increasing their responsibility for the obtained results, conducted in accordance with a decree of the CPSU Central Committee and the USSR Council of Ministers of 14 July 1983, No 659, and with resolutions of the USSR Council of Ministers.

1. The financing of fixed capital retooling expenditures made in accordance with factory retooling plans developed by established procedure by the associations will be accomplished with:

production development fund monies, where the enterprises of the Lithuanian SSR Minmestprom may also draw upon a local industrial development fund, with these noncentralized capital investments;

the portions of amortization deductions intended for full fixed capital restoration, and bank credit, while subsidized and selected low-profit enterprises may utilize also profits and allocations from the state budget, within the limits provided for in the plan for state centralized capital investments.

Outlays made for fixed capital retooling, the financing of which is accomplished with noncentralized capital investments, are defined by the directives (statutes) of the capital construction planning procedure for the economic experiment in

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\*Henceforth referred to as associations (enterprises).

expanding the participation of production associations (enterprises) in planning and administration and increasing their responsibility for the obtained results, affirmed by the ministries in accordance with the USSR Gosplan.

2. The capital construction plan (form no 7) of the associations (enterprises) will adduce specific information regarding the limits for state centralized investments and construction and installation work, fixed capital commission, the commission of production capacities and projects with these capital investments, the limits of state noncentralized capital investments for factory retooling with a production development fund and a local industrial development fund, quotas for the increase of production capacity, and also the limits of state noncentralized capital investments and commission quotas for projects accomplished with community improvement and housing construction funds.

Financing plans (forms nos 5 and 12) for state centralized capital investments are to be submitted according to procedure established by the letter of the USSR Ministry of Finance, the USSR Gosbank and the USSR Stroybank of 19 December 1980 (no 206/327/264).

The financing of noncentralized capital investments from a production development fund and a local industrial development fund is to be accomplished in accordance with a capital construction plan (form no 7) within limits of existing funds in separate accounts of the associations (enterprises) intended for these purposes.

3. Title lists for factory retooling of enterprises are to be affirmed by the heads of the associations (enterprises) independently of the total estimated cost of the work with construction quotas allotted by year.

Given the completion of the factory retooling and of associated expenditures within 1 calendar year, title lists are not to be presented to the bank institutions. The financing of these expenditures will be accomplished in accordance with the instructions of the capital construction plan and an intraconstruction title list.

If state centralized and noncentralized capital investments are called for in the capital construction plan (form no 7) of the associations (enterprises), intraconstruction title lists will be drafted for the outlays and projects within state centralized capital investment limits, and separately, with non-centralized investments.

4. Title and intraconstruction title lists for factory retooling will not be approved when outlays for the appropriation of equipment not requiring installation are made with capital investments.

The financing of such equipment is to be accomplished within the limits of capital investments appropriated for this purpose in the capital construction plan, and with monies existing in the association (enterprise) accounts.

5. The financing of additional outlays for fixed capital retooling resulting in economic expediency with amortization deductions for capital repair in excess of the state centralized capital investment limits is accomplished without the

necessity of the capital construction plan (form no 7) within limits of sums in separate association (enterprise) accounts stated in a letter of the association (enterprise) director.

Planning estimates and a title list with work quotas allotted by year must be drafted and approved by established procedure when, in addition to outlays made for the appropriation of equipment with amortization deductions, the capital repair expenditures also entail construction and installation work for equipment installation. If the mentioned work is completed within 1 calendar year, the title list will not be submitted for approval, and financing will be accomplished in accordance with the parameters of the intraconstruction title list.

6. Housing construction financing and financing of other social and domestic projects with community improvement and housing construction funds are to be accomplished within the limits of the state noncentralized capital investments provided for in the capital construction plan (form no 7) and funds existing in separate accounts of the associations (enterprises) intended for such purposes.

7. Questions relating to the utilization of community improvement and housing construction funds are to be resolved independently by the associations (enterprises) with the participation of labor collectives. The monies of the mentioned funds must be directed exclusively to the construction of housing, kindergartens, day nurseries, Pioneer camps, medical clinics and vacation resorts.

8. In accordance with the resolution of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979 (no 695, para 47, subpara "g"), monies of the production development and community improvement funds obtained appropriated in the current year in excess of sums determined by the plan for this year, in consideration of the fixed norm, and monies which have not been expended in the preceding year, may be utilized by the associations (enterprises) in excess of the state centralized and noncentralized capital investment limits:

production development fund for factory retooling;  
community improvements and housing construction funds for the construction of housing and other community and domestic projects.

The guidelines of the letter of the USSR Sroybank of 24 October 1980 (no 220) must be followed in the financing of expenditures and projects with the monies of the funds mentioned above in excess of the limits of the state centralized and noncentralized capital investments. Here, decisions regarding the utilization of such outlays are to be made directly by the associations (enterprises).

Above-plan deductions into production development, community improvement and housing construction funds, and also those not utilized in the preceding year may be employed by the association (enterprise) for additional work and expenditures entailed in factory retooling, housing construction and community improvement construction, provided for by the yearly plan.

9. The associations (enterprises) of the Lithuanian SSR Mintyazhmash, the Minelektrotekhprom and the Minmestprom may receive credit from bank institutions with the limits of long-term credit plans above the state capital investment limit for high-efficiency factory retooling projects of existing enterprises with a maximum loan term of 6 years according to procedure provided for in the instruction of the USSR Stroybank of 31 March 1981 (no 2).

In addition, the production associations (enterprises) of these ministries may make additional outlays in excess of the state capital investment limit with long-term credit which are defined by resolutions of the Government of the USSR regarding this matter.

10. When the means of the centralized capital investments are insufficient, long-term credit for fixed capital retooling will be extended to the associations (enterprises) by procedure established in the instruction of the USSR Stroybank of 31 March 1981 (no 2, "On the long-term crediting of state capital investments").

To assure the uninterrupted financing of factory retooling projects with bank credit, the ministries will submit credit requirement estimates for the planned year by deadlines established by the USSR Stroybank by procedure and with forms described in the instruction of the USSR Stroybank of 17 September 1981 (no 5, "On the drafting and execution of the Stroybank plan for short-term and long-term crediting"). When necessary, the credit requirement may be explained in detail.

12678  
CSO: 1821/125

## CONSTRUCTION PLANNING AND ECONOMICS

### INTERSECTOR ASPECT OF PLANNING INDUSTRIAL CENTERS EXAMINED

Moscow EKONOMICHESKAYA GAZETA In Russian No 28, Jul 84 p 10

[Article by S. Kopylov and K. Lytkin, chief specialists of USSR Gosstroy: "The Intersectorial Aspect of the Plan--Problems of Establishing Industrial Centers"]

[Text] A recent decree of the CPSU Central Committee and the USSR Council of Ministers outlined the principal measures for improving the planning, organization and management of capital construction. Their implementation is a big step forward on the way to intensification of production. Highly significant in this connection is improvement in the practice of forming industrial centers, above all in the planning and means of financing the construction of enterprises and center-wide projects.

The advantages of establishing enterprises within industrial centers are indisputable. Besides cooperation of auxiliary services and the organization of center-wide projects, this facilitates and makes possible qualitatively sound solutions to problems in urban development as well as to questions involving the planning and construction of industrial enterprises, the rational utilization of territory and its zoning, and the creation of public centers.

At the present time, more than 6,000 enterprises are associated in industrial centers. In 75 industrial centers, the construction of center-wide projects has practically been completed. Their cost exceeds R7 billion. According to data by project organizations, annual operating expenditures at industrial centers under equal conditions are lower by R300 million. The estimated cost of construction is lower by almost R1.5 billion.

To make these general data more concrete, it would be possible to give a number of examples of the effective formation of new production systems within industrial centers. We will note, however, that projects for industrial centers are successfully carried out only when there is centralized planning of capital investment for the construction of enterprises and center-wide projects. As a whole, the indisputable advantages of the complex construction of enterprises with joint engineering projects are still not being fully used. The basic shortcoming of the existing practice is the complexity of the transfer of funds from the partner enterprises to the head builder.

The fact is that the head builder can construct center-wide projects through capital investment provided to it by the USSR ministries and departments whose enterprises are included in the center.

But the procedure for transferring funds and limits is rather complicated and in practice the head builder, in overcoming all sorts of difficulties and avoiding obstacles, somehow manages to finish the center-wide projects on its own account, later demanding that the expenditures be reimbursed.

For example, the scheme of the general plan of the Oskol'skaya Industrial and Municipal Zone determined the magnitude of the shared participation of enterprises in the construction of center-wide projects.

The head builder of these projects is the USSR Ministry of Ferrous Metallurgy, to which the Oskol'skiy Metallurgical Combine is subordinate. Departing from established procedures, it did not inform the USSR Gosplan how much it is owed by partners and, of course, it did not receive supplementary limits. But it did fulfill its obligations in financing the construction of joint projects. That cost the USSR Ministry of Ferrous Metallurgy almost R5 million.

In turn, the partner ministries--the USSR Ministry of the Food Industry, the USSR Ministry of the Meat and Dairy Industry and the USSR Ministry of Procurement--which are over the enterprises being constructed in the industrial and municipal zone, were in no hurry to transfer funds to the USSR Ministry of Ferrous Metallurgy.

In financing the construction of joint projects, a difficult situation also arose in the Sasovskiy Industrial Center in Ryazan Oblast. Here there are enterprises being planned, under construction and undergoing expansion. The head builder for joint projects is the plant for pipe-processing machine tools of the Ministry of the Machine Tool and Tool Building Industry. The enterprises of various ministries and departments, some of which are already utilizing joint projects constructed by the Ministry of the Machine Tool and Tool Building Industry, either do not transfer any funds at all for their proportional participation (the USSR Ministry of Land Reclamation and Water Resources, the All-Russian Association of Interkolkhoz Construction Organizations) or they allocate less than their share (RSFSR Ministry of Housing and Civil Construction, RSFSR Ministry of the Meat and Dairy Industry). Of the almost R6 million owed to the Ministry of the Machine Tool and Tool Building Industry, it has so far received only R810,000.

The enumerated cases are the result of the fact that in the plans for economic and social development, capital investment for establishing particular enterprises and installations is allocated with no consideration being given to the fact that they are being constructed in industrial centers. There is, of course, no plan to transfer to the head builder of center-wide projects funds for the proportional share in their construction. As a result, there is an indefinite delay in the construction of center-wide projects.

It is expedient to include the section "Intersectorial Construction" in the 5-year and annual plans for economic and social development. This section should provide for capital investments both for establishing enterprises

included in the industrial centers and for the construction of center-wide projects. In drawing up the plan, this section can include all necessary parameters determined by the confirmed scheme of the general plan of the industrial center coordinated with the interested USSR ministries and departments.

It is also expedient to review the established system of confirming the schemes of the general plans for industrial centers. In particular, the schemes for the general plans of the industrial centers, in which are included primarily enterprises with construction valued at R3 million and over, ought to be presented for the joint confirmation of the USSR Gosstroy and the USSR Gosplan.

This will make it possible to reject the complicated procedure of formalizing the transfer of funds for the proportional participation in the construction of center-wide projects, since the USSR Gosplan will, based on the confirmed schemes, provide for the necessary capital expenditures to the enterprise-head builder in the 5-year and annual plans.

9746

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## INDUSTRIAL CONSTRUCTION

### SHORTCOMINGS IN INDUSTRY RENOVATION PROGRAMS NOTED

Moscow SOVETSKAYA ROSSIYA in Russian 3 Jul 84 p 1

[Article by L. Smyshlyayeva, doctor of economic sciences: "The Effect of Reconstruction"]

[Text] In the late sixties, I often had occasion to visit the textile factories in Ivanovo Oblast. Most of them were built a century ago. All the reserves which made it possible to increase production here using the existing equipment had already been exhausted by that time. The labor conditions at the factories, to put it mildly, left something to be desired. The shops were noisy, dusty and hot, while the domestic accommodations were uncomfortable. It is no wonder that there was always a shortage of workers at the factories, and those who filled the ranks of the textile workers did not stay for long. The only way out of the situation which had been created was reconstruction, which was begun at the initiative of the party organization of the textile kray. The organizers and enthusiasts in favor of reconstruction found original project design decisions and actively embarked upon the introduction of their developments throughout Ivanovo Oblast.

Recently I once again had occasion to visit Ivanovo. You wouldn't recognize the old factories! In a single decade, 48 enterprises have been reconstructed here, 60,000 new machine tools have been installed and 126,000 have been modernized. In general, over half of the physically worn and obsolete equipment has been replaced. This has been accomplished without stopping production and in a relatively short time. The factory situation changed immediately. Air conditioners operate in spacious, well-lighted shops. There is an air humidification system and sound insulated ceilings. The domestic accommodations, dining rooms and polyclinics have been improved. Over 1.2 million square meters of living area have been built for new workers moving into the area. The kindergarten and nursery school accommodations increased by 40,300 spaces. Young workers have received new dormitories.

The renovation of all 49 enterprises was 25-30 percent cheaper than new construction, while the experience and skill of the workers and specialists in the sector have provided for the assimilation of the "rejuvenated" shops 3-3.5 times faster as compared with analogous new construction in other regions of the country. Reconstruction has helped to increase labor productivity by 40 percent while reducing the number of workers needed by 27,300. The influx of the local population to the textile industry has

increased noticeably. The number of those entering vocational-technical schools in the sector has tripled. Experienced workers are now not in such a hurry to retire (the retirement age for textile industry workers is 50) as they were before. They act as teachers and help the newcomers. In a word, the factories have fewer worries with the work force. The main problem has been principally solved. The initiative of the textile workers has been noted by the State Prize.

Comrade K. U. Chernenko stressed the huge significance of technical retooling at his meeting with the collective of the Moscow "Serp i molot" [Hammer and Sickle] Plant. He called this problem a pressing requirement of the times, the will of the epoch. Reconstruction and renovation of fixed capital are among the most effective methods for the solution of this problem.

Quite recently the metallurgists of the "Serp i molot" Plant have introduced over 40 flow lines into operation and freed over a thousand workers from labor consumptive operations, transferring them to comprehensively mechanized and automated sectors of production. Labor productivity has increased by 22 percent here. Almost in the very heart of Moscow, where there is not much room for construction, a new and modern enterprise has arisen on the basis of the old plant. In general, the result is very similar to that obtained in Ivanovo. The number of examples may be multiplied. Reconstruction is proceeding most effectively in the largest industrial rayons of the country -- in the Urals economic region, in the south Ukraine, and at numerous enterprises in Moscow and Leningrad Oblast. As a rule, basic as well as auxiliary production is being comprehensively rebuilt, with simultaneous retooling of all the shops associated with the technological process.

The advantages of reconstruction and technological retooling are indisputable. However, this means has still not become the prevailing form of reproduction of fixed capital. What is the problem here? We must note that the effectiveness of the changes depends primarily on production managers with initiative who dare to make major decisions. The geography of reconstruction is regional. The local organs in this case are more energetic, while the sectorial staffs act with greater caution. The production-dispatch approach becomes apparent when immediate concerns overshadow future ones. The fact is that plan indicators today do not consider losses which are unavoidable during the reconstruction period. After all, even a short-term stoppage of the shops or sectors leads to interruptions in production. This in turn leads to a reduction of the collective's material incentive funds. This is the cause for the indecision of the economic managers.

Furthermore, in order to implement a plan for reconstruction and technical retooling, it is necessary to predict ahead of time where and specifically what kind of equipment is needed. And where to get it? The existing practice of "impersonal limits" gives no guarantees. After all, it is the cost of the machine tool which is planned, and not the machine tool itself. Therefore, the ministries allocate sets of equipment primarily for new construction, while the remainder of the equipment which is not

in sets and often unneeded by the enterprise, goes for purposes of reconstruction. Therefore, even with availability of sufficient funds for production development, plants are unable to obtain the needed equipment for a long time. The growth in prices for new equipment, which often outstrips the growth in its productivity, is also among the inhibiting factors. This leads to a reduction in the capital-output ratio.

It is particularly important to increase the level of interest of the contracting organizations. Despite the increased complexity of the work and the limited construction front under conditions of existing production, the wages are practically the same as in new construction. According to some computations it turns out that in reconstruction the average output is 23 percent lower, while the wage expenditures are 15 percent higher with only  $2/3$  the labor productivity of the builders. Therefore, the premium payments are also much lower. At the same time, the cost of one square meters of area introduced into operation is almost 20 percent lower for reconstruction as for new construction. In order to interest builders, the USSR Gosstroy [State Committee for Construction Affairs] has recently introduced a series of corrective coefficients to the standards for overhead expenditures and estimated norms for construction-installation work. However, the provided incentives have not yet yielded significant results. And, after all, the matter does not consist of the quantitative aspect, but rather of the fact that each reconstructed facility has its own complexities, while any corrective coefficient generally stimulates the simplest jobs.

It turns out that the cause which is profitable for the state is unprofitable for the person fulfilling it. Evidently, in determining the limits for capital investments for the development of industry, the USSR Gosplan [State Planning Committee] should proceed from the need for planning existing production and new construction as an integral whole. This will make it possible to utilize the advantages of reconstruction. In other words, in order to raise the level of interest toward reconstruction, it is necessary to improve the stimuli for all its participants. These are the production collective of the enterprise where the reconstruction is being done, the designers who develop the project, and the builders who implement the reconstruction.

Let us say that for the period of reconstruction it is expedient to establish a plan which considers the real capacities of the enterprise. In order for the interests of the national economy not to suffer, the underfulfilled volume of production may be compensated by means of an intensified plan at enterprises in the sector producing related nomenclature. Such capacities do exist, if only at the expense of increasing the shift applicability factor of equipment or more complete utilization of capacities. The sectorial ministries could maneuver the labor and material resources more prudently. In our opinion, increased norms for profit deductions to be channeled into economic incentive funds should be established for enterprises undergoing reconstruction. This, obviously, should be with the condition that they fulfill their plan for realizing profit.

At the present time, project design institutes are not too interested in fulfilling reconstruction projects, primarily due to their great complexity. Why not engage highly skilled specialists from the reconstructed production for this work? For their participation in the development of the project-estimate documentation they could be paid the difference in rate at the expense of the enterprise.

Expanding the scopes of reconstruction exacerbates the problems of creating a complex of machines and mechanisms for work under conditions of operating production. Mobile and compact technology is needed here. These are machines and mechanisms for cutting concrete and brick walls, small bulldozers and excavators with small-size suspended attachments. Special load handling means are necessary for bringing the materials to the work site, as well as concrete pumps, small dump carts and numerous other equipment.

In short, there are still many problems which must be solved in order for reconstruction to yield the great benefits inherent to it. The development of an integrated program of technical retooling of production within the framework of the sectors and the entire national economy is of principle importance. This formulation of the question is most appropriate today, when the shaping of the new five-year program is in full swing.

12322  
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## AGRICULTURAL CONSTRUCTION

### DANILENKO ON RURAL CONSTRUCTION PROJECTS

Moscow STROITEL'NAYA GAZETA in Russian 18 Jul 84 pp 1, 3

[Interview by P. Matyushko and Vl. Akhlov with USSR Minister of Rural Construction V. D. Danilenko: "Administering Effectiveness"]

[Text] STROITEL'NAYA GAZETA correspondents talk with USSR Minister of Rural Construction V. D. Danilenko about measures directed at implementing the CPSU Central Committee and USSR Council of Ministers decree for radical improvement of affairs in capital construction.

"On the country's sovkhoses and kolkhoses," remarked V. Danilenko, "more than 42,000 construction projects are completed every year through the efforts of the Ministry of Rural Construction alone. These include livestock complexes, poultry plants, storehouses, enterprises for processing agricultural products, and other objectives in the Food Program.

"Recently thousands of rural population centers have been transformed--each year more than 6 million square meters of living space are put up on the farms of the country.

"As for this year, the ministry has fulfilled the 6-month target of contract work by 100.1 percent. In this, I must mention, many brigades building important rural projects were able to exceed established targets for labor productivity. As a result, this indicator exceeded the planned level by more than 1 percent throughout the ministry, thanks to which an additional increase in production volume was obtained. More than 100,000 square meters of living space above the plan were completed."

[Question] This, of course, is gratifying. And now it is essential to strengthen and consolidate the shockwork mentality.

[Answer] We do not intend to rest upon what has been achieved. Furthermore, it would be incorrect to think that everything with us is going well and smoothly. There are many unresolved problems. That is why rural builders received the CPSU Central Committee and USSR Council of Ministers decree with great approval.

Many of the shortcomings mentioned in this document apply to rural builders. In particular, they do not always fulfill the plan of putting capacities and projects into operation, volumes of above-normal uncompleted construction are

large, and labor productivity is growing at too slow a rate. We are now bending all efforts to eliminate these things and attain radical improvement of affairs, as required by the CPSU Central Committee and USSR Council of Ministers decree. Jointly with the clients--our partners in the agroindustrial complex--we are working out measures designed to resolve these urgent tasks.

[Question] The scale of rural construction is growing steadily, and the liaison between its various links are becoming more complex, so more precise interaction is required. A great deal depends on the abilities and competence of the clients. What should attention be focused on?

[Answer] As is well-known, plans should be intensive, but realistic. Unfortunately, this is not achieved always or everywhere, especially in drawing up plans of contract work on republic allocations [limit]. For example, the following outfits established targets lower than the level achieved in the ministries of rural construction: RSFSR--12 trusts, the Ukraine--7 trusts, Kazakhstan--9 trusts, and Uzbekistan, 7 trusts. At the same time, a number of organizations planned for unrealistic growth--up to 30 percent. All of this in some degree disrupts construction operations and prevents full utilization of reserves. Of course, in revising the plans, these shortcomings are usually corrected. Our immediate task is to eliminate these things altogether. But it is here that we do not always find mutual understanding.

The problem is that we have as clients thousands of individual farms, enterprises, and organizations. Unfortunately, many of them do not have at their disposal qualified specialists who can provide the projects with technical documentation, financing, equipment, and materials in a timely fashion. A particular hindrance of the work is late preparation of the project-estimate documentation. On 1 January 1984, there were almost 108 million rubles' worth of projects and estimates not provided for in the plan project of contract work.

The lag in the client's service is now becoming a serious hindrance to further development of construction in the countryside. Without waiting for a comprehensive resolution of this problem, we are counting on active help from territorial organs of the agroindustrial complex.

[Question] Great significance in this regard also pertains to the adoption of 2-year continuous planning. The decree notes this precisely: in 1985 the transition to continuous 2-year planning of construction of residential buildings and public consumer facilities is to be completed.

[Answer] The work experience of ministries of rural construction in the Belorussian SSR and Lithuanian SSR, trusts of Orelsel'stroy, Sverdlovskoblsel'stroy, and several others proves the high effectiveness of this sort of organization. In addition we now have the capacity to develop industrial methods of construction more energetically as well.

Take, for example, the building of settlements "turn key." Here above all the dispersion of forces and material resources must not be permitted. They must be concentrated in the areas of integrated development [kompleksnaya

zastroyka] where 20-30 houses are being erected. This tactic makes it possible to adopt the production-line method of residential construction based on the Orlov "continuous" method, and also to erect facilities for social and consumer services. By the end of the 5-year period, we will complete the transition to this advanced method of planning the construction of both residential buildings and public consumer facilities.

[Question] In turn, this transition, it appears, will make it possible to more fully exploit the possibilities of large-panel residential construction?

[Answer] Yes, we envision a priority rise in residential and social-consumer construction because of this. We can no longer be reconciled to the fact that large-panel residential construction plants and rural construction combines are operating only at 60 percent capacity.

[Question] Viktor Dmitriyevich, I would like to touch on another, similar question. Many officials of construction organizations are requesting the ministry to allocate additional capital outlays to reconstruct an old shop, for example, construct a painting shop, maybe even a whole administration for industrial and technological unitization base... And there are many other urgent requests. Where can they get the money to implement what they have in mind? The allocated capital investments were disbursed at the beginning of the year and, so to speak, have already been put to work.

[Answer] The answer is simple. More extensive and bolder use of bank credits --as is done, for example, by the Lithuanian Ministry of Rural Construction. Last year, using bank credits, it worked on the reconstruction of a greenhouse for an auxiliary farm with an estimated cost of 92,000 rubles. Some 40,000 of this amount was spent, and this year the facility will go into operation: the necessary loan has been provided for completion of the project.

For 1984, this ministry was allocated credit totaling 667,000 rubles to construct cooperative residential buildings. In the first half-year, 497,000 rubles have already been assimilated.

As you see, the Lithuanian Ministry of Rural Construction is actively using bank credit. This experience merits dissemination in other republics as well.

While observing strict finance discipline, it is necessary to further expand the practice of efficient and thrifty use of bank credit, taking advantage of the new rights given to construction organizations by the CPSU Central Committee and USSR Council of Ministers decree; USSR Stroybank and Gosbank are entrusted with giving the contract organizations long-term credit (up to 3 years) to carry out organizational-technical measures above the quota of state capital investments for economizing on material-technical resources and mechanizing labor.

Credits are allocated for the construction of enterprises, shops, and facilities involved in carrying out measures designed to make economical and rational use of metal, cement, lumber, fuel-energy and other material resources, and also to organize the production of hand tools, mechanization

equipment, and so on. The funds spent are recouped as a result of improvement of construction operations and the savings from adopting effective measures.

[Question] The decree calls for improving the development of five-year plans. What is being undertaken in this regard?

[Answer] Each of our republic ministries now has control figures for the 12th 5-year period. The task consists of stepping up work with clients in formulating the five-year plan. The plan should include a section on developing the base of the construction organizations. The overall scheme of this development in the union ministry has been worked out so that by 1990 the volume of work out in the countryside will reach up to 8.5 billion rubles, assuming, naturally, rational use of existing capacities.

A significantly greater role is being played by the basic cost-accounting link of administration--the general construction trust. As the general contractor, its decisions on questions related to the fulfilling of plans and schedules are binding on all participants in construction, regardless of their departmental affiliation. As for the economic performance of the subcontracting organization, that will in the future be evaluated by the final results of work.

It will be necessary to further activate the endeavors of rural construction combines, imposing higher requirements on the use of capacities. In places where rural construction combines are acting as general subcontractors, working on a unified construction balance, operating at full capacity, and carrying out intensive plans, the returns from them are great. This form of organization will certainly be developed, considering the rural construction combines and trusts the basic cost-accounting link in the administration system.

Formalism in matters of developing rural construction combines will be stopped decisively. It is not signboards we need but actual realization of the advantages of the new form of organizing rural construction.

We think it is worthwhile to examine locally all questions relating to the transfer to the USSR Ministry of Rural Construction of those construction collectives of other ministries and departments which are working on the construction of agroindustrial complex projects. The idea is to combine the organizations of our ministry and interkolkhoz units in a number of oblasts and republics. In Georgia, Tajikistan, and Turkmenistan, the first step has already been taken. This kind of association fully responds to the task set by the party and government to improve the structure of administration. In addition, it would eliminate parallelism in the work of certain subunits.

[Question] In connection with this, another urgent problem arises: the optimal load of the mechanized columns. As far as we know, the ministry still has a fairly large number of small-capacity mobile mechanized columns, some of which are not profitable.

[Answer] The average workload of our mobile mechanized columns is 2 million rubles of construction-installation work. The optimum, though, according to experts' calculations, is 2.5-3.5 million rubles. The average figure certainly conceals many weak mechanized columns whose yearly volume of work hardly exceeds a million rubles. And this question has become an urgent problem for us. Resolving it is complicated by a number of situations not completely under our control, including the opposition of local organs.

By combining forces with oblast APOs, RAPOs, and other organs locally we will in the future hold to a precise line in this regard. Mobile mechanized columns which have no prospects for growth in the next 3-5 years should be combined with other organizations or be converted into construction sections. New mechanized columns will be created only in exceptional cases, where the presence of large amounts of work in the area of their activity is firmly proved.

Further improvement is needed in the material-technical supply of construction projects. Without resolving this question, it is difficult to talk about fulfilling the plan or doing effective work. Much, of course, depends upon USSR Gosplan and Gossnab, but no less depends upon ourselves. We must rationally and thriftily manage existing resources, in order to get rapid returns. To do this, we must successfully fulfill plans for new technology, adopt resource-conserving equipment and use effective materials, increase plant fabrication of manufactured articles, and disseminate advanced experience.

[Question] Here, Viktor Dmitriyevich, one should probably emphasize the growing role and responsibility of the economic services and of all participants in construction at all stages of the investment process, starting with the development of project-estimate documentation ending with delivering the facility and putting it into operation. This is the aim of the CPSU Central Committee and USSR Council of Ministers decree, which calls for a set of measures for radical improvement in capital construction, in particular carrying out a number of important economic experiments and, in coming years, implementing model construction of several projects, including rural ones, meaning that they must set the standard in organizing construction and works progress.

[Answer] It is no secret that wherever constant attention is focused on economic work, matters proceed successfully. Take for example the Belorussian Ministry of Rural Construction. The high level of analytic work, along with boldness and energy in conducting experiments for adopting advanced methods of management, enable this republic ministry to fulfill plan targets in a stable fashion and increase labor productivity from year to year. That is why in developing this decree we intended to conduct an experiment whose essence is to ensure stable work of all construction-installation organizations in putting capacities and facilities into operation while ensuring planned profitability.

Plans call for the development and practical validation of more complete methods of planning, determining effective forms of material incentives and

ways of adjusting the interaction between clients and other partners, and expanding the independence and raising the responsibility of all participants in the investment process.

Model construction of five of our projects will be implemented based on advanced domestic and foreign experience. They will become a standard in organizing construction and works progress. They include a grain products combine in Krasnodar Kray, the Korobovo Training Farm in Smolensk Oblast, a broiler poultry plant in Alma-Ata, a cattle-feeding complex on Fergana Sovkhoz and a breeding reproducer [plemenny reproduktor] on Pobeda Sovkhoz, Voronezh Oblast.

That is the immediate goal. Jointly with clients and subcontractors, rural builders are now concentrating their efforts on successfully meeting plan targets for completing construction projects planned for this year.

In response to the concern of the party and government, rural builders are proving worthy of the high trust of the Motherland and, guided by the decisions of the 26th Party Congress and subsequent CPSU Central Committee plenums, are doing all that is necessary to increase the effectiveness and quality and lower the cost of construction and ensure uninterrupted growth in labor productivity.

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## AGRICULTURAL CONSTRUCTION

### IMPROVEMENT IN RURAL CONSTRUCTION BASE CALLED FOR

Moscow SEL'SKOYE STROITEL'STVO in Russian No 5, May 84 pp 1-3

[Article: "Strengthen the Base for the Construction Industry"]

[Text] "Intensification, adopting the achievements of science and technology in production, and more rapidly implementing the large overall programs," noted General Secretary of the CPSU Central Committee, comrade K. U. Chernenko, "all of this must, in the final analysis, raise the production forces of our society to a qualitatively new level.... To display much independence at all levels, to boldly conduct research and to take, if necessary, a justifiable risk in the name of improving the efficiency of the economy and improving the people's welfare--this is what we expect from our economic personnel."

In the resolutions of the May (1982) plenum of the CPSU Central Committee it was noted that the social reconstruction of the village is an organic part of the Food Program. It is necessary to ensure the effective use of capital investments and that the capacities of structures in agriculture, the food industry and other sectors of the agroindustrial complex are put into operation on time and fully utilized.

An important link in the overall system of measures for further developing construction production in the village is to strengthen its industrial base and to gradually convert the construction site to an assembly area. Extensive industrialization, a further growth in the level of completely prefabricated buildings, an increase in the output of lightweight standardized products and components, centers for technological and engineering equipment manufactured by plants, the massive adoption of efficient materials, parts, and products in production that are to a great degree finished under factory conditions are the basis of technical progress in agricultural construction.

In recent years large capacities have been built up for the production base of agricultural construction. This makes it possible to steadily increase the amount of contract work that is being completed. The RSFSR Ministry of Agricultural Construction allocated 2.6 billion rubles of capital investments for these purposes in the last eight years alone which made it possible to increase the capacity of turning out precast reinforced concrete by 1.3 million cubic meters, lightweight fillers by 800,000 cubic meters, and KPD [large panel housing construction] components by 514,000 square meters. Complete prefabrication doubled and amounted to 65 percent. During the same

period 5.3 billion rubles were allocated to strengthen the base of the Russian Kolkhoz Construction Association. Mechanized means of labor for agricultural workers increased to 23 to 24 percent. Industrialization increased to 58 percent.

However, the rates of growth for the volume of construction and installation work completed lag significantly behind the means being allocated to the construction industry. And what is more, in a number of organizations the volume has even decreased.

The further development of the agricultural construction industry depends on the growing demands for increasing amounts of work to be completed by agricultural contract organizations. It is very important to use the means that have been allocated and the potential that the construction industry has acquired as effectively as possible.

Agricultural construction and housing construction combines determine the main direction. They not only turn out products and components but also erect buildings with their own forces and turn them over to clients "completely finished." Unfortunately, there are many deficiencies in the activities of the combines. At the present time 37 SSKs [rural construction combine] in the RSFSR Ministry of Agricultural Construction complete only 8.5 percent of the volume of construction and installation work, and 54 SSKs in the Russian Kolkhoz Construction Association complete 18.6 percent; their capacities are only 70 percent utilized. Many of them are only called SSKs but actually operate as enterprises turning out components.

Only 30 percent of the housing in villages in the Nonchernozem zone of the RSFSR is completed by the forces of the SSKs in the RSFSR Ministry of Agricultural Construction and 55 percent by the Russian Kolkhoz Construction Association. Half of the SSKs in the Russian Kolkhoz Construction Association use only 55 percent of their capacity to produce parts for large panel housing construction. The Penza and Altayskiy agricultural housing construction combines have not improved their work over the course of many years. Their capacities have not reached that which was projected and the plans for turning out wooden panel homes are not being met. The main administration of the industrial enterprises in the RSFSR Ministry of Agricultural Construction have up to now not completely eliminated the unfinished work at the Bryansk Agricultural Construction Combine that was put into operation in 1979 and has not trained its personnel in a timely fashion. Labor organization at enterprises is weak. As a result its capacities are being only 42 percent utilized.

During the past year the capacities of the RSFSR Ministry of Agricultural Construction for turning out large panel housing construction parts, carpentry items and porous fillers were only 78 to 90 percent utilized; the enterprises in the Russian Kolkhoz Construction Association which produce brick, porous fillers, reinforced concrete components, crushed stone and gravel, were operating at only 52 to 78 percent of their maximum load. In recent years there has practically not been any kind of noticeable improvement here. The coefficient of replacing fixed production assets also decreased in

the RSFSR Ministry of Agricultural Construction. Their numerical increase is not being accompanied by an increased use of the potential which has been acquired. This is leading to an annual decline in the return on investments. Fixed assets are operating ever less effectively and, consequently, increasingly less raw materials, products and fuel are being processed per unit. At the same time the growth in labor productivity today more and more depends on the level at which fixed assets and applied technology are used.

The significant defects in this matter can be explained not only by deficiencies in the work of enterprises. In a number of places demand for building products are curtailed, and irregularities are permitted in supplies of rolled metal, cement and diesel fuel. Equipment has become morally outmoded, the service sphere, repair enterprises, PMK [mobile mechanized column] support bases are lagging behind, and the network that provides complete production and technological means is poorly developed. The RSFSR Ministry of Agricultural Construction and the Russian Kolkhoz Construction Association bear the responsibility for eliminating these and other "tight spots."

But there are reasons that do not directly depend on enterprise administrators. These are the start of operations at plants and shops without subsidiary and auxiliary services which delays the development of the capacities for a long time. The low level of labor organization, insufficient attention by administrators to social problems, breaches of technological discipline (for example, overestimating the forming cycles and underestimating them for the turnover rate of forms at plants that turn out reinforced concrete products), and, at times, insufficient competence and conscientiousness on the part of engineering and technical personnel are having a negative effect. All of this leads to certain administrators resigning themselves to the low level at which capacities at industrial enterprises are used and not taking all the measures which depend on them to eliminate deep rooted deficiencies.

Enterprises under different departmental jurisdictions are not cooperating well locally. They often make contacts among themselves through their higher organizations in Moscow. Local Soviet agencies are not effectively coordinating their activities everywhere and are not taking measures to eliminate defects although the local industrial enterprise organizations are under their jurisdiction.

Where ties between local Soviet agencies have been solidly laid affairs are going much better. Take, for example, Saratov, Sverdlovsk, and Omsk Oblasts. The plans for the RSFSR Ministry of Agricultural Construction's subdivisions are being met and volumes are growing here. Volumes are increasing and the plan for putting all structures into operation is being met at the Tyumen Oblast Interkolkhoz Construction Association. The growth in labor productivity exceeds the planned indicators. The chairman of the Association, Yu. N. Shustov, is objectively involved with each construction project and each enterprise here. As a result discipline and labor organization has improved and the turnover of personnel amounts to only 8 percent against an average 33 percent for the Russian Kolkhoz Construction Association. And yet

the Kalinin, Vologda, Kostroma, Vladimir, and even the Moscow oblast interkolkhoz construction associations have even reduced the volumes of completed work by two to six percent during the three years of the current five-year plan. The volume of completed work has also declined in Ryazan, Arkhangelsk, Novgorod, and Ivanovo Oblasts, and in the Chuvash and Udmurt Autonomous Republics. One of the chief reasons of this is the poor use of the capacities of production bases.

The struggle for product quality is not being waged at the required level everywhere. Instances of breaches of GOST [state standards], and construction standards and regulations are, unfortunately, not infrequent. Certain plants turn out panels with dents and holes, and poorly plastered or painted surfaces. Sometimes concrete, mortar and brick types are downgraded which leads to the destruction of buildings.

A large amount of work is now being done to additionally heat keramzit concrete wall panels for agricultural housing units that are being built for resettlement from the areas flooded by the Bazuzsk hydroelectric system in Smolensk and Kalinin Oblasts. In order to make these panels only keramzit having a volumetric weight that sharply increases the heat conductivity of the components was used. Almost one quarter of the housing is being turned over by organizations in the RSFSR Ministry of Agricultural Construction with an evaluation of "satisfactory." It is no longer possible to be satisfied with such facts. Bad workmen must be punished with the ruble.

At the present time measures for improving the use of construction industry bases for the period up to 1990 have been worked out by the RSFSR Ministry of Agricultural Construction, the Russian Kolkhoz Construction Association. An expansion of the output of new efficient components, an increase in the level of mechanization for labor consuming processes, a reduction in manual labor, a more extensive adoption of the brigade contract method in industry, and the retooling of operating plants to turn out farm-type housing units have been specified. Matters must be arranged so that everything that is planned will be completely done on schedule.

The initiative of the collectives of the leading enterprises and many other enterprises to additionally increase labor productivity by one percent and reduce the cost of products by 0.5 percent in 1984 above that which was established by the plan should be widely disseminated. Better use of capacities and an improvement in the return on investments should be laid in the conditions of socialist competition among enterprises.

Specialists calculate that an increase in the level of utilizing the capacities of a plant to turn out 100,000 cubic meters of products per year is equivalent to turning out 10 farm-type housing units with the same production assets and the labor costs. This is what potentials that are put to use can give.

Organizations in the RSFSR Ministry of Agricultural Construction, the Russian Kolkhoz Construction Association and their industrial enterprises have great possibilities at their disposal for improving the work of the construction

industry and strengthening it, and must ensure that the goals for 1984 and the five-year plan as a whole are successfully met. It is necessary to make use of potentials and clearly organize the work of all the links in the construction conveyor--from the central agency to the production shop and each worker's station.

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## HOUSING CONSTRUCTION

### ARCHITECT ON MONOTONY IN MASS-PRODUCED HOUSING

Moscow PRAVDA in Russian 26 May 84 p 4

[Article by A. Gutnov, doctor of architecture and member of the board of the USSR Union of Architects: "The Responsibility of the Architect"]

[Text] Under modern conditions demand for quality in the construction of cities and villages and for creativity by Soviet architects is growing. Continuing the discussion of this topic PRAVDA is publishing an article about the problems of architecture.

The scope of construction in our country is vast. More than 2 million apartments are put into use every year. However, much that is contained in the construction of cities gives rise to unfavorable criticism. Unfortunately, apartments that look like close cropped hair consisting of housing units of the same height have become customary. The disproportion of the buildings and spaces between them often give people a feeling of being lost, like Gulliver in the land of the giants. Criticism regarding monotony in the modern city was heard at the 26th CPSU Congress.

What is hindering the architect from successfully fulfilling his professional and civic duty as the "principal builder" (it is precisely this way that the word architect is translated)? A whole chain of problems leads to low quality in his finished product.

Right at the beginning design stage the architect's creative initiative is restrained and, consequently, he cannot bear full responsibility for the matter with which he has been entrusted. The range of possibilities presented to the urban developer by industrial housing construction, in the form which it now has taken shape in many cities, is narrowed to the limit. Often only one typical design for a housing unit is available to the architect which is turned out in a given locale in serial production.

Who should answer for this? The author of the typical design? But he suggested an approach without applying it to a particular address and cannot take everything into consideration beforehand.... No particular demand can be made from the author of the "application" either. Behind them stands the builder. But, while alluding to the technology, he turns out to have nothing to do with it.

Certainly, demand for housing is still great. And yet it is necessary to argue with the logic of fulfilling plans in a "lump sum." Housing construction combines have at times "stamped out" the same piece for decades. You will notice that the square meters of living space in faceless, monotonous rayons, without cozy, well planned spaces around the housing units, and without conveniently located service institutions are not at all the same square meters that were written in the paragraphs of the state plan. It seems that today this is a waste. Like a television that is badly tuned or a poorly sewn suit. And what is more the architect's product serves more than one generation of people.

It is necessary to improve the technology of industrial housing construction--without this it is impossible to place the quality of mass-produced architectural and construction production on a level that meets the modern demands of the population. There are good suggestions in its favor. For example, the modular section method which makes it possible to assemble housing units from sections having different shapes, stories, and facade finishes. This is a noticeable step forward in the direction of diversity in construction. However, the new method is being adopted intolerably slowly. The positive expertise of Minsk, where successful approaches to the microrayons "Vostok" and "Zelenyy Lug" were done on the basis of it, still remain as exceptions to the general rule.

There are also difficulties of an objective nature enroute to adopting the modular section method. For they do not alter the traditional technology of construction production--only one type and one brand of components is made in a stationary, expensive metal form. Naturally, due to this the aim of an architect for diversity comes in conflict with the aim of the builder to get by with the smallest number of forms as possible. There are weighty arguments on the side of industry--first of all the cost of production increases especially when small quantities are turned out; i.e., for the relatively scarce consumption of a piece.

Moscow builders are developing a single catalog of construction parts. Their range must allow housing units of the most diverse types to be assembled. However, in practice only high-rise housing units are being built. Yet it is well known that only mixed construction that includes housing units with low or average story height creates a comfortable and cozy environment that is fitting for man. In addition, valuable urban land is used efficiently. What will hinder matters? The very same necessity of increasing the number of types of components.

The way out of the situation is to develop more flexible construction technology based on practical reoutfitting, and the use of the same casting forms for producing different parts. Today this is a completely feasible goal technically. Hungarian housing builders were able to gear up production of a single system of components for building housing units from 1 to 12 stories. Flexible technology is being successfully used in the GDR to make small modular industrial pieces having diverse finishes which makes it possible to successfully combine new buildings from old structures.

The key to success is in both the increased role of architects and in their closer cooperation with builders. Quite a few examples of such cooperation can be given. These are the formation of the Lazdinay rayon in Vilnius, the new blocks in Minsk that have already been mentioned, and Tropayev in Moscow. It should be that such achievements become the norm.

Advanced methods of housing construction, although not simple, nonetheless force their way into being. However, is the architect himself completely prepared for the new possibilities? An architect's work is often devoid of creativity today. It is not specified by the existing system of planning and organizing design work which is evaluated by beginning with a simple quantity of drawings that were done without considering the time needed to search for the best arrangement and the creation of an architectural form for the structure. Contests and alternative designs for selecting the best approach are rarely used.

And the responsibility of an architect for his work is, in many cases, minimal. The fee for an architect's work practically does not depend on the creative level of the designs. At the same time, one of the potentials for improving matters is the extensive adoption of the method whereby a brigade does a complete job and the leading master architect determines the number and individual makeup of a collective in each specific instance depending on the volume and difficulty of the work to be done. The creative level and professionalism in the work that is done by the creative brigade should determine the expediency of retaining this collective in the future and its further work load.

Each project approach that is out of the ordinary--and often the single correct one--must be defended by an architect during the process of numerous approvals and coordination. This by no means succeeds often.

Not only the client but also frequently the builder dictate their conditions to the architect which lower the quality of the architectural approaches. Since the USSR Gosstroy instructions on approving design and estimate documentation prescribe that approval be obtained from the client on literally all sections of the design the client, more often than not, uses this in the interests of his department and tries to attach primitive technical approaches that will save him trouble. I will give the following example. Because of a request by Glavvolgovyatskstroy specialists in the TsNIIEP [Central Scientific Research Institute for Experimental Design] of Spectator Buildings and Sports Structures are altering an interesting design for a three hall movie theater for the city of Dzerzhinsk. Why? Just because the 15 meter roof slabs, that should be being manufactured throughout the entire country, are being developed by industry extremely unwillingly. The rigid dictates of production workers make themselves felt especially during construction of new housing rayons.

There is no such practice in a single field of technology or art--it has taken root only in architectural and construction affairs. It is necessary to return to the architect the right of effective control over implementing the

design and he, it seems, should appoint the chairman of the working commission and the deputy chairman of the state committee for accepting buildings for use.

Understandably, in order to strengthen the authority of architects the efforts of the architects themselves and their lofty creative regard for principles are first of all required. For each deviation from the intention and each violation of the design is fixed by the corresponding drawings and author's signature signifying, even when necessary, a deviation from the original idea. The USSR Union of Architects can play a great role in increasing the public prestige of the profession--its positions on the principles of creative questions, its objective evaluation of the practice of Soviet architecture, and propaganda about its finest achievements.

However, it is impossible to solve the problem from within the professional shop alone. It is impossible to get by without purposeful measures that will augment the authority of the architect and increase his responsibility for the design and construction work. This would make it possible to more strictly demand quality from architects in the solutions to social and artistic problems, and the formation of rich living environments and to demand from builders, not just the strict fulfillment of state plans simply in a "lump sum," but based on qualitative indicators on a level with the best examples in the world. It seems expedient to reinforce this individual and general responsibility of the architect and builder legally in the state law on urban development.

All of us architects, builders and engineers are engaged in general work building socialist cities. Not for the next few years but for centuries.

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## CONSTRUCTION MACHINERY AND EQUIPMENT

### USSR, POLAND COOPERATE IN CONSTRUCTION MACHINERY PRODUCTION

Moscow EKONOMICHESTKAYA SOTRUDNICHESTVO STRAN-CHLENOV SEV in Russian No 2, Feb 84  
pp 9-14

[Article by Zdislav Kun, deputy minister of Construction and Construction Materials Industry, PNR [Polish People's Republic], chairman, Section 9, CEMA Standing Commission on Cooperation in Machinerybuilding: "PNR - USSR: Cooperation in the Production of Construction Machinery"]

[Text] Polish-Soviet economic and scientific-technical cooperation in the production of construction machinery began in the postwar years. During that period this sector of Polish industry, having made the first steps under the difficult conditions of rebuilding the country, received thorough assistance from the USSR. This was expressed in the provision of design and manufacturing documentation, scientific and technical publications, consultation and the exchange of opinion and, finally, in the assignment of Polish specialists at Soviet enterprises.

Mutual deliveries of construction machinery and equipment were initially the predominant form of economic cooperation. As time passed, the potential of Polish industry grew rapidly and its engineering and scientific research base strengthened. Scientific work was conducted at two institutes and several construction machinery departments at various higher educational institutions in Poland.

Already by the middle of the 1960's Poland had reached a level of construction machinery production sufficient to change the character of cooperation with Soviet industry. In addition to the exchange of goods, new and improved forms of technical cooperation were developed. These include: joint scientific research measures; the development of standardized research and computation methodologies; and joint activities in international organizations.

Simultaneously expanding multilateral cooperation of the CEMA countries also had a great influence upon Polish-Soviet cooperation. Multilateral measures implemented within CEMA have defined the areas of countries' specialization. A series of long term agreements have been signed which cover specialization and cooperation in the production of machinery and equipment for construction and the construction materials industry. The foundation has been laid for broad international production cooperation permitting the more effective utilization of existing production capacity in the Soviet Union and Poland.

The decree of the 7th meeting of the Intergovernmental Soviet-Polish Commission on Problems of Economic and Scientific-Technical Cooperation in 1968 created a Polish-Soviet permanent working group and defined the forms and directions of bilateral cooperation in two areas: the production of basic types of construction machinery such as truck cranes, loaders and graders, as well as parts for them; and of other types of machinery and construction equipment, mainly for finishing work and the construction materials industry.

Two organizations, subordinate to the PNR Ministry of Metallurgy and the Machine Industry (the BUMAR Construction Machinery Industry Association and the Huta Stalevara-Volya Industrial Metallurgical Combine) and organizations in the USSR Ministry of Construction, Road and Municipal Machine Building (VNIIstroydormash [All-Union Scientific Research Institute for Construction and Road Machinery] and the Orel Road Machinery Plant) have cooperated in groups of basic machines.

Cooperation with regard to groups of machinery and equipment for construction mechanization and for the construction materials industry is primarily between the ZREMB Association for Construction Mechanization, with the participation of the Institute for Construction Mechanization (PNR), and VNIIsmi [All Union Scientific Research Institute for Construction Machinery and Instruments], in the USSR.

The development of basic construction machinery production in our countries is supported by sufficient supplies of modern components, power hydraulics and system drives. Close cooperation was begun in this area.

Cooperation in drive train components was a decisive factor for the further development of scientific-technical and production cooperation.

Its basis was laid by joint work in the standardization of transmissions for 75 - 150 h.p. construction and road machinery. On the Soviet side were VNIIstroydormash and the Orel Road Machinery Plant, while on the Polish side was the Huta-Staleva-Volya's Central Design Office for Construction Equipment. As a result of this Poland began the production of transmissions delivered in large series to the USSR. They are used in Soviet earthmoving machinery (loaders, graders, rollers), concrete and other types of machinery. As a result of this cooperation Poland began the manufacture of driving axles for Soviet excavators using documentation from the Leningrad Excavator Plant and the manufacture of construction machinery drive shafts using documentation developed by VNIIstroydormash, with participation of the Polish group.

As drive train components to a considerable degree determine the quality and reliability of construction machinery, in order to meet international standards, Poland, in close cooperation with its Soviet partners, began the development of a new series of standardized gear boxes and hydraulic transmissions for 160 h. p. engines, and construction machinery axles built by both countries.

In 1979 experimental models of new gear boxes and hydraulic transmissions were built in Poland. They were sent to the USSR, installed in Soviet earthmoving machinery and subjected to prolonged operational testing.

Conducted in both countries in accordance with precise programs and methodologies, these tests were successfully completed in 1982. After their results are studied, an experimental series of components will be built and later the Huta Staleva-Volya will begin their series production.

Similar broad scientific-technical cooperation has been organized for driving axles to be used in Polish and Soviet excavators. New joint documentation has been based on licenses purchased by Poland. The first group of prototype models was then built. This group received a good evaluation during the operational testing of excavators at the Kalinin Excavator Plant.

The new gear boxes, hydraulic transmissions and the so-called second generation axles are replacing previously produced items and in the immediate years ahead will be used in Polish and Soviet earthmoving machinery. Positive experience in such bilateral cooperation has made it possible to expand it to finished products, primarily the manufacture of heavy self-propelled cranes.

Cooperation in the Production of Heavy Self-Propelled Cranes.

In 1975 the PNR Ministry of Metallurgy and the Machine Industry and the USSR Ministry of Construction, Road and Municipal Machine Building signed an agreement on joint design and scientific research work and on the introduction of results from this work into the production of modern heavy self-propelled and crawler cranes. In accordance with this agreement, documentation development and production preparations began for:

Cranes on special truck chassis with hydraulic drives and 25, 40, 63 and 100 Mg [Megagram] capacity telescopic booms.

Crawler cranes with hydraulic drives and sets of equipment for booms and tower equipment for 63 and 100 Mg capacity booms.

The agreement called for Poland to manufacture crawler cranes for its own needs and those of the USSR, this production being based upon cooperative deliveries of high pressure hydraulic components, lift equipment, support and rotating ring gears and other parts from the USSR.

Poland will also specialize in the production of truck chassis and telescopic booms for 25, 40, 63 and 100 Mg cranes; while the Soviet Union will build crane bodies, working mechanisms and high pressure power hydraulic units. On the basis of mutual deliveries and depending upon demand, each party will assemble cranes to cover its own needs and exports. This way of determining production volume will expand the series for each manufacture and will make it possible to produce final output in quantities set by the level of demand.

There are additional advantages to such thorough cooperation: the activation of exports; the stability of deliveries based on multiyear contracts; the correspondence of quality to the requirements of both countrys' markets and considerable standardization of machinery, drive and power hydraulic components.

Joint design groups were set up to carry out these tasks: a Polish-Soviet group for truck cranes in Warsaw and a Soviet-Polish group for crawler cranes in Odessa.

The research stage of the 1975 agreement on cooperation in self-propelled cranes has already been completed. Attention is now concentrated on production introduction.

In 1977 the Odessa Heavy Crane Building Plant (USSR) and the Labendy Plant (Poland) began to manufacture the first type of 40 Mg truck crane. This is a telescopic boom hydraulic crane on a 4 axle chassis.

In 1979 they began producing a 25 Mg truck crane mounted on a 3 axle chassis, equipped with a telescopic boom and to a great extent standardized with the 40 Mg crane.

Almost 1,000 25 and 40 Mg cranes are now in operation in various regions and climatic zones of the USSR. They have distinguished themselves by good technical parameters, operating convenience and readiness for operation immediately after arriving at the construction site.

Prototype models of 63 and 100 Mg very heavy truck cranes have already been built. These machines are now undergoing the last phases of laboratory and field testing. Preparatory work on setting up series production is simultaneously in progress.

Prototypes of 63 and 100 Mg crawler cranes have also been built. The 63 Mg crane was recommended for series production by a USSR state commission.

Together with the current modernization of cranes now being manufactured, development work has begun on the so-called second generation, taking world standards into consideration. These will be new designs of 25 and 40 Mg cranes with significantly improved technical and operational parameters, making our products competitive on world markets.

The joint research work results show the suitability of this type of cooperation, applying Soviet and Polish resources to solve complicated scientific-technical problems in the creation and production of modern designs for construction machinery, especially heavy items such as 300 h. p. bulldozers, loaders with bucket capacities of 3 m<sup>3</sup> and other machinery.

Cooperation also includes the production of construction machinery and equipment closely linked to construction technology. The main Polish representative here was the ZREMB Association for Construction Mechanization. This work is now being continued by the ZREMB Association of enterprises for the manufacture of construction machinery and equipment. Various departments and enterprises in the USSR Gosstroy system are also participating.

Mutually beneficial cooperation began many years ago in this area also and is now developing dynamically. This is helped by mutual deliveries supplementing the assortment of construction and construction materials industry machinery and

equipment manufactured by both countries. The cooperation has a good effect on Poland in that deliveries to the large and stable Soviet market permits the continuation of series runs. This has a positive influence upon the economic indicators of enterprise activity. It should also be noted that scientific-technical ties and constant contact with customers help improve technical and operational parameters and the development of new products.

#### Silicate Brick Plants

These plants have become another very important area of cooperation.

Over the years the USSR has been delivered 20 complete production lines for this valuable construction material, used in all climatic zones. Based on many years of operating experience, such plant equipment has been modernized. As a result its productivity has improved and there have been increases in the automation of manufacturing process control.

These changes are being introduced at Polish enterprises supplying various equipment components. Some types of modernized equipment have already passed or are undergoing operational testing.

At the end of 1983 it was intended to begin deliveries of process equipment for the next series of modern silicate brick plants capable of producing 120 million bricks annually. Work coordination is simultaneously continuing on the modernization of existing plants. This is mainly directed towards improving their productivity. In order to avoid the substantial costs of rebuilding entire facilities, the equipment (presses, autoclaves) which has a major influence on the entire plant's productivity will be replaced with more productive units.

#### Cellular Concrete Plants.

This is the next group of manufacturing equipment covered by long-term Polish-Soviet cooperative agreements. A series of such plants (10 complete sets) has been delivered to the USSR. At the Soviet side's suggestion, modernized variants were developed. This particularly involves manufacturing processes and increases in productivity.

Poland is now designing a new group of plants with different productivities: from 200 to 1,000 m<sup>3</sup> daily, based on new technology.

In addition to plant deliveries and modernization, the design offices in both countries are continuing joint scientific research on improvements in various types of machinery and equipment.

#### Machinery and Equipment for Construction Finishing Work

Such equipment is also the object of scientific and technical cooperation, in particular between the Institute for Construction Mechanization and ZREMB production enterprises on the one hand, and the VNIIsmi (USSR) on the other.

Exchanges of experience, joint work in determining directions for improvements in this group of machinery, testing with refined programs and methodologies and exchange of results have helped modernization and significant increases in finishing work mechanization. Wide use is made of experimental testing of machinery designs under different construction conditions, utilizing diverse finishing materials. This is especially important to improve equipment working under specific technical conditions. The partners have exchanged 15 types of new equipment for testing. The results are the basis for design improvements in plastering units, concrete finishers, rubberized material laying and paint units. Cooperation is now concentrated upon the development and introduction of machinery for mechanizing roofing work, sets of machinery for applying gypsum based plasters and other gypsum-like materials.

#### Other Construction Machinery and Equipment

Such items are also the objects of cooperation. This includes items such as:

Freight and passenger elevators for construction. As a result of suggestions made by Soviet customers, a new type of lift has been developed. It is now in the final testing stage;

Low-boy trailers, primarily with capacities of 40 Mg and more. Both parties are now examining conditions for expanding production possibilities, in particular on the basis of production cooperation;

Cement semi-trailers capable of working with Soviet KamAZ trucks;

Passenger elevators. This area of cooperation between ZREMB design organizations and the Soviet association Soyuzliftmash has led to a prototype passenger elevator for residential construction. In particular, it can be used in the reconstruction and modernization of residences which were previously not equipped with elevators.

Studies are being made of the potentials for cooperation in major repairs on construction machinery and components and in spare parts manufacture.

Solutions to problems in the construction and start-up of concrete plants capable of work in winter are also on the day's agenda.

In the USSR concrete work under low temperature conditions is performed throughout large regions and many months. This makes increased demands upon production: concrete plants should operate at temperatures of  $-25^{\circ}$ , at productivities of 40  $m^3$ /hour with regulated temperatures of the concrete mix. Polish specialists have prepared a preliminary design for such a plant and are coordinating this work with the Soviet side. The future conditions for the introduction of this very important measure are now being examined.

In conclusion it should be noted that Polish-Soviet cooperation in construction machinery production is an important factor in both countrys' economic development. It will promote technical progress, permit reductions in machinery imports from capitalist countries and deepen socialist economic integration. Proof of this is the constantly increasing trade turnover in construction machinery. In 1982 it amounted to 200 million rubles and in subsequent years has had a tendency to grow rapidly. On the basis of the results attained, one can be confident of further successful development of cooperation in construction and construction materials industry machinery.

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## CONSTRUCTION METHODS AND MATERIALS

### BSSR GOSSTROY CHAIRMAN ON ECONOMY OF BUILDING MATERIALS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 May 84 p 2

[Article V. Yevtukh, chairman of BSSR Gosstroy: "Lessons for Tomorrow"]

[Text] The improved system of economic incentives for reducing estimated construction costs and economizing on resources has been undergoing verification for a year and a half in Belorussia. What is the point of this? A comparison of traditional conditions with experimental conditions will best answer this question.

The economic mechanism currently in effect in construction does not provide for the necessary economic commitment to reducing the expenditure of production resources. In the existing system progressive design decisions which reduce expenditures automatically entail a reduction of the estimated costs of projects. And this worsens the valuation indicators of organizations which contract to do work or supply services. And also of design organizations, in which wage and material incentive funds are also found in a direct dependence on the volume of designing and surveying work.

I will cite a specific example. A number of rational changes was introduced into the design by the draftsmen for the purpose of reducing the amount of time needed for the construction of the Kobrin Spinning and Weaving Mill. This resulted in a considerable savings of rolled metal, reinforced concrete, cement, and other materials. As a result, the estimated cost of construction commodity output was reduced by more than a half million rubles. Is this not good? The construction workers say: what is good is good, but here is the paradox... And they cite the following arguments: their economic incentive and wage funds were reduced considerably and additional expenditures for assimilating new decisions increased a lot. The draftsmen were also losers: the volume of their designing and surveying work was reduced with all the concomitant consequences.

Who won from the reduction of the estimated costs of construction? The state, and therefore, all of us. Here is a kind of obvious contradiction: that which must be done from the point of view of reasonable management is not advantageous to draftsmen and contractors.

The question is justified: should the cost of construction output reduced by draftsmen be included in the plan? In our view it should not. The price for

the final construction output, that is, the estimated costs of a project, should remain unchanged over a period of at least 5 years for calculations between clients and contractors. If draftsmen make the design more economical by using innovations, and the builders expend less labor and materials without worsening the operational characteristics of the buildings and installations, then one should receive from the clients not according to actual expenditures, but according to primary value. The savings achieved by this may be very perceptible even though it is taken into consideration in the volume of work accomplished by the construction-installation organizations, which also means in all the indexes of their economic activities.

It is precisely such a principle of new economic interrelations between the basic participants of the construction process that is being examined in the experiment which has been conducted in Belorussia since September 1982.

For what purposes is the difference between the stable and actual cost of the final commodity output being used? One-fourth of the savings obtained goes into the state budget. Another part is used to compensate for outlays connected with the introduction of scientific-technical achievements. This means the re-equipping of work areas, the training of personnel in new manufacturing processes, and so on. Yet another portion is used for incentives for construction workers, draftsmen, clients, and also for workers of the construction industry and the construction materials industry who have developed new economical designs and materials. The total sum of bonuses can amount to 6 months of salary or wages in a year and is paid over and above other forms of material incentives.

Excuse me, says a reader, draftsmen are required to produce documentation of high quality and without any additional incentives. True. But is there a limit to improvements? It is possible to use standard, tested decisions and accomplish a design which will "satisfy requirements". But additional means, energy, and time can be expended for the study of advanced domestic and foreign experience (and it does not stand still) and in search of new and original variants. A creative approach makes it possible to execute designs in a more accomplished manner. This is an axiom. And there is no need to fear an additional stimulation of creativity. Especially since not one kopeck is spent on this from the state budget. On the contrary, the deductions for it are one of the most important provisions of the experiment. Its conditions eliminate that paradox which was discussed above. Moreover, the gain for the national economy consists of not just deductions for the state budget. It also results in additional free labor and material resources, to which the results of work for the last year and a half attest.

More than 700 projects with an estimated value of 680 million rubles, which amounts to approximately 27 percent of the program of contract jobs, are being designed in the republic with the application of the new economic mechanism. Documentation is already completed for 190 projects. Thus a savings amounting to 8.3 million rubles -- 5.6 percent of the primary estimated cost -- has been achieved in the design phase alone. This amounts to a savings of 172,000 man-days, 7,000 tons of metal, 13,000 tons of cement, and many other materials. Nearly all the design-survey organizations in Belorussia, several

large design institutes of the country, 86 construction-installation associations, trusts, and housing construction combines are participating in the experiment.

Savings are achieved primarily at the expense of utilizing progressive manufacturing processes in the designs and improving volume-planning and design solutions. We illustrate this situation with specific examples. A cooling tower was designed for the Minsk TETs-4. Usually such structures were executed in a double-level variant. Studies showed that it is possible to improve the aerodynamic properties of the cooling tower and to provide for an increase in the heat emission discharged for the cooling of water by means of eliminating the gap between the levels. Therefore, a cooling tower with a single-level sprinkler was incorporated into the design by the Belorussian branch of VNIPInergoprom [All-Union Scientific Research and Planning Institute of the Power Engineering Industry] with the use of experience gained from the construction of the Kiev TETs-6. As a result, the height of the installation was reduced. Furthermore, the number of assembly units was reduced by more than one half by means of consolidating blocks of sprinklers.

Original engineering solutions were utilized by the Grodno branch of GIAP [State Scientific Research and Planning Institute of the Nitrogen Industry and Products of Organic Syntheses] in the designing of a warehouse for liquid ammonia used in the Azot Production Association imeni S. O. Pritytskiy. Here instead of the two interdependent monolithic bed plates with columns of individual design that are traditionally used, a progressive solution in the form of a pile-supported base with an upper plate was proposed and carried out by A. Zhivago and T. Kuzinaya, the chief designers of the construction department of the institute and department chief A. Il'yenko with the participation of chief branch engineer M. Vinokurov, chief design engineer V. Shubin, and V. Antonovich, chief engineer of the Grodnopromstroy SU-142 Construction-Installation Association. Improvements were also made on the designs of the safety wall, the escape towers, and other components of the ammonia reservoir. The operational qualities of the warehouse did not deteriorate at all from the design changes and the savings amounted to almost 200,000 rubles -- more than 9 percent of the estimated cost of the job. The labor-intensiveness of construction was reduced by 1,750 man-days, the expenditure of metal by 378 tons, and cement by 286 tons.

Even in public housing projects, which, as a rule, are erected according to standard designs, which are painstakingly worked out to satisfy basic requirements, opportunities are arising for reducing the cost of construction. Thus the designs of precast large panel houses were improved on the basis of proposals by V. Potershchuk, chief designer of the Belgosproyekta Workshop, and chief design engineers Yu. Kovadlo and G. Govorenkov with the participation of other specialists from the institute. The construction cost of each building erected by the Gomel' and Bobruysk housing construction combines was reduced by 20,000 rubles on the average, the expenditure of metal was reduced by 14 tons, cement -- by 10 tons, and labor expenditures -- by 850 man-hours. The savings on 173 public housing projects from the introduction of the achievements of science, technology, and advanced experience into the designs exceeded 2 million rubles.

Similar examples attest to the intensification of creative initiative, on the one hand, and, on the other hand, to that benefit which this initiative can bring if it is reinforced economically. The system of economic incentives being introduced provides for the collective and individual economic commitment of the basic participants of the construction process in the active search for and realization of reserves. The combined creative work of designers, contractors and clients, aimed at the practical utilization of progressive engineering solutions, also promotes the acceleration of scientific-technical progress in the sector.

How, in our view, should the experiment be further developed? Obviously, the participants of the construction-installation system must truly be given a portion of the reserves made available by means of improving design solutions to be used for the development of their own production base. This will help to master the output of new economical designs and articles more effectively without bringing in state capital investments. It is also necessary to bind not only contractors, designers, and clients, but scientific-research institutes and industrial design organizations with common economic interests. It is expedient to include them among those participating in the experiment. This will strengthen the dependency between the provision of incentives for scientific workers and designers, on the one hand, and the urgency and introduction of their developments, on the other.

Final conclusions on the experiment will be made after the completion of the current five-year plan. But, today, after a year and a half since the commencement of the experiment, it can be confirmed: the system of economic measures being accomplished in the republic are having a beneficial effect on improving the effectiveness of capital construction and are promoting the acceleration of scientific-technical progress, the reduction of expenditures, and the conservation of resources.

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## CONSTRUCTION METHODS AND MATERIALS

### SHORTCOMINGS IN GEODESIC WORK LEAD TO BUILDING DEFECTS

Moscow IZVESTIYA in Russian 8 Jun 84 p 1

[Unsigned Editorial: "Builders Need Accuracy"]

[Text] At the 26th CPSU Congress and subsequent Central Committee plena it has been noted that the construction situation requires substantial improvements. The recently published CPSU Central Committee and USSR Council of Ministers Decree "On Improvements in the Planning, Organization and Management of Capital Construction" defines specific measures for improving the work of this key sector of the national economy.

New apartment houses and enterprise structures have been built in every city in the country, and animal husbandry and other agricultural complexes built in every oblast.

Huge resources are invested in this sector. We are not indifferent about how effectively builders utilize them. The situation is far from favorable. This is shown by checkups conducted by USSR Gosstroy's State Construction Inspectorate. Every year state controllers must stop construction at hundreds of projects because of defects revealed.

Emergencies and the straightening up of disorders cost construction ministries millions of rubles. This work diverts thousands of skilled workers and uses scarce materials.

According to Gosstroyinspektsiya, more than half of the shortcomings discovered involved the builders' failure to follow the plan dimensions, construction norms and error allowances. The curtailment of such violations is entrusted to geodetic surveyors, and at underground projects to mine surveyors.

We have construction organizations where geodetic control is given as much importance as is technical control in industry. An example of this is Glav-tonnel'stroy [Main Administration for Tunnel Construction], where there has been a geodetic-mine surveyor administration for more than 50 years. This service faces many difficulties in its work. What is most important, however, is that deviation from plans at projects built by units of this main administration have been practically eliminated.

However, this is not done everywhere. It would not be just to blame geodetic and mine surveyors for bad work. The majority are genuine enthusiasts about their jobs. Unfortunately, there are circumstances which prevent them from successfully fulfilling their obligations.

As a rule, the job descriptions at most construction organizations make no provisions for these specialists. They are assigned to the duties of supervisors, works superintendents and administrative workers and subordinated to section chiefs, that is, essentially to those individuals whose work they are entrusted with reviewing. Having received a report about deviations from plans, by no means every project manager gives orders to dismantle the defective structure. The striving to keep up with the schedule at any price often puts second priority upon the project's quality and reliability.

Geodetic survey workers are experiencing acute shortages of measuring equipment, all the way from measuring tapes to precision optical instruments and other specialized equipment. The repair of this equipment is poorly organized, consequently its accuracy could be better. There are still no norms and ratings for geodetic work. There are often cases where it is physically impossible for geodetic surveyors to make the necessary measurements at all projects assigned to them.

Practically no one is involved with problems of geodetic and mine surveying support to construction. Neither union and republic Gosstroys nor construction ministries have units capable of qualified solutions to these problems. Those units which existed are gradually being liquidated. For example, in the reorganization of Belorussian Ministry of Industrial Construction's Orgtekhstroy Trust, the department for geodetic work technology and quality was eliminated. At all union conferences its activities had been called exemplary.

It is repeatedly said in the press that a solution to these and other problems would indisputably lead to substantial improvements in construction quality and a reduction in nonproductive outlays. However, there are few changes in the situation.

Active members of the USSR Academy of Sciences' All-Union Astronomic-Geodetic Society have done extensive work in analyzing the present situation and preparing specific recommendations. At all union conferences organized by USSR Gosstroy they have repeatedly stated the necessity of creating a centralized, well equipped geodetic and mine survey services and of working out the appropriate scientific and technical program. The USSR Gosstroy Board approved the decisions of these conferences, but has not yet implemented them.

Local soviet organs could give substantial help to geodetic services. Last year an interdepartmental commission on problems of organizing geodetic and mine survey work was created at the Ispolkom of the Moscow Soviet. It is entrusted with helping to improve the efficiency and quality of construction in the capital and the forest and park protective belt. Such a commission would indisputably be useful in other cities in the country.

The CPSU Central Committee and USSR Council of Ministers decree expressed firm conviction that everything necessary will be done to radically improve capital construction, increase its efficiency and quality and reduce its cost. The organization of reliable geodetic and mine survey control should become a major component of this work. USSR Gosstroy must solve the problem comprehensively, with the participation of republic Gosstroys, soviet organs, construction ministries and departments, planning and financing organizations. Possibly, a first step should be an experiment in the organization of a full blooded geodetic and mine survey service in one or several construction ministries or republic gosstroys in complete accordance with the USSR Gosstroy approved recommendations of the All Union Scientific and Technical Conference held in 1981.

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