JPRS-UCR-84-011

7 June 1984

USSR Report

CONSTRUCTION AND RELATED INDUSTRIES

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

JPRS-UCR-84-011

7 JUNE 1984

USSR REPORT

CONSTRUCTION AND RELATED INDUSTRIES

FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

JPRS-UCR-84-011

7 June 1984

USSR REPORT

CONSTRUCTION AND RELATED INDUSTRIES

CONTENTS

CONSTRUCTION PLANNING AND ECONOMICS

GOSPLAN OFFICIAL ON 1983 CONSTRUCTION PROGRESS IN ARMENIA

Yerevan KOMMUNIST in Russian 8 Mar 84 p 2

[Interview with M.G. Allakhverdyan, first deputy chairman of Armenian Gosplan, by F. Nakhshkaryan; date and place not specified]

> [Text] As was noted at the January (1984) Plenum of the Armenian CP Central Committee, the situation with regard to construction in the republic improved somewhat last year. The results achieved and perspectives for this year are discussed in an interview with M.G. Allakhverdyan, first deputy chairman of Armenian Gosplan, by KOMMUNIST correspondent F. Nakhshkaryan.

[Question] Today the planners are considering the forces, raw material and reserves for the next five-year plan. The results of the present five-year plan form its basis. What have been the achievements of the republic's construction workers in the past three years?

[Answer] The tasks of the republic's construction workers in the 11th Five-Year Plan are tremendous. They are faced with utilizing 5700 million rubles for all financing sources. This is 13 percent more than in the 10th Five-Year Plan. During the past three years, 3.5 billion rubles (500 million more than in the corresponding period of the preceding five-year plan) have been put to use in housing, hospitals, schools and production wings.

Of the largest projects put into operation in the last three years, mention must be made of the Masis-Nurnus Railroad Line (47.5 kilometers), 8.8 kilometers of the Yerevan subway, the Arpa-Sevanskiy tunnel, the sports section of the sport-concert complex in the republic's capital, the Zvartnots and Erebuni airports in Yerevan and the Leninakanskiy airport. Reservoirs with a total volume of 560 million cubic meters of water, 15 hectares of hothouses in Razdane and poultry farms with an egg specialization based on a million laying hens have been constructed.

The cities and villages have obtained 2,299,000 square meters of housing area, schools for 45,700 students, 1300 hospital beds and 200 kilometers of well-laid roads.

It is important that we have not only constructed a great many objects, but have also been able during these three years to strengthen considerably the material-technical base of the construction industry. After all, in order to build quickly and with high quality and in order to expand the scale and to increase the construction efficiency, the construction workers must be ensured of technologically effective raw material and high-quality building items.

Last year the plans for putting into operation housing, hospitals, polyclinics, schools and kindergartens were fulfilled and overfulfilled. This success, in particular, was brought about by a heightened coefficient of plant readiness of the goods for house building combines. In the three years of the 11th Five-Year Plan, the store for the construction workers was supplemented by items from the Spandaryanskiy Large-Panel House Building Plant, the Leninakanskiy House Building Combine, Yerevan plants for centralized manufacture of commercial fittings and insertion pieces and capacities for output of commercial concrete in Yerevan and carpentry items in Kirovakane.

New shops for the production of fractionated perlite and thermal insulation items at the Aragatsperlit Plant are already producing goods, and plants for reinforced concrete structures are already obtaining [karmrashenskiy] fractionated volcanic slag--an excellent light filler. Kirovakan and Oktemberyan (tuff) and Vedi (travertine) will now also produce facing tile.

Quite a lot has been done in three years, and construction has become somewhat more productive. A strong base has been laid for fulfillment of the five-year plan.

[Question] What sort of plans are there for the construction workers in the fourth year of the 11th Five-Year Plan? Which most important start-ups will be put into operation?

[Answer] In the sphere of construction for all the financing sources for this year, 1228 million rubles are to be utilized. This is 93 million more than in 1983 and 159 million rubles more than initially outlined by the plan for the 11th Five-Year Plan.

We have directed a considerable portion of the resources (6 percent more than last year) toward modernization, expansion and technical reequipment of the industrial enterprises. Of the total volume of state capital investments, 74.5 percent are specified toward construction for production purposes. In the course of the year there will be put into operation capacities for chloroprene rubber at the Nairit Scientific-Production Association, the first section of the Charentsavanskiy Lift Truck Plant, a large-panel house building plant in Leninakane for 1300 cubic meters of precast reinforced concrete, a very large cotton spinning mill for 123,400 spindles at Maralike and a bakery at Dilizhane. Construction is continuing on the republic shock-work construction projects at Idzhevan-Razdan and the Yerevan subway.

This year a great deal will be done to reinforce the material-technical base of the republic's agroindustrial complex: 332.7 million (10.5 percent more than last year) is directed toward solving this urgent task. Construction will be completed of a breeding producer for 40,000 chickens in Ashtarakskiy Rayon and a livestock breeding complex for milk production at the Maisyan Sovkhoz of Oktemberyanskiy Rayon and six hectares of hothouse operations in Razdane.

Development of the mountain and foothill regions is continuing. Therefore, road construction acquires particular importance. During 1984, on the whole, 77 kilometers of them will be built--in Sisianskiy, Rorisskiy and Yekhegnadzorskiy rayons. Some 22 kilometers of main highways of all-state importance will be laid.

Some 25.5 percent of the state capital investments in 1984 will be allotted to construction work in the nonproduction sphere. They will go toward construction of 1,133,000 square meters of housing area, schools for 13,000 students, children's preschool institutions for 6,700 places and polyclinics for 1350 out-patients.

Water pipes in Vardenise, Echmiadzine and Artashate, and centralized boiler houses in Zvartnotse, Echmiadzine, Kirovakane and Yerevan will be constructed.

Large resources (7.4 million rubles) are being directed toward ensuring nature preservation measures. A sewage system in the Artanishskiy area of Sevan, extending 17 kilometers and purification structures for Kirozakan, Masis, Dilizhan, Aparan and Echmiadzin will be constructed.

This year we will increase six-fold the volume of precast reinforced concrete for sale to the population (30,000 cubic meters), and sale of commercial concrete (10,000 cubic meters) will be organized for the first time. This will be of great help to proprietors of orchard plots.

The construction program for 1984 is extensive and stepped-up work is in store. The work collectives have great potentials for improving their work. In order to fulfill the plan for the year, they must arm themselves with these potentials, boldly assimilate advanced experience and comprehensively improve the production work of construction.

12151
CSO: 1821/100

CONSTRUCTION PLANNING AND ECONOMICS

ESTONIAN 1983 CAPITAL CONSTRUCTION SUMMARIZED

Tallinn SOVETSKAYA ESTONIYA in Russian 29 Feb 84 p 1

[Article: "Construction: Results and Perspectives"]

[Text] In 1983 the republic's construction workers achieved an increase in the volumes of utilizing capital investments and in labor productivity, with the latter increasing by 4 percent as compared with 1982. The plan for this extremely important indicator of production efficiency was fulfilled by 102.5 percent. At the same time, on the whole in construction the growth in labor productivity was higher than the growth of the average wage. The plan to put into operation fixed capital and housing is being fulfilled in advance of the assignments of the five-year plan.

The state construction and installation organizations of the republic fulfilled by 103 percent the year's volume of commodity construction products for the enterprises and projects turned over to the buyers.

On the whole for the republic, due to all the sources of financing, in 1983 3 percent more fixed capital was put into operation than in 1982.

Put into operation were: the formalin shop of the Kivnyli Shale-Chemical Plant, the production wing of the association, Tallinskiy Electrical Equipment Plant imeni M.I. Kalinin, electric power transmisstion lines with a voltage of 35 kv and over--70 kilometers--for agricultural electrification--473 kilometers, step-down transformer substations, the production wing of the RET Association, a boiler house in Payde, additional capacities for brick production at the Vyrukivi Plant, the first section of a plant for chrome-tanned leather in Narve, the third section of the Vyruskiy Dairy Product Combine extension--a cheese shop and cheese storage, additional refrigeration capacities at the Saaremaaskiy Meat and Dairy Association, a section for primary sewage treatment at the Tartuskiy Meat Combine, a modernized canning shop at the Valgaskiy Meat Combine, a motor vehicle technical service station for passenger vehicles in Valga, municipal automated telephone exchanges for 3000 numbers and rural automated telephone exchanges for 900 numbers, a food store on K. Marks Boulevard and a social center for the first microrayon Lasnamyae in Tallinn, cleaners in Narve, a bakery in Vyru and others.

Some 811,000 square meters of housing were put into operation, which made it possible to improve the housing conditions for 63,000 persons, a hospital was constructed in Kilingi-Nymme and all the planned schools, vocational and technical schools and kindergarten nurseries were put into operation.

At the same time, in 1983 the plan for utilizing capital investments and for developing construction and installation work was not fulfilled. As a result, the construction and installation organizations have begun 1984 with a limited work front for plasterers, painters and installation workers. The republic's Ministry of Construction did not ensure that 35 projects out of the 309 according to the plan were put into operation last year. Due to noncoordination of the actions of the numerous participants in construction of these projects, late distribution of the planning estimates and poor monitoring of the course of work on the part of local Party and Soviet organs, the capital investment limits were unsatisfactorily utilized in constructing projects for municipal services (90 percent) and medical institutions (74 percent). The plan for capital investments in projects for production purposes was underfulfilled by all the local Soviets except for the city of Tallinn and Valgaskiy Rayon. Some 19 construction organizations out of 75 did not cope with fulfillment of the year's plan for overall work volume, including 8 organizations of the ESSR Ministry of Construction. Among them was the Tartuskiy House Building Combine (94 percent), the Trust for Rural Construction (91 percent), the Narvskiy General Construction Trust (94 percent), the Promstroy Trust (99.4 percent) and others.

Fourteen construction-installation organizations did not cope with fulfillment of the 1983 plan for a growth in labor productivity. In 36 organizations the increase in average monthly wages was permitted to outstrip the growth of labor productivity. Among them were the SU [Construction Administration] of the Estonian GRES Sevenergostroy Trust and the Narvskiy General Construction Trust (the labor productivity went down and the average monthly wage rose). Twenty construction organizations exceeded the planned production cost by 3.3 million rubles.

The plan for putting apartment houses into operation was not fulfilled by the Rural Construction Trust, which did not turn over three objects for operation: apartment houses in Vyayke-Maar'ya and in Khaapsalu, and a boarding home for a secondary school in Pyltsamaa. The Narvskiy General Construction Trust did not turn over for operation an apartment house in Narva-Yyesuu. Storage facilities in Tyuri were not ensured of being put into operation. The plan for contracting work of the ESSR Ministry of Construction for building hospitals and polyclinics remained unfulfilled due to lagging behind, permitted by the Kokhtla-Yarveskiy Construction Trust at the annex to the regional hospital in Rakvere.

The plan for construction of the vocational and technical school of the Association imeni V. Klementi in Tallinn and the annex for the Georgiyevskiy Factory in Narve remained unfulfilled.

The Kokhtla-Yaverskiy Construction Trust and Pribaltiyskoye Installation Administration of the Koksokhimmontazh Trust did not ensure putting into operation a unit for cleaning the gases of the rotary furnaces at the Punane Kunda Cement Plant. Break-downs in the supplies of building materials and structures had an adverse effect on the work of the republic's construction organizations and there were also shortcomings in the work of the building materials industry enterprises. The Narvskiy Building Materials Combine did particularly poor work in 1983. It regularly failed to ensure fulfillment of the monthly plans. A shortage of panels led to a serious disruption in the periods for erecting apartment houses. The Punane Kunda Cement Plant did not work steadily in the second six months of 1983.

The management of the Narvskiy Building Materials Combine and the Punane Kunda Cement Plant must succeed in eliminating break-downs in the work of these important enterprises and must ensure unconditional fulfillment of the plans for their technical reequipment and modernization. The Rakverskiy raykom and Narvskiy Party gorkom and the Party organizations of these enterprises should constantly monitor the solution to the problems. The ESSR Ministry of the Building Materials Industry should render more practical assistance to the enterprises lagging behind, and should increase the activity and responsibility of the division directors and specialists of the ministry for achieving high end results, fulfillment of the plans by all the enterprises and ministries as a whole and introducing cost accounting and brigade contracting in each shop and section.

The plan for individual housing construction was 91 percent fulfilled in 1983, and 100 houses were not put into operation. The Pyarnuskiy gorispolkom, as well as the Rakverskiy, Kingiseppskiy, Khaapsaluskiy and Yygevaskiy rayispolkoms did not concern themselves satisfactorily with problems of organizing the introduction and acceptance for operation of individual houses. The Party gorkoms and raykoms should intensify their monitoring of the course of individual housing construction and permit no more lagging behind here, and should attain unconditional fulfillment of the Party and government decisions on developing individual housing construction.

In January the plan for contracting work was fulfilled by 102 percent, with an increase of 3 percent as compared with the corresponding period in 1983. Collectives of the Pribaltiyskiy Administration of the Soyuzshakhtospetspromstroy Trust, the Pribaltiyskiy Installation Association of the Koksokhimmontazh Trust began the year successfully, and the Narvskiy Building Materials Combine considerably improved its work, having fulfilled the stepped-up assignment for 100 percent sale of products, and yielded an output 13.8 percent greater than in January 1983. At the same time, 12 construction and installation organizations out of 75 failed to cope with the plan for contracting work through their own efforts. Among them are such major subdivisions of the ESSR Ministry of Construction as the Tallinstroy and Kokhtla-Yarveskiy trusts, the Narvskiy General Construction Trust and others.

The unevenness of the construction conveyor work in 1983 had an effect on the nonfulfillment of the plan--in December almost one-third of the fixed capital planned for the year had been put into operation. The shortcomings, not as yet overcome, in organizing work at the construction sites, slow introduction of brigade contracting, "oscillation" and also the shortcomings in material-technical provision have an adverse effect. At times there is a short supply not only of reinforced concrete structures and metal items, but also of materials that are not scarce, such as brick rubble, sand and insulation sheets. No "warm" stockpile of project starts has been formed in the construction of apartment houses in Pylva, Pyarnu and Tartu, as well as in the construction of the underway complex for the vocational and technical school in Tartu, which is to be put into operation by the beginning of the school year, i.e., by 1 September 1984, as recorded in the socialist commitments of the republic's workers this year. One of the bottlenecks in the work of the construction complex is the unsatisfactory transport provision for theconstruction projects and the supplier-plants of materials and structures. Therefore, the Ministry of Automobile Transportation and Highways and the Estonian division of the Pribaltiyskaya Railroad, in conjunction with the ESSR Ministry of the Building Materials Industry should take imperative and comprehensive measures to ensure prompt supply to the construction projects of materials and structures and above all, of cement and items from the Narvskiy and Akhtmeskiy building materials combines and plants for nonmetalliferous materials.

Eliminating the shortcomings noted here should ensure accelerated rates of construction and modernization of the Krengol'mskiy Manufacture Plant, the production facility for benzoic acid at Kokhtla-Yarve, the dairy combine in Pyarnu, the eye clinic at the Central Children's Polyclinic in Tallinn and the obstetric-gynecological division in Rakvere and promptly putting into operation a hospital at Vil'yandi, apartment houses and all other projects for production and social-cultural-everyday living purposes.

The socialist commitments adopted by the republic's workers for 1984 specify that by virtue of further improvement in organizing construction, introducing advanced methods for labor and cost accounting, use of new modular planning and structural designs, advanced technology, efficient building materials and devices for mechanizing construction work, particularly finishing work, there should be ensurance of prompt and ahead-of-schedule putting into operation all the projects specified by the plan, and full mastery of the maximums of construction and installation work, overfulfillment of the assignment to raise labor productivity by not less than one percent and reduction of the production cost of the work done by at least 0.5 percent.

12151
CSO: 1821/100

TAKING STOCK OF INTERMEDIATE, FINAL RESULTS IN CONSTRUCTION

Moscow VESTNIK STATISTIKI in Russian No 1, Jan 84 pp 16-20

/Article by A. Levin, candidate of economic sciences and associate professor, All-Union Correspondence Institute of Construction Engineering: "Intermediate and Final Result and Their Accounting in Capital Construction"/

/Text/ In his speech at the November (1982) Plenum of the CPSU Central Committee, Comrade Yu. V. Andropov, general secretary of the CPSU Central Committee, noted that in many respects we are not satisfied with the organization of construction per se, that shortcomings present here from year to year lead to nonfulfillment of plans for putting capacities into operation, and that putting capital construction in order is one of the central national economic tasks.

Further improvement of accounting, statistics, and reporting on capital construction and, in particular, the regulation of accounting of its intermediate and final results should facilitate successful solution of the organizational, administrative and other economic problems faced by capital construction.

The distinctive features of capital construction as a branch are, first of all, that it has an inherently long production cycle and, secondly, that two independent legal entities (corporate legal persons) -- the builder (client) and contractor -- have a relationship to its physical production result from the very start. The former engenders, without fail, an intermediate result, which means construction projects not completed by production (quite frequently for the duration of several review periods and in the absence of a final result at this time). The latter causes a dual approach toward both a final and intermediate result in construction and their different reflection in the accounting and reporting of the builder and contractor (in different accounting indices).

The existence of a significant intermediate result in capital construction makes the task of accurate accounting for it especially relevant. It now obtains its specific expression in two accounting indices: in "unfinished construction" for the client and in "unfinished construction production" for the contractor. These indices, which, in the final analysis, express the same thing -- an intermediate result on built-up fixed capital -- owing to economic-legal practice set 50 years ago, differ in quantity and quality.

Their qualitative difference is determined by their connection with the final result toward which each of them is proceeding directly. Theoretically, the introduction of fixed assets should serve as such a result for the client and, it would seem, the productive capacities and construction projects which are being put into operation, i.e., the same fixed assets but only in the construction part of their value being built up by the contractor, should serve for the contractor. For all practical purposes, however, the volume of construction-installation work turned over to the client has appeared for a long time in the role of direct final result for the contractor, but in the recent period the volume of construction output fulfilled, which means essentially the intermediate result, has moved into the gross result (its content will be considered below) with a considerable portion of the previous intermediate result within it. This circumstance, of course, has led to a situation wherein the volume of assimilated capital investments, which by its very nature is once again the gross result, has become for the builder also the basic result of his activity. As long as the scales of capital construction were relatively small, such a relationship of the intermediate and direct final results did not lead to substantial negative consequences.

With respect to the quantitative difference between unfinished construction and unfinished construction production, it manifests itself in that the latter should be less than the former in light of specific construction projects and facilities since construction-installation work is only one of the component parts of capital investments and the value of fixed capital. However, with a combined, overall approach and also with a change in the procedure of settlements between the builder and contractor, the absolute sizes and proportions in the quantitative ratios of the above-noted forms of the intermediate result are subjected to different changes. Thus, for example, there was a 3.6-fold increase in unfinished construction in state and cooperative enterprises and organizations (excluding kolkhozes) during the years 1965-1980. If we compare these indices of the intermediate result with corresponding gross results, we then obtain the following relative data for the very same period: in proportion to capital investments, unfinished construction increased from 69 percent to 87 percent per year.* As shown by the above data, an absolute and relative growth of the intermediate result exists, especially its substantial growth in the form of unfinished construction production.

With the growth in the scales of capital construction the volumes of its intermediate result also increased. In this process the latter began, in essence, to reproduce itself in ever-increasing dimensions and this began to have a negative effect on the fulfillment of plans on the national economic end result of capital construction -- placing fixed capital into operation. Certain changes were needed in the interrelationship of the intermediate and final results of capital construction.

*Data on the dynamics of absolute and relative indices of the intermediate result are based on materials of an article by M. D'yachkov (VESTNIK STATISTIKI /Herald of Statistics/, No 4, 1982) and statistical yearbook, "Narodnoye khozyaystvo SSSR v 1982 g." /USSR National Economy in 1982/.

In accordance with the decree of the CPSU Central Committee and Council of Ministers USSR of 12 July, 1979, as of the beginning of the 11th five-year plan it was planned to shift to settlements between the client and contractor for enterprises, start-up complexes, stages and projects fully completed by construction and turned over for utilization, which were prepared for the production of output and rendering of services, according to the estimated cost of construction commodity output. Under these conditions the question again arises of the intermediate and final results of construction and their reflection in the accounting of the client and contractor.

The introduction of fixed capital, putting productive capacities and projects into operation, including the growth of capacities through technical re-equipping and reconstruction, should become the main valuation index and, in essence, the only one for the client. The system of appraisal indices of the contractor, i.e., fulfillment, above all, of targets for putting productive capacities and construction projects into operation, construction commodity output, growth of labor productivity and profit, is subordinated also to the solution of this same problem -- achievement of national economic end result. As we see, the object of settlements between the client and contractor -- construction commodity output -- is directly connected with the capacities and projects which are being activated. Settlements with the client are made with the fulfillment of the plan for construction commodity output and, as a consequence, the profit of the contractor is also formed. Thereby his financial situation is also placed in direct dependence upon the final results of activity.

Thus, the placement into operation of enterprises, start-up complexes, stages and construction projects completed by construction in appropriate physical indices, or the introduction of fixed capital, becomes the national economic end result of construction as a physical production branch. The documents of acceptance commissions, properly validated, serve as a basis for accounting for this final result and its reflection in the records of the client and contractor.

There is no reflection of this result in value terms in the accounting of the contractor. The commissioning of productive capacities and housing, cultural-services and other projects is given only in physical indices.

Whereas in any other branch of physical production the cost (value) of the production end result is reflected in a corresponding index of output, in construction the estimated cost of the fixed capital being commissioned does not reflect construction output directly. Fixed capital in all its value is not included in the aggregate social product of a given year but forms an integral part of the national wealth of the country. Construction output is represented in the fixed capital becoming operational only through the estimated cost of construction-installation operations and now finds reflection in the "construction commodity output" index, which also describes the final result of construction production, its finished output that transcends construction as a branch.

A viewpoint exists which holds that it is not construction and installation work that can appear as finished construction output, but only completed enterprises, stages and construction projects. However, for the time being this is at variance with the practice of economic and legal relations now in force in construction, on the basis of which the value form of national economic final result is formed in construction. Therefore, in present-day construction it is necessary to distinguish the national economic final result (fixed assets put into operation) and the final result of construction production (construction commodity output). The apportionment of the two final results according to a unified investment process is a certain concession to existing economic practice.

The unprecedented scales of capital construction, growth of the process of concentration, complication of organizational and administrative ties in construction itself and in the branches related to it, changes in sources and forms of financing and in the interrelations and calculations between the client and contractor, et cetera, are exceeding the limits of customary contract-agreement relations and require new economic forms of relations between the participants of the investment process.

The following was written about one of such forms in the decisions of the 26th CPSU Congress: "Put into practice in different enterprises the construction of enterprises through the use of bank credit offered to contracting organizations in the amount of the full estimated cost of the projects, with the turnover of completely finished enterprises 'with the key' to the client."*

With such an organization of construction there is a change in the makeup of its finished output and the national economic final result becomes also the final result of construction production if all elements of the investment process -- planning, regular and full-assembly supply, construction, installation and start-up and adjustment work, and delivery to the client of fully completed projects -- and also the organizational, economic and legal basis of this process, with the solution at the same time of the question of whether or not to include the cost of equipment with the cost of completed construction production, are unified in the construction consistently and to the end. Unfortunately, not all of these problems have been solved fully at present. This cannot help having a telling effect, accordingly, on the ties of the final and intermediate results of production and on the organization of their accounting and reflection in reporting.

In capital construction, as also in other physical production branches, along with final and intermediate results there is also a final gross result of production for a due review period, which summarizes data on the first two results. The gross result in capital construction is also reflected in two indices: the volume of capital investments for the builder and volume of construction and installation work which was fulfilled by the contractor.

*"Materialy XXVI s'yezda KPSS" /Materials on the 26th CPSU Congress/, Moscow, Politizdat, 1981, p 175.

The gross (Q^{gr}), intermediate (Q^{ir}) and final (Q^{fr}) results for both the builder and the contractor are interconnected and their interrelationship may be expressed in any case by such a balance-sheet equation as follows: $Q^{fr} = Q^{gr} - (Q^{ir}_{e} - Q^{ir}_{b})$. In this equation the expression in parentheses represents the change of the balances of the intermediate result at the end of the review period (Q^{ir}_{e}) in comparison with the beginning of the period (Q^{ir}_{b}).

Under the existence of intermediate payments and settlements for work stages the formation of final, intermediate and gross indices of the client and contractor was accompanied by the actual formation of the cost of the corresponding results of construction and the transfer of a certain part of it through the purchase-sale turnover stage and the interrelated reflection of this part of the cost in the bookkeeping and accounting of each of the construction participants. The actual formation of the cost of corresponding results of construction and the movement of a certain part of it through the turnover sphere should also take place under the new settlement conditions and, evidently, the bookkeeping and accounting on the final, intermediate and gross results of construction must be structured in accordance with this.

At present there is still no exact interrelated conformity in the accounting of the client and contractor to the changed new conditions for settlements between them. In the instructions approved by the USSR Central Statistical Administration on the procedure for compiling statistical records on capital construction it is stated that the volume of construction-installation work fulfilled (including also work on equipment installation) must be reflected monthly in the accounts of the builder and contractor regardless of the form of settlements for the work performed. The basis for the reflection of the volume of work fulfilled in accounting is "Reference Document on Estimated Cost of Work Fulfilled and Expenditures", Form No 3, which is compiled by the contractor-organization (see point 6.3 of instructions).

According to these instructions the result of the production activity of the contractor finds expression also in the records of the client on the basis of information reported to him by the contractor while bypassing the turnover sphere. There is no actual transfer of the cost of the result and, consequently, also no movement of corresponding funds for stages of the reproduction process. Naturally, such economic operations cannot obtain reflection in the bookkeeping of the client. That is why it is stated in the instructions on procedure for compiling the annual report on capital construction, which was approved by the Minister of Finance USSR and the USSR Statistical Administration, that during settlements for fully completed enterprises and construction projects, the work performed by the contractor on these unfinished enterprises and projects, which is reported by the general contractor in reference documents on form No 3, is not reflected in the balance sheet on capital investments of the client but only in a report on form No 2-ks (see point 29 of instructions).

There is a certain discrepancy between the actual course of the production process and its accounting, which must be eliminated on the basis of further improvement of the economic mechanism in construction and the organization of the latter itself.

The above-noted method of the turnover for use of enterprises and construction projects "with key" is becoming increasingly widespread. Thus, in 1981 of the total volume of payments for commodity output of construction production, settlements for work fulfilled "with key" constituted 46 percent as against 19.6 percent in 1975, including, correspondingly, almost 65 percent and 48 percent for residential housing construction and 3 and 2.5 percent for construction of production facilities.*

Further development of the above-noted form of construction production and realization of the measures envisioned by the party and government decisions for improvement of the economic mechanism in construction, a change of the organizational structure of construction management, and enhancement of the role of machine building in the investment process will create a basis for reorganization of the economic and legal relations now in force in capital construction. In connection with this there will be a change in conditions for the formation of the intermediate, final and gross results of capital construction and a different procedure will be required for accounting and organizing reports on them.

*See: A. I. Mitrofanov (general editor), S. N. Bulgakov, L. A. Muromov, et al, "Sovershenstvovaniye khozyaystvennogo mekhanizma v stroitel'stve: Ucheb. posobiye dlya rukovodyashchikh rabotnikov i spetsialistov stroitel'stva" /Improvement of the Economic Mechanism in Construction; Training Aid for Construction Management Personnel and Specialists/, Moscow, Stroyizdat, 1982, p 128.

6264
CSO: 1821/127

CREDIT RELATIONSHIPS IN CAPITAL CONSTRUCTION

Moscow DEN'GI I KREDIT in Russian No 1, Jan 84 pp 23-26

[Article by A. I. Ivanenko, candidate in economic sciences: "Credit Relationships in Capital Construction"]

[Text] In accordance with the decisions of the 26th CPSU Congress, which indicated the need for "comprehensively developing and strengthening economic cost accounting," one of the basic directions for the improvement being performed in the economic management mechanism is the further activization of cost accounting methods in the functioning of production. Increasing the responsibility of the primary production segments -- the associations and enterprises -- for ensuring effective application of the allocated resources leads them to implement a broader search for means of increasing production effectiveness, for growth in the number of implemented investment measures to ensure this increase, and for more active involvement of bank resources by the associations and enterprises for their financing. The expansion of ties between industry and banks with the implementation of capital investments will also be facilitated by the formation of production associations as the basic cost accounting segment in industry. This is in accordance with the resolution by the CPSU Central Committee and the USSR Council of Ministers dated 12 July 1979, No 695, "On Improving Planning and Strengthening the Effect of the Economic Management Mechanism on Increasing Production Effectiveness and Work Quality."

The changes in the economic management conditions require analysis of the development of relationships between industry and the bank in an investment sphere, and definition of the aspects of these relationships which must be restructured under the new conditions. After all, the 26th CPSU Congress also indicated the necessity of "**increasing the role of financial-credit** levers in the intensification of production, strengthening cost accounting, and intensifying the conditions of economy."

Practice has shown that long-term bank crediting has a stimulating effect on the customers and facilitates improvement of the investment process. "Over 80 percent of the enterprises built in the 10th Five-Year Period and in the first two years of the 11th Five-Year Period on credit were introduced into operation within the normative plan times, which greatly increases the percentage of enterprises introduced due to other sources of financing of the capital investments. Capacities introduced on credits were also mastered more successfully than those using other sources of financing...".

Therefore, the development of long-term crediting of capital investments and the full utilization of its capacities is an important task. However, this also entails unresolved questions which inhibit the development of the indicated relationships.

First of all this is the question of increasing the role of credit as a source of financing. We can hardly consider the portion of credit used in sources of financing capital investments to be sufficient. In 1981 it comprised 5.1 percent for facilities financed by the USSR Stroybank, although in 1977 it reached 10.1 percent. In 1981, 38.46 billion rubles of budgeted means were directed toward financing these facilities, and only 4.44 billion rubles of credit, even though the allocation of budget designations as opposed to credit does not have a cost accounting effect on the interests of the associations (enterprises).

For a number of ministries, long-term bank credit has become an important source of financing capital investments. In 1982 it comprised 37.5 percent of the sources of financing for Minzhivmash [Ministry of Machine Building for Animal Husbandry and Fodder Production] and 21.8 percent for Minkhimmash [Ministry of Chemical and Petroleum Machine Building].

However, many sectors still make extremely small use of long-term credit. For example, the USSR Minstroymaterial [Ministry of the Construction Materials Industry] in 1982 attracted four million rubles in long-term credit, or 0.5 percent of all its sources, the USSR Minlesbumprom [Ministry of Timber, Pulp and Paper, and Wood Processing Industry] -- 6.5 million rubles, or 0.4 percent, and the USSR Minzag [Ministry of Procurement] -- 3.3 million rubles, or 0.5 percent.

However, the question of growth in the portion of credit is only one of the questions associated with the development of financing methods for capital investments under conditions of full cost accounting of associations (enterprises), and its resolution is determined by the resolution of a more general question: what should the sources of financing capital investments be under full cost accounting of associations (enterprises)? It seems that cost accounting independence and the responsibility of enterprises and associations in the sphere of financing capital investments must be manifested in the form of maximal provision with their own financial resources. An enterprise implementing its current activity on the basis of cost accounting must use these same cost accounting methods to create an interest in timely accumulation of the necessary means and in implementing measures for improving production in accordance with the future tasks. Cost accounting, which encompasses only the relationships associated with the association's utilization of the already created

---

[1] Zotov, M. Capital Construction Under Conditions of Intensification and the Finance-Credit Mechanism, KOMMUNIST, 1983, No 12, p 44.

production apparatus but which does not touch upon the relationships associated with the development of production, evidently cannot be considered full cost accounting and meet the problems of production development at the current stage.

In our opinion, the use of budget allocations by operating enterprises for any forms of development of production must, as a rule, be prohibited. The same position must be established also in regard to the construction of new enterprises. After all, they are built most often as part of associations and the financial resources of these associations must serve as the basic source of their financing. If their own resources are insufficient, then the enterprises and associations must draw upon long-term bank credit. Only in the implementation of major programs which have significance for the entire national economy and in the development of new sectors where the financial resources of the operating enterprises are insufficient is it expedient to retain means from the state budget as the source of financing the construction. At the present time, however, the portion of funds from the state budget in sources of financing capital investments is high even in the traditional sectors.

In the elapsed years of the five-year period, 31-33 percent of the capital investments of the USSR Minlesbumprom were financed at the expense of budget funds. The need for funds from the state budget by this ministry was certainly not caused by a shortage of financial resources. The sum of payments of free surplus profits and amortization into the budget of the ministry's enterprises in 1983 significantly exceeded the means allocated from the budget for financing construction.

These funds are used in different investment directions, and primarily for obtaining lumber processing technology for operating enterprises which is used to replace outdated equipment, as well as equipment which does not require installation. Around 47 percent of the budget allocations are directed toward this purpose. They are used by operating enterprises also for expanding production.

The high portion of budget allocations in sources of financing capital investments of the ministry also cannot be explained by non-uniformity in the development of the individual subsectors, which could lead to redistribution of the financial resources between them. In our opinion, the reason lies elsewhere -- in the orientation toward the use of budget funds which reflects insufficient cost accounting interest on the part of the associations and enterprises in ensuring production development at the expense of their own resources. It is indicative that, utilizing budget funds in significant amounts, the ministry does not strive to attract long-term credit in place of them. On the contrary, in 1983 its application was reduced to zero. The ministry did not request a single ruble in long-term credit for financing facilities which were being built in accordance with the plan for national economic development.

In order to obtain its own means for financing capital investments, the association must implement measures allowing the reduction of expenditure or to manufacture products of increased quality and to obtain additional profit. This is not easy to do. If bank credit is taken, then it will have to be repaid, and the day-to-day activity of the association will be controlled by the

bank with close scrutiny until the loan is repaid. If, however, budget allocations are included in the financing plan, then the funds will be on account precisely in the established period and without any need for remuneration. This is why associations try to get budget allocations and to do without credit. This approach is also supported by the financial services, since with the allocation of funds from the budget the expenditures associated with capital construction will be financed regardless of the results of the work performed by the sector's enterprises. This is why financial specialists in the sector are going for listing funds in the budget income and simultaneously receiving them from the budget. We need hardly explain that this approach does not facilitate the search for reserves on increasing production effectiveness.

Activization of cost accounting methods in the sphere of financial provision for capital construction may be achieved, in our opinion, with transition to financing investments, as a rule, from the associations' (enterprises') own funds and from bank credit. Under this order, the association (enterprise) will have to seek out financial resources at the expense of utilizing the available reserves for reducing expenditures and increasing production volume in order to implement measures for developing production.

If the funds of the enterprise or association are insufficient, under these conditions they will utilize bank funds for financing construction. This will intensify the effect on the participants in the investment process. After all, upon the conclusion of every credit agreement, the bank institutions study the expediency of extending credit, the possibility of completing construction within the established period, and the effective utilization of the production capacities which are to be introduced. Therefore, the transition to financing facilities of production function at the expense of the enterprise's own funds and bank credits will facilitate a stricter selection of facilities to be included in the plan for capital construction, as well as their faster construction and effective utilization of the created capacities.

Another group of questions is associated with improving the organization of crediting. One of the shortcomings which presently exists in this sphere is often the small portion of credit in the sources of financing an enterprise under construction. This sharply reduces its stimulating effect, since in this case credit merely plays the role of a compensator for the sum of funds which are lacking. Evidently, it is necessary to devote more attention to the joint determination with associations and ministries of a program of broad, highly effective measures in whose financing bank credit will play the prevailing role.

In accordance with the instruction of the USSR Stroybank [Bank for Financing Capital Investments] dated 31 March 1981, No 2, "On Long-Term Crediting of State Capital Investments," the basis for an open loan account is the credit agreement between the enterprise and the bank institution, which defines the yearly allocated credits. Thus, at the enterprise level the financing sources are defined for the entire period of construction. However, deviations from the indicated sums may be allowed in the future. This may be due primarily to changes in the planned volumes of capital investments, which does considerable

harm to the stability of credit relations and their stimulating effect. On the other hand, a change of financial indicators by the ministry regardless of changes in the volumes of capital investments for the subordinate associations and enterprises leads to deviations from the previously planned volumes of credit investments. As a result, even if upon conclusion of the credit agreement a sufficient portion of credit is ensured in the source, in the future it may be reduced and may prove to be insignificant in the overall sum of funds utilized over the entire period of construction.

Evidently, it is necessary to strengthen bank control over the adherance to credit agreements at facilities which have been credited, to implement this control not only at the enterprise level but, as is done today, also at the level of republic and union ministries. Upon compilation of a project plan for financing capital investments by ministries and associations, the bank offices should probably implement more thorough control over adherance to the concluded agreements. The development of such control might be facilitated by credit agreements between the ministries and the bank on the latter's allocation of funds for crediting the development of production throughout all the enterprises in the sector. The indicated agreements could be compiled for the entire five-year period with breakdown of the allocated credit resources by years of the five-year period. The basis for the agreements may be the data on financial balance and its computations, compiled in accordance with the resolution of the CPSU Central Committee and the USSR Council of Ministers dated 12 July 1979, No 695, "On Improving Planning and Strengthening the Effect of the Economic Management Mechanism on Increasing Production Effectiveness and Work Quality."

The overall volumes of credit resources provided by credit agreement with the ministry for each year must correspond to the sum of needs for credit by the associations and enterprises concluding the credit agreements with the bank institutions. If it is necessary to clarify credit agreements with the ministry, the changes may be introduced by the bank only after examination of the substantiation for the changes in the agreements at the enterprises whose changes in construction conditions cause changes in the need for long-term credit by the given enterprises as well as by the ministry as a whole. Such an order, in our opinion, would give additional possibilities for strengthening bank control over the adherance to credit agreements and maintenance of the portion of credit in financing sources at the necessary level.

Intensification of the stimulating effect of credit may also be achieved due to more active utilization of percentage rates. At the present time, the bank makes no demands on the customer by means of interest until the operational introduction of the enterprise or facility under construction, since interest for the use of the credit during the period of construction is charged to the customer with his first loan payment after the operational introduction of the facility or completion of the measures. Thereby, one of the most important tools for the influence of credit in the course of this long period is excluded from the arsenal of means of affecting the customer. Customers are penalized by the bank for their present shortcomings only after several years, when the construction is completed.

In our opinion, such an order of affairs does not facilitate acceleration of construction. Evidently it would be better to establish an order by which, in implementing measures for technical retooling, reconstruction and expansion of operating enterprises, interest could be charged from the enterprise's profits after a certain time of operational introduction of the facility as specified in the credit agreement, regardless of its actual introduction time. This order would stimulate rapid completion of construction to a greater extent than the presently existing one.

The next step in this direction could be charging of interest not after the time for operational introduction of the capacities has elapsed, but immediately after the customer allows work to lag behind the rate of construction specified in the title sheet for the entire period of construction.

A more active utilization of the percentage rate will give additional possibilities for achieving greater flexibility of influencing customers. Depending on the degree of the allowed lag in construction, the interest charged could be differentiated. This would ensure the necessary selectivity of action and at the same time would stimulate acceleration of construction.

It is important to remember that credit is inseparable tied with all the parts of the economic management mechanism for the investment process. Therefore, the most important condition for the development of credit ties between industry and the bank must be a corresponding development of the other effective forms and methods of managing the economy, and primarily planning of capital construction. At the present time, however, the shortcomings in planning the investment process have an extremely unfavorable effect on the development of long-term bank credit extension.

The planning organs often allow deviations from the tasks specified in the title lists for the entire period of construction. The volumes of capital investments for many sites and facilities under construction are reduced, their construction time drags on, and the national economy does not get the necessary production capacities within the established times. The lack of stability of tasks specified in title lists and their yearly changes make it difficult to compile long-term programs for extending credit to sectors and necessitate solving the questions of crediting construction sites and facilities anew each year. As a result, credit becomes an instrument to compensate for the sum of capital which the enterprise lacks in one year or another. It does not have a serious stimulating effect on the customer, since the portion of credit in the estimated cost of the facility is often quite small. Instability of plan assignments leads to a sharp reduction in the efficiency of economic methods by which the bank may influence the customer.

For example, plans call for the USSR Gossnab [State Committee for Material and Technical Supply] to built five large enterprises for cardboard production in 1981-1986. The basic raw material for these is to be mackle paper. This would solve an important national economic problem -- the output of a product which is in short supply from by-products which are presently unused. The source of financing for this program was to be credit from the USSR Stroybank.

However, in the process of construction, deviations from the initial decisions were allowed at a number of enterprises.

The allocated capital investments were smaller than those provided by the title lists for the entire period of construction. For example, in 1982 at the facilities of the Kishinev Cardboard Factory builders were to perform construction-installation work in the sum of 10 million rubles. However, the annual plan of the contracting organization set the task at only 0.2 million rubles, or two percent of the volume previously envisioned. As a result of the slow construction, the readiness of the entire group of enterprises by the beginning of 1983 was only one-third of that planned. Such a work rate would have involved credit in financing the unfinished construction, which would not yield any return to the national economy for a long time. Therefore, the USSR Stroybank used all possible means to influence the USSR Gossnab and the contracting ministries for purposes of accelerating construction. Today the necessary measures are being taken at these construction sites.

However, on the whole the problem of invariability of title lists for the entire period of construction is far from being solved. In 1983, the volumes of capital investments were reduced as compared with those envisioned by the initial title lists at 48 percent of the major construction sites.

The solution of this problem, in our opinion, is one of the main conditions for development of long-term crediting. Neither the increase in the portion of credit in the financing sources nor the improvement of its organization can fully manifest their stimulating effect if the decisions on construction times adopted upon signing of the credit agreements are changed every year.

The provision of stability of the title lists for the entire period of construction is to a significant degree also tied with improved planning of capital construction and of the activity of contracting construction organizations. The growth in estimated cost of facilities in the process of their construction also affects delay in construction. As these shortcomings are remedied, the possibilities will be improved for activization of the stimulating effect of credit. Therefore, the development of credit ties between industry and the bank require coordinated action in solving all these interrelated problems.

12322
CSO: 1821/126

ECONOMIC PROBLEMS OF REINFORCED CONCRETE INDUSTRY EXAMINED

Moscow BETON I ZHELEZOBETON in Russian No 4, Apr 84 pp 4-5

[Article by N. V. Shveyko, candidate in economic sciences (NIIES)[Scientific-Research Institute on Construction Economics]: "Reserves for Increasing the Effectiveness of Prefabricated Reinforced Concrete Production"]

[Text] At the present time the prefabricated reinforced concrete industry has a significant number of enterprises and productions. An analysis of the technical-economic data in the sector conducted by NIIES showed that the level of application of production capacities in existing enterprises has dropped from 90.3 to 80.8 percent in recent years. This has occurred due to the increased growth in the enterprise capacities as compared with their actual output of finished product. This tendency has been noted throughout all the construction ministries and departments. Forty-seven percent of the overall capacity of operating enterprises is accounted for by the large enterprises with unit capacity of over 100,000 cubic meters. Of these, 14.2 percent is accounted for by enterprises with capacity of over 200,000 cubic meters of prefabricated reinforced concrete per year. Only 6.4 percent of the annual production output is produced at small enterprises, whose numbers comprise 30-33 percent.

Over 40 percent of the enterprises do not fulfill their tasks on profit and other plan indicators, and only 15 percent of the enterprises have provided the level of profitability necessary for the formation of funds for economic stimulation and development. Over 50 percent of the enterprises allow an increase in production cost over the plan as a result of increased expenditure of cement, metal and inert materials.

The further industrialization of construction presents high requirements for increasing the effectiveness of production and utilizing prefabricated reinforced concrete, particularly by means of reducing the material and labor consumption of production. The basic directions for scientific-technical progress in the sphere of prefabricated reinforced concrete structures are: increasing the degree of their plant readiness, enlarging the dimensions of individual elements of load-bearing and enclosure structures, introducing further specialization of products and structures with consideration for operational loads, transition to the output of structures with effective sections, including those using high-strength concrete and reinforcement steel, expanding the production of thin-wall spatial structures, etc.

When the above-mentioned measures are realized in their planned volumes, the labor expenditures for erecting buildings will be reduced by no less than 8-10 percent, around 180,000 workers will be freed, and the weight of the buildings and structures will be significantly reduced.

Complement output and complement delivery of prefabricated reinforced concrete structures provide great reserves for increasing the effectiveness of fully prefabricated house building. Not only the manufacturing enterprises, but also the organs of material-technical supply as well as the administrations in charge of technological complementation within the construction associations and trusts must participate in ensuring this end.

There are individual shortcomings in the industry's planning and management of prefabricated reinforced concrete in the sector as a whole as well as in the system of individual ministries and departments. Departmental disunity creates certain difficulties in planning production, since it is generally the needs of the individual ministries and departments which are considered, while inter-departmental cooperation is practically absent. This leads primarily to under-utilization of the capacities of operating enterprises and to the creation of a significant number of low capacity enterprises and shops. To overcome these departmental barriers, it is necessary to work out summary capacity balances for the sector, as well as to implement the production and distribution of basic product nomenclature with consideration for not only the departmental, but also the territorial appurtenance.

The unsatisfactory structure of capacity reproduction by enterprises producing prefabricated reinforced concrete is another of the shortcomings in planning the sector. Generally the growth of these capacities is implemented by means of new construction (around 60 percent). Increasing the portion of capital investments allocated for such intensive forms of reproduction as reconstruction and technical retooling is one of the primary directions in increasing the effectiveness of prefabricated reinforced concrete production.

The specialization of enterprises within the sector is also of great significance. Economic accounting at enterprises having approximately equal production volumes (150,000-200,000 cubic meters per year) showed that the output per worker at specialized enterprises is increased by 27 percent, the yield on capital is increased by 50 percent, while the cost of production is reduced by 33 percent. Obviously, specialization in the sector may be successfully implemented with a high organizational level of cooperation.

Moreover, the structure of concrete and reinforced concrete materials and structures of progressive types such as lightweight and cellular concrete, prestressed structures, as well as structures made of high-strength concretes is being improved at an extremely slow rate.

The plan for the 11th Five-Year Period provides for an increase in the portion of lightweight and cellular concrete and prestressed structures. This may be accomplished with improvement of the sector's work, increased intensification

of production and a more rational application of the capital investments allocated for the development of the base. Improving the structure of concrete and reinforced concrete constructions is one of the means of developing the sector and creates conditions for utilizing reserves associated with material and labor consumption and estimated construction cost.

The growth in fixed capital in the prefabricated reinforced concrete industry has been accompanied by a reduction in the average annual capacity and at the same time by a certain reduction in the average output. In 1980 the capital-labor ratio increased by almost 27 percent, the machine-worker ratio increased by 24 percent and the electric power-worker ratio increased by 10 percent as compared with the 1975 level. At the same time, the return on capital dropped from one to 0.74 rubles.

Insufficient attention was also given to improving the structure of fixed capital in the prefabricated reinforced concrete industry. The relative share of equipment in the cost of fixed capital dropped from 26.4 to 24.1 percent, while in the normative specific capital investments the relative share for equipment comprised 32-33 percent.

The production cost of one cubic meter of reinforced concrete structures increased from 50.52 to 56.14 rubles during this period, with a reduction in profitability of production cost from 11.5 to 2.1 percent. The worsening of these indicators was caused by a reduction in the yield on capital, the increased growth of wages as compared with growth in labor productivity, as well as by a certain increase in material consumption for one cubic meter of prefabricated reinforced concrete. For example, the specific expenditure of cement increased from 0.407 to 0.411 tons. The increase in prices for technological equipment, materials and semi-finished products also affects the increase in production cost. The introduction of new wholesale prices for prefabricated reinforced concrete structures must reduce the influence of this factor and increase the sector's work indicators.

A certain improvement in the consumer qualities of the structures to a certain degree justifies the increased cost of one cubic meter of prefabricated reinforced concrete by means of increasing its effectiveness in the sphere of application. However, this cannot serve as the justification for reduction in the economic indicators of activity of an entire series of enterprises.

The increased economic effectiveness of production and application of prefabricated reinforced concrete, the reduction of its material consumption and the improvement in its qualitative indicators significantly depend on contiguous sectors which supply the initial raw goods, materials, and semi-finished products.

The non-correspondence between quality of the cements used and the requirements of modern technology for concrete and mortar causes its irrational application and overexpenditure per unit of production. The output of portland cement of grades 550 and 600, of quick-hardening, stressed and pure klinker cements is insufficient, and cement which does not require thermal processing is not being introduced into production.

Of the overall volume of non-metalliferous construction materials used in the production of concrete and mortar in 1980, washed natural fillers did not exceed 25 percent, while the delivery of enriched and fractionated sand comprised only 4-5 percent of the overall volume. Increasing the volume of delivery of washed and fractionated fillers in full correspondence with the demand for them will make it possible to reduce the cement expenditure by no less than 2 million tons annually.

Chemization of production is expedient, particularly by means of using effective superplasticizers which make it possible to utilize flowing consistency concrete mixtures and reduce the labor consumption in the process of forming as well as the expenditure of cement. The organization of the production of superplasticizer S-3 is being planned in a volume of 200,000 tons, and of other modifying additives -- up to 320,000 tons. Their scientifically substantiated application in the sector will make it possible to save no less than three million of cement.

The planned expansion in the volume of application of high-strength reinforcement steels will make it possible to reduce the steel expenditure by 260,000 tons by the end of the five-year period.

A serious national economic problem is the reduction of cross-haul and long-distance deliveries. The introduction of rational schemes for transporting prefabricated reinforced concrete, according to the computations of NIIES, will significantly reduce the annual volume of rail shipments.

One of the reserves for improving the production of prefabricated reinforced concrete is planning and evaluation of the economic management activity of the enterprises according to the indicator of normative net production. Operational experience of the enterprises shifted to this form of planning has shown that labor productivity may be defined more precisely, material consumption and cost of production are significantly reduced, production effectiveness is increased, and the results of the enterprise's production activity may be evaluated more objectively.

We must pay particular attention to the shortcomings in utilizing material resources, loss of materials and finished products during production, transport or storage at construction sites, as well as disruption of the existing norms for the expenditure and shipment of materials to other organizations. The system of economic and administrative measures in this direction must fully eliminate a negligent attitude toward material valuables and stimulate all the participants in the production process toward economy of material resources and maximal utilization of production by-products.

The successful implementation of measures for the intensification of production of prefabricated reinforced concrete structures will make it possible to manufacture products of better quality, of a higher degree of plant readiness, and with minimal technical-economic indicators.

12322
CSO: 1821/122

UNDERGROUND COMMERCIAL COMPLEX IN YEREVAN NEARS COMPLETION

Yerevan KOMMUNIST in Russian 25 Mar 84 p 2

[Article by E. Simonyan: "Stories Below Ground"]

[Text] Old-timers of Yerevan will recall that small dilapidated structures used to be huddled together at the present-day intersection of Abovyan, Moskovyan and Isaakyan streets. Years later there grew up in their place fine handsome buildings of tufa and basalt, and broad streets were run through. Hardly any of the Yerevanites who frequently passed through this lively intersection could have imagined that an entire shopping center would be laid out in the bowels of the earth, where there will be major shops for foodstuffs and manufactured articles, a cafe and various kiosks.

The creators of this interesting underground construction are E. Arevshatyan, honored architect of the Armenian SSR; A. Shakaryan, designer and winner of the Armenian SSR State Prize; and Yu. Dadalyan, chief project engineer.

During the years of construction of the underground passage, many of us often passed by the construction site and observed the laying of large-bore temporary communication pipes, the excavation of the deep foundation and the assembly of odd-looking structures. Nowadays, underground buildings do not surprise Yerevanites, but even with an adventurous imagination it is hard to visualize what this unusual structure will look like.

That it is unusual is not open to doubt, since there are very few underground commercial enterprises of this kind in the country. Suffice it to note that its usable space measures 4,500 square meters, and it is 162 meters in length. The major part of it will be occupied by the vast space of a department store, and next to it in floorspace is a cafe with a capacity of 100, and after it, a supermarket.

There is a difference in height of about 8 meters in the section of road between the two intersections where the commercial complex has been located. This has called for a multi-tier answer to pedestrian walkways within the structure and has permitted constructing beneath the merchandising areas of the department store a basement storage space 50 meters in length. "Basement" here is a purely conventional term, since the whole structure is entirely below surface level and reaches "heights" of up to 10 meters. If

you look at a longitudinal section of it, a considerable portion of the structure will appear as two-storied. And from one of the entrances off Isaakyan Street trucks can easily reach the underground loading docks of the storage areas.

All the work of installing the equipment of the merchandising areas and the cafe is being done by the Hungarian firm Transelektrik.

An underground gallery provides a link between the building and the lobby of the adjoining Yeritasardakan metro station.

Not a single standard item has been used in the building, and all the prefabricated components have been specially made: the massive roofing slabs, the one-piece two-story frames and the large wall panels. To give an idea of the extent of prefabrication, I can say that it was necessary to construct more than 200 16-ton roofing slabs.

Construction of the underground "town" has been carried out under the management of Gorvodokanal [city water conduit] of the Yerkommunstroy [Yerevan municipal construction] trust. Work at the construction site is in full swing. Of the 3.6 million rubles provided for construction of the installation, 800,000 are still to be released.

Facing of the premises and the building entrances with slabs of granite, marble and other materials has started on a broad front. Installation has been completed of the supermarket windows and of lighting fixtures.

Even on the surface the bustle has not died down. The traffic on Abovyan Street, which has been disrupted for several years, will shortly be restored. New basalt curbing is being installed and the sidewalks are being paved with decorative concrete slabs. The builders have committed themselves to completing construction of the roadbed by 1 May and to put the area adjacent to it into good shape.

The multi-purpose brigade of Boris Oganyan is at work on the project. Serving as examples of shock labor are carpenter V. Vartanyan, stonemason V. Aslanyan, crane operator G. Alekyan and others. The construction workers' collective are proud of their labor dynasties: carpenter Ivan Melkoyan is passing on his many years of work experience to his four sons--Volodya, Robert, Nikolay and Karo; and Pogos, Asatur and Movses, the sons of renowned stone cutter Ovsep Andokyan, are in no way inferior in skill to their father. Section foreman Khoren Sarkisyan, a recent graduate of the Yerevan Polytechnic Institute, has shown his worth as a creative engineer.

Despite the closeness of the project to completion, there still remains much difficult and responsible work. The construction workers have committed themselves to turn over the project during the current year ahead of schedule--by the anniversary of the Great October Socialist Revolution.

The underground commercial complex, with its developed system of pedestrian walkways, is one of our capital's interesting buildings and is evidence of great new achievements in the architectural and engineering thinking of Armenian designers, and of the development of a new trend in the republic's architecture--the underground urbanization of Armenia's densely populated cities.

12697
CSO: 1821/112

AGRICULTURAL CONSTRUCTION MINISTER DANILENKO ON RURAL DEVELOPMENT

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 3, Mar 84 pp 54-61

[Article by V. Danilenko, USSR Minister of Rural Construction: "Rural Construction: Experience and Problems"]

[Text] The USSR Ministry of Rural Construction has become a part of the agro-industrial complex of our country. It has entered organically and as an important and necessary link, sharing with its partners the responsibility for solving the problems of the USSR Food Program.

The system of the USSR Minsel'stroy [Ministry of Rural Construction], which has undergone an accelerated course of development in a relatively short period (since 1967), presently represents a broad network of contracting organizations implementing construction on the territory of all the union republics with the exception of Estonia and Latvia. There are 356 trusts and equivalent organizations operating within the ministry's system. Among these are 269 general contracting and general construction trusts. They are accorded the rights of a socialist enterprise and are a most important base structural link.

The strengthening and development of the material base for rural construction and industrial methods of its introduction have made it possible to create a network of rural construction and house-building combines (SSK and SDSK), which are a new and progressive form in the structure of rural construction. The SSK and SDSK represent a unified construction-industrial complex in which the industrial enterprises, the construction subdivisions, the project-design bureau (where there is one), the staffing subdivision, the transport, and the detachment of machine workers are all oriented toward a single task -- the operational introduction of facilities with minimal production costs. No less than half of all the volume of work to be done at sovkhozes and kolkhozes is to be fulfilled through the efforts of the SSK and SDSK in the future.

The trusts are comprised of 3,517 primary construction-installation organizations, primarily mobile mechanized columns (PMK). Of these, 2,626 are for general construction and 991 are specialized.

The industrial base of the USSR Minsel'stroy includes 511 industrial enterprises. These include 279 plants producing reinforced concrete products with capacity of close to 14 million cubic meters of reinforced concrete structures per year,

68 building materials plants, 34 wood processing enterprises, 13 lumber mills, 16 quarries for non-metalliferous materials, nine brick manufacturing plants, and 92 enterprises comprising the repair-mechanical base.

The "Metallist" Plant in the Ukraine should be particularly noted. This large enterprise is called upon to supply the ministry's entire system specifically with portable houses of the "komfort" [comfort] series for rural builders. Sets of different accommodations of this series ranging from work superintendent's offices, shower facilities and reading rooms to a small residential house in the form of transportable stock containers provide rural builders with the necessary comforts at remote construction sites and create conditions for the introduction of the shift method of construction. Ultimately, this leads to increased labor productivity.

Considerable efforts were directed in past five-year periods toward the development of an industry for production of porous fillers. Today there are 90 enterprises in this sector, with an expected output of 6.4 million cubic meters of keramzit, perlite, schungisite, and vermiculite. All this comprises the basis for further lightening the weight of structures and for increasing the growth of industrialization of rural construction due to an increased level of full prefabrication, which grew from 15 percent in 1968 to 50-60 percent at the present time. By 1990 this indicator is to be brought up to 80-85 percent.

The country's first modern enterprises for the production of wood laminate constructions (KDK) equipped with specialized technological equipment have been created within the ministry's system.

Under conditions of a large number of varied facilities which are located far from construction industry bases, the widespread application of such structures will make it possible to manufacture sets of products of various types at a single enterprise. The transport and installation of these products will not require heavy transport means and installation mechanisms.

The computations performed by the USSR Minsel'khoz [Ministry of Agriculture] and the USSR Minsel'stroy have shown that the application of such structures practically does not lead to any increased cost in the construction of rural production buildings, but rather requires only 1/2 to 1/3 the steel expenditure and 2/5 to 2/7 the amount of prefabricated reinforced concrete. The labor consumption for installation is also reduced. KDK are promising structures, and as their volume of production increases their cost will gradually decrease and the overall effectiveness of their application will rise.

Rural builders do have a base. The task now consists of better utilizing this base. However, there are certain complex questions associated with this. For example, much of the equipment and tooling has become obsolete and is in need of replacement. Therefore, a large part of the capital investments is being directed toward technical retooling and reconstruction.

A characteristic peculiarity of the plan for the 11th Five-Year Period is the significant growth in the volume of construction for housing and social-cultural-domestic facilities.

The Ministry of Rural Construction has made a significant input into solving the problem of radical restructuring of the housing and social-domestic living conditions of farm workers. In the elapsed years of the 11th Five-Year Period, the construction organizations within the ministry's system have built and submitted for operation residential houses with an overall area of 18.4 million square meters, schools and professional-technical colleges for 923,000 students, numerous children's pre-school institutions, public health facilities and facilities of communal-domestic function.

Among the facilities introduced into operation are large elevators built according to the last word in technology. These were built at Khava Station in Voronezh Oblast, Zmiyevka in Orel Oblast, Burunduki in the Tatar ASSR, Dunayevtsy in Khmelnik Oblast, and at the Al'dzhanskiy Bakery Goods Receiving Station in Aktyubin Oblast. Some facilities have been placed into operation ahead of schedule and are already turning out production. These are livestock complexes for the production of beef: in the sovkhozes imeni Kotovskiy Cherkasskaya, "Druzhba", Donetskaya and "Dobrovolets" of Mogilev Oblast; poultry farms: Omsk, Novobakinskiy No 2; the hothouse combine in the "Kul'tura" sovkhoz of Bryansk Oblast, the Kiev Vegetable Factory, the Alma-Ata Hothouse Combine, and a canning plant in Vani, Georgian SSR; dairy farms: in city-settlement Makarov of Kiev Oblast and in Lenkoran; grinding mills: in Belgorod, Elist, and Nepolokovets settlement; combined fodder plants: Podberezye station in Novgorod Oblast, Kustanay in the Kazakh SSR and the city of Kaluga in the Moldavian SSR, and others. It is impossible to list them all. After all a detachment of the ministry's rural builders numbered in the millions is working from Kaliningrad Oblast to Kamchatka. Up to 40,000 facilities are being built in the boundless open spaces, and each of them, when introduced into operation, begins to work toward the USSR Food Program.

Rural builders have responded warmly to the decisions of the November (1982) Plenum of the CPSU Central Committee. They have devoted their main attention to increasing the level of organization and strengthening state, labor and plan discipline. In 1983 the work volume increased by 4.4 percent as compared with the 1982 level. The program for introduction of residential and cultural-domestic construction has been fulfilled.

APK [agrarian-industrial complex] construction sites have been named as the leading construction sites by decision of the party. The Ministry has established that, starting with 1983, in the formulation of annual and five-year plans of construction-installation work for trusts and administrations, no less than 50 percent of the annual work volume on the facilities must be fulfilled in the first six-month period. Provision has been made for priority supply of SPK sites scheduled for introduction with material-technical resources and with a work force.

A special place in our plans belongs to the Chernozem zone of the RSFSR. The amount of construction-installation work performed in the autonomous republics and oblasts of this zone was 25 million rubles more in 1983 as compared with 1982.

Significant changes have taken place in recent years in terms of the structure of construction work done on the farm. The portion of residential housing and cultural-domestic facilities has increased and the number of large livestock raising complexes under construction has decreased, even though the volume of operational introduction of accommodations for keeping livestock has remained at its former level overall due to reconstruction and expansion of the presently existing farms. These changes increase the effectiveness of capital investments, but require significantly greater labor expenditures per unit of work performed.

In connection with this, the proposal by the Minsel'stroy, Minsel'khoz and the Minplodoovoshchkhoz [Ministry of the Fruit and Vegetable Industry] of the Russian Federation regarding the so-called mixed (joint) method of construction is most timely. The essence of this method consists of the Minsel'stroy organizations taking on the responsibility of fulfilling individual types of work at facilities which are being built by the cost accounting method at sovkhozes and kolkhozes (installation of prefabricated foundation structures, frames, walls, coverings, installation of plumbing and certain other tasks). Joint construction makes it possible to make significantly better use of the capacities of industrial enterprises, as well as to more accurately regulate the work load of construction administrations and trusts. The customer also receives certain convenience and profit, since these facilities are usually built by the handicraft method because of the absence of a production base in the sovkhozes and kolkhozes, and their construction takes a long time.

The Temporary Statute on the Order of Participation of Enterprises of the RSFSR Minsel'khoz and RSFSR Minplodoovoshchkhoz in the Joint Construction of Facilities by the RSFSR Minsel'stroy (for 1984-1985) has been developed, coordinated and ratified. For 1984, the plan calls for fulfillment on 20 million rubles worth of construction-installation work at various farms in the Russian Federation according to the mixed construction method and by contract agreement with the customers. After than, these work volumes are to be steadily increased.

The USSR Minsel'stroy and USSR Minzag [Ministry of Procurement] have been called upon to solve one of the important tasks presented in the USSR Food Program -- to ensure and safekeeping and processing of grain. In the neat future, 125 large milling enterprises are to be built, equipped with high productivity domestic equipment. This will make it possible to produce significantly more high-grade flour. The volume of construction on mechanized grain storehouses and combined fodder enterprises will be increased, primarily in the remote regions. The transition to fully prefabricated designs in all these structures and to blocking of subsidiary-auxiliary buildings is to be completed. This will make it possible to reduce construction cost by up to 5 percent and to significantly reduce the expenditure of pipes, cable products, and the work volumes on improvements.

Here we are counting on the help of the USSR Minzag and the machine building ministries. Today it is extremely necessary to accelerate the development of sets of equipment for grain processing enterprises which meet current requirements and to ensure their integral-block delivery to the construction sites. Many types of equipment, particularly those from enterprises of Minlegpishchemash [Ministry of Machine Building for Light and Food Industry and Household Appliances], continue to be delivered to the sites with defects and even piecemeal

(chain conveyers, filters, bucket elevators, ventilators, grain driers). Therefore the USSR Gosstandard [State Committee for Standards] should review the outdated technical conditions for the production of equipment with the participation of interested departments, and forbid the piecemeal delivery of this equipment to construction sites.

The accelerated transformation of villages into improved settlements with high quality residential houses of the farmstead type, yard buildings for conducting personal subsidiary farming, social-cultural-domestic enterprises and engineering improvements which meet modern requirements -- this is a rask of particular importance.

A base for industrial house building has been created within the ministry. Operating among those previously mentioned are 110 enterprises with overall capacity of 3.5 million square meters of housing. Of these, almost three million produce houses of large-panel construction. An overall area of over one million square meters of farmstead type houses has been submitted for operation in 1983.

For the planned growth of capacities, particularly those of industrial house building, a scheme for the development and location of contracting organizations and their production base to 1990 and for the period to 2000 has been worked out within Minsel'stroy. An extensive program of technical retooling and reconstruction of construction industry enterprises according to regions of the country has been planned. New enterprises are being built and existing ones are being expanded in all the republics. By 1990, rural residents will receive double the housing from our builders each year as compared with the present level -- up to 12 million square meters. The operational introduction of farmstead type houses will more than triple.

At the same time, one of the main tasks is not only to increase the rate of housing construction in rural areas, but also to reduce its cost, ensure a savings of material and labor expenditures, to transfer housing construction over to progressive series of houses as quickly as possible, and to build up the area in an integrated manner.

Problems of this scope may be resolved successfully only on the basis of industrialization of residential-civil construction, not only state but also most importantly individual, in rural areas. Today the rural resident presents high requirements for the organization of everyday life, the level of improvements and cultural services. The creation of conditions for conducting personal subsidiary farming becomes a most important factor in this case. All this forces us to extend out work essentially over the territory of the entire country on the mass construction of farmstead type houses and once again stress that integrated build-up of an area must be simultaneously performed. Rural builders have already amassed considerable experience in this matter. Some examples may be the new settlements such as "Pushkinskiy" in Saratov Oblast, "Il'yinskoye" in Krasnoyarsk Kray, "Mozhayskoye" in Vologda Oblast, "Bol'shiye Eysmonty" in Belorussia, "Aregala" in Lithuania, and many others. Such settlements with integrated development have significant advantages. I hope that our customers and partners in APK will adhere to this principle in formulating their plans.

The further increase in volumes of residential housing, including farmstead, construction, is to be conducted along numerous directions, primarily by improving the application of already available capacities for large-block and large-panel house building. For the purpose of ordering and improving plant technology at building industry enterprises, the "Giprosel'stroyindustriya" Institute has developed standard schemes of production which take into account current achievements in science and technology. As a result, the work load on the capacities has increased by 10 percent (after the operational introduction of modernized production). This means an increase in the annual volume of operational introduction of facilities in the amount of approximately 100,000 square meters of housing area.

The second reserve in increasing the volume of housing construction is the re-orientation of free capacities of enterprises producing prefabricated reinforced concrete to the output of sets of parts for houses. Over 100 such enterprises have been marked for technical retooling. Some of them have already begun the manufacture of this much-needed production -- the Molodechnenskiy Plant in Belorussia, the Dzhizakskiy in Uzbekistan, the one in Kamenka settlement in Penza Oblast, and others.

We must note that the efforts of the ministry alone on industrialization and cost reduction of residential construction are not enough. The cost of an individual house of many effective standard series still remains high. Rural builders and customers are waiting for Gosgrazhdanstroy [State Committee for Civil Construction and Architecture] designers to give them new decisions and improved project designs for residential houses for farm workers which would meet all the current requirements and at the same time ensure a reduction in construction cost. The time has come to develop and introduce an all-state system of standardization with maximal unification of the products and parts of farmstead houses. The number of such products must be minimal. They must be technologically effective in mass production and must be combinable in different variants. This is the key to reducing their cost. An important role in reducing cost also becongs to the local project design organizations and to the customer himself, who adapt the farmstead houses to specific conditions of their region, and also accept the project designs.

It is clear that the struggle for reducing construction cost must already be begun at the planning stage. The labor consumption indicator at the construction site should be made the most important indicator used in evaluating developed projects, particularly standard and optimal projects. The expenditures of human labor at the planning stage must be considered more thoroughly on par with monetary estimated expenditures. If we make use of resource-saving and material-conserving technology and strive to economize on all types of materials, on every kilogram of fuel, every kilowatt and kilocalorie of electrical and thermal energy, then we must surely strive to conserve on human labor. And here the planners have the first word.

However, the entire problem cannot be placed on the shoulders of the planners. The workers of construction organizations must take greater responsibility in issuing technical conditions and accepting projects. They must coordinate their efforts with all the participants of the investment process for utilizing

labor-saving methods of construction for projects which are economical from the standpoint of expenditures of all kinds of resources. In other words, a creative, responsible approach is needed to the common work of all specialists, all the partners in APK, and all the planners.

The task or rural builders is to built confortable housing on a mass scale -- to build it well and inexpensively. If a house with walls made of local materials or monolith keramzit concrete is cheaper, and differs little from a large-panel house by its labor consumption and qualitative indicators, then it is necessary to decisively switch over to mass construction with the application of monolith concrete with industrial methods of work production. This does not mean that all other structures cannot be built in prefabricated design with maximal plant readiness and application of modern effective materials. Consequently, much depends on the specific building conditions, on the presence of local materials, on the volumes of construction at a single site, and on the methods by which this construction is done. Finally, it depends on the level of organization and technology of construction. Thus, the Belorussian Minsel'stroy has begun the building of experimental farmstead houses from monolith keramzit concrete. This has reduced the energy expenditures, as well as the expenditure of steel and wood. The cost of one square meter of living area has been reduced by 15 percent as compared with large-panel houses, and the quality is no worse.

Improving standard project planning is today one of the most important conditions determining the level of industrialization and the rates and quality of construction of rural houses for the near future. At present, over 160 projects have been developed for rural houses, but only an insignificant portion of this number are used in mass construction. Unfortunately, project planners still do not give enough consideration to the possibility of the production base, as well as to the requests of the farm workers themselves who will have to live in these houses. Inter-type and inter-series unification is still very low. This means that the customer is limited in his choice of one project or another. Modification of a project is associated with a significant increase in expenditures and growth of production cost.

At present, TsNIIEPzhilishcha [Central Scientific-Research and Design Institute on Standard and Experimental Planning of Housing], TsNIIEPgrazhdanstroy [Central Scientific-Research and Design Institute on Standard and Experimental Planning of Civil Construction] and TsNIIEPsel'stroy [Central Scientific-Research and Design Institute on Standard and Experimental Planning of Rural Construction] are uniting their efforts in developing an economical solution for a large-panel single-apartment house with farmstead structures.

Considerable reserves are available for improving the organization and management of rural construction. In working on increasing the pace of construction on the farm, it was necessary to take a number of additional measures directed at improving management methods and developing production organization and the economic management mechanism.

APK administrations have been created in the USSR Minsel'stroy central apparatus as well as in the republic apparatus, and minsel'stroy managers are members of

the union republic Council of Ministers Presidium Commissions dealing with questions of the agro-industrial complex. Managers of construction administrations and trusts have membership in the OblAPO [Oblast Architectural-Planning Section], while PMK [mobile mechanized column] chiefs belong to RAPO [expansion unknown]. This is beginning to have a positive effect. Thus, the RAPO and PMK managers, closely interacting with each other, create favorable conditions for the rhythmic work of builders and for fulfillment of plans for the operational introduction of residential housing and facilities of production and social function.

The ministry is performing work on creating industrial associations and putting major building industry enterprises under their jurisdiction. Thus, in recent years within the RSFSR Minsel'stroy, several woor processing enterprises have been been selected from the number of construction organizations and subordinated to the "Nechernozemsel'stroymaterialy" Industrial Trust. As a result, the work of these enterprises has improved significantly. The plants are now better supplied with orders and material resources, and the utilization of production capacities has increased. At a number of plants, the volume of product realization has increased by 2-4 times as compared with 1980.

Aside from the overall increase in the level of organization of building production, an important economic lever is put into action -- the planned transition of SSK and SDSK to a unified construction balance is being implemented. Unity of management and planning is ensured under these conditions, and the industrial activity if fully subordinated to the tasks of introducing facilities into operation, i.e., the chief ultimate goal of construction. In 1983, 11 combines were changed over to this method, with 32 out of 58 combines operating on a unified balance. The ministry plans to complete the transition of all SSK and SDSK to a unified construction balance within the current five-year period.

The advantages of changing combines over to a unified balance are indisputable. Thus, the Slutskiy SSK of the Belorussian SSR Minsel'stroy was changed over to the construction balance in 1981. In 1982 it increased the operational introduction of agricultural production buildings by 17 percent, the volume of commodity building production by 29 percent, and the amount of contract work by three percent as compared with 1981. According to the results of work for 1983, the Slutskiy SSK was the winner in socialist competition. The Mariyskiy SSK, Vologodskiy SDSK, Minchurinskiy SSK, Omskiy SDSk of the RSFSR Minsel'stroy and the Kapchagayskiy SSK of the Kazakh SSR Minsel'stroy are also working better on the unified balance plan. The transition of combines to a unified balance facilitates a reduction in labor expenditures for construction. At the Slutskiy SSK the labor expenditures for the construction of production buildings made of prefabricated reinforced concrete were reduced by 19 percent, and at the Korostyshevskiy SSK the labor expenditures were reduced by 30 percent in the construction of the same types of buildings made of wood laminate structures.

The reduction in labor expenditures for construction-installation work was achieved due to the transfer of numerous labor consumptive jobs to plant conditions. In general, these combines manufacture complement sets of products of increased plant prefabrication. Technological lines have been developed and

are being planned for finishing and sizing outside and inside walls and covering slabs. The manufacture of external panels with high-quality finish facade surface and with inset doors, window casings and sanitary-technical equipment has been organized. All inside surfaces will be manufactured ready for painting and wallpapering. Sanitary engineering cubicles with full plant readiness will be widely used in rural residential construction. All this is done not only for the sake of reducing labor expenditures and construction time. At present, plumbing finishing and sanitary engineering jobs are still the most labor consumptive, and transferring them to plant conditions means increasing their technological effectiveness and quality and reducing the cost of their construction and ultimately of the house itself.

The ministry is conducting a course for creating a PMK in each administrative rayon (at present they exist in three-fourths of the rayons within the ministry's zone of activity). This work is being performed with great circumspection and with thorough technical-economic substantiation. It is important to ensure the work load of the PMK already created, which presently comprises an average of two million rubles of construction-installation work, with an optimal level of 2.5-3.5 million rubles. The average figure hides many low-capacity PMK with work volume of up to 1.1 million rubles per year. As we can see, the question of rational PMK work load is a current one. It has grown into a burning problem whose solution is hindered due to a number of circumstances which are sometimes beyond our control, and which also include opposition from local organs. The direction of mutual efforts in solving this problem is as follows: active work on increasing the work load and the capacities of primary building organizations; PMK which do not have any prospects for growth (to optimal load) within the next 3-5 years should be merged with other organizations or transformed into construction sectors; new organizations should be created only in exceptional cases, when the presence of large work volumes within their zone of activity have been clearly proven and when there is an absence of under-loaded organizations in neighboring rayons. The purpose of all these work directions is to reach a level whereby the general construction PMK performs its optimal volume of work.

The USSR Minsel'stroy hopes to gain the understanding and receive the aid of all APK partners in conducting this work. After, the mutual benefit is clearly evident: a strong, profitably operating primary construction organization will give more aid to its RAPO partners. It will more quickly and fully assume the load of the economic management method and will free the sovkhozes and kolkhozes from construction worries.

The question of improving customer service deserves particular attention.

Construction organizations operate in rural areas under roadless conditions, with construction sites scattered over a multitude of small facilities. To accelerate the construction of these facilities, it is necessary for the customers to first of all allocate capital investments in accordance with the normative construction times. Unfortunately, this main principle is not always adhered to in the construction process. As a result, contractors are forced to start work on projects without finishing the ones they were working

plan limit for contract work to the farms. This circumstance allows the builders to better define their tasks according to the zone of their activity and to make widespread use of the experience on continuous planning of rural construction which has been justified by the practice of the "Orelsel'stroy" Trust. We would like to express the hope that with the persistence and goal orientedness of all APK partners at the construction sites, the Orel "two-year" or "continuous" program, as it is sometimes called, will be introduced into practice everywhere. This will be a great step forward and will bring great mutual benefit. For example, the Orelsel'stroy Trust has been operating rhythmically for over five years and has been submitting all its planned capacities, facilities and residential houses for operation. The trust has the lowest figures for losses of work time and personnel turnover in the entire ministry.

As we know, construction on the farm is performed by organizations of the USSR Minsel'stroy and inter-kolkhoz (inter-farm) construction organizations.

For purposes of further improving the organization of construction on the farm, a proposal has been submitted to the directive organs to unite all rural general construction and installation organizations into a single state-cooperative system with provision for tying in its structure with that of the agro-industrial complex according to the principle of managing the country's agriculture.

It would be expedient to transform the USSR Minsel'stroy and the Minsel'stroys of the union republics into union-republic ministries on state-cooperative rural construction, and transfer to them the general construction and installation organizations of the ministries of rural construction and inter-farm organizations, and the scientific-research and project design institutes for planning facilities of production and residential-civil function for agriculture. This will make it possible to reduce the numbers of central apparatus of republic and oblast agricultural management organs by 10-15 percent. The available specialized base and capital investments allocated for the development of agriculture will be utilized more effectively and purposefully. The system of mutual interrelations between APK partners will be simplified, which will have a positive effect on solving problems associated with the realization of the country's Food Program.

Merging of the construction organizations and enterprises of the USSR Minsel'stroy and kolkhozstroy has been done in the Georgian SSR, Turkmen SSR, and Tajik SSR. The groundwork has been laid.

The realization of the tasks for economy of all types resources presented by the November (1982) and December (1983) Plenums of the CPSU Central Committee makes more acute the question of improving planning and construction and on this basis reducing labor consumption, material consumption, and duration of construction.

An experiment conducted in the Belorussian SSR with the active participation of the republic Minsel'stroy's contracting organizations was directed toward the successful development of this task. The purpose of the experiment was to check the more well developed system of economic interrelations between the

on before. This leads to an increase in unfinished production and an increase in construction cost.

One of the means of accelerating construction is flow-line construction based on two-year continuous planning according to the method introduced by Orel builders. This method has already proven its effectiveness. However, the absence of clear prospects for construction for client organizations hinders the spread of this progressive method.

The question of increasing the responsibility of the customers for adherance to directive norms for construction duration also requires resolution.

In the statute on the application of these norms developed by the USSR Gosstroy [State Committee for Construction Affairs], the responsibility of the organizations is not clearly defined. This is true particularly for the client organizations, at whose fault construction schedules are in many cases disrupted due to late development of project-estimate documentation, introduction of significant changes into initial technical decisions, lack of provision with financing, untimely equipment delivery, delays in start-up work and delays in operational introduction due to the absence of operating personnel.

For many years, rural building organizations have not been receiving project-estimate documentation on time for many of the facilities which are included in the work plan. As a result, they are unable to make timely preparations for work production, to verify and coordinate project plans and estimates, or place orders for building structures, parts and products. There are facts which show that great unforeseen expenditures arise due to the inadequate development of technical-economic substantiations for siting the construction of agricultural facilities.

All this requires a serious strengthening of the customer service system on construction. This entails not only the simplification of contractual relations and accounting for construction organizations. The level of customer service organization determines the reality and substantiation of plans for major jobs, the time and quality of planning facilities, the coordinated purposefulness of actions by numerous organizations participating in the fulfillment of these plans, and ultimately the effectiveness of the capital investments.

Under conditions of rural construction, a poorly organized customer service becomes a hindrance to the further development of construction on the farm, particularly in connection with the creation of large industrial complexes when production associations are being expanded, which in a number of cases go beyond the bounds of individual farms and even rayons.

The question, as we see, is not a simple one. Within the scope of the state its optimal solution requires time and training of appropriate personnel. At the level of the autonomous republics, krays, oblasts and rayons, a unified customer service may be created in the near future with organization of the agro-industrial associations.

The responsibilities of agro-industrial associations include bringing the participants in capital construction and the economic stimuli directed at reducing material and labor expenditures and construction cost. The basis for this is the application of stable estimate prices for building production which remain unchanged for the duration of the entire five-year period and which are established per unit of capacity, area and volume of the facility under construction with consideration of the consumer properties worked out on the basis of price lists, estimates for standard and repeatedly used projects, analogs of previously built facilities, and representative facilities.

Provisions are made to see that the participants in the experiments (contractors, planners, clients) implement measures to reduce the cost of construction as compared with its ratified cost determined on the basis of stable prices for finished building production and that they utilize project plans with more economical decisions as a result of this clarification. The economy achieved by the construction organizations is distributed between the participants in the building process and is used for giving material incentive to the contractors, planners and customers, for covering the expenditures for the development and introduction of progressive decisions, for repaying production outlays associated with the introduction of achievements in science, technology and foremost experience, as well as for withholding part of the savings for the budget.

Creating direct material involvement of the workers of contracting and project planning organizations in reducing material consumption, labor consumption and construction cost has increased the activity of the workers in taking a creative approach to their work, in seeking and utilizing reserves, and in more broadly utilizing scientific-technical achievements in their construction practice.

In 1983 at the Belorussian SSR Minsel'stroy the experiment was conducted at 13 facilities out of the 53 envisioned by the plan. The computed economic effect on savings of material and labor resources at these facilities comprised 494,300 rubles (120 tons of metal, 240 tons of cement, 35.5 cubic meters of lumber and 6360 man-days were saved). In 1984 the experiment is to be expanded, and introduced at the Yaroslavl'sel'stroy Administration of the RSFSR Minsel'stroy.

For purposes of further expanding the experiment, it is necessary to accelerate the development of stable prices for a wide range of objects, since the equivalents of stable prices used at the present time are estimates for projects ratified prior to 1 July 1981 and do not meet the needs of the performed experiment. Methodological and normative documents also need to be clarified.

Under the conditions of the present demographic situation, the implementation of tasks on increasing the effectiveness of social production and dynamic development of the national economy is possible only under the condition of significantly increasing labor productivity. This is facilitated in great part by the introduction of foremost forms of organization and labor wage systems and improved utilization of work time. These questions are reflected in the plans for technical development, introduction of achievements in science and technology and scientific organization of labor, and are provided in the basic measures of the ministry worked out in accordance with the requirements of the November (1982) and December (1983) Plenums of the CPSU Central Committee.

At the present time, around 80 percent of the work force is covered by the brigade form of labor organization. One of the effective directions of its development is the method of brigade cost accounting. Under conditions of rural construction it facilitates the development of initiative, creativity and increased responsibility for the fulfillment of production tasks by the low-level collectives -- the brigades.

The number of contract brigades and the volumes of construction-installation work which they perform are increasing each year. While at the beginning of the 10th Five-Year Period there were 4,180 contract brigades operating within the system of the USSR Minsel'stroy, in 1983 there were more than 11,500. Thirty-eight percent of the workers work in these brigades. The volume of work which they perform has increased by a factor of 3.5 and has reached 2.1 billion rubles, or 50 percent. The output in these collectives is 1/3 higher than the analogous average indicator throughout the ministry as a whole. At the same time, proper relations of growth rates for labor productivity and wages are maintained. The planned cost of work performed by contract brigades in 1982 was reduced by 89 million rubles.

The realization of the planned measures for improving labor organization and wages in industry will make it possible in 1985 to produce 300 million rubles more worth of production without increasing the number of workers, and in 1990-- 500 million rubles more. A great reserve is the struggle against losses of work time and non-productive labor expenditures. Their reduction by 30 percent for 1985 and by 50 percent for 1990 is equivalent to the additional inclusion of 27,000 and 53,000 more workers into production, respectively.

The further increase in the volumes of construction-installation work and increased effectiveness of capital investments in the course of implementation of the Food Program greatly depends on how quickly and completely rural builders will be able to switch over to the intensive path of the sector's development based on the achievements of scientific-technical progress, replacing heavy, unproductive and monotonous manual labor with machine labor. A sharp reduction in the sphere of application of manual labor will create favorable conditions for increasing the effectiveness and the quality of work.

Guided by the resolutions of the 26th Party Congress and subsequent Plenums of the CPSU Central Committee, rural builders must ensure a significant increase in the level of economic work in the central apparatus as well as in the subordinate organizations and enterprises. They must give particular attention to: the more complete utilization of the available production capacities and provisions for the operational introduction and mastery of new capacities and facilities within the established periods; the creation of the necessary reserves of material and financial resources for the successful realization of the socio-economic tasks facing the country; the maximal utilization of the existing capacities for improving economic management activity and the growth of labor productivity in all segments; the maintenance of the strictest conditions of economy and tightening of the norms for expenditure of fuel, raw materials, metal and other materials; the reduction of material consumption in construction, and the widespread introduction of energy-saving engineering and technology.

A maximum level of organization must be exhibited in fulfilling the state plans and assignments, and measures must be taken for strengthening labor and executive discipline for the purpose of achieving a significant improvement in the technical-economic indicators for development of rural construction and for increasing the level of all economic management activity in the sector. The plan is the law. To fulfill it is a duty. To over-fulfill it is an honor! This is the slogan under which thousands of building collectives are working today, striving to achieve fulfillment of the five-year plan tasks year after year for all indicators without exception.

12322
CSO: 1821/121

AGRICULTURAL CONSTRUCTION

RESPONSE TO CRITICISM OF AGRICULTURAL CONSTRUCTION COMBINES

Moscow STROITEL'NAYA GAZETA in Russian 27 Apr 84 p 2

/Article by Department of Rural Construction and Reclamation, STROITEL'NAYA GAZETA: "Composition of Forces"; abridged versions of responses by rural and agricultural construction officials to the article, 'Between Yesterday and Today', STROITEL'NAYA GAZETA, Nos 126, 127, 1983/

/Text/ The articles "Between Yesterday and Today" concerned shortcomings in work and ways of increasing the efficiency of rural construction and rural house construction combines.

The editors received a number of comments and official responses to these articles, the authors of which were unanimous in stating the opinion that problems of the development and the need for increased efficiency of agricultural construction combines were correctly raised in the articles. Solution of these problems will facilitate the further development of rural construction and rural house construction combines and improvement of their economic-production activity.

Yu. Komissarov, deputy chairman of the Board, RSFSR Interkolkhoz Construction Association, reported to the editors as follows: "A number of combines of the RSFSR Interkolkhoz Construction Association are responding to the requirements placed on them and are ensuring a significant increase in their productivity of labor and the accelerated placement of fixed capital into operation...

However, certain combines are continuing to work unsatisfactorily. The criticism to which the economic-production activity of the Kirovskiy Agricultural Construction Combine was subjected in the articles was entirely valid. At the present time measures are being taken for elimination of shortcomings in its activity.

A long-term comprehensive program is being realized in the RSFSR Interkolkhoz Construction Association for further development of combines, with a significant increase in the work fulfilled by them. Thus, while 9.3 percent of the total volume of work was performed by forces of the combine in 1980, in the last year of the current five-year plan it is planned to fulfill around half of all work of the RSFSR Interkolkhoz Construction Association with the forces of agricultural construction and rural house construction combines, and this means with the turnover of fully completed projects for use. The majority of the combines will act as general contractual organizations.

Furthermore, it is accepted practice that each combine must fulfill construction-installation work valued at 12-15 million rubles per year, with an average operational range of around 100-150 kilometers. Specialized organizations are being set up within the structure of the majority of agricultural construction and rural house construction combines for the production of finishing work, as are also mechanization sections, transportation subdivisions, technical production assemly-supply sections with shops for the output of semi-finished materials and for cutting out material, planning-design buros, et cetera."

By way of confirmation, here is the response of G. Tikhomolov, chairman of the Kirov Oblast Interkolkhoz Construction Association, who also feels "that the main strategic direction should be the general-contract form of work of the agricultural construction combine, which conducts the overall buildup of the village. The author is right when he states that it is essential to define more clearly the combine's structure and determine the area of its activity and interrelationships with partners during the establishment of the general-contract agricultural construction combines since, in contrast to state organizations, interkolkhoz construction organizations have their own distinctive features."

We also found out that at the present time the association, in collaboration with the Kirovskiy Agricultural Construction Combine, is working on the structure of a general-contract combine. Comrade Tikhomolov writes, "we feel that in the area of its work the agricultural construction combine is obligated to carry out overall buildup of the village. With this goal in mind, the necessary production base has been established at the Kirovskiy combine and includes a reinforced concrete structures plant and claydite shop, a mechanization administration with a repair base, motor transport organization, a special-installation mobile mechanized column with workshops for the output of sanitary engineering and electrical-equipment components, and a technical production assembly-supply section with a carpenter's shop. This year we plan to create a specialized sector for the supplying of housing with gas from the Kirov Construction-Installation Administration of the Soyuzvolgogaz /All-Union Volga Gas/ Trust.

In addition to this, the association is performing work together with the oblast agriculture administration on the concentration of housing construction projects. Thus, we are planning the buildup in large sections, with 20-40 farmstead-type houses in each section (the start of construction of farmstead houses at three sites, with 15-30 buildings in each, has already been included in the 1984 plan)... Additional measures for expansion of the area of activity of agricultural construction combines are being elaborated for the purpose of increasing the volumes fulfilled."

One cannot help rejoicing at such a constructive approach to newspaper criticism. It is believed that the work indices of the Kirovskiy Agricultural Combine will be improved significantly after realization of these measures. However, the situation is somewhat more complicated for the Saratov Base-Model Experimental Rural House Construction Combine, about which there was also discussion in the material noted above. Let us recall. This combine conducts work in 16 rayons of the oblast and ensures annually the turnover for use of 400-420 housing and cultural-services projects with a usable area of over 70,000 square meters.

Special operations -- the installation of equipment for boiler and purification installations, laying of communications lines and networks, planning and provision of public services and amenities, and construction of roads -- constitute 3.8 million of the 20 million rubles in the total volume of work being fulfilled by the combine. This work is performed by subdivisions of the special construction and installation trust of the oblast interkolkhoz construction association and the special road construction trust of the RSFSR Interkolkhoz Construction Association. However, the combine has no subcontractor for the installation of radio, telephone and television services.

Unfortunately, it is not apparent what specifically is being done for the solution of these long-standing, painful problems from the responses of Yu. Komissarov and I. Tselik, chairman of the Board of the Saratov Oblast Interkolkhoz Construction Association.

In the articles "Between Yesterday and Tomorrow" there was also discussion of rural construction combines of the Ministry of Rural Construction. At present there are 37 in operation in the Ministry of Rural Construction RSFSR alone and it is planned to create another 8 combines before the end of the five-year plan.

As we learned from the response of G. Vedev, dep minister of rural construction RSFSR, "23 rural construction combines have been transferred to the construction balance sheet and this work is continuing.

The structure of the rural construction combines is also being improved. In particular, finishing subdivisions have been organized in 22 combines, but due to the remoteness of construction sites, the performance of finishing work is being entrusted to local mobile mechanized columns at a number of sites.

The special mechanization sections and motor transport columns established in mechanization administrations and motor transport enterprises, with their operational subordination to rural construction combines, are providing the combines with mechanisms and transportation. Special operations sections have been organized according to the same principle.

At the present time construction flow lines are being organized in the combines' system. Flow lines and permanently operating sections (in place of mobile mechanized columns) have been created in 22 combines."

The so-called general subcontract is accepted as the basic type of subcontractual activity of rural construction combines in the ministry when combines perform all work on the above-ground part of buildings while on a subcontract of general contractual territorial organizations, but special installation work is fulfilled by specialized organizations which are drawn into the subcontract.

The editors and readers were interested in learning how the question of full administrative and economic management of the combines is being decided in the Ministry of Rural Construction.

N. Svistunov, deputy minister of rural construction USSR, wrote that the ministry is implementing the transfer of rural construction combines to direct subordination of ministries of rural construction of the Union republics. This permits centralization of the administration of combines, their removal from dependence upon territorial trusts and administrations, and improvement of the form of planning and accounting for their activity. Introduction of the system of direct subordination of the combines is being impeded in the RSFSR in view of the great diversity of local conditions.

Let us add to this that in the Ministry of Rural Construction RSFSR a decision was made and program elaborated for the construction of 33 blocks of auxiliary shops (stands for machines and mechanisms with the requisite repair base, workshops for processing and preparing materials, technical production assembly-supply sections, etc), which ensure independent operation of the rural construction combines.

"Only after construction of these units," Comrade Vedev states, "will it be possible to withdraw the combines from subordination to trusts and enterprises after having transferred equipment and motor transport to their balance sheets. It is planned to build such bases at four combines before the end of the five-year plan."

Analysis of the responses received shows that the Ministries of Rural Construction USSR and RSFSR and the RSFSR Interkolkhoz Construction Association are not rushing to shift the combines to direct supplying with technical and material resources through territorial organs of the USSR State Committee for Material and Technical Supply.

Thus, let us note by way of summary that an increase in the efficiency of rural construction and rural house construction combines is a complex task. Its solution depends, above all, on the purposeful actions of Union and republic ministries and departments for effective regulation of planning, financing, the organization of centralized material-technical supply, and the selection of a carefully considered structure for the rural construction combines and rural house construction combines. It is precisely then that the preconditions will appear for the continuous operation of all links of the construction conveyer and the timely turnover for use of construction projects.

6264
CSO: 1821/130

AGRICULTURAL CONSTRUCTION

METHODS OF ORGANIZING RURAL CONSTRUCTION DEBATED

Vilnius SOVETSKAYA LITVA in Russian 20 Mar 84 p 2

[Article by Candidate of Technical Sciences Yu. Rakauskas: "Contract It Out, Or Do It Yourself?"]

[Text] By which method is it better to build things in rural areas? This problem came to the forefront long ago, and it is now the object of acute debate between agricultural and construction specialists. In this case both sides suggest substantial arguments in defense of their points of view.

Resting their case on the indisputable advantages of industrial construction, the proponents of the contract method propose developing the productive capacitites of rural construction organizations and their base at an accelerated pace. Others--farm executives primarily--assert that erection of rural facilities ona do-it-yourself basis is cheaper, that new buildings are placed into operation faster and that the method itself is more flexible and effective. Hence follows the proposal that the farms should develop their own construction bases (concrete and slurry mixing units, sawmills, carpentry and other shops) and that they should be better supplied with the appropriate machines and mechanisms.

There is a lot of construction going on in the countryside today. Five to eight and more construction organizations are operating in every rayon. But the demand of their clients is far from fully satisfied. Therefore the farms are often compelled to erect facilities by their own means. Thus in the last 7 years the volume of construction work done on a self-help basis has doubled. It is now about 25 percent of the toal construction volume in the countryside. Just about all of the basic rural construction work is now being performed on a self-help basis in some of the republic's rayons, such as Ionavskiy, Kedaynskiy and Anikshchyayskiy. A similar situation also exists for our neighbors-- in the Latvian SSR. Large brigades containing 50 and more builders are working at some farms. When the work is in full swing, these brigades often double in size, and more, through temporary hiring of manpower (it would be pertinent to note here that in 1982 the collective of the Ministry of Agriculture's Pakruoysk Mobile Mechanized Column contained but 59 workers.

Nonetheless it would have to be recognized in a disinterested analysis that both the contract and the self-help method of construction in rural areas have

their advantages and shortcomings. Therefore given the situation we face today, in which we must sharply expand agricultural construction on one hand and the construction capacities needed for this are lacking on the other, the decision as to which method should be thought of as preferable cannot be and must not be categorical. We must utilize the positive aspects of both the contract and self-help methods as effectively as possible, we must utilize them in association with one another.

But first of all we must recall that even the ideal production control structure must be organically "tied in" with specific local conditions. It is precisely from this position that we will attempt to examine the possibilities of combining the contract and self-help methods of conducting rural construction today.

It would have to be admitted quite openly that a scientifically and economically substantiated strategy for developing and improving the organizational structure of rural construction does not as yet exist. We are moving forward, but only by trial and error, as they say. For example it is insistently argued that we need to concentrate production and create high-capacity independent organizations, while in fact the number of small subdivisions continues to grow. Nor is it fully clear how rural construction organizations will be developing and specializing even in the immediate future.

A large number of subdivisions are operating in parallel in rural areas. In view of their low output capacity some of them are working with extremely low effectiveness, such that the time it takes to erect facilities sometimes exceeds the standards by a factor of 4-5. Such organizations literally strike terror among farm executives. Wanting to have nothing to do with them, they organize their own construction brigades.

Without a doubt the future belongs to industrial construction carried out by the contract method. Nor is there any doubt that simultaneously with growth in the output capacities of agricultural construction organizations, their possibilities will widen and their authority in the eyes of their clients will grow stronger. But all of this will come about in the future. For the time being, the farms are compelled to organize their work on a do-it-yourself basis, utilizing their internal reserves and resources for this end. This, so to speak, is an axiom which must be reckoned with, and which should be accounted for as an existing reality in the planning stage: We cannot ignore it. But unfortunately, the latter still happens.

When construction is carried out on a do-it-yourself basis, difficulties of all kinds are encountered at every step of the way. Thus a quantity of materials allocated for the construction of the same kinds of facilities is significantly smaller than what is provided to contracting organizations. Industrial articles, equipment and so on are provided to construction projects on an incomparably poorer basis. Despite this, the do-it-yourself method is holding its competitive edge with the contract method in the countryside, and it is developing rapidly.

In my opinion there are a number of reasons for this. One of them is that the farms are greatly interested in developing their own production base and in erecting housing and social facilities. Modern farms enjoy broad possibilities for organizing their own construction brigades. In this case the builders enjoy the same privileges as kolkhoz farmers. They are provided housing and, what is extremely important, they need not spend much time commuting, since they work in direct proximity to where they live. Therefore it is easier for the farms than for the construction organizations to hire manpower; therefore many facilities, especially those which are not technically complex but which require large outlays of manual labor, are placed into operation faster with the do-it-yourself method than with the contract method. Moreover construction generally ends up cheaper. Why? Because of lower overhead. It is reduced, as an example, due to exclusion of outlays on getting the manpower to the work site, and minimization of the administrative machinery. As a rule the structures that are used are less expensive as well.

The do-it-yourself method is the more flexible form of organizing construction. Many of the coordinational and other formal procedures are eliminated, and a possibility for effectively satisfying the daily needs of the farms arises.

But given all of this, we cannot forget that the do-it-yourself method is effective today only when free output capacities are available in the industrial base, one which can be created and effectively operated only by large construction organizations. Organizing semiprimitive shops, prefabrication areas and assembly points at the farms should be viewed as a major and, in my opinion, impermissible step backward.

It seems to me that the contract method must remain the primary methods in the countryside, and that it should be developed by way of increasing the output capacities of the primary rural construction organizations to sensible dimensions while simultaneously raising their independence. As far as the do-it-yourself method is concerned, it should be used on the basis of a sensible combination of its advantages with the contract method. The possibilities for this do exist, though they are being utilized far from fully.

There exists the opinion that an interkolkhoz construction organization is nothing more than a contracting subdivision. But this is not true. The charter states that interkolkhoz construction organizations are created through voluntary unification of the financial, material-technical and labor resources of the farms with the objective of building things for the shareholders and, when free output capacities are available, for other clients. In practice, however, the labor resources of the farms are not united. The interkolkhoz construction organizations are the property of the farms, but the workers of these organizations are no longer kolkhoz farmers, and correspondingly they are deprived of certain privileges. Obviously this situation can and must be corrected. This would make it possible to significantly strengthen the interkolkhoz construction organizations and widen their possibilities in terms of increasing the volume of work they do and raising the effectiveness of rural construction in general.

The problems associated with interkolkoz cooperation and with sensible combination of the self-help and contract methods of doing the work may be solved most effectively in every rayon within the framework of interkolkhoz construction organizations. Therefore it would seem sensible to orient the Litmezhkolkhozstroy Trust primarily on erection of facilities for kolkhozes and sovkhozes. Given such specialization and interfarm cooperation, contracting organizations should be able to build the large and technically complex facilities, while small ones that require greater outlays of manual labor can be built by the self-help method.

The production basis and technical possibilities of contracting organizations must be utilized more flexibly. For the moment in some rayons their output capacities are only 30-50 percent loaded, even though there is a constant, acute need for both materials and structural articles in self-help construction. Herein lies a reserve which must be put to use as quickly as possible, so as to consequently improve the material and technical support provided to kolkhoz and sovkhoz construction brigades.

While the debate is going on, the do-it-yourself method is expanding its borders. The farms are creating their own production bases, and they are increasing the size of their brigades--often at the expense of personnel from the contracting organizations. This is something we cannot ignore. It is high time to create a system of controlling agricultural construction which would allow practically effective combination of the advantages of the contract and self-help methods.

11004
CSO: 1821/123

UKSSR INDUSTRIAL CONSTRUCTION MINISTER ON HOME-BUILDING COMBINES

Kiev STROITEL'STVO I ARKHITEKTURA in Russian No 3, Mar 84 pp 5-6

[Interview with Ukrainian SSR Minister of Industrial Construction A. N. Shchepetil'nikov; date and place not specified]

[Text] The Main Directions for the USSR's Economic and Social Development in 1981-1985 and in the Period to 1990 foresee further development and reequipment of housing construction combines, fuller utilization of their output capacities and enlargement of the proportion of large-panel and modular residential buildings within the total volume of housing construction.

In this interview, Ukrainian SSR Minister of Industrial Construction A. N. Shchepetil'nikov discusses reinforcement of the base of industrial housing construction and utilization of the output capacities of existing, newly built and reconstructed enterprises.

[Question] Arkadiy Nikolayevich, we have become accustomed to the high turnover with which the housing construction conveyer works. What sort of output capacities does your ministry have for large-panel housing construction?

[Answer] In the Ukrainian SSR Ministry of Industrial Construction, which does contract work in 20 of the republic's oblasts, residential construction and civil engineering occupy the largest proportion of all construction work--46 percent of the program. Each year our organizations turn residential buildings over to clients with a total area of almost 4 million m^2. Naturally raising the industrial level of housing construction has been and continues to be our most important task.

Today about 60 percent of the housing is erected out of plant-produced large panels, and by 1990 the proportion of industrial housing construction should rise to 75-78 percent in the ministry as a whole. Basically completing the conversion of all enterprises to the production of houses on the basis of new standard plans characterized by improved apartment layout and a higher level of comfort has been made one of the tasks of the 11th Five-Year Plan. This is why we are devoting special attention to developing the base of industrial

housing construction. Each year tens of millions of rubles are spent for these purposes.

New housing construction combines went into operation in Ivano-Frankovo, Ternopol, Poltava, Sumy, Chernovtsy, Odessa, Zhitomir, Vinnitsa and Lvov, a large-panel housing plant began operating in Lutsk, and a large-panel housing shop went into operation in Mukachevo during the 10th and in 3 years of the 11th Five-Year Plan. During this same period housing construction combines in Kremenchug, Nikolayev, Chernigov, Sumy and Kharkov were reconstructed without halting production. Output capacities increased by 783,500 m^2 owing to new construction and to reconstruction of existing enterprises, attaining 3,202,000 m^2 by the beginning of 1984.

Housing construction conveyers have now been created in all oblasts of the region serviced by the ministry. A housing construction combine that produces panel and modular houses is now operating in Kremenchug. This method of construction is more progressive because almost all trimming jobs can be done by mechanized processes on plant assembly lines. Finished room units are then sent to the construction site for installation.

Almost 80 percent of the products of large-panel housing enterprises are houses of improved series. Series 111-94 has become the most widespread. It is manufactured in the Rovno, Odessa, Kharkov, Kherson, Chernigov, Poltava, Lutsk, Simferopol and Belaya Tserkov housing construction combines. Series 111-96 houses are being erected in Sumy, Nikolayev, Cherkassy, Ivano-Frankovo, and Khmelnik oblasts and in Kerch, while series 111-96 houses are being erected in Vinnitsa, Zhitomir, Transcarpathian, Ternopol and Chernovitsy oblasts. In Yalta, series 111-135 houses are erected.

The transition to improved housing series and assimilation of new modular sections based on unified construction articles are promoting improvement of the architectural and artistic expressiveness of urban buildup. In Kharkov, Kherson, Odessa, Simferopol and Belaya Tserkov architects have obtained a possibility for developing diverse variants of building layout. In addition to residential buildings, some housing construction combines are erecting social and personal services facilities out of large panels. In particular, Kharkov house builders have been successful in this regard. Incidentally, the Kharkov Order of the "Badge of Honor" Housing Construction Combine No 1 has become one of the largest not only in the Ukraine but also in the whole country. It went into operation in 1961, and at first produced 70,000 m^2 of housing space per year. In 1983 more than 600,000 m^2 of housing space rolled off this enterprise's conveyer. In 2 decades it has built over 12 million m^2 of housing space and many schools and children's preschool institutions. The high rate of the enterprise's development was made possible owing to continual improvement in production processes and control, and due to introduction of the achievements of science and technology. The combine collective is in the vanguard of scientific-technical progress, which is something the city party and soviet organs are helping it considerably to do.

Effectiveness has been increased by several orders of magnitude in reinforcement bar production sections of the housing construction combines owing to

modernization of welding equipment and creation of semiautomatic and automatic lines for welding flat and three-dimensional reinforcing frames. In the forming shops, laborious operations associated with making and transporting concrete mixtures have been maximally mechanized, concrete hardening processes have been intensified, and transport and assembly conveyers are now being used. An increase in the degree of prefabrication has been achieved owing to enlargement of the structural members and introduction of fully plant-finished toilets, external double-walled panels, air shafts, elevator shafts and other structures. The system for controlling and monitoring the rhythm with which articles are transported on assembly flow lines and the progress of assembly at each facility has now been fully mechanized.

[Question] There apparently are greater possibilities for accelerating scientific-technical progress in a major enterprise. However, the output capacity of your ministry's housing construction combines is generally average--from 80,000 to 130,000 m^2 per year. What use are they making of the progressive procedures developed in the sector?

[Answer] What influences scientific-technical progress is not the enterprise itself but the level of its management and the responsibility shown by the collective, and primarily the executives. The Kherson, Belaya Tserkov and Kremenchug housing construction combines are working in close cooperation with science. Efficiency and initiative are being stimulated at these enterprises.

The Belaya Tserkov Housing Construction Combine imeni 60-Letiye SSSR, which has become the sector's leading enterprise, is a standard of efficient organization. A thoughtful effort was made here to rebuild the shops for production of houses of an improved series. In the course of this reconstruction, series 111-94 houses were also modernized in cooperation with the planners: The dimensions of auxiliary rooms were increased in the apartments without reducing the living space, and the quantity of type-sizes of plant-produced articles was reduced by 70 units owing to unification. The problem of rebuilding the shops was solved creatively. The manufacture of outer wall panels using standard technology is now conducted by a progressive partially conveyerized method. A number of other engineering concepts were adopted. In particular, the roof design was changed: Ribbed panels hardened by individual forms have been replaced by panels manufactured by the kassetnyy [translation unknown] method. The manufacture of modular bathroom units integrated with ventilation blocks and elevator shafts integrated with trash chutes has been organized.

The housing construction combine is cooperating closely with scientific research, educational and planning institutes. The combine is working together with the KiyevZNIIEP [not further identified] to reduce the metal content and weight and to improve the thermophysical qualities of house structures. Delivery of concrete mixture to forming lines has been automated with the cooperation of the Dnepropetrovsk Institute of Construction Engineering. A construction quality control system has been completely introduced at the combine jointly with the Scientific Research Institution for Constructional Physics of the Ukrainian SSR Gosstroy.

[Question] The Belaya Tserkov Housing Construction Combine was the first in the Ukraine to reach its planned output capacity--109,000 m^2--within a short period of time, in a year and a half, and then to exceed it. What progress are other housing construction combines making in attaining their planned output capacities?

[Answer] In 1983, the housing construction capacities of the ministry as a whole were 84.2 percent utilized. This indicator is higher than the sector average, and it is exhibiting a tendency toward growth. It was 79 percent at the beginning of the 11th Five-Year Plan. The Kherson, Ivano-Frankovo, Kremenchug, Ternopol, Cherkassy and other housing construction combines have assimilated their planned output capacities. But as often happens, the successes of the leaders are being "eroded away" by those who are behind. We are considerably alarmed by the weak work of the Poltava Housing Construction Combine, the output capacities of which are only 50.7 percent loaded, of the Odessa Housing Construction Combine with 67.6 percent, of the Sevastopol Housing Construction Combine with 64.4 percent, of the Chernovitsy Housing Construction Combine with 67.6 percent, of the Mukachevo Large-Panel Housing Shop with 39.1 percent, and some others. Incompetent management at these enterprises is meaning large losses: Our annual shortfall is over 250,000 m^2 of large-panel housing. But the losses lie in more than just this alone. A low output-capital ratio inevitably leads to a decline in labor productivity and to a worsening of other technical-economic indicators.

The task of resurrecting the movement to achieve planned labor-intensiveness was posed at the December (1983) Plenum of the CPSU Central Committee. Assimilation of output capacities and attainment of planned labor-intensiveness represent a dual task. Experience persuades us that labor outlays per unit of product are significantly lower as a rule at the leading enterprises. For example after reaching full capacity, the Kherson and Ternopol housing construction combines expend 7 man-hours on the manufacture of one cubic meter of reinforced concrete articles, while the number of man-hours required by housing construction combines that are not operating at full capacity is 13.2 in Odessa, 10.6 in Lvov and 10.3 in Sevastopol.

[Question] Arkadiy Nikolayevich, what is the explanation for the fact that one housing construction combine reached its planned output capacity quickly while in others this process is still dragging on?

[Answer] Much depends on the level of production organization in the collective, on executive and labor discipline and on the ability to mobilize engineers, technicians and laborers to improve production processes, reduce manual labor and upgrade the quality with which articles are finished in the plant. There is considerable significance to organizing complex competition among workers doing associated jobs, introducing the brigade contract and making competent use of moral and material stimuli.

But we cannot ignore the fact that other purely external factors also influence assimilation of output capacities. Great difficulties arise because insufficiently tested technical concepts offering low promise were adopted in

the planning of some large-panel housing plants. Take the Poltava Housing Construction Combine as an example. The Simferopol affiliate of Odessa's Planning Institute No 3 of the USSR Ministry of Industrial Construction, which planned this combine, adopted a certain laminator-equipped exterior wall panel conveyer line approved by the USSR Gosstroy as the standard one. But after the plant was built, it was found that this conveyer was unusable. A disproportion came into being: Production lines on which interior panels and ceiling panels were manufactured could produce the planned quantity of articles, while the exterior wall panel line could not give more than 60 percent, no matter how much it was fretted over. And if we add to this the other mistakes in the plan (for example it did not at first foresee construction of a compressor station), it would not be difficult to imagine how difficult the situation was in which the plant found itself. The plan was not being completed, the workers did not make much money, and they could not be encouraged to stay very long at the enterprise. The chief of the housing construction combine, the chief engineers and the production chiefs were replaced. In the end, an additional bay had to be planned for an exterior wall panel manufacturing operation in which the articles are heat and moisture treated in slot chambers. It is now under construction, and it will cost us 2.1 million rubles.

But unfortunately this is not the only case where mistakes made by planners have to be corrected in the course of assimilating the output capacities. Consequently we must approach planning more demandingly and raise the level of scientific research in housing construction. The planning and scientific research organizations must generalize the best experience more actively, and select and recommend progressive production procedures that have proven themselves out. Then house builders would be able to assimilate their output capacities more quickly, and they will have fewer objective causes to fall back on as excuses.

[Question] Some housing construction combine executives have become convinced that the effectiveness of the work of their enterprises is being reduced by an unsatisfactory supply of equipment, gear and construction materials. How do you feel about this attitude?

[Answer] As with any conveyer, the housing construction flow line requires an uninterrupted supply of resources. It is true that our housing construction combines do experience interruptions in deliveries of these resources. Just last year alone the conveyers stood idle for a sum total of 1,200 shifts due to nonrhythmical supply of cement and reinforcement metal. Some time ago the Ukrainian SSR Gossnab announced that it was going to guarantee delivery of all material resources to the housing construction combine. This guarantee must be fulfilled. But the workers of our own material and technical supply services must also display greater initiative and persistence.

I would also like to turn attention to the fact that many housing construction combines are working in identical conditions but producing different results. Careless managers can always find many reasons to explain failures in their

work. It was noted at the December (1983) Plenum of the CPSU Central Committee that we need a real improvement in construction affairs, and not excuses. "The key to success here, and everywhere else by the way," it was emphasized in the text of Yu. V. Andropov's speech, "lies in raising the responsibility of the personnel, in imposing high demands on them for irreproachable fulfillment of their responsibilities, for effectiveness and initiative and for unquestioning fulfillment of their tasks."

The executives of the Kherson Housing Construction Combine, in which the main emphasis is being laid on raising the quality of administration, offer us a good example. They made creative use of the start-to-finish brigade contract, after which it became possible to complete the program with a fewer number of people and to build houses faster and better. Back before this method was introduced the combine calculated its effectiveness and changed the structure and quantity of construction lines. The original two flow lines manned by four assembly brigades were replaced by three lines manned by three brigades. Integrated finishing brigades were organized. The following figures provide a clue to the reserve of effectiveness which integrated khozraschet has uncovered. After the start-to-finish brigade contract was introduced, the average listed quantity of workers at the housing construction combine decreased by 27.2 percent, while the yield of finished products--residential buildings--increased by 14 percent. This is our only enterprise in which all three assembly brigades reached their goals in the movement to achieve an output of 100,000 rubles per assembler by the end of the 11th Five-Year Plan, approved by the Ukrainian Communist Party Central Committee.

The start-to-finish brigade contract was introduced in the Kharkov, Belaya Tserkov, Simferopol and other housing construction combines, and wherever it is being used, the end results of labor have improved. Unfortunately it is not being utilized everywhere yet. We must raise our demands upon the executives of housing construction enterprises in regard to introducing this progressive form of labor organization.

The method of continuous 2-year planning of flow line construction is the key to insuring uninterrupted operation of housing construction combines. This system, which has been approved by the CPSU Central Committee, permits creation of combined planning and construction conveyers in the cities. Although documents in support of organizing, planning and erecting buildings on a flow line basis have already been drawn up, they are not as yet having a significant influence on improving the continuity of production. The reason for this can be found locally, where the system is not being introduced in integrated fashion and where the participants in the construction effort have not yet abandoned the business and financial relationships of former times. Even an indispensible condition such as concentration of fixed capital for housing construction and civil engineering in the capital construction administrations (capital construction departments) of the city soviets of people's deputies is not being observed in all places. It is commonly thought that continuity has been achieved in 13 cities in which the Ukrainian SSR Ministry of Industrial Construction is engaged in construction, but 2-year planning has not been organized in all of them, and assets are dispersed almost throughout.

For example the independent builders in Lvov are represented by 11 enterprises and organizations in addition to the city executive committee's capital construction administration; there are 12 independent builders in Vinnitsa, 7 in Odessa and Sumy and so on.

Completion of the economy's transition to a predominantly intensive path of development, improvement of the work methods of housing construction combines, raising the technical level of production and achieving substantial end results are what will make it possible for us to sensibly utilize the presently existing production base of industrial housing construction.

11004
CSO: 1821/119

CONSTRUCTION MACHINERY AND EQUIPMENT

OFFICIALS EXPLAIN AWAY EQUIPMENT WASTE AT CEMENT FACTORIES

Moscow STROITEL'NAYA GAZETA in Russian 20 Apr 84 p 2

/Article by S. Yeshanov:"Write the Sum in Full"/

> /Text/ For years the most complex technological equipment has been moving from machine building plants to the area of the association Bryansktsement/Bryansk Cement Production Association/. The covered warehouses are barely sufficient for the delicate automatic equipment. The remaining equipment is under snow, rain, in the wind, and cement dust corrodes it.

A piece of information--according to data of a random inspection by the USSR People's Control Committee, in the last five-year plan 43 million rubles worth of uninstalled equipment had piled up in the cement industry. This happened mainly because of serious mistakes in choosing places to put the equipment and delays in planning estimates.

B. Ugrin, the acting chief of OKS/capital construction department/ of the association Bryansktsement explains:

"The need to modernize, to be exact, the Bryansk Cement Plant, our leading enterprise, is evident. In the first place, it was built way back in 1899 and its equipment, in spite of the frequent patching up of defects, is open to criticism. However, on the other hand, there are rich raw material deposits, a branched transportation system, and qualified personnel here. Therefore it was decided to build near the old plant a new one which, by the way, is named the Novo-Bryansk Cement Plant. Here are envisioned four technological lines with a productivity of 650,000 tons of cement a year each and plans call for building a powerful preparatory department which should also provide the old Bryansk Cement Plant with semifinished products. Some 126 million rubles have been estimated for all of this. Acquiring them should increase the output of cement from two million tons to four and a half."

We note that in 1971 about 100 million rubles were already spent on modernizing the Bryansk and constructing the Novo-Bryansk plants. And their return has been scanty. There were 600,000 tons of cement in all from the two plants--such at present is the increase in production. And there is more: the yield on capital was half as much as before, and the size of the profit decreased to one-fifteenth of the former level(in corrected figures).

We will add to this that if they had planned to provide again in the 10th Five-Year Plan the formerly projected production growth, then now the achievement of this level has been moved to the 12th. True, this time limit is in doubt: only two of the four furnaces of the Novo-Bryansk plant are operating and it is not known when the remaining two will be started up. There are no people at the construction site at present. Why?

From the inspection materials of the Dyatkovo Rayon department of Stroybank /All-Union Bank for the Financing of Capital Investments/ USSR:

"The cause of the lag is the low efficiency of the construction organization. Before the start of work at the cement plant, the Fokino SMU/construction and installation administration/ of Glavbryanskpromstroy/Main Administration of the Bryansk Construction Industry/ had 300 people and a somewhat weak construction industry base. The numbers have now grown very slightly and a little has been done to strengthen the base. SMU, together with the subcontractor, acquires about four million rubles per year. However, this is obviously inadequate to handle the volumes even if only for the association Bryansktsement.

This "even if" was not written by accident. For during the past 13 years the portfolio of orders of the Fokino SMU has grown greatly. New construction projects have appeared: projects of the Fokino Ceramic Drainage Pipe Plant, the Bryansk Asbestos Cement Articles Plant, housing, social, cultural and personal projects... The status of the cement workers as the main customer has weakened. Now requests and orders rain down on Fokino SMU from all sides. A choice has to be made. And the builders choose what is easier and what is more profitable. Of course, one can accuse them of a departmental approach and of a desire, first of all, to look after their own interests, but not more. They concentrate their energies on projects under construction.

The words of deputy chief of Glavbryanskpromstroy, L. Kucheyev:

"There is one way to satisfy the cement workers: the Novo-Bryansk plant must be made a start-up project. In general, they have lost time and they would have to immediately, as we asked, help to strengthen the base and stabilize the collective. The cement workers have acted in the opposite way..."

It is difficult to take exception to L. Kucheyev although the money of USSR Minstroymaterialov/Ministry of the Construction Materials Industry/ has been earmarked just for strengthening the capacities of the Dyatkovo Rayon where the Dyatkovo Construction Administration also appears as general contractor besides Fokino SMU. But they have managed things quite peculiarly: they have created their own mini-SMU which, up to now, has been dragging out a miserable existence. It can in no way influence the pace of modernization. Yet, on the other hand, its appearance has noticeably revived the migration of builders in Dyatkovo Rayon. Now at least a third of them travel among the three administrations in the course of the year.

This is the position of the chief of Glavzapadtsement/Main Administration of the Cement Industry of the Western Regions/ of USSR Minstroymaterialov, V. Belogurov:

"The construction administration in the rayon ought to increase work volumes. This is the only way possible to get out of this rut. However, our orders are continually being cut, but the general contractors do not even cope with these reduced programs..."

Well--the only thing to do is to increase. This is in spite of the fact that the cement workers are nevertheless successful in "carving out" such volumes which, as the employees of the local department of Stroybank confirm, the builders cannot fulfill and, naturally, they are not being fulfilled.

This is the situation: for many years many millions have been alloted to developing the association Bryansktsement, and these same millions (unassimilated) are returned unused to the budget. And a meager part of them, directed in a timely fashion at strengthening the construction administrations of the rayon, could sharply increase the effectiveness of capital investments.

Advise V. Belogurov now to plan a doubled production growth for the association Bryansktsement for next year and he only laughs. He will rightly say that first it is necessary to increase capacities. Yes, this is a sensible argument. Where has this sensible point gone to when Glavzapadtsement obviously thrusts unrealistic volumes on the builders? Why for 13 years have things happened concerning construction production which would be considered nonsense with respect to their own work?

So, it remains to reap the fruits. They are there, at Bryansktsement. Six million rubles worth of equipment stored under the open sky, mechanisms that have been installed but are not working--this amounts to another six million. The total is 12 million rubles. As the saying goes, write the sum in full.

An item of information--if 43 million rubles of uninstalled equipment had accumulated in the cement industry at the beginning of the present five-year plan, then today this gigantic warehouse of "forgotten things" is already estimated to be more than 60 million rubles.

8524
CSO: 1821/120

TECHNICAL ADVANCES IN CONSTRUCTION, INSTALLATION WORK VIEWED

Moscow MONTAZHNYYE I SPETSIAL'NYYE RABOTY V STROITEL'STVE in Russian No 4, Apr 84 pp 5-7

[Article: "Technical Progress -- The Basis of Increasing Effectiveness in Construction"]

[Text] Accelerating scientific-technical progress is of primary importance in the work of intensifying social production in our country. The increased effectiveness of capital construction also depends in full measure on accelerating technical progress. The primary, all-state importance and current significance of this question was noted in the resolution by the CPSU Central Committee and the USSR Council of Ministers, "On Measures for Accelerating Scientific-Technical Progress in the National Economy."

The collectives of organizations and enterprises of the USSR Minmontazhspetsstroy [Ministry of Installation and Special Construction Work] are constantly giving great attention to the application of the latest achievements in science and technology in practical work. New technological processes, machines, means of mechanization, progressive materials and designs have been developed and introduced. The level of work industrialization and mechanization has increased. Methods of large-block installation of structures, technological, electrotechnical, and sanitary-technical equipment, as well as means of automation are being widely introduced.

In the elapsed 3 years of the 11th Five-Year Plan, work on further increasing the technical level of installation production is continuing based on the "Basic Directions for Increasing the Effectiveness of Installation and Special Construction Work for the Years 1981-1985" developed by the Ministry, as well as on 19 sectorial scientific-technical programs. Over 500 tasks have been fulfilled on the creation and mastery of new machines and mechanisms, designs, materials, and progressive technological processes. Thanks in significant measure to the realization of plans for new technology, the labor productivity of installers has increased by 7.5 percent in 3 years.

As a result of systematic work with organizations and enterprises of industrial and machine building ministries, it has been possible to increase the degree of plant readiness, integration and installation technological effectiveness

of equipment delivered for construction. The complete-block method of installation of all types of equipment, automation systems, and metallic structures has undergone further development. The technological equipment and load-lifting means developed by Glavneftemontazh [Installation of Technological Equipment in Petroleum Production Industry Enterprises Main Administration] make it possible to install apparatus weighing up to 1000 tons and up to 100 meters high.

The conveyer method of installing coverings in industrial buildings has been improved. Today this method is used to install blocks weighing up to 500 tons and having an area of up to 1,500 square meters. A technology for installing blocks weighing up to 1,500 tons using special hydraulic lifters has been developed and mastered. The scope of application of the alignment-free method of installing metallic structures and bolt connections at installation joints has been expanded, as well as the scope of the scaffolding method in the reconstruction of operating enterprises and the raising method in erecting multi-story structures.

Every year the level of industrialization and mechanization of pipe-laying work increases. Pipe making shops in installation organizations are equipped with mechanized lines, complete sets of the latest equipment for cutting, assembling and welding the pipes. The production of installations for plasma cutting, turning, and machine tools for the calibration, assembly and welding of pipes has been perfected. The centralized manufacture of pipeline parts with diameter of up to 500mm inclusive has been organized, including the manufacture of seamless parts made of carbon and low-alloy steels. The application of plastic and glass pipes is expanding. The volume of large-block installation of pipelines is growing intensively.

In the 3 years of the five-year plan, the volume of underground structures built by the "wall in the ground" method has doubled, as has the application of progressive types of pilings. The engineering and technology of other types of special construction work is being improved. The level of industrialization and mechanization of heat-installation, heat-insulation and chemical protection work is increasing, and the volume of application of progressive materials for these jobs is also increasing. "Wet processes" in the production of heat insulation work have been eliminated. For the first time in the Soviet Union the production of fireclay-fiberglass slabs for heat enclosure structures has been developed. Their installation provides an 8-fold increase in labor productivity.

The Ministry's organizations are continuing work on further increasing the level of mechanization in installation and special construction work. Since the beginning of the five-year plan, the series production of means of small-scale mechanization and effective instruments of 110 types has been mastered. The development and mastery of modern high-capacity installation cranes, motorized hydraulic lifters with lift height of up to 36 meters, and a wide assortment of special instruments and other technology are currently underway. In 1983 the Ministry's organizations used over 40,000 units of basic construction-installation machines.

Great significance is given to the economy of material and fuel-energy resources. Planning and management are being improved, and the volumes of introduction of computer technology are increasing. There are 35 ASU [automated management systems] of various function operating within the Ministry's organizations, and around 60 trusts use computer technology for solving administrative problems. Work is being conducted on the creation and introduction of automated planning systems. In 1983 the level of planning automation reached 7 percent, and in the next few years it will comprise 15-20 percent.

A most important factor in the development of scientific-technical progress is the creative activity of inventors and innovators. In the first 3 years of the 5-year plan, almost 300,000 inventions and innovative proposals were used in production at the Ministry's organizations and enterprises. Their introduction made it possible to obtain an economic effect in the sum of 488 million rubles.

However. we must note that in light of the new and more complex tasks presented by the party and the government, it is necessary to significantly improve work on accelerating scientific-technical progress in the sector. The resolution by the CPSU Central Committee and the USSR Council of Ministers notes that the ministries and departments are not showing the necessary persistence in implementing a unified scientific-technical policy. In numerous organizations and enterprises the responsibility for technical level of production and quality of manufactured product is low, as is the responsibility for increasing the competitive ability of the product. The potential of sectorial scientific-research, design, project planning, and technological organizations is being weakly utilized. The results of numerous completed research studies do not find widespread and rapid application in the national economy. The times for development and mastery of new types of engineering and technology are drawn out. The test-production and experimental base of numerous associations, enterprises and organizations is lagging behind current requirements and does not make it possible to significantly shorten the cycle of performing work from research and creating test samples for mastering new technology in production. The existing system of evaluating the results of economic activity of organizations and enterprises and their economic stimulation is not effective enough in influencing the acceleration of creation of new technology and the introduction of progressive materials and technological processes or in improving the quality of manufactured production. The shortcomings noted in the resolution relate in full measure to the activity of the Ministry's organizations, whose work still has many unsolved problems.

One of the basic and most labor consumptive jobs for the Ministry's organizations is the installation of equipment. An analysis has shown that completion of manufacture and enlargement of technological equipment takes up 30-40 percent of the overall volume of labor expenditure necessary for its installation. Only 250,000 tons of equipment are installed in the form of aggregate blocks. This tells us that there are still great untapped reserves in the work of growth in labor productivity through means of increasing the level of plant readiness and technological effectiveness for installation of equipment.

The proposals developed by the Ministry for solving this problem within the framework of the all-state program provide for transferring no less than 50 percent of the labor expenditures necessary for the installation of technological equipment to plant conditions. This will reduce their volume to one-half or less of the present amount and will also reduce the construction time. The realization of this program must be ensured within the 12th Five-Year Plan.

One of the important problems is painting metallic structures. Metallic structure installers spend much time and effort on performing this work. Also, there are still cases of manufacture of metallic structures, including lightweight structures, with defects, with low degree of plant readiness, or in incomplete assortment. The degree of application of high-strength bolts and the introduction of the conveyer method of installing covering structures should be increased at an intensive pace. The relative share of application of industrial heat insulating structures is growing slowly. The volume of introduction of pre-installation pipeline insulation is totally inadequate. The need for radical improvement in thermoinsulation work is also dictated by the fact that this work is in many cases comes at the completion of the job and the rate of its fulfillment determines the completion of construction on the facility as a whole.

One of the most important problems is the reduction in the level of manual labor. In spite of the annual increase in the pool of construction-installation technology and means of small-scale mechanization and the growth in mechanics- and power-worker ratio, a number of the Ministry's organizations are still not fulfilling their tasks on reducing the level of manual labor. We must note that despite the inadequate supply of instruments in a number of cases, a large amount of the available mechanized tools sit in warehouses of installation organizations and are not used in installation.

To solve this problem it is necessary in particular to accelerate the realization of proposed measures for reducing the level of manual labor, including proposals on passportization of manual operations, to improve the structure and nomenclature of installation technology, means of small-scale mechanization and instruments, and to create well organized tool management.

With the scope of industrial production of structures, installation work pieces and parts achieved by the Ministry, the increase in the technical level of production and its degree of plant readiness and quality has a decisive impact on industrialization and mechanization of installation work and on increasing labor productivity. Differentiated norms for times of renewing industrial production must be developed and applied as of 1986. Already in the current year the certification of industrial production will be performed according to two quality categories: premium and first. Products rated in the second category of quality are subject to removal from production. Investigations performed at many of the Ministry's plants in 1982-1983 showed a non-adherance to the requirements of standards and technical conditions.

The main administrations and their organizations -- customers for the new technology, GlavUPP [Production Enterprises Main Administration] and Glavstroymekhanizatsiya [Mechanization in Construction Main Administration] do

not bear sufficient responsibility for the technical-economic level of the ordered technology to ensure its highly effective application. No objective economic conditions have been created for stimulating planners and manufacturers of the new products or for shortening the cycle from its creation to its mass introduction.

The solution of this problem must be implemented by means of transferring work on creating, mastering and introducing new technology to a system of cost accounting with organization of a unified fund for the development of science and technology and economic stimulation funds for construction-installation organizations as well as for industrial enterprises and institutes. The introduction of the cost accounting system will increase the material interest and the responsibility of all participants in the process in the creation of new technology and the shortening of the time needed to do so.

We must especially stress the need for radical improvement in the work of scientific-research and project planning organizations of the Ministry. The party and the government require an increase in the effectiveness of scientific-research, planning and design developments. There is still much to be resolved in this question. Our institutes are performing a great and important service, and are the basis for technical progress in the entire sector. Over 35,000 highly trained scientific workers, planners and designers work in the institutes and project-design organizations. However, this force is not being sufficiently utilized. In many cases the effectiveness of developments by the institutes is low, the cycle from development of new technology to its mass application is long. The work of the Ministry's institutes still does not fully meet the presented tasks. A third of the developments do not find any application or introduction. This is a huge reserve for increasing the effectiveness of construction-installation work.

The main administrations and associations, the main technical administrations and sections, and the chief technologists must examine the thematics of the institutes more closely at the early stages of plan formulation. They must devote greater attention to them, giving the necessary aid where necessary and increasing the demand for fulfillment of thematics and for the quality of the developments. Prior to the end of the current year it will be necessary to perform an analysis and an evaluation of the activity of scientific-research, design and technological institutes on whose basis the measures for increasing the effectiveness of these organizations and for improving their structure and network must be developed and implemented.

The current year is a decisive one for the development of documents which will determine the technical progress of the sector in the 12th Five-Year Plan. It is necessary to work out basic directions for increasing the technical level of installation production and industrial products, as well as an all-union and sectorial program, including programs for reducing the level of manual labor, and a five-year plan for the development of science and technology by the Ministry for the 12th Five-Year Plan. These documents must provide for the development and series production of machines, mechanisms and other products which correspond by their technical-economic indicators to the highest domestic and world level. They must also provide for the introduction of progressive technological processes and foremost methods of production organization.

The plans which are being developed must not only ensure the fulfillment and overfulfillment of tasks on the growth of labor productivity, but they must also compensate for detrimental factors. The primary role in this work belongs to the chief engineers of organizations at all levels and to their engineering services. Technical supervisors must create the necessary conditions for the normal operation of these services and must hold them fully responsible for the timely fulfillment of technical plans. The precise realization of measures and plans which have been and are being worked out by the Ministry to ensure fulfillment of the resolution by the CPSU Central Committee and the USSR Council of Ministers, "On Measures for Accelerating Scientific-Technical Progress in the National Economy", will make it possible to create a system of organizational, economic and moral measures ensuring a sharp increase in the technical level of installation production and industrial products. The creative efforts, experience and knowledge of all innovators and leaders in production, and all the engineering services must be mobilized toward the fulfillment of this most important task. The attention of economic management supervisors, party, professional union and Komsomol organizations must be concentrated toward this end.

12322
CSO: 1821/129

MORE CENTRAL ASIAN, SIBERIAN CEMENT PRODUCTION URGED

Leningrad TSEMENT in Russian No 2, Feb 84 pp 1-3

[Article by V. S. Karelin, candidate of economics, and A. M. Dmitriyev, candidate of technical sciences, NIITsement [State All-Union Scientific Research Institute of the Cement Industry]: Reduce Cement Transportation Distances and Rationally Use Raw Materials"]

[Text] Speaking at the November (1982) CPSU Central Committee Plenum, Yu. V. Andropov noted that economy and a zealous attitude towards national wealth is a problem for the realism of our plans. Its solution requires an entire system of practical measures.

In order to save resources and reduce cement losses, USSR Gossnab, Gosstroy and Gosplan are participating in the 1983-1988 period, in the implementation of a number of measures to further reduce cement transportation distances, while supplying each economic region's requirements for binding agents of the appropriate grades and types and for packaged cement, as a rule through production at enterprises in the region.

This is a very urgent problem. While prior to 1979 the average cement transportation distance was steadily declining, during 1980-1981 it rose. This is due to the growth in its transportation to Central Asia, the Komi ASSR and West Siberia.

The rise in the movement of cement to West Siberia is due to the increased use of special cements in the remote regions of Tyumen and Omsk oblasts and in the Komi ASSR. This is a factor in the increased long distance deliveries of packaged cement by the Vol'sktsement and Bryansktsement associations and the Sebryakovskiy and Slantsy plants, the Novorostsement Combine and others. The rate for hauling one ton of cement from these enterprises to Tyumen Oblast is more than 20 rubles. The cement's cost thus more than doubles.

The steady growth in cement requirements in Tyumen Oblast and the increased transport costs make necessary further increases in the production of packing and sulfur resistant cements and packaging operation expansions at plants in the Urals and Siberia.

One should note that USSR Minstroymaterialov [Ministry of the Construction Materials Industry] is doing considerable work in this direction. During

1978-1982 the production of packing cement was organized at the Chernorechenskiy, Novotroitsk and Korkino plants and at the Sukholozhsktsement Combine, while in 1983 it was organized at the Topki plant. This considerably reduces the volume of hauls and reduces deliveries of this binding agent from plants in the Ukraine and the western areas of the European part of the USSR.

In the ensuing years of the 11th Five-Year Plan it is essential to further increase cement production at enterprises in Siberia and the Urals, to organize packing cement production at the Savinskiy and Vorkuta plants for deliveries to northern Arkhangel Oblast and the Komi ASSR and to master the planned capacity of the packaging department at the Sukholozhsktsement Combine. This will eliminate the movement of bulk cement from the Urals to the west and the cross hauling of packaged cement from the Zhigulevsk Combine, the Ulyanovsk and Sebryakovskiy plants and from the Vol'sktsement PO [Production Association] to Tyumen Oblast.

In order to reduce the hauling of grade 600 high-strength cement from the Zdolbunov Combine to the central European part of the USSR it is advisable to specialise the Belgorod plant in the production of grades 550 and 600 Portland cements and to correspondingly reduce the production of slag Portland cement.

The organization and expansion of the production of cements of grade 600 and higher in the Transcaucasian, Central Asian and Central regions and in West and East Siberia will help in substantially reducing the radius of cement hauls.

A solution to this problem requires organizing the industrial production of sulfoaluminate and sulfoferrite clinkers and krentov [?].

Much work remains with regard to increasing the production of high-strength cements using chemical additives, above all super-plasticizers based on lignosulfonates.

In 1985 USSR Minlesbumdrevprom [Ministry of the Timber, Pulp and Paper, and Wood Processing Industry] should supply cement industry enterprises with at least 10,000 tons of LSTM-2 super-plasticizer. A large amount of work must be done in order to use this additive at the Sebryakovskiy, Savinskiy, Gornozavodsk, Slantsy, Korkino and Bezmein plants; at the Mikhaylovtsement, Vol'sktsement and Mordovtsement associations; and at the Balakleya, Rybnitsa and Kant combines.

A number of enterprises (Gornozavodsk and Savinskiy plants, the Balakleya and Amvrosiyevka combines) have capacity and transport mainlines, but are lacking installations for the introduction and application of super-plasticizers. It is essential here to expand the receiving departments and install batch dispensing devices.

Similar work in the construction of installations for the reception, storage and supply of LSTM-1 grinding intensifier to raw material and cement mills should be done at the Belgorod, Staryy Oskol, Shurovskiy, Lipetsk, Chechen-Ingush, Gornozavodsk, Katav-Ivanovsk, Pervomaysk and Novokaraganda plants and the Amvrosiyevka and Rybnitsa combines.

The use of LSTM-1 will make it possible to reduce electric power consumption by an average of 10 percent, while LSTM-2 will increase cement activity by an average of 5 MPa.

During 1981-1982 there was a sharp increase in the amount of cement shipped in open gondolas. This was done in especially large volumes from the following (figures are percents): Staryy Oskol (17.8), Nevyansk (24.9), Nizhniy Tagil (25.8), Magnitogorsk (14.6), Timlyuyskiy (20.1), Yenakiyevo (40.2), Kramatorsk (20.1), Chimkent (7.6), and Krivoy Rog (8.3) plants and at the Amvrosievka (23.5) and Achinsk (30.3) combines.

The main reason for the increased percentage in the use of gondolas for hauling cement during 1981-1982 was the decline in the use of cement hoppers. In 1982 this resulted in 100,000 tons of additional losses compared to 1980, costing the national economy 2 million rubles. Total annual losses from hauling cement in open gondolas were more than 400,000 tons of cement valued at 8 million rubles.

The USSR MPC [Ministry of Railways) and cement industry managers should take measures to improve the use of the cement hopper car fleet. Cement enterprises must see to the strict observation of loading procedures for such cars; this above all applies to the temperature conditions of the binding agent being loaded and to the completeness of loading. Cement consumers must promptly unload, clean and return cars in working order to railroad lines.

In order to properly store binding agents at cement plants there should be an inventory of cement storage silos. This should be the basis for developing and approving measures to more effectively use them.

It is also essential to work out and implement measures for the more extensive use of wastes and byproducts from other industrial sectors in cement production.

By 1985 USSR Minenergo [Ministry of Power and Electrification] should increase ash removal capacity to 8-9 million tons, and cement enterprises should use more than 1.8 million tons of ash for cement production.

The greatest growth in the use of thermal power plant ash and ash-slag wastes is planned for enterprises in the UkSSR and UzSSR Ministries of the Construction Materials Industry.

At present the majority of cement industry enterprises have made practically no preparations to receive increased amounts of dry fly ash. In addition, it is economically advisable to replace part of the slag (tripolite) hauled long distances by ash from the Ryazan GRES at the Podolsk plant and the Mikhaylovtsement PO, from the Syzran GRES at the Zhigulevsk Combine and the Ulyanovsk plant, from the Yayva GRES at the Gornozavodsk plant, from the Novosibirsk GRES at the Chernorechenskiy plant, from the Krasnoyarsk TETs-2 at the Krasnoyarsk plant, from the Pribalteyskiy GRES at the Akmyantsementas PO and the Brotseny and Riga plants, and from the Burshtyn GRES and the Zdolbunov Combine and Kamenets-Podolsk plant.

It is possible to use 1.5-1.6 million tons of TES [thermal electric power station] fly ash at these enterprises with practically no reduction in cement quality.

The economic advisability of using TES ash wastes involves reducing the radius of shipments of mineral additives to these plants from 1,200 to 340 km, the

side track loading of cement hopper cars with ash, eliminating or reducing empty runs, in fuel savings for drying additives (an average of 20 kg per ton of ash), and in the possibility, in a number of cases, of adding finely dispersed ash to finished cement, saving an additional 10-12 percent of electric power used to grind cement.

Therefore cement plants must install receiving and transport devices for fly ash, consisting of one or two silos with a capacity of 2,000-4,000 tons, pneumatic unloading and transport devices and batch dispensing devices. Capital investments for the receiving and production application of 1 ton of TES fly ash are 5-10 rubles.

It is equally important for cement enterprises to increase the use of granulated slag (primarily for the production of slag Portland and other multicomponent cements) to 27 million tons in 1985. Recall that in 1981 more than 1.3 million tons of such slags were used as raw materials and 20.5 million tons as additives, that is, the total was 22 million tons (about as much slag was used in 1982).

Substantial increases in the use of granulated slag in the cement industry require large increases or newly organized production of slag Portland cement and cement for building mortars at the Akmyantsementas PO and at the Savinskiy, Vorkuta, Shurovskiy, Staryy Oskol, Chechen-Ingush, Karachayevo--Cherkess, Gornozavodsk , Topki, Rezina and a number of other plants.

A second promising direction for the use of slag is through organizing the production of grade 300 Portland cement with increased mineral ingredients.

At present the production of grade 300 cement accounts for 16.3-16.7 percent of total cement production. According to the structure of the concretes and mortars (the data is from NIIZhB [Scientific Research Institute for Concrete and Ferroconcrete]) the need for grade 300 cements for 1985 amounts to 25-27 percent of total production.

According to existing GOSTs [State standards] 10178-76 and 22266-76, grade 300 is intended only for slag Portland and pozzolana cements. At cement enterprises in three economic regions -- the Far East, Baltic and Belorussia -- slag Portland cement is not produced at all and pozzolana cement is produced in relatively small quantities. Therefore grade 300 cement must be hauled into these regions from other areas.

Considerably less grade 300 cement than needed for construction is produced in the Central, Volga-Vyatka, Volga, North Caucasus, Transcaucasus, Kazakhstan and Central Asian Economic Regions. Cement plants in these regions should put first priority on organizing the production of Portland cement with increased mineral ingredients.

Finally, by no means are the possibilities exhausted for using granulated slag (and TES ash) to intensify the clinker roasting process through additional finding of the kilns.

The basic factors ensuring results from this method are: partial replacement of slurry by dry materials, reducing the raw mixture's total moisture, and

consequently, heat use for evaporation; a drop in the percentage of clay in the raw slurry, reducing its viscosity and moisture without deteriorations in its transportability; the presence of dry and calcined materials in the raw mixture, reducing the heat need for dehydration.

This method, introduced at the Podolsk, Lipetsk, Novotroitsk, Nizhniy Tagil, Sas-Tyubinskiy and Kamenets-Podolsk plants, the Akhangaran and Zdolbunov combines and the Akmyantsementas PO proved itself well and reduced fuel consumption for clinker roasting by 10-15 percent. However, its further implementation is under way very slowly.

In recent years deliveries of pyrite cinders to the cement plants of the Central Region, the Southern Ukraine, the North Caucasus, the Urals, Central Asia and other regions have been substantially reduced. This leads to excessive fuel consumption. Therefore, the Ministry of Mineral Fertilizer Production, the Ministry of the Chemical Industry, the Ministry of Nonferrous Metallurgy and other ministries and departments should increase pyrite cinder deliveries in 1985 to magnitudes meeting the needs of cement industry enterprises (5,530,000 tons).

According to data from the Stromsyr'ye All-Union Association (an attachment to the plan) the average hauling radius for pyrite cinders for the USSR as a whole in 1983 was 1,057 km. Results of NIItsement research point to the possibility of partially reducing these distances and volumes of transport operations even during 1984-1985 through linking the Mordovtsement PO, Balakleya and Rybnitsa combines, the Ulyanovsk, Olyshanskiy, Rustavi, Kapsi and Karaganda cement plants to closer suppliers and by replacing pyrite cinders hauled long distances to some enterprises in the Urals (the Gornozavodsk, Korkino and Nevyansk plants and the Sukholozhsktesment Combine) with granulated copper smelting slag from Chelyabinsk Oblast.

In spite of the fact that the unit consumption of such slag during clinker roasting can be about 1.5-fold higher than that of pyrite cinders, its use at plants in this group will permit a 3-fold reduction in the average haulage radius (from 1,222.3 to 381.8 km) and a 2-fold reduction in transportation operations (from 219 to 103 million ton kilometers).

The implementation of this measures requires 1.6 million rubles in capital investments. This is economically advisable, as it will pay itself off in four years.

According to studies by Giprotsement [All Union State Scientific Research and Planning Institute for the Cement Industry] after the construction and operational introduction of a 1 million ton annual capacity unit for the leaching, drying and grinding of nepheline slurry at the Achinsk Alumina Combine, part of its output could be used for cement production at the Krasnoyarsk and Chernorechenskiy plants. The wholesale price of dried nepheline slurry should not exceed 3-4 rubles per ton.

A 540,000 ton annual capacity installation for granulating phosphogypsum has been put into operation in Gomel. According to reports from LenNIIgiprokhim [Leningrad State Scientific Research and Planning Institute of the Basic Chemical Industry] its capacity will be reached in the immediate future.

The Bryansktsement, Volkovyssktsementnoshifer and Krichevtsementnoshifer POs and the Belogorod, Kiev and Lipetsk plants, the natural gypsum suppliers of which are further away than Gomel, must take measures for the transition to the use of granulated phosphogypsum (the construction of covered storage areas and transport facilities) to reduce transportation volumes and cement enterprise outlays for hauling setting control agents. Costs should be reduced to 200,000 rubles annually.

For a number of enterprises located near coal extraction and washing areas it is possible to use coal preparation wastes (Vorkuta plant, Ambrosiyevka Combine).

However, each individual case should be verified by production experiments and studies affirming the technical and economic suitability of the decisions being taken.

The expanded use of secondary materials at cement enterprises involves the construction of installations, warehouses and areas as well as the introduction of additional transport and loading equipment. These require capital investments and other outlays. However, as shown by the practical experience of progressive cement enterprises and economic calculations, this will make possible improvements in the use of energy resources, natural raw materials and other materials. Outlays will be quickly recovered.

During the first half of the 11th Five-Year Plan cement plants have done much to expand the use of waste products from other sectors; however, even more remains to be done. It is cement workers' direct duty to implement the instructions of the CPSU Central Committee's December (1983) Plenum concerning the conservation of raw materials, fuel, energy and other resources and to reduce the irrational transportation of freight.

11574
CSO: 1821/92

IMPROVED HEAT PROCESSING OF FERROCONCRETE LOWERS ENERGY USE

Moscow STROITEL'NAYA GAZETA in Russian 16 Mar 84, p 2

[Article by I. Pimchenko, chief of the Completely Prefabricated Housing Construction Industry Administration of Industrial Fully Pre-Fabricated Housing Construction and Pre-Fabricated Ferroconcrete of Glavmospromstroy: "An Algorithm For Steam"]

[Text] Precast reinforced concrete enterprises in the Main Administration of the Building Materials Industry of the Mosgorispolkom turn out about 4.5 million cubic meters of components and pieces annually. The most energy consuming stage is the thermal treatment of products. How economical is the technology here and what are the ways of improving it?

The most widely used method of speeding up the curing time of reinforced concrete pieces is thermal treatment by means of saturating it with steam. There are steam chambers with periodic or continuous operation for this at enterprises in the main administration. Sixty-two percent of the products that are turned out are treated in the former--there are 1300 of them. The duration of the cycle is 12 to 14 hours with about one treatment process a day. Thirty-five percent of the precast reinforced concrete is treated in the other chambers--there are 70 of them. Here there are more than two treatments a day. An insignificant portion of the products is steam treated in thermal forms.

The majority of thermal plants do not meet the technical demands that are being made. There are substantial non-production losses of steam due to the poor condition of the enclosure components and roofs of the chambers and the steam supply system. There are no devices for discharging condensation or ventilation systems in pit steam chambers at a number of enterprises. As a result losses of heat are increasing and working conditions are deteriorating. In brief, there are potentials for improving thermal treatment technology and conserving heat and fuel.

Specialists at the main administration together with workers at Gosstroy Institutes, MISI [Moscow Construction Engineering Institute] and VZISI [All-Union Correspondence Construction Engineering Institute] are conducting a search in this direction. I will give examples. A new pit steam chamber component with a mechanized roof has been designed and is being adopted. The effect is obvious. The load on cranes is reduced, there is no loss of steam and working conditions are improved. We are also

successfully adopting systems for automatically regulating the treatment process at various plants. The strength of concrete mixtures increases when pieces are made on resonant vibrating platforms. On the whole, the duration of treatment and the amount of thermal energy consumed is reduced. This has also been achieved by means of chemical additives which speed up conrete curing.

One of the important indicators of the economical nature of production is the relative consumption of energy to produce a cubic meter of precast reinforced concrete. The practice in the industry has become the following--the norm for the consumption of thermal energy is based on initial data. This does not give incentive to find potentials for conservation and often leads to overestimating the norms.

Along with this USSR Gosstroy long ago approved document (SN-513-79) which contains the methodology for calculating the differentiated norms depending on the type of plant, the coefficient of work load, the weight of the form, etc. On the basis of this the Main Moscow Building Materials Industry has worked out and is checking its own methodology and algorithm for calculating scientifically based norms on an EVM [computer]. Practice shows that the adoption of progressive norms at all plants in the main administration will make it possible to obtain an annual savings of thermal energy worth about 1.5 million rubles.

But we shall not reach such a goal immediately. First of all a number of measures that have been planned must be implemented starting with preventive maintenance. Included in this is the installation of devices for estimating the consumption of thermal energy at all ZhBI [reinforced concrete products] plants. Further--the introduction of systems for automatically regulating the heat and moisture treatment. Repair work and thermal insulation is required on the enclosure components of the chambers. The adoption of economical methods for treating steam processed pieces has been specified. And, finally, it is planned that the space factor for plants be increased.

We analyzed the condition of equipment and issued an "Album of Technical Approaches for Ensuring That Thermal Energy is Conserved During the Production of Precast Reinforced Concrete." It has become a reference manual for specialists at ZhBI plants.

There already is a practical return. Thirty-five heat insulated chambers were installed at enterprises by the end of 1983. Compared to chambers without heat insulation 0.028 gigacalories of thermal energy were conserved in them per cubic meter of reinforced concrete.

Fundamentally new technological approaches have also been found. For example, a thermal treatment method using excessive pressure was tested. As a result preliminary curing is not needed and the time that the piece is under high temperature and isothermal curing time is reduced. It goes without saying that the quality of concrete does not decrease. The replacement of steam with products that are made by burning natural gas is, in our view, of long-range

importance. It is true that a system must stil be worked out that ensures the safety of labor.

Our goal is to increase the efficiency of the thermal treatment of products to the maximum and to achieve a reduction in the consumption of energy at the same time. We hope that the new approaches will also influence other production processes positively and will aid in speeding up the treatment process of forms, reduce the production area needed, and improve working conditions.

9495
CSO: 1821/187 END