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Report No. 1

The Methodology of the Investment Projects Evaluation Applied in the USSR (Cost-Benefit Analysis)

List of abbreviations

IP	-	investment project.
IE	-	investment efficiency.
PE	-	project evaluation.
CCEC	-	construction costs estimate calculation.
AE	-	absolute efficiency.
RE	-	relative eff.
UI	-	Unit Investment.
PI	-	product increment.
IC	-	investment compensation.
PrI	-	profit increment.
SS	-	secondary spendings, contingency spendings.
RI	-	regional investment.

situation in the USSR, on restructuring process in economic management, on investment planning measures and policy as well as we tried to give our evaluations of the market that is being established in this country. Also we covered some questions dealing with finance system and price policy in the Soviet Union. When composing these Reports, we tried to cover present situation and methods but we assumed that historical development and future progress may be of some interest for the readers. Moreover we considered it very useful to differenciate the concepts that reflect official point of view and are or would be adopted and those of our recommendations and theories.

Each of the three successive Reports is a separate study although they are logically and conceptually closely related.

In these three Reports we followed the same system of terms and abbreviations.

Report No. 1

Preface

Report No. 1 is composed in compliance with the UNIDO's requirements. In the same time we tried to observe requests of our Chinese counterparts if they did not run counter to the prior requests of the UNIDO. According to the Chinese recommendations we covered some problems of economic restructuring in the USSR, partially we dealt with planning system of the Soviet Union (these topics are presented in Report No. 2). And we covered the significance of the Project Evaluations and technical-and-economic calculations here, in the Soviet Union. We described Project Evaluation methods applied in this country, some particular features of the large-scale projects and other problems (e.g. joint-venture evaluations, investments efficiency etc.).

Introduction

Under the present policy of socio-economic development and its acceleration we see a certain trend in our investment policy.

We seek the solution of our strategic and tactical economic problems and their organic combination in our investment sector of economy. Here we can see a new kind of scientific approach to the problems; they are being investigated and solved by all sectors of economy, and not by separate branches of economy, enterprises, and regions. Tactical problems transform into the stages of strategical goals and where possible we try to overstep the tactical problems. This situation demands some brief exploration. Today we conduct large scale restructuring measures in industrial sector based on high technologies in order to obtain substantial increase in labour productivity and in industrial output. But we think that it is an industrial entity that is to modernize this equipment and technological flow, because almost all industrial enterprises have to be modernized (if its production is needed on the market). But basic condition for successful solution of the problem is effective operation of machinery engineering branch of economy, which has to be reequipped as soon as possible and in compliance with international standards. And here we expect not only modern equipment, but higher standard quality of the machines that are being produced today. Of course, each branch of economy sets up its own priority tasks and terms of reconstruction and restructuring policy, because here we must take into account the

size of enterprises, industrial concerns and branches of economy. Some enterprises and other economic entities can find commercial ways for economic restructuring and use their own assets for financing the construction and erection projects.

Investment activity of an entity seems to be taking its proper place in the Soviet economic life. The criteria of the investment efficiency of the entity is an insrease in total socio-economic efficiency of the Soviet economy, higher quality standards of consumer goods, higher competitiveness of the products.

As we seek the better solution for our strategic problems and current tasks we increase the compensation fund and the rate of accumulation for the XII five-year period. This type of investment policy was designed to find a better use of human factor in production process and not to restrict social funds. This theoretical thesis was backed up by appropriate measures. We tried to enlarge production of various consumer goods together with improving their quality and restrict the production of less-demanded and specialty goods. Then we attempted to increase the proportion of consumer demand that is satisfied by non-productive accumulation funds. We tried to improve labour conditions and to minimize manual labour. We tried to improve industrial equipment in order to meet consumer demand (here we used practice of conversion of the military-industrial complex).

But the main point here is that a substantial share of capital spendings is directed to the social sector (or at least assists in solving social problems). Here are several top priority

programs to be observed and implemented. Food Programme, Complex Programme of consumer goods production and Housing Construction Programme (this programme is effected by the funds for industrial construction partially directed to housing construction).

Human factor is displayed at the level of goods-producing economic entity - one of the participants in the investment cycle. The scheme here is following. Wages and moral incentives force the workers to increase labour productivity, the entity increases production of the necessary goods, renovates and modernizes the products, increases quality standards and reduces cost per unit by way of investment, renovation, reconstruction and industrial and social construction. This enables the entity to ensure social needs and requests of the workers by way of spending extra income gained as a result of more effective performance of the entity.

Investment activity involves state enterprises, collective farms, cooperative firms, individuals, joint-ventures. And state enterprises now begin to use specialized forms of property, which allow to overcome the problem of state property being 'no man's land' (contracts, leasing, joint-stock companies and other forms).

But the essential problem here is to accelerate investment process, reduce construction period 2-3 times. If we turn out to be unable to resolve the problem of our investments being spent on the projects which are in compliance with the highest international standards, then our socio-economic programmes are doomed, because of the inefficiency of the investment sphere of the Soviet economy. Capital becomes dead money and projects appear

to be outdated before the time of completion because of the rate of scientific progress. They demand extra capital spendings for their reconstruction and rebuilding. And moreover, the installed equipment ages rapidly and does not meet the highest standards of international markets. Investment policy must ensure scientific-and-technological progress of the country, perpetual renovation of the economic potential. This process is to be a major factor of labour productivity increase. It will result in higher rates of economic development and in more thorough satisfaction of the consumer demands. Optimisation of the goods structure and quality may result in greater increase in economic efficiency due to successful realization of investment policy. It is neccessary to change industrial structure of the economy in order to provide better distribution of economic resources between manufacturing and non-manufacturing branches of economy regarding priorities of the former.

Today, a dramatic reconstruction of the economic structure seems to be inevitable. This fact must be regarded when investment policy is being formed and effected. There may be some priority topics in investment policy but this does not exclude combined and coordinated changes in economic structure. There are two aspects of the problem. When we used to set up national priorities, we tended to supress the local initiatives and independency of the enterprises because under the administrative-and-bureaucratic system all ministries, all regions wanted to accumulate state capital spendings and invest in huge amount of objects under their supervision. There were no good barriers to stop this practice.

This investment programme that used priority topics included in economic and social development plans systematically was not fulfilled. At the beginning of the XII five-year-period capital construction appeared to be in a recession stage. During the last 20-25 years there was 15-20% lag between the Capital construction plans and reality, but at the same time material, labour and financial resources were spent according to state plans and erection works were also in compliance with plans. Every five years there was 60-80 billion roubles deficit in finished construction due to inefficiency of construction.

The average time span of construction during X and XI five-years-periods expanded from 8,3 to 12,3 years. This resulted in accelerated ageing of industrial equipment of the new enterprises.(1)

It took a long period of time for the newly built enterprises to reach the planned level of production. Although we criticise the priority topics system for investment sector of the Soviet economy, we must say that even in this great and rich country it seems impossible to effect rapid changes in all spheres of economic life, scientific-and-technological progress and social life simultaneously. That's why it is crucial for us to formulate

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1) Refer to the Report "Radical reconstruction of the economic mechanism in construction and some problems of the investment policy implementation", Moscow, 1988, p. 6. The report was prepared by the research group headed by prof. Rybin.

a number of priority programmes and provide their implementation backed by material, labour and financial resources of the country. We think that programme-target planning and management is the most effective measure for this task. Here we reiterate these priority programmes. Food Programme, Housing Programme, Machinery Programme, Resources-saving programme (and it seems useful to add here Complex Programme of Consumer Goods Production).

Investment policy should serve the interests of the Programmes (including the system of governmental construction contracts). As these Programmes reach their final stages there should be a new package of priority programmes ready for implementation. This will ensure a continious basis of economic changes in all spheres of national economy.

Investment Programmes, based on earned revenues of the enterprises, cooperative firms, regions and branches of economy would be supplementary to the Major Programmes of national Development economy. These investment programmes would regard local interests and supply-demand situation on the market. Centralized system of priority Programmes will gradually change into commercial system regulated by society where strategic interests of the nation are taken into account. This type of commercial system that regards the major role of economic entity (enterprise), major strategic programmes and other conditions and incentives of economic life, gives an opportunity to exercise full -scale resources-saving practice, to restrict the huge investment demand and to correlate the investment process of the capital reproduction with the industrial production process. When all economic entities are able to effect investment according to the

volume of the profit earned during production process and funneled to the social funds of the entity, when they become the independent producers of goods, then investment cycle of renovation and expanding will become an in-born part of their simple and expanded reproduction. When consumer market in this country is established and developed, and wholesale trade in capital goods is introduced, there may emerge an opportunity to terminate suppliers' dictatorship, because this dictatorship is harmful for a supplier too, as he in his turn plays a consumer role. This situation stems up from certain "naturalization" of the economy, when all economic entities try to diversify their activities because they do not trust their contractors. These diversified additional shops tend to be very costly and inefficient. But we hope that this situation will sease to exist in the near future due to the integration processes home and abroad. Coordinated operations in investment sector of economy start playing major role because of environmental problems. Here we must unite efforts in order to prevent dangerous leakages.

Investment activity can effect environmental problems and improve situation in this sphere. Complicated problems that investment sector of economy has to solve demand its orientation on the final results of investment activity. Unfortunately it is not achieved up to now. Inspite of the thesis that the final result of the construction is an operating enterprise producing goods, a lot of major elements in national economy are still oriented at the gross volume approach, at the intermidiary gross volume coefficients and indexes of building industry. That is the

reason for profound changes in management, planning, finance and credit systems in order to provide better results in production sphere. We think that it is ultimately useful to regard as a final result of building contractors' activity the operating enterprises, plants and factories, ready to work at the planned level of output.

Today, due to the new approach to the design stage of investment projects we must revise the relations between science and investment sector of economy and allocate scientific-and-technical achievements to the corresponding investment projects. Direct ties between research organizations and project-and-development bodies may be very beneficial. Early stages of research and design secures better results of the investment project, that is why we need project information of the highest quality for all levels of investment activity in national economy.

To serve these goals, we have to establish certain proportion between early stages of investment project and socio-economic efficiency of the capital spendings alloted to the project. Research organizations' responsibility for correctly assessed actual investment efficiency must be also established in a due course. It is important to set up a tight coordination of construction costs calculation and investment efficiency of the projects. Prime contractors and supplyers should feel the profitability of the job which is done under the highest standards of quality but the customers, in their turn, are obliged to regard any kind of commercial risk that can emerge for contractors.

But a successful and highly efficient implementation of the huge investment programme is a deadly burden for national economy and this fact explains why we seek a way-out in quantitative approach to the capital spendings mastering regardless of their socio-economic efficiency. Introduction of a state controlling body in construction industry does not eliminate the problem of quality and leaves it at the same as previously low level. The problem of quality here can be solved only by economic measures. First of all, we have to stop excessive allotting of the financial resources from state budget. Then we must develop a system of bank loans for building contractors. Another measure deals with investment funds drawn from enterprises' profits. And, of course, there must be a free market of customers and contractors, where a client will be able to choose the best project and the most efficient contractor. Profits and losses, as well as economic effect and damage must serve as an instrument for national economy. If contractor breaks the investment cycle coordinated with a bank (or banks) which is crediting a project, it may be forced by the bank to repay the loan before its maturity date. Also banks will be able to stop investment credit, increase interest rates, or (if there is no other way out) to immobilize assets of the contractor. But there must be a developed system of privileges for those contractors who secure high project efficiency.

We consider it usefull to broaden the sphere where collective contract is used in order to create better incentive for productive and efficient labour and for establishing specifi

relations between the members of investment cycle. Multilateral contracts can successfully fulfil these goals. But all this sectoral measures must be backed up by macro-level decisions on radical changes in national economy. Prices and wholesale trade of capital goods, public finances and banking system, managerial bodies of different levels - all this must be introduced, restructured and changed according to the requests of modern planned-market economy.

We think that public finances should drop its fiscal bias and develop financial incentives for effective producers. Executive bodies of public finances should actively involve rational taxation. They have to ensure that larger share of state budget is involved in reaching the macroeconomic proportions outlined. State budgets of Union Republics alongside local municipal budgets should be engaged in solving regional problems. The latter is very important because of the regional investment complexes that are being formed today. These regional investment complexes include all types of self-accounting entities (enterprises, organizations, cooperative firms) and the second, superior level of the complexes includes municipal assets, that can be invested in various enterprises and infrastrustures. Investment policy must be aimed at the formation of regional socio-economic complexes based on self-financing of the region.

Banking system reform enfisages regulation in money flow (cash and by written order/non-cash), currency stabilization. All these monetary measures are badly affected by the activity of building contractors due to the huge volume of capital spendings

and half-finished projects which serve as a factor o disequilibrium between money in curculation and goods and labou in curculation.

Banks should be commercial agents and play an equal part i investment cycle, organize advances management for investmen projects. Banks should compete for clients, for credit resource by way of interest rates. It is important to increase and at th same time diversify interest rates. Interest rates for long ter investment credits are to be the first in a row, because it wil help to evaluate the price of the credit, supply-&-demand rati for monetary resources and other things. There must be advance integration between monetary resources of the banks, industria enterprises and building contractors. Banks are to be ver flexible in client interrogation and financial evaluation of th projects. Banks should be granted the right to credit investmer project, supervise it and take share in future profits of th project.

Price reform will enable economic agents to use limited ar contract prices of finished product of building industry. Limite prices should reflect costs of the product with obligatory regar for value in use, quality of the product, conditions of futu operation and factors of scientific progress.

Prices in building construction should be aimed at the fina product of the construction sector of economy. When standard cos for production are being evaluated they must be thoroughly check up and revised in order to eliminate excessive expenditures materials, labour and energy. Contract prices may be based on li

prices and other standardized prices.

Various combinations of different forms of management seem to be favourable for more efficient construction, as well as different forms of economic entities can operate under one investment project.

During the XIII five-year-period investment process is to be enlarged and enriched by various forms of investment activity. All this will contribute to creating economic equilibrium between material and monetary structure of national economy and this in due course will help to effictively exercise economic methods of management.

1.1. Main Particular Features of the Cost-Benefit Analysis (CBA) Methodology for Investment Projects Applied in the USSR.

1.1.1. The Investment Projects Evaluation.

Here in the USSR under Investment Project we understand a project that demands certain amount of design and survey work, construction work or a profound reconstruction of operating industrial and/or civil entities. Investment Projects (hereafter IP) are designed for various enterprises and branches of economy as well as for the cities and other municipal units, basic and social infrastructures etc. IPs differ according to the volume of capital spendings, complexity and time span of construction.

Nevertheless in the Soviet Union wwe have standard principles of the analysis methodology, so-called Project Evaluation (hereafter PE). Scope of its detailisation may vary significantly depending on IP's parameters. PE is aimed at the profound assessment of the IP covering all stages of the project's life cycle. An accurate and fullscale estimation of the productive forces and thier deployment parallel to the assessment (where feasible) of national and regional efficiency - all these topics are in the scope of the PE. Simultaneously we try to combine absolute and relative economic efficiency by using a discount method during PE elaboration. We concentrate our efforts on the assessment of the initial stages of project execution, but further detailisation follows this initial assessment during design and

construction stages of IP. The CBA analysis ends up with a profound analysis of actual economic efficiency of the project (ROI analysis). There are following particular features in this CBA system.

First we elaborate general plans/schemes (drafts) of the industry/service deployment and development for the time span of 10 or more years. In case of working out the plans we outline the main perspectives of the development of the industry and the regional prosperity. During this stage of work we discuss alternatives and compose special integrated evaluations. These Evaluations are known in the USSR as Evaluation Reports. After development-and-deployment plans and schemes are adopted we launch a new stage of PE. This stage is characterized by deep and profound investigation of different parameters and dimensions of the IP, such as its size, structure, the selected site.

Then we must say that if the sum of capital spendings exceeds 4 mln. roubles or this IP is of great importance we conduct the full scape PE. And if IP is less costly we conduct special technical-and-economic computation (TEC). This TEC is of smaller scale than PE; TECs are not as profound as PE and TECs are not accompanied with construction costs estimate calculation (CCEC).

Branch and territorial schemes contain targets and main indexes of development of branches and regions, complex use of natural resources, rational combination of branch and territorial development.

Following problems are pointed out when making evaluation report of branch and territorial schemes:

- nomenclature, volumes of production or services on the

basis of balance sheet of all accounts, characterizing quality of the production;

- optimal output capacity of an enterprise;

- calculation of integrated indexes of raw material and other resources demand integrated indexes;

- calculation of the optimal version of development and deployment of the branch, which takes into account current and forecasted restrictions and limitations;

- calculation of infrastructural parameters;

- calculation of construction costs;

- correlation of unit investment and other final indexes and coefficients;

- systems of indexes and background data on productive and non-productive entities that do not principally differ from each other.

The main indexes, given in background data of the territorial schemes are following:

- population and manpower;

- gross national product;

- national income produced;

- structure of the economic entity; capital spendings (with construction-installation works singled out);

- productive fixed capital;

- growth rates;

- industrial and agricultural output (commodity and standartized net output);

- output of the most significant industrial and agricultural

production;

- main indexes, coefficients and rates of development, of construction, transportation, non-productive sectors of economy;

- new construction objects of greater importance;

- changes and shifts in the deployment of productive forces in the region.

So, the whole economy of the region is investigated. All these problems are interconnected and influence construction economy, e.g. it's impossible to choose optimum version of deployment and construction or reconstruction of this or that particular object if these problems are not salved and coordinated. For example, to evaluate regional productive forces, problems of the rational interconnected deployment of the various enterprises must be elaborated. Here one must take into account formation and development of industrial centres and territorial-industrial complexes.

It means that deployment of various enterprises, composed according to branch schemes is being analyzed on this stage and proposals for their proper grouping are being given.

Deployment of the enterprises as parts of industrial centres instead of isolated ones reduces construction costs, running costs areas of industrially used land. Grouping of enterprises provides organic connection between industrial and public construction. Problems of rational use of land, water-supply, protection of water and air may be solved with greater success.

Erection of powerful engineering construction in industrial centres instead of numerous local facilities improves culture of

exploitation and lessens environmental tension. Analysis of constructed and already functioning industrial centres proves that city objects and residential districts connected to the basic facilities reduce investment costs and save up a lot of money and labour.

Greation of industrial centres makes it possible to improve the composition of fixed capital because of greater share of machines and equipment. It also reduces number of auxilliary objects and facilities, creation of complex repair service, unifyed transport system.

Advanced introduction of industrial centres into practice provides favourable conditions for urban development, of small and medium-size towns. Following advantages appear:

- possibility to regulate planning, building and city economy;

- possibility to effect complex construction of industrial enterprises, modern comfortable houses, social objects.

All the above-mentioned provides significant economic effect.

Practice has proved that united into industrial centres enterprises, provided with common objects of infrastructure, results in investment saving of average 2 - 3 per cent, and sometimes even more.

These conclusions may be generalized in a following way. Economic essence of industrial centre means that its economic efficiency is higher than total efficiency of separate enterprises. It accounts for the joined capacities, stable connections, effective management. So, in order to raise

efficiency of investment we have to observe and take into account all possible opportunities to use combined industrial complexes.

We have investigated method of economic evaluation of project decisions on the first stage of elaboration of project - calculation papers.

Let's investigate methods of this evaluation on the second stage of the first part (elaboration of project evaluation and calculation evaluation) and first stage of the second part (elaboration of project or approved part of working project of one-stage planning).

These documents - project evaluation, technical-and-economic computation (TEC) and project (working project) are closely connected in composition and essence.

Characteristics of technical levels and quality of project evaluation (PE), TEC and projects are being done by the method of comparative analysis of the indexes, presented in these documents and settled in the target for their elaboration. Evaluation of PE (TEC) and prolects is done by the authority which approves and adopts these documents, taking into account conclusions of the corresponding expert authorities.

As an example of nomenclature of indexes used for evaluation of technical level and quality of PE (EE) and of projects (and correspondently for economic evaluation, because of each technical -economic index and index of quality influence, as we know, the economic efficiency of the projects), we shall mention nomenclature, proposed by the specialists of the Central Scientific-research institute of Gosstroy of the USSR (Table 1.1).

Table 1.1

Indexes used to evaluate quality of presented documents on erection of industrial enterprise.

Index	PE (CE)	Project
1	2	3
1. Share of output comparable with international quality standards.	+	+
2. Labour productivity per employee in natural and cost terms.	+	+
3. Coefficient of equipment stand by.	-	+
4. Level of automatization.	-	+
5. Share of hand labour workers, %		
in main production,	-	+
in auxillary production	-	+
6. Labour intensivity of construction works,(man-day per capacity unit,man-day /mln. roubles of erection-installation works (hereafter EIW)	-	+
7. Unit consumption of construction materials: cement, metal, timber, placed-in units/ mln roubles of EIW	-	+
8. Funds recoupment / roubles	-	+
9. Unit investment roubles / capacity units including - those on EIW	+	+

1	2	3
10. Period of recoupment of investment, in years	+	+
12. Costs per 1 rouble of commonodity output, in copecks	+	+
13. Production costs (service) rouble per capacity / unit	+	+
14. Material intensity of main production thousand of end production units per capacity unit	-	+
15. Energy intensity of tons of aggregated fuel / per end production unit	-	+
18. Index of equipment shif work	-	+

Appendix: 1. Indexes I-II are obligatory, indexes 12-15 are recommended.

2. Sign (+) means necessity of this very index for evaluation of these particular documents.

Authorities which demand elaboration of documents may add if necessary some other indexes and coefficients to above mentioned nomenclature in order to get information on some specific features of the planned enterprises, if the above given nomenclature doesn't completely comply with the requirements of planned enterprises' technical level, indexes nomenclature of transport enterprises, enterprises of communications, agriculture and water

ways branches of economy are introduced to the corresponding central administrative bodies.

List of indexes for evaluation of technical level and quality of PE (TEC) and projects of environmental objects, connecting enterprises with centralized sources of thermal and electricity supply, extension of existing or construction of new services and auxilliary objects etc., is introduced by the authorities which give the tasks for this elaboration of necessary documents.

1.1.2. Particular Features of the Project Evaluation (PE).

The main features of the PE are as follows:

- Project Evaluation preceeds concept approval stage of the project. This leaves our executives free to reject ineffective and too costly projects.

- PE secures detailed analysis of the IP (construction or reconstruction project).

- PE is concentrated on the estimation of the production capacity of the entity, its flexibility and throughput capacity (for parts, railways etc.).

- PE is interested in comprehensive analysis of the quality and variability of the products or services, their competitiveness as well as in the markets and sources of manpower, energy, fuel and raw materials.

- PE takes into scope a number of possible alternatives. PE helps to range the variants and select the best among them.(1)

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1) K. G. Romanova, E. P. Zharkovskaya, G. L. Isaeva. Standardization of labour and estimate. Moscow, Stroyizdat, 1989.

- PE estimates planned construction costs.

Before we start PE the official persons look into the reasons for the project to be effected, the necessity of the IP. That means that industry is unable to cope with increasing demand for the product/ service without the IP in question even if all the available resources of the industry are utilized.

1.1.3. Main Points outlined by the PE.

We can outline the following topics covered by the PE:

-assessment of the economic efficiency of the technical and technological options;(1)

- basic data for the IP;

- product competitiveness and comparative quality data for future entity.

During this stage of the research work our experts encounter with many difficulties caused by lack of appropriate information on foriegn analogue products, price and exchange questions and "window dressing" offered by managers.

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1) Certainly we need socio-economic efficiency computation but in reality we face some troubles caused by information scarcity and poor methodology.

1.1.4. PE Requirements.

PE elaboration should be oriented at the progressive modern technologies in construction and production.

PE has to ensure high rate of investment efficiency (return on investments).

PE has to envisage IP graduate implementation (this form is traditionally used). It enables the experts to control the schedule of construction.

PE has to define main technical-aand-economic data, coefficients and indexes for the full length of construction period and for each stage of construction.

If gradual implementation of the IP appears to be impossible there must be hard reasons for this presented by experts.

PE has to remain in compliance with the decisions adopted during the initial period.

PE has to ensure land and other natural resources conservation.

PE has to include a bunch of measures aimed at the best IP implementation.

PE has to envisage apropriate infrastructure compatible with the major entity.

PE has to take into account environmental problems along with seismic, fire and explosion requirements.

PE has to view the budget costs calculation as an upper limit for the whole period of IP implementation.

There may be cases when real data deviates from the proposed

calculations effected during the conceptual stage (stage when development plan is being elaborated). In this case we have to show out the degree of deviation and find out the real reasons that bring about extra spendings. We consider this to be a flaw if PE data is less accurate and precise than planned data published in technical-and-economic Report (also evaluation Report). A great deal of the IPs is not effected in the framework of the general plan/scheme. If this is the case we are ready to take into account all the particular features of the region and branch of economy. That are to be coordinated with the IP.

Then this situation is the subject for the detailed and precise extra analysis. Some tight limitations applied to the industrial objects in the cities of the USSR and other principles of industrial construction must be thoroughly observed.

Today we use a contest form for the IPs. Various contractors compete for the IPs. We want to introduce this contest system for IPs as general practice in the USSR.

1.1.5. Context of the PE.

- initial data and regulations (legislative acts and other documents);
- full information that covers present position of the entity to be expanded/reconstructed (data covers last 3 activity year);
- basic output of the entity (before IP implementation);
- revised output of the entity in compliance with market demand after IP implementation;

- product or service output parameters;
- product/service competitiveness evaluation;
- product/service export capacity;
- import substitution capacity;
- transport services, tourist and other aspects;
- specialization and cooperation definitions for the entity, its managerial superstructure;
- possibilities to use residual and by-products of the enterprise, opportunities to utilize resiaduals (if wasteless technology is not available);
- full data on raw materials supply, present position of raw material base and its prospects;
- raw material demand assessment, raw material's quality, ways of transportation and pre-factory performance;
- spare parts, semi-manufactured products demand evaluation, sources of supply;
- energy consumption, sources of supply;
- energy consumers (if IP considers electric power stations);
- water supply (if IP considers cities and industrial complexes);
- initial and final manpower demand;
- manpower development staff training and professional improvement;
- recommended technology expert assessment;
- equipment expert assessment (including imported equipment);
- automatization rate requirements;
- entity's structure expert assessment; its subcomplexes an

auxilliary services;

- structure of auxilliary manufactures and services;
- computer services development;
- selected construction areas assessment;
- construction sites assessment;
- principal data on volume/design values and parameters;
- gradual construction scheme, construction time span reduction;
- construction site map with noted special external buildings;
- general construction scheme of the object;
- public transport requirements;
- particular features and schedule of the construction (standard schedules are used for governmental IPs and for commercial IPs. For IPs budgeted by the enterprises schedules are elaborated according to the agreements.);
- management plan for the construction;
- sub-contractors' services;
- environmental parameters and requirements; pollution protection measures and their efficiency;
- environmental costs assessment pollution compensation (according to the present Soviet legislative acts and current methodology of calculation).

There is an important part of PE dealing with planned construction costs and we are induced to think that this part is of the most importance because it tackles the problem of "construction and production economics and main

technical-and-economic data".

This part of PE namely deals with following problems:

- investment efficiency (hereafter IE) (generally known as ROI);

- unit rate of capital spendings (including erection and equipment installation works);

- planned standard costs of products/services;

- unit energy, raw material, fuel etc consumption;

- labour productivity rate;

- comparative data provided by operating entities (home and abroad) and forecast data for the entities being designed).

PE results in conclusions and suggections:

- PE assesses entity construction's efficiency;

- PE secures conformity with the advanced methods applied in the USSR and abroad for management, technology and equipment of the entity;

- PE provides data for the design stage of the IP according to the comprehensive requirements of Soviet Construction Ministry (Gosstroi);

- PE prepares a research work sheet for the initial design stage of the IP. (This sheet includes descriptions of the research -and-development works to be effected during design, construction and equipment manufacturing stages of the IP).

PE includes following types of supplements:

- construction site plan;

- general plan and its scheme;

- dimension plans and schemes of large and complicated

objects;

- full construction costs estimation;
- costs roster (if needed).

Today we effect PEs in compliance with social demands, so we combine and integrate industrial and public objects. Sometimes this kind of work is completed before we set up industrial PE and sometimes social factors turn out to be prior to purely economic factors (1). We try to resolve problems of basic infrastructure in combination with industrial complexes' problems, as a part inherent to any industrial complex.

1.2. National Parameters for PE. (2)

1.2.1. National and regional approach based on self-accounting.

IPs in the USSR are viewed from different points of view. This means national, regional and separate enterprise's approach (3). Therefore we point out types of efficiency: national efficiency, regional efficiency and individual enterprise efficiency. Some years ago national approach dominated the rest

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1) Refer to Part No.1.7.

2) This topic is covered in Report 2.

3) Hereafter and in the following reports the term "region" refers to Soviet republics, autonomous republics, provinces. Accordingly the term "local (regional) municipal unit" includes such territories as cities and districts.

two and national interests were considered to be absorbing interests of an enterprise and these of the working people.

History proved this thesis to be a wrong or at least to be argued. Today we try to cut this general thesis and we hope that sooner or later this thesis will be applied only to the centralized governmental investments. IPs help us to resolve strategic problems in various sectors of socialist economy that attract profound research-and-development work and closely connected with national defence problems. IPs assist in exploring new regions and exploiting new deposits of natural resources. IPs accelerate development of new branches of economy, based on the achievements of scientific progress. Judging by this we think that PE has to estimate IP's parameters and comprehend the influence of the IP on the national socio-economic targets.

In the long run PEs assess IP's influence on the rates of increase and volumes of the GNP and National income. PE is aimed at the accurate and precise estimation of the raw material utilization. PE helps to find better ways for saving resources during stages of extraction, transportation, storing and manufacturing. We find it very convenient to use PE when social infrastructure of industrial objects and new regions is being created.

So here we deal with the IPs conducted under governmental centralized investments. And now we tackle the problem of the IPs that are affected under local investment. These IPs turn to be beneficial for the local territory (region). These IPs are assumed to minimize or terminate all kinds of economic disproportions in the region. These regional IPs assist to change "export-import"

balance of the region and they affect environmental balance of the territory, etc. Regional IPs can advance socio-economic develoopment of the locality and improve migration ratio and so on and so forth.

As to IPs effected under enterprise's investment we may say that PE of this IPs are definitely aimed at the most accurate assessment of the integrated costs of the enterprise involved. This is true for all types of enterprises, including joint-ventures. But it is wrong to simplify our approach to the problem. We are deeply convinced that one should compute all types of effects no matter who is a donor for the IP. For instance, if the IP is budgeted by the centralized governmental funds managed by Central Administrative bodies of the Soviet Union it would set to construction in a certain region. And that is the reason to take regional efficiency of the IP into consideration. The reverse holds true as far as regional IPs are concerned, because they have an effect over both national interests and the interests of employees of IP. The same considerations may be attributed to the IP budgeted by the funds allocated by an enterprise. The enterprises are oriented at their private economic interests, but regional and national interests must be observed as well. But it would be a mistake to think that due to restructuring policy in capital spendings we have lessened control over national parameters. On the contrary: if control functions in the past years had been effected by the administrative bodies, now the municipal and Soviet legislative bodies excercise control functions enterprises show particular interest in this type of

control over the IP.

1.2.2. General (Absolute) Efficiency of the IP.

National control over the parameters of the IPs is primaril effected by the unified investment efficiency methodology. Thi methodology is used in case of elaboration of the concept of th major trends in socio economic development of the USSR and Sovie Socialist Republics. It is used when we prepare project an pre-project documents together with plan documents and othe preliminary papers. Major forms of the latter methodology ar so-called "development alternatives" for branches of nationa economy and for separate industrial complexes. This methodolog concerns newly formed entities, optimal ratio of spendings flowe to the major forms of capital reproduction as a top priorit topics. The methodology employs general (absolute) efficiency as starting point of analysis. Absolute efficiency (hereafter AE) i determined as an effect-investment ratio. Spendings and effect ar calculated with time factor assessment for both values as far a there is certain time lag between capital spendings and economi effect gained as a result of these capital spendings.

At the macroeconomic (national) level the investmer efficiency is characterized by the share of national incor increment caused by such investments either for the USSR or fo one of the Soviet Republics. At the level of enterprise the IE c the object is estimated by profits' increment.

AE is computed and analysed in order to determine th

efficiency of these capital spendings.

This question appears to be a basic one if we are to establish whether future capital spendings are expedient. That is the reason for us to start with the initial determination of IE early stages of the decision-making. If we come to the conclusion that planned capital spendings are absolutely ineffective we may drop following investigation because it looses its sense.

1.2.2. Relative Efficiency (RE).

Unlike AE we calculate RE for several independent variants of the IP in order to select the most effective one.

We calculate RE using this formula:

$$C + En \times K \text{ --- } \min \quad (1.1),$$

where K is investment per project,

C is cost of production of annual output,

En is standard IE rate.

Gained effect should provide normal (standard) IE rate and other coefficients and rates predetermined by the methodology (e.g. construction time, unit investment rate etc.). If these rates are not obtained there must be additional analysis of the presented alternatives and selection be based on a system of individual indexes as criteria. This is made to achieve better results in project selection and special coefficients and indexes play important role now. When we use standard costs method we must

bear in mind that there are some flaws in this method because when reconstruction process is underway we sell out or liquidate certain share of fixed capital (equipment) that can still be active. And its residual value is added to the construction and equipment costs. Therefore investment and equipment costs partially compensate initial costs of instruments and equipment that are ousted from production cycle.

Present order gives certain preferences to the objects that keep worked-out machinery and equipment. This situation runs counter to the prior task of advanced restructuring of the Soviet economy. If we keep old, worked-out equipment and register it in the ledgers we will definitely hinder account data on renovated fixed capital. This fact will be hazardous for the RE of the technical development projects. Therefore we won't be able to estimate correctly renovation effect. If we take standard cost method we can see that this method deals with costs of the production only when we compute RE of the IP. This method does not suite our requirements if we want to work on capital intensivity of production provided by the IP's versions. Capital intensivity coefficient seems to be disconnected with the IP's efficiency. It is not true. This coefficient is closely connected with the IP's efficiency. When we investigate IP versions we prefer to deal with less investment intensive projects, though they may turn out to be more capital intensive ventures because major part of the outdated fixed capital remains active. And here we would like to bring the last argument against standard costs method. Standard costs indexes are highly relative and they are almost absolutely disconnected with real self-accounting, moreover these indexes and coefficients may slow down the scientific and technical progress

in this country. But we must note that RE can not replace or submit AE completely and vice versa. You can not select the best possible version of the IP if you do not compute RE indexes and you can not be sure that the selected version is itself effective if you do not test this version with AE method.

As we consider the foregoing statement to be crucial so we have to combine both AE and RE investigations in order to facilitate accurate results. Unfortunately we must note that in real life this complex analysis is not always done. Sometimes AE indexes are used for PE estimation. This leads to mistakes and wrong assumptions.

1.2.4. Some Particular Features of Economic Efficiency Determination Applied to Large Industrial Complexes

We have already numerated major common features for all PEs of different IPs in Chapter 1.1. But here we have to confess that if large industrial conglomerates are subject to the IPs, there may appear some difficulties in distinguishing economic effects attributed to various elements of the IP. For example this may concern a complex of water facilities of different kinds (including hydroelectric power station, irrigation network, river locks, basic and social infrastructure), created under one IP.

In order to simplify computation we distribute total efficiency of the IP among the objects comprising the project

proportionally to their costs. To obtain more accurate computation we try another approach. We calculate separately elements' efficiency and correlate this efficiency with the share of capital spendings for the element. But here we face a severe drawback. While we use this basically accurate method we are unable to calculate total (summary) effect of the system.

As industrial production grows more complicated we are obliged to compute IE of the IPs of multisectoral significance. This kind of investigation is effected by way of comparison with the projects which could reach the analogous results for each sector of economy independently. Some difficulties emerge when we investigate economic efficiency for large-scale projects and especially if these IPs are planned for a long period of time. For the purposes of accurate assessment in these cases we use special method worked out by prof. Krasovsky N.P. in collaboration with other economists. By Krasovsky economic efficiency is stipulated by total economic effect calculated for the optimisation period of time. And time span exeeds 1 year. Integrated effect estimation seems to be very important if we have series of successive investments in diversified sectors of the industrial complex. One of the most acute problems here is now to determine optimal time span for economic efficiency calculation. We must bear in mind that every one of successive investments will broaden the sphere

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1) Refer to: Khachaturov T.S. "Efficiency of Investment" - Moscow, "Economica", 1979, pp. 17-19.

of the economy the IP affects. And all previously effected investments are not able to enjoy their effect at full scale. If this situation becomes real we recommend to prolong EE assessment period.

The conception of "correction lag" is introduced in order to take possible deviations and fluctuations in assessment.

The correction period follows the optimization period. Integrated economic effect of total investments manifests itself during correction lag.

1.2.5. Unit Investment.

Unit investment is an important element of the EE of the IP. It's an ultimately important element under the economic system which had functioned for a considerable period of time. Its calculation was being effected by way of natural values and special indexes.

Today we have revised Unit Investment indexes. As far as centralized public capital spendings are concerned we are forced to retain these indexes for a time being. But they serve as a recommended values for any other IP.

We compute Unit Investment indexes (if we can provide comparable data on basic conditions of the IPs) and compare these indexes with IE indexes and rates.

Our economists understand that in case of macroeconomy unit investment per production increment is equal to relation of profit increment of output increase multiplied by the rate of return or investment.

efficiency attributed to the branches of economy. This system takes into account capital structure, renovation rates, profitability of enterprises and other factors. These standards are coordinated with State Planning Committee (Gosplan) of the USSR. During IX, X, XI five year periods Soviet Ministries and other executive bodies estimated standard efficiency rate at the level of 0.12.

During the period of 1986-1990 we follow this standard rate. But profound economic analysis disclosed the fact that these standard rates slow down the socio-economic development of the country. It has been established that this standard rate is less progressive than the same rate in developed countries. First, our economists have to revise present standard rates of IE and second and not the least, socialist economy must make new standard rates real.

Standard rates of efficiency tend to loose their significance. Standard rates of efficiency computed for commercial IPs (IPs with funds allocated by the enterprises) today serve as statistic data.

1.2.6. Contingency spendings (CS).

When we are engaged in selecting the best version of capital spendings we must be aware of secondary costs attributed to fixed and floating capitals of the adjacent industrial objects.

Contingency spendings attributed to floating capital are

accounted for when SS share related to the investment volume directed to the major object and secondary spendings on previous concenters is not less than 5%. As to contingency spendings attributed to fixed capital, they are accounted for at the first concenter, i.e. within the framework of the branches of economy supervising the construction and exploitation of the object.(1) Secondary spendings include expansion spendings for construction base, energetic and road building etc. This type of spendings facilitate the creation of basic infrastructure, which serves the needs of industrial objects, etc.

Contingency spendings include environmental costs that can b attributed to the construction of basic infrastructure. IP realisation is closely connected with infrastructure investment.

IE in this case (when secondary and contingency spendings are taken into account) results in the formula:

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1) Refer to: Handbook of Industrial Manager, Moscow, "Economica", 1985, vol.1, part II.

$$En = \frac{Pi + ECi}{Ki} \quad (1.2),$$

where: En - investment efficiency;

Ki - infrastructure investment;

Pi - profit increment, including increment due to the costs reduction for industrial or infrastructure object;

Ce - consumer effect, or compatible effect of the infrastructure services;

n - number of the consuming branches of economy.

Costs computation for adjacent branches of economy and for all types of infrastructure is effected according to the standard rates or by analogy (if any). There are certain limitations imposed on the IP's versions. These limitations exist due to social, technical-and-economic, environmental and industrial safety regulations. The latter two are of the most importance today, because we have recently suffered some severe industrial accidents and industrial traumatism rate is rather high in this country.

As we have already noted we seek to attract the best versions of the IPs and in order to secure the choice we check the selected version and compare it with the best analogues made in the USSR and abroad. Although this verification is not an easy deal because of the scarce information on the analogous projects designed abroad. Moreover there are some other reasons for this task to be

a hard one. First we encounter with monopolistic traditions in investment sector of our economy and second, a lion share of capital spendings by State budget.

Today we painstakingly revise this abolutely inappropriate situation. All particulars of the production cycle are affected by this inappropriate situation, customers suffer from IP's low efficiency because it is pregnant with bankrupcy and contractors and sub-contractors risk the clientele. And hereto we must add that we suffer from shortage of specialists who are expert in multiversion PE elaborations, optimization and imitation model building. To resalve all these management problems we seek for better information services computer systems, and qualified experts in the area of business forecasting and international economic modelling. But it turns out to be only a top of the iceberg and the vast bulk of the problem resides in our economic system which we have to restructure in compliance with modern requirements. Main factor for success here is a consumer oriented enterprise.

1.2.7. Time factor.

When we compute efficiency we have to deal with construction lag (lag between capital spendings and industrial effect). This lag is computed by standard project time values applied in the USSR for construction stage of the IPs. There we consider a gestation lag too. These two lags strongly affect absolute (total) efficiency index. Generalized IE indexes are computed in various

ways. There are two popular methods of calculation widely used in this country.

First method establishes a ratio between effect increment (taken for planned period) and capital spendings (also taken for planned period) with certain time displacement which covers preceding years.

Second method sets a ratio between future effect accumulated after lag years and capital spendings (taken for planned period).

Theoretically second method is more accurate, but it requires extra investigation and computation of the future period effect.

Construction and investment effects are dynamic and sophisticated phenomena. If we intend to correlate these two things we have to view them as an average index of this statistic totality. Correlation coefficient is computed like this:

$$Z = \frac{\overline{K P} - \overline{K} \cdot \overline{P}}{\sigma K \times \sigma P} \qquad (1.8),$$

where:

Z - correlation coefficient,

K - capital spendings effected during corresponding time span in years,

P - product increment during corresponding years,

$\overline{K}$ - average index of capital spendings effected during n number of years:

$$\overline{K} = \frac{EK}{n};$$

$\overline{P}$ - average value of product increment for n years period,

i.e.

$$\overline{P} = \frac{EP}{n},$$

$\overline{KP}$ - mean product of capital spendings and product increment values.

If we are unable to get maximal correlation coefficient by this computation we should mitigate these values and later find out the maximum of dependancy between correlation coefficients and time lag. When we have maximal correlation coefficient computed we verify its perfectness i.e. this coefficient must be the most accurate and precise value. It should reflect close correlation between the selected values. In general timing operations conducted during IP mean that we have to standartize IP's values. This is achieved by full scale reproduction process models based on discount computations.

Efficiency indexes computed under conditions of accurate timing seem to be more precise as far as real IE is concerned. Although in real life one can't frequently face the situation when efficiency indexes are computed without accurate timing or when timing operation are involved only partially.

The thing is that though timing computation brings about more accurate results we must note that economic assessments turn out to be poorly connected with real commercial results of the entity's activity. Commercial data is poorly related to standard costs efficiency assessment. Besides, it is common truth that index computation is not so complicated if it does not involve time factor. Almost all standard methods of IE assessment, including the standard methodology of 1988, recommend computation of IE without involving time factor. Computation dealing with partial timing sometimes is used very succussfully.

Computation with partial timing stands for annual profit compared with capital spendings (standartized by time, standartization is effected by discounting method and day of standartization is the final day of construction stage). So we can say that we standartize capital spendings by time and let free annual profit of operating entity. This type of computation is very popular especially when we calculate projected IE, because annual profit of the entity is considered to be predetermined by volume.

When we execute this type of computation (with partial timing) we can note that commercial results of the entity are not distorted by time factor. For instance, let's take equal annual profit of the entity. If we take time factor into account we may face decreasing efficiency indexes though the entity enjoys stability and recieves substancial annual profit. This fact indicates that if we have constant denominator, index numerators decrease progressively because first years profit is more

benefitial for the economy than profit of the following years. This sentence presents macroeconomic approach towards capital spendings. And as to enterprise itself it enjoys stability and here we understand why IE computation with partial timing is essential. This type of computation reflects local approach towards IE and computation of IE without timing reflects simplified local approach. But there is one thing to add. We use simple interest for partial timing computation while compound interest is used for the computation involving full scale timing.

In this country present methods of efficiency standartization do not tell standartized indexes computed with full scale timing from those that are computed with partial timing and without timing at all. This is due to the fact that standartized efficiency index is considered to be a marginal value and real values exceed marginal level.

Following years costs are standardized by the formula:

$$B = \frac{I}{(I + E)^{Hn}} t \quad (1.4.),$$

where: B - standartization index,

t - standartization time span (in years),

E - standartization value for time displace Hn costs.

Table 1.2 shows standartization indexes for time displace costs.

Standartization time span	Standartization index B	
	E = 0.08	E =0.01
0	1	1
1	1.0799	1.1
2	1.655	1.21
3	1.2594	1.331
4	1.3605	1.4641
5	1.4684	1.6105
6	1.5873	1.7716
7	1.7153	1.9487
8	1.8518	2.1436
9	2.0	2.3759
10	2.1598	2.5937

We can distinguish following types of lags:

1 - construction lag - lag between initial stage of construction and final stage.

2 - technological lag - lag between initial stage of designing and initial stage of entity's productive activity.

3 - economic lag - a time between capital spendings and reaching the planned level of output.

4 - complex lag - includes all types of lags for integrated object.

5 - national economy lag - lag between capital spendings and production increment.

Each lag can be described by graphic and functional equation. Lags tend to overlay and first two lags are estimated only for separate objects. They are not used in sectoral computations because a great number of the IPs is being annually effected.

Full lag is calculated as a sum of construction lag and economic lag computed in standartized dimensions. Each lag is measured as mean weighted value according to budget costs and terms of construction and exploitation of the industrial complexes included in basic totality.(1)

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1) Refer to: Methods and practice of EE evaluation for investments. Moscow, Nauka, 1974, iss. 18.

1.2.8. Regional parameters of IPs. (2)

Regional parameters do not differ greatly from national ones. They pay great attention to absolute and relative efficiency, secondary and contigency spendings, timing and other problems that emerge during PE.[2] Main distinction here is that all IPs are investigated from the regional point of view. And as to national parameters reflecting economic efficiency of the IPs they are investigated as supplementary for regional IPs. Regional capital spendings acquire special functions.

Function 1 - Regional capital spendings tend to be aimed at the creation of the progressive regional structure coordinated with other economic structures of union republics, autonomous republics and other territorial units (provinces).

Function 2 - Regional investments are supposed to create work places and promote effective employment structure in the region.

Function 3 - Regional investment exercises compensatory function. RI helps to restructure regional economy and introduce progressive technolcgies to local industrial complexes. This policy requires heavy flow of investment, that is the reason to call them compensatory.

Regional investment efficiency appears to be a coordinate investment efficiency considering national and regional interests

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2) Refer also to Report No. 2.

It reflects economic ties between national and local economy and relations between main and auxilliary branches of regional economy, basic and social infrastructures. These diversified relations serve for the purpose of coordinated management of different sources of capital spendings, including branch and regional funds.

Industrial complexes of various branches of economy and authority levels, public infrastructure alongstage basic infrastructure are subject to regional investment efficiency assessment.

Here efficiency is calculated as a totality of the effects in consumption sphere gained within the borders of the region and as a result of equal trade with other territories of the country. Economic efficiency calculations are long term project and its term is stipulated by the terms of target plans and programmes.

Economic efficiency of capital spendings directed to the major branch of regional economy is established in consumption sphere of other territories where the product of this branch is consumed (utilized). Quantitative evaluation of the awaited or real effects comprises economic contribution of the region to the GNP of the country.

Non-manufacturing services' effect is calculated as a total increment of the effects in manufacturing and consumer spheres of the region.

Social infrastructure also creates certain social effect that in its own turn affects industrial efficiency. Regional investment efficiency indexes are computed on every stage of conceptual policy-making and on every stage of planned and programmed

economic measures designed for regions.

At conceptual stage desirable socio-economic effects are established and computed per investment unit necessary for socio-economic need satiation.

On the initial stage of the IP relative economic efficiency is being evaluated. This job appears to be completed when the best version of the IP is picked up by experts and general coefficient of programmed efficiency is computed. At the stage of programme elaboration we coordinate capital spendings and other relevant measures with all kinds of material resources. In order to minimize regional costs we elaborate special charts along with plan on resources.

Several years ago we estimated deviation from EE standard according to the erection costs estimate revised in accordance with specific regional conditions (prices, production costs, etc.). Now we do not use this principal any more because of the restructuring policy in the USSR.

1.2.9. Self-accounting efficiency.

As it has already been mentioned, the main part of investments in the near future will be carried out by enterprises in accordance with the financial resources at their disposal. It'll take place thanks to the influence of a certain number of factors. In our opinion, two factors have the leading meaning: general tendency to fast development of decentralized investments and constant increase of the share aimed at reconstruction and other forms of enterprises' development at the total amount of the investments.

There are following forms of this kind in the USSR:

- extension of the functioning enterprises which means construction of additional powers on the functioning enterprises (structures), and construction of new ones and extension of separate shops;

- reconstruction of the functioning enterprises - a complex of measures aimed at technical-economic level increase on the basis of achievements of scientific-technical progress and being realized according to complex project of the reconstruction of enterprises in general in order to enlarge production powers, improve quality and change output without increasing the number of employees, in general, with simultaneous improvement of labour conditions and environmental protection;

- technical re-equipment of functioning enterprises - a complex of measures aimed at increasing technical-economic level of separate powers, shops and districts.

Self-accounting effect is usually defined during technical provision, reconstruction and extension of enterprises and organizations (Ee) as the index of profit PI (decrease of production cost) to investments:

$$Ee = \frac{PI}{\text{investments}} \quad (1.5).$$

As to the new constructions of shops, other departments, separate measures, including new construction of enterprises,

index of total effectiveness (E_t) is defined as the ratio of planning profit to investments (budget costs):

$$E_t = \frac{P - T}{T_{bc}} \quad (1.6),$$

where: T - are the total budgeted costs of the enterprises in construction according to project;

P - is the annual output in wholesale prices of enterprises (without turnover tax) according to project. (1)

Simultaneously with the account of E investments the period of investment return of the profit increment (P ...) and profit (P ...) is determined:

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1) Turnover tax in the USSR turns out to be distinctly defined payments to state budget. As distinct from profit of enterprises, which depends on a certain number of factors and which in the main part remains at the disposal of enterprise, tax amounts per unit of taxed production are distinctly fixed. Turnover tax is an important source of state budget.

$$P_{pi} = \frac{Ta}{P}; \quad P_{p} = \frac{Ta}{P - T_1} \qquad (1.7).$$

The profit increment is defined as the difference between amounts of the end years of previous and analysed periods, and in agriculture - as average annual profit increment, - in accordance with Methods of investment efficiency (1988).

Productive investments in calculations are accounted in comparable prices totally without any deductions.

Saving of production specialization development is determined by the formula:

$$S_{ps} = /PC - (WP + A)/ \times Q \qquad (1.8),$$

where:

PC - productive cost of separate products, transferred for production to specialized enterprise

WP - wholesale price, this product will be delivered from specialized enterprise;

A - amount of transportation costs per one productive unit;

Q - quantity of goods which will be delivered under cooperation from specialized enterprises.

Saving of new types of raw materials adoption:

$$S_{rm} = (N_0 P_0 - N_1 P_1) \times N_1 \qquad (1.9),$$

where: N_1 and N_2 - norm of a certain type of raw materials spending before and after taken measures;

P_1 and P_2 - price for unit of a certain type of raw materials and fuel consumed before and after taken measures.

Economic efficiency, concluding saving of carrying out other measures, is defined by analogy.

1.2.10. Investigation of actual investments efficiency.

Practice of long standing of investigation of actual efficiency by State Committee of statistics has existed in the USSR. On large projects such investigation is carried out by separate projects, and selectively on medium and small ones.

Index investments return period, reflecting absolute efficiency, is most frequently used during such investigation. Taking into account all advantages of this attitude one must see its deficiencies, if return period is investigated as a total ratio of efficincy.

Return period is one of two component parts of complete investment cycle, which characterizes the maximum duration of investments turnover and period of construction. For example, if return period is equal to 3 years, and construction period - 4 years, the whole investments cycle is 7 years.

Date of complete investments cycle duration is called for planning of both investments and sources of their budgeting if

investigate capital construction as a process, the amount of complete investments cycle will show the duration of the enterprise debt (debt of the enterprise which carries out construction works) to the economy. Reduction of the debt period itself doesn't mean increase of investments efficiency, but under other equal conditions, for sure, contributes to it. This index, though auxilliary, plays an important role.

Further, actual duration of return period can be fixed only after more or less long period after the end of the construction. It is the main practical deficiency of return period from the point of view of its practical employment.

Frequently, actual return period is difficult to be defined for reason of the continuity of investment process. As one reconstruction or extension of the enterprise is over (and sometimes - is not over yet), another one begins. It is especially characteristic feature of machinery enterprises. For the reason of elimination of the character of results (profit increment) the quantitative length of return is difficult to be defined.

In our opinion, statistics observation over the actual efficiency of investments must be of constant character. We should analyze actual result of capital construction continiously, from the first year of operation, that will make it possible to reveal in due course factors, influencing the level on efficiency, and take measures aimed at its increasing, preventing development of negative processes.

Efficiency index within the separately taken enterprise or installation are quite suitable for it. After putting into

operation they can be calculated yearly and compared with project and other valuing - analytical ratios and indexes and the reasons for deflections from each other can be revealed. As a matter of fact, the return of investment is continued during the time of existense of the enterprise, being unstable on a large range.

One must see the difference in comparison of actual indexes with the planned ones and other ratios under conditions of functioning previously and forming now, during perestroika, management systems. Under administration system a complicated system of standards observation over which is being done by Ministry, Gosstroy, Gosplan etc. was elaborated. Under conditions of new forming system standards of construction, return, mastering (if it is necessary), are drawn on the basis of agreement between customer and executor. So, the control is being done not by the authorities, but by the negotiating partners themselves, which is more effective and reliable.

The choice of return period as the index of actual efficiency can be sometimes explained because of the desire to differentiate the conceptions of investments efficiency and efficiency of capital production funds employment.

Such approach, in specialists' opinion, is of simplified character. Investments turn out to be the future funds, and capital funds - as a matter of fact are considered to be former investments.

For sure, it is not the total volume of capital spendings, that is reflected in funds cost. But, in principle, investments and capital funds are considered to be though not identical, but

still close conceptions. It's unlikely legitimately to counterpose investment efficiency as a totality of two factors' influence: potential established capital funds and extent of efficiency of their employment.

The more sucessfull are solutions taken during planning period and the quicker investments are realized, the higher potential efficiency is, e.g. capacity of capital funds to give effective return, which is to be realized.

Real efficiency to large extent (and sometimes to the decisive extent) depends on the organization of production and management, qualification of employees, conditions of material-technical supply and scale markets. The extent of capital funds employment brings about actual return of investments, but the volume of such return is determined by potential efficiency of funds. Under other equal conditions, the higher potential efficiency of funds is, the higher actual efficiency of investments will be. Investments in capital funds with high potential efficiency but badly used can't give much more results than investments in capital funds with small potential efficiency, but used skilfully and completely.

Illustrations of efficiency index show charges of actual efficiency of investments. Their dynamics make it possible to appraise efficiency dynamics and actively influence it.

At present calculation of actual indexes of efficiency is included in programme of statistical investigations. At the same time equipment periods of investments are preserved. Alongside with usual formula of indexes (annual profit divided by

investments) two its modifications are employed: compensation indexes and average indexes.

Installation put into operations is usually investigated in details by statistical authorities three years after the beginning of its exploitation. If it has not been returned, it will be investigated once again six years later. If the results are still not satisfactory, investigation will be carried out 9 years later. After this moment investigation of this very PI stops and the final conclusion is made. (1) During every investigation efficiency indexes and their modifications are calculated for all previous years, that makes it possible to use the dynamics of the process.

At present above mentioned programme of statistical investigations contains the question of reasons for deflection of actual ratios, used for calculation of efficiency indexes (investments, volume of production, price, production cost, return of funds, profit, capital turnover, labour productivity) taking into account corresponding project data, and appropriate recommendations are being elaborated.

There may be some cases when deflection of actual ratios from planned ones can be brought about by unreality, artificial overstating of planned ratios. It is usually revealed in the beginning of exploitation. Though active influence on increasing

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1) We describe the real procedure, in future it's supposed to be changed from the point of view of strengthening the examination of fulfilled projects.

efficiency level on this particular enterprise in such case is practically equal to zero, conclusion can be used for presenting claims, and significant economic sanctions to planning organizations in future. Realization of new conception of economic mechanizm will make it possible to calculate end contract price, coordinated by the customer with projectmakers depending on the level of project efficiency and degree of efficiency's reality.

1.3. The "shadow" prices of skilled and unskilled labour.

1.3.1. General considerations.

Officially there is no unemployment in the USSR. So there is no regulations of material aid to the unemployed. It is foreseen, that discharged people may receive their average wage during three months. Assistance in provision of employment including assistance in retraining, is given to those people. Nevertheless practice shows, that a certain excess of labour forces in material production sphere systematically appears in the economy. At the same time, in our opinion, significant unemployment is unlikely to be expected in the USSR. In the first place, a large number of free working places exists now. So, people discharged from th economy, specifically from the construction, may work at other enterprises. In the second place, creation of farms, cooperatives may "retract" non-limited labour forces.

Soviet government has planned for 1991-1995 a certain number of measures of more rational employment of labour forces, optimum combination of production interests with interests of population, and measures aimed at increasing of social protection of

citizens. Those measures are as follows: elaboration of repuiblican programmes of provision of complete and effective employment of population taking into account schemes of region development and deployment of productive forces, for labour-excess regions - maximum possible transfer of enterprises to many-shifts regime of work, development of labour - intensivity powers etc.

In case of calculation of labour force spendings average wage for each group of employees is usually counted; personell training expenses; housing and social sphere expenses; wages of employees over the limits of state sector.

In case of the project evaluation one should take into account the average worker's wage in construction. It is equal for qualified workers approximately to 4 thousand roubles a year; for non-qualifyed workers - approximately 3 thousand roubles. Training of personell is usually done in special technical schools, general technical schools, engineers are trained in higher educational schools. Payment per one young specialist is 3000-4000 thousand roubles, this payment is being made by enterprise to higher education school according to the agreement. For the valuation of this amount we'd like to mention that actual expenses in schools of general education are equal to 280-300 roubles a year per one pupil; in specialized schools of general education - about 900 roubles a year, in higher education schools - 1300-1500 roubles a

year. (1)

Besides of this fact, labour expenses contain payment for labour forces. According to this rule, each enterprise, either industrial or construction, pays 300 roubles a year for each worker (irrespective of his qualification) to the budget, in regions with excess labour forces (e.g. in Uzbekistan) - 200 roubles a year, for each administration employee - 600 roubles. Social insurance expenses, which share has the trend towards fast increase, are also included. A system of cooperatives is widely spread in construction sphere. The number of working people in construction cooperatives already now exceeds, according to our estimates, 1200 thousand people, and in the near future may exceed 2 million people. The average wage in cooperatives is equal to 500 -700 roubles. It is rather difficult to estimate the level of labour productivity. But selective investigation, made by the authors, shows, that individual output in cooperatives is higher only by 20-30%. Output per one employee is much higher (thanks to the absense of excessive office personell, which exists at state construction and industrial enterprises).

Expenses, connected with social service installations, may be also related to labour force expenses. Thus, in Moscow, central administrative bodies transfer limits of investments in official order to Moscow city executive committee for construction of

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1) Planned economy, 1989, No. 1, pp. 81-88.

We'd like to mention for one's orientation, that from 1960 to 1987 educational expenses have increased 5 times, achieved 4,5 billion roubles. Trend to rather intensive increase of those expenses is being observed.

social service installations. Central administrative bodies also transfer limits of construction-assembly, contract and planning works on a scale of 10% of means aimed at productional construction of their departmental enterprises and organizations, and also 3% of limits of public centralized investments construction-assembly, contract and planning works, allocated to productive construction with direction to create installations of culture, health, protection, education etc. Those installations have nation-wide importance.

In a number of cities a system of economic payments to local authorities for each new worker in case of new workers' migration has been introduced. For reason of absense of dwellings sometimes enterprises are forced (with the absense of hotels) to rent flats for the drawn workers in private sector (or if it deals with highly skilled workers - even rooms in the hotel). To rent a room for two persons in large cities costs 50-60 roubles a month, in small towns - 30-50 roubles.

1.2.3. Payment for labour.

Let's investigate payment for labour in details. Payment for labour is directly accounted in integrated and elaborated project evaluations. Tariff indexes and rates are used in construction sphere; 6-grade system is also used. An hour tariff rate fluctuates from 0.59 rouble for the first grade to 1.06 rouble for the sixth one, correspondently the month rate fluctuates from 102 roubles to 183 roubles; (higher actual wage is brought about by the significant overfulfillment of targets, additional

charges and bonus rewards).

System of increasing indexes, established from 1,5 to 2 for regions with severe living conditions, is considered to be an instrument of interregion wage adjustment.

Territorial indexes are calculated to the amount of actual employees' earnings, excluding so-called northern bonuses (spread in the regions with severe northern climate), personal bonuses and payments, calculated on the basis of average earnings.

Two main forms of payment for labour are used in construction sphere: payment by the piece (more than 80% of workers are drawn by this form) and payment by the hour. At present system of payment by the piece has been developing very quickly.

According to this system, the total amount of earnings is defined at once for the complex of works (for example, for assembly of industrial building framework) or for the installations as a whole. In order to achieve this goal, production calculations are composed. These calculations contain complete labour costs and wage in accordance with adopted progressive technology and methods of construction-assembly works.

Counting wages one should take into account additional payments for mobile job character in the Far North (within the limits of 40%), in other regions (30%) - one should bear in mind tariff rates, additional payments for works connected with travels; additional payments for the workers in business trips within more than 2 months period etc.

1.3.3. Salaries of engineering and technical employees.

In calculations connected with the evaluation of the engineering and technical employees' salaries, the following practice, created in the USSR, is taken into account: all posts are united into three groups: heads, specialists, employees.

Each of the group is divided into sub-groups. Titles of posts are classified depending on the character of fulfilled functions (specialists, executive engineers, economists etc.) and divided into categories of qualification's level (specialists of I, II, III categories).

Post salaries of the head and engineering-technical employees are differentiated depending on their category. Volumetric qualification - annual volume of construction-assembly works fulfilled by the organization by general contract - is the basis for relating to this or that group of payments.

Correcting decreasing indexes are introduced in addition to corresponding volumetric qualifications for the accounting of specific character and labour intensity of the works, fulfilled by construction-assembly organizations.

At present we need more objective criteria and methods of relating to some categories of construction-assembly organizations and more effective system of payment to high-rank executives in order to make it more precise, objectively reflecting labour intensity, complexity of adjustment and results of economic activity.

1.4. The "shadow" rate of foreign exchanges.

1.4.1. General considerations.

Soviet rouble is not convertible. A serious work aimed at step-by-step introduction of rouble convertibility has been done in the USSR in recent years. Special rouble exchange rate was introduced officially. This exchange rate is used in case of foreign exchange services (non-trade payments) of Soviet and foreign citizens (table 1.3.).

In the near future revision of official foreign exchange rate is expected. According to our assumptions, dollar official foreign exchange rate will be equal to about 4 roubles. Real market dollar foreign exchange rate is considerably higher. Thus, in November, 1989, on the first auction in the USSR dollar was equal to 15,2-15,3 roubles. There are facts of selling dollars on the "black" markets at the rate of 20 roubles.

Table 1.3

State bank of the USSR

Bulletin of special exchange rates

(on January 3, 1990)

Foreign exchange	For	Official foreign exchange rate	Special foreign exchange rate
Australian dollars	100	48,03	480,30
British pound sterlings	100	97,57	975,70
German marks of FRG	100	35,99	359,90
Dutch guilders	100	32,87	328,70
Italian lyres	10000	4,80	48,00
Canadian dollars	100	52,50	525,00
US dollars	100	60,72	607,20
Finnish marks	100	15,03	150,30
French franks	100	10,53	105,30
Sweedish crowns	100	9,79	97,90
Japanese yens	1000	4,23	42,30
E C U	100	72,50	-

1.4.2. Foreign exchange problems in case of joint ventures' creation.

Currency problems appear more and more frequently in connection with increasing number of joint ventures. According to the present Soviet regulations, foreign partner's fee is valued at the official rate of State Bank of the USSR at the moment of signing an agreement on joint venture's creation or other data, settled by the partners. It's necessary to emphasize that in spite of these conditions, which may seem unprofitable for the foreign partners, creation of joint ventures in the USSR has proceeded very rapidly.

We can mention following moments when exchange of currencies in joint venture is necessary:

- when volume of jointly financed investments is settled in transferable roubles or hard currency in case of joint ventures creation in order to define quotas of the partners;

- when bulk purchase of raw materials, equipment and other goods-material values necessary for the joint venture activity is being done in the countries of the joint venture partners' origin or in other countries;

- when foreign exchange received from exports is exchanged into roubles;

- when profits and other sums are transferred to the joint venture partner's country during the distribution of net balance profit at the end of the year under review exceeding current requirements of joint venture in a year, which follows the year under review;

- in case of compensations of possible losses on account of additional payments of members to initial fund;

- when carrying out settlements between joint venture and its subsidiary out of the Soviet territory.

Problem of the foreign exchange rate appears on the stage of preliminary calculation of comparative efficiency of joint investments as a criteria for making optimum decision in case of creation of joint installation.

* * *

The Sovie government has worked out a set of measures aimed at the improvement of foreign exchange position in 1990-1992. The target is to stabilize foreign indebtedness and to begin restructuring exports' and imports' structure. Following measures are taken in order to fulfill these targets:

- sharp reduction of bulk purchases of the goods (currently imported) which can be effectively produced in the USSR;

- exports' development and changing its raw materials orientation;

- introduction in 1990 of new regulations on creation of foreign exchange funds of enterprises.

Standards of payments are to be put in direct dependence on the volume of exports and exports' structure.

1.5. The shadow price of land.

1.5.1. Integrated evaluation of land.

Economic evaluation of lands allocated to IP must be thoroughly examined in case of project evaluation.

Integrated evaluation of municipal territories has been elaborated in the USSR. It is used on the stage of decision making to compare construction versions, to evaluate architecture and planning draft projects of industrial centres and districts allocated to industrial construction etc. Such integrated evaluations may be used in case of absense of corresponding worked out plans for certain city in the project operating in the city. Recommended methods of the economic evaluation of lands allocated to construction have been elaborated in the USSR. These recommended methods have been in use for a number of years.

Economic evaluation of above mentioned lands contains following indexes: basic infrastructure costs; economic consequences as a result of changes in use of land, socio-economic value of the land; capital spendings for rehabilitation of environment in the district.

Both rent and full (covering all topics) indexes are used for calculation. Rent indexes show difference between indexes of relevant compared versions.

Differentiated indexes for five groups of cities depending on population of these cities have been elaborated in the USSR. Inside each group indexes are differentiated depending on the distance from the centre of the city (Table 1.8). Great cities

250-500 thousand; big ones - 100-250 thousand; middle ones - 50-100 thousand; small ones - up to 50 thousand (Table 1.4).

Table 1.4

Category of the cities	Distance from the centre of the city in parts of medium city radius for every division				
	I	II	III	IY	Y
greater cities	0,15	0,15-0,3	0,3-0,5	0,6-0,7	over 0,7
large cities	0,2	0,2 -0,4	0,4-0,7	over 0,7	-
big cities	0,2	0,2-0,4	0,4-0,7	over 0,7	-
middle cities	0,2	0,2-0,4	over 0,5	-	-
small cities	0,2	0,2-0,5	over 0,5	-	-

Correcting indexes are used in various regions for integrated evaluation of municipal territories.

Evaluations of basic infrastructure in case of complete development of the territory, of costs and losses due to allottment of good land have been elaborated. But compensation for allottment of agricultural lands is paid according to the standard payments accepted for development of virgin lands instead of those taken for construction etc.

Investment in development of virgin lands is effected according to the standard development costs accepted for new agricultural lands instead of those taken for non-agricultural needs, adopted by Councils of Ministers of the union republics.

Evaluation of compensation for allocated woodlands is done with account of following costs:

- costs of creation of new lands for reproduction of forests;

- costs of compensation of net losses in case of forest liquidation in the regions, where forest is considered to be the source of timber and a number of stand by products during the period of timber resources recreation. Economic and recreative importance of the forest in suburban areas is assessed.

Socio-economic importance of the territory is determined by functional services of urban districts.

Accounting of urban land value by introduction of economic evaluation of territories in calculations of comparative economic efficiency of investment will contribute to the adoption of more compact deployment plans and all in all will provide optimum decision for deployment.

1.5.2. Calculation of comparative investment efficiency with account of lands evaluation.

Calculation of comparative economic efficiency with account of economic evaluation of land is being done with the help of marginal standartized expenditures (Es). They are equal to the amount of current costs lump sum expenditures, attracted by the construction version, with unified accounting units complying with established efficiency standard index and economic evaluation of land, allotted to construction site.

Land evaluation may be current and basic one:

$$Es = Ci + Ii \times En + Zi \times En \Longrightarrow \min \quad (1.11)$$

or $$Es = Ii + Ci \times Tn + Zi \Longrightarrow \min \quad (1.12),$$

where: Ci - current production costs and running costs of social infrastructure attributed to relevant version of construction;

Ii - lump-sum expenditures (investment by versions);

En - standardized investment efficiency index;

Zi - economic (cost) evaluation of land, allocated to construction;

Tn - standard time of investment recoupment,

$$Tn = \frac{1}{Es}$$

Indexes C, I, Z may be used in total amount of the [illegible] compared versions (unit values may be related to number of inhabitants, erected houses, etc.). According to above mentioned formula we select version, where standartized expenditures are low.

In case of provision of more rational use of land, economic efficiency of the versions may be calculated through estimated period of extra investment. This investment saves up lands (Ti).

$$Ti = (Ii - Zi) \times Ci$$

where: Ii - difference in volumes investment for between examined versions;

Zi - cost value of land saving due to new version;

Ci - difference in current expenditures.

Version is considered to be effective if Ti <= Tn.

Cost of lands has been constantly growing in the USSR. For the period of 15-20 years in has increased 1,5- 2 times. (1)

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1) For details - to refer the above mentioned guidebook. "Economy of construction", pp. 270-290.

1.5.3 Example of rent calculation in Moscow

Annual rent is supposed to be paid by all enterprises and organizations as far as land at their disposal is concerned, municipal territories, including sanitary and other protective zones of enterprises, railway branch lines, lines of electrical transmission, gas mains, places for ash-keeping and other territories, which are under the authority of the enterprises and organizations.

On the basis of economic evaluation of municipal territories the following rent chart has been drafted (1). Moscow is divided in 5 zones.

Rent payments are following:

I zone - 350 thousand roubles / hectare,

II zone - 275 - " -

III zone - 180 - " -

IY zone - 135 - " -

Y zone - 70 - " -

Rent payments and zones division are corrected every 5 years.

Rent also depends on the access to communication and transportation lines. Thus, when the distance from large city roads and underground stations is up to 500 metres, index 1,5 is used in order to calculate the amount of payment for territory and the annual rent amount. This index is used from the second zone

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1) Above mentioned indexes are not adopted yet, they are submitted to further revision.

and further from the centre, except dwelling houses, health, cultural, servicing, education, trade, canteens, municipal services, sports objects and constructions.

Project of economic incentives has been elaborated. Thus, in case of deployment on the lands of enterprises producing consumer goods, enterprises which can't be considered as safe, indexes of tables No. 1.5, 1.6 are supposed to be used in order to calculate the amount of rent payment.

Table 1.5

Differentiated indexes elaborated for enterprises, producing consumer goods (CG) for Moscow.

Share of CG, in Moscow	Share of CG in total output			
	80-100	40-79	5-39	less than 5
100	0,5	0,5	0,5	0,6
80-89	0,5	0,5	0,6	0,7
40-79	0,5	0,6	0,7	0,8
5-39	0,6	0,7	0,8	0,9
less than 5	0,7	0,8	0,9	1

Table 1.6

Differentiated indexes or payments for urban land

NN.	Classification of enterprises, buildings for sanitary control zones	Coefficient
1.	Class I	2,0
2.	Class II	1,7
3.	Class III	1,5
4.	Class IY	1,3
5.	Class Y	1,2
6.	Clean enterprises	1,0

Report 2

Control over Observance & Change of the National Parameters of Investment Projects in the USSR.

Introduction

According to the requirements here we investigate national and regional parameters applied for Investment Projects (IPs) preparation and evaluation, institutions involved, time parameters relevant to the IPs alongside Value Analysis applied to the IPs. As we have rapidly changing economic situation in this country - from administrative management to socialist market - some topics of the Reports may be somehow inadequate. So, we try to give critical analysis of the methods and approaches adopted in the USSR for IPs. In this Report we express official points of view and opinions alongside other recommendations and developments dealing with investment activity (hereafter IA) and control over the investment parameters. Sometimes we present experts' assessments in order to give a wider range of opinions.

Whenever it was feasible and didn't contradict the UNIDO requirements we tried to meet the requests of our Chinese counterparts.

This was done according to the agreement reached during the Moscow meeting in the beginning of 1990.

2.1. National and Regional Parameters for Project Preparation and Evaluation.

2.1.1. General Scheme of IPs Planning.

Capital spending in this country are considered to be a certain totality of social expenditures that are needed for creation and renovation of the fixed capital of the national economy. Capital spending seems to be a broader term than capital construction. Capital spending include acquisition of the equipment, agriculture machines etc.; these type of capital spendings do not need installation works or another type of construction or erection activity. By way of capital spendings (hereafter CS) economic proportions and appropriate rates of economic development may be achieved as well as rational deployments of productive forces and advanced economic development of the regions.

As far as agricultural CS are concerned they include CS allocated to the Research and Development (R&D) organizations, to entities processing raw agriculture products, to the producers of construction elements and to the building contractors which operate in agriculture etc.

Capital spendings absorb expenditures allocated to the new building construction, to reconstruction, to renovation and expansion of the industrial enterprises as well as expenditures allocated to the housing, and infrastructure construction and so on. Capital spendings

cover acquisition of the equipment, machines and instruments.

Fixed capital includes buildings, constructions, machines and equipment, vehicles, tools, cattle and other types of fixed capital. Productive fixed capital includes industrial means of labour that are repeatedly involved in the process of production. These assets depreciate during their life and gradually transfer their value to the products via amortization.

Fixed capital that is not directly involved in the process of production is considered to be nonproductive fixed capital.

On the macroeconomic scale fixed capital covers fixed capital of the state, cooperative and social entities and organizations, collective farms and individual owners. Today individuals can possess economic entities of a smaller size (where no employed labour is exercised), either industrial or nonproductive.

Fixed capital's dynamics and structure are computed by means of adjusted prices taken at the end of the financial year.

Expenditures for drilling, excavation and explorations of natural resources are not considered to be capital spendings under the present methods applied in the USSR if these expenditures are effected by state budget or by special funds. State and public organizations may purchase equipment and other items but this deal would not be

considered an investment (capital spendings) as well as funds allocated for rehabilitation works, repairs and restoration of the public and state organizations' buildings because these operations are financed by state budget or by local budgets.

National control over the parameters of the IPs in this country has specific features and is effected during the planning stage at the national, regional and sectorial levels.

Total amount of Capital spendings includes investments backed by all financial sources: state limited investment, Soviet Socialist Republics and autonomous territories' limited investment, local limited investment, commercial investment. The last type of investment includes investment composed by special investment funds of the industrial entity and by attracted bank loans. Total amount of investment takes into consideration renovation costs, expansion costs, reconstruction costs and costs of incompleted (carry-over) construction. This also includes equipment acquisition costs (if the list of the equipment is not stipulated by calculation of costs of construction) and other costs of productive and nonproductive objects.

Five year plan of capital construction covers centralized and decentralized capital spendings. Five year plan of capital construction is based on the planned values (so-called 'control figures'), long-term economic standards, governmental contracts, investment funds of the enterprises,

materials supply and balance of fixed assets and productive capacities. Planned values and coefficients include output of product, profit, profit in foreign exchange, main R&D figures, volume of contracts for installation and erection works.

Large IPs are governed by Gosplan (State Planning Committee of the USSR) and these projects are duly supervised by state bodies and through governmental contracts. This type of contract includes erection of industrial entities and environmental entities, socioeconomic infrastructure.(1)

Other objects are supplied with target values and coefficients which are derived by way of extrapolation, introspective estimations, prognoses, valid information supplied by Soviet republics, ministries and other administrative bodies. This composes the principal difference between the control figures, values and indexes for the 12th 5-year period and for the present time. The former covered the whole volume of investment in this country.

These figures, values and indexes were rigid and every unit of the economic-administrative chain got certain values

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(1) Refer to 2.1.4.

to be achieved and observed during the five-year period (there could be 2 types of chain: ministry-enterprise one or Soviet republic - local municipal unit).

So territorial units had their own values and coefficients. Today this system of vertical administration is being eliminated due to its inefficiency.

Now expansion investment of the enterprises, ministries and other administrative bodies is backed up by investment reserves of the entities and bank loans. All economic entities plan for themselves volumes of investment, timing, erection schemes, installation options and other things.

Centralized investment planning covers two areas of plan computations, i.e. computation of demand and distribution computation. Here we use special method of computation which we call standard-balance method. It is exploited to define the demand for centralized investment.

Demand for productive capital spendings may be established by way of varions methods. Econometric modelling is successfully used for this case as well as direct cost computations used on objects and on directions of investment. Demand computation before 1989 was based on planned balance of productive capacity, output volumes, fixed capital assessments and standards of varions kinds. (1) Today Gosplan does not have full information covering

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1) Refer to 2.2. of the Report.

this activity and due to this lack of information planned balance appears to be approximate and may be used for prognosis and analysis. Partially standard-balance method is used for computation of demand for centralized capital spendings. Real basis method is widely used alongside extrapolation of the proportions that existed during the later years with the values corrected due to the scientific progress. This method takes into consideration the larger share of investment that is allocated to social sector of national economy.

But here we must say that extrapolation method is valid when we work with so called inertial systems. Today we have rapidly changing system of parameters due to the economic restructuring. Now these parameters are aimed at social needs of people, environmental problems, and at the development of consumer goods producing industries. Due to all this we have to be very cautious when applying extrapolation method and we must check and recheck our computations, estimations and assessment by way of other methods.

Approximate investment now is computed for analytic purposes with the help of generalized standard units of investment. It is computed as total sum of investment per production increment and investment increment; is established with the help of specific calculations (or with the help of specific coefficients of investment effected for industrial purposes)..

Parallel to this computation we effect another type of investment based on standard rates of economic efficiency. Volume of investment here can be found out as a ratio between the values of increment of economic results and corresponding standard rate of absolute economic efficiency.

Different methods facilitate allocation of centralized capital spending. Three versions of allocation can be identified by economic-mathematical model: minimum version, maximum version and medium version (i.e. compromising version between the latter two). We find it difficult to formalize factors of investment allocation.

That's why the foregoing factors are formulated on preliminary basis and later are subject to verification by several iterations during computation stage of work.

Algorithm of iterations here is as follows (if we run a dialogue pattern): we set down the priority topics bracketed between maximum and minimum limits of the investment volume and establish rational medium version of investment allocation in compliance with economic criteria and other limitations.

Basic algorithmic steps here are: we grade economic programmes and objects according to their importance. Each programme and object scores points and is placed in the special importance range.

So, the "place in the queue" for each object and

programme is introduced according to the scores, which the team of experts granted each project. Then the range is adjusted by other practical factors (e.g. production conditions, expansion forecast, time limitations, foreign exchange reserves etc.). Basing on this we estimate volume of investment for each project, regarding all possible limitations. Here the place in hierarchy may be changed due to any reasonable amendment. When this stage of work is completed, we compare the investment resources available and investment demand, in order to analyze every IP and to investigate all kinds of relationships that may appear between the IPs.

Construction in process is one of the most important national parameters of investment activity. According to the Government Decree there must be a full list of construction in process before March 1, 1990. All objects that enjoy centralized capital spending are subject to this listing. This is done in order to restrain capital construction in process because it affects badly economic situation in the country. System of bank loans and credits must be introduced and secure better efficiency of capital construction. 1990 is a starting point for the credit expansion of the banks in the sector of capital construction.

We would like to point out the group of parameters that is connected with the introduction of import-substituting enterprises or export-oriented plants, especially when high-tech production is involved. Share of 'turnkey' objects

appears to be one of the most important national parameters for a time being. As we know 'turnkey' objects are being constructed by one contractor, which is responsible for all functions of the object. The contractor secures complex flow of investment and construction. The contractor covers all stages of investment, erection and installation of equipment as well as preparation of the entity for productive activity. General contractor spends its own money and attracts bank loans in order to finish the turnkey object. Banks and other relevant institutions feed the general contractor during the whole time of the IP in compliance with the plan of construction and other terms. The customer pays according to the contract price after special Act of Acceptance is signed.

The customer provides contractor with accepted municipal construction plans. technical-and-economic computations, calculations for industrial objects, separate buildings. The customer transfers limit investment values to general contractor.

Other national parameters include number of investment agents in the country, building construction contractors and construction design organizations operating in the Soviet Union. Volume of the enterprises' investment reserves may be also accounted for.

Botn economic and socioeconomic efficiency of the IPs are also undoubtedly major national parameters of IPs.

Future development of national parameters may follow

this pattern. First and foremost we must look forward to inquiring into the relationships between the existing parameters but not to scoring new ones. So, we must develop an advanced system of different preliminary and project indexes, coefficients and other analytic figures that can help us to comprehend investment process as a whole.

Second, we have to pay more attention to the indexes that reflect processes of mutual correlation in investment activity (i.e. scientific research, design, economic environment, especially market, social sector of economy, education, training) and all other phenomena that can affect investment in the Soviet Union.

Third, we must pay due attention to the aggregated indexes of expanded reproduction process on the basis of investment processes.

2.1.2. Standard Applications for Control Measures over Capital Spending.

There is a system of normals and standards applied for the procedure of planning and project evaluations of building construction effected in industrial sector of economy as well as in social sector. It is used for budget costs calculation, investment projects effects assessment, etc.

Standard parameters and standard timing for IPs comprise an important share of normals and standards used in

building construction. As we have already mentioned all these standards were obligatory for economic entities before restructuring policy had been launched. Today the overwhelming majority of the standards is being decentralized due to the decentralized investment policy in this country. Some standards remained unchanged but now they are being used only for centralized investment and for investment effected with the help of Central Bank (Gosbank) loans. In all other cases these standards appear to be of recommended nature. None the less we hope that these normals and standards may be of great importance due to the fact that all economic entities that effect capital spending expect high rate of efficiency. That's why they may be inclined to observe these recommended normals and standards. We have already covered some problems dealing with standards in Report 1, but we think it important to dwell upon the problem in this Report too.

Here we can distinguish normals of capital spending, investment cycle standards, and output normals.

Specific index normals stand for input values allotted to fixed capital development related to the unit of output and/or output increment. In this country we deal with normals covering unit investment allocated to erection and installation works and equipment acquisition. Also we distinguish special type of expenditures for 'fastening the object in place' (landing). Besides we operate with generalized normals of investment composed for branches of

economy and sectors. These generalized normals are based on long-term practice and take into consideration all types of economic proportions (industrial, territorial, sectorial).

Compound normals are used for types of branch industries. When we use specific (unit) investment normals and standards we bear in mind limit of investment. It is defined as a product of industrial output capacity and unit investment normal.

Individual normals and standards are used for individual objects and for output capacity values of these objects.

There is a special Handbook in the USSR devised and adcpted by State Committee for Building Construction of the USSR (Gosstroi). This Handbook covers all investment normals and standards. There are investment normals and standard for environmental objects erected in the framework of industrial objects.

Time standards of investment cycle cover time standards for design, for initial stage of erection works, standards for construction in process and time of completion of the object. Normals for project development of planned industrial output capacity, economic coefficients, standard basic industrial output capacity, standard labour productivity, profitability, etc.

Investment standards and normals as well as normals and standards for fixed capital are used for forecasts and short -term and long-term programmes. Investment standards and

normals are used as a base for contract price estimation and as a measure of control over commercial activity of industrial self-accounting entities.

Time standards of investment cycle have been widely exploited up to 1988 for capital construction planned indexes and coefficients. These time standards facilitated assessment and elaboration of the limits for project and development works, for erection and installation expenditures, for investment allocations spent over the erection period years. Today these time standards are regarded as investment normals and standards which we described earlier in this Report.

Standard indexes applied for reaching planned level of industrial output have been recently used for government contracts formulation and for elaboration of checking points for industrial entities. The enterprises worked under the burden of estimated by plan labour productivity indexes, output volumes, profitability and other rigidly planned indexes and coefficients. All these check normals and standards were used during the initial stage of productive activity in order to control different spheres of enterprise's activity.

When five-year-plan preparation is underway specific (unit) investment values are used to form basic grounds for investment forecasts, construction project evaluations. They are used for preparation of the lists of building construction projects and individual objects.

Social normals and standards are exploited when we want to describe and generally assess national economy investment demand. These social normals and standards are viewed as successive and gradual values. Approximate demand for material resources is subject to computation based on standard specific (unit) investment defined with a certain attention paid to advanced technical-and-economic features of the objects in question.

Standard efficiency rates are used for total efficiency assessment of the object as well as for assessment of the plan versions and plan computations effected in order to award the contract to the best contractor. Especially this may be used when government contracts are subject to the tenders.

There are several normals and standards that are taken into account when investment sources are being defined (whether for centralized investment or commercial investment, i.e. effected by enterprises themselves).

These standards and normals are following. Standard rate of profit deductions that are allocated to the expansion and development funds. Standard rate of operation profit deductions that are allocated to the centralized fund of expansion and development and to the ministerial reserve funds.

Technical-and-economic normals and standards for investment resources evaluation that includes material and labour standards. Material standards are needed for better

allocation of limited material resources, for precise computation of demand rate for materials, especially when investment is effected by centralized funds of capital spending.

Labour standards facilitate labour force demand computation in order to secure full coverage when possible. Labour standards serve analytic purposes when investment is not effected by centralized funds.

Scientific research institutes alongside relevant ministries and other administrative bodies established a profound system of normals and standards that can be applied for investment activity in the Soviet Union. But we must confess that this huge and complicated system of standards and normals leaves much to be desired if we compare it with international analogues. This is true for all types of parameters national as well as regional, which deal with specific climate and weather conditions in the North and in the South of the USSR.

2.1.3. Government contract.

Government contract (hereafter GC) envisages turnkey contract financed by government from centralized investment funds. This type of contract sets up some terms and conditions for contractor and for customer:

- installation and productive operation of the equipment;
- installation of environmental facilities;

- construction and creation of social infrastructure.

In order to achieve adjusted and matching development of investment activity all investment objects under centralized investment funds are specially listed in State Plan of Development in the Article dealing with 'limited resources'.

Special analysis is done in order to estimate initial construction position that determines the situation with industrial output capacity. Special coefficients, indexes and quantitative values reflecting situation with construction in process are verified and detailed. We define and adjust list of construction objects that are to be completed during the following years. This is done by way of version selection. Project evaluations of these objects and their technical-and-economic features are analyzed and thoroughly scrutinized in order to have detailed picture of the objects.

Ministries and other administrative bodies, Soviet republican Councils of ministers elaborate and present five year plans of development covering investment policy of these bodies. These plans include information about industrial enterprises that will start their productive activity during this five-year period. Five year plans define the objects that would be created under centralized government investment allotted according to the GCs; investment funds and reserves of individual enterprises and organizations. This is done for statistic purposes and for

the purposes of materials supply and for subcontractors information.

Plans for new productive economic entities are composed for national economy, for ministries and other administrative bodies, for branches and sectors of economy. Centralized and non-centralized investment are being regarded separately.

Centralized public investment allocated to GCs aimed at advanced technologies and scientific research appears to be one of the most important spheres where centralized investment can be successfully effected.

Such IPs are designed to facilitate implementation of the most advantageous programmes of scientific and technological progress in the Soviet Union. This is done in order to conduct united scientific and technological policy in the country. Government contract is aimed at new technologies, high-tech products, materials, services, etc. Contractors compete for the GCs. GCs are adjusted in conformity with the life cycle stages of scientific developments so as to secure most effective exploitation of the economic results of scientific research.

GC covers development of material base and includes contracts providing better equipment and applications for scientific research aimed at innovation in industrial sector of economy. This embraces all kinds of laboratories and research certers, advanced technical installations and other types of research-and-development structures that are

created and operated under centralized public investment.

GC facilitates accelerated development of material base, supporting delivery of new products according to complex GCs that secure installation and productive activity of the important enterprises engaged in R & D projects and programmes.

As we have already mentioned there is competition between contractors for government contract and it is absolutely clear that the most effective version is adopted as a basic one and the winner organization, enterprise or plant is granted this contract. All government contracts become a substantial and major part of the development plans, and are executed in the framework of these plans. GCs are regarded as major elements and basic targets of the development plans. Government contracts form certain network of contracts including all economic agents engaged. Contracts include job assessment, timing, contract prices, penalties, and other provisions.

Research and development are budget-supported. State Science and Technic Committee receives budget funds and supports scientific research affecting government contracts implementation in all fields.

State Planning Committee (Gosplan) is one of the sponsors for new enterprises and units producing new types of equipment and goods and operating under government contracts. If investment is effected by a republican government then it is backed mainly by republican investment

fund. Soviet Republics pay great attention to environmental investment in the area and we may consider following investment as environmental ones:

design of territorial industrial complexes aimed at creating better industrial structure of the region. This includes residue processing plants and factories. Output product of these plants can be utilized as raw materials by regional industry. Environmental projects may envisage erection of (closed) reserved manufacturing cycle plant in order to preserve clean nature in the region.

2.1.4. Industrial Expansion Investment.

Decentralized (commercial) investment are effected by enterprises and provide new plants construction, renovation of the enterprises, reconstruction and expansion. This investment is effected by way of investment funds of the enterprises and by attracting bank loans and sometimes municipal funds. Preliminary limits of investment funds are elaborated and established by ruling bodies of Soviet Republics, ministries and departments. These administrative bodies take into consideration various topics and seek to implement socioeconomic proportions and ratios, to find better ways for acceleration and intensification policy as well as establish total amount of capital spending (centralized CS). Alongside this work republican administrative bodies work out guidelines for government

contracts and send them over to State Planning Committee, where these guidelines are analyzed, verified and adopted as guidelines for new five-year-plan of investment policy.

Here we must say once again that planning stage of investment policy begins at the level of economic entity (enterprise, trust, concern, amalgamation, association, joint-stock company etc.). These economic units estimate the demand for investment that can be allocated to industrial expansion of these economic entities. Then investment that would be allocated to renovation and reconstruction is estimated. This estimation is based on the volume of industrial development funds and reasonable volumes of bank loans.

Computation of the demand for investment, that can be allocated to expansion activity of the enterprise is effected this way.

First, we assess industrial capacity of the enterprises that will be operative in the analyzed period due to finishing construction in process. Here we compute extra investment demand for these enterprises taking into account balances of the previous investment. After this value is estimated we may start computing the amount of extra industrial output capacity that should be introduced during the analyzed (planned) period. Version selection in this case is effected by way of investigation of all major technical and economic values of the versions presented for assessment. Now we will try to demonstrate in

short how social infrastructure objects are developed in compliance with the State law regulating activity of the Enterprises. An enterprise allocates major share of its social funds to construction of the objects serving social needs of the working people. It facilitates and organizes residential cooperative construction, parallel to this it helps workers to build individual houses. (We hope that this activity of the enterprise will increase greatly in the near 5-10 years). The enterprise develops network of kindergartens and other children's facilities, erect rest houses, sanatoria and other recreation facilities.

Local budget's funds are widely attracted when social infrastructure is being created. They are taken into consideration when investment that can be allotted to social infrastructure is estimated.

Planning of nonproductive construction is usually effected by local municipal authorities and these authorities appear to be single customer of the social objects.

Planning of investment policy when contracts constitute lion share of investment activity was hard to introduce. Major trouble here was that government contracts were not precisely defined by terms and a lot of smaller scale objects were considered to be for government contracts. There were many discrepancies between customers and contractors as far as contract volumes designed for both of them were not adjusted and put in conformity. Government

contracts turned to be obligatory for general contractors but subcontractors were not responsible for its fulfillment. In 1988 government contract's share exceeded 90% of industrial output capacity of contractors. This fact has restrained commercial flexibility of contractors. They could not operate according to the new rules of economic development in the Soviet Union, they could not form their economic policy and commercial operations.

In 1990 government contracts' share decreased substantially and was at the restrained level of 15% of investment.

2.1.5. Investment Activity of the Enterprises.

Today soviet enterprises in their investment activity are oriented at their own investment funds that can be used for expansion and development of the enterprise. Each enterprise devises five year plan for renovation and renewal investment according to its financial and material resources. Due to those plans it becomes easy to adjust and reconcile development strategy of the enterprise with its investment policy. Moreover this plan helps to form the limits of economic efficiency of newly introduced advanced equipment and machines. Economic associations, concerns and other industrial conglomerates compete with branch ministries and force them to step away in structure competition. These types of economic entities (i.e.

concerns, associations, consortia and other amalgamations) assist renovation and technical renewal of the enterprises within the framework of the amalgamation.

National and republican ministries and other authoritative bodies used to design and back up target programmes of development, but today because of restrained investment policy these bodies exercise recommendations and expert assessments for individual enterprises, though these recommendations are not at all obligatory.

As far as an enterprise has to invest by itself, it is going to make a market research for it to estimate investment options. Expert team of the enterprise gathers and analyzes market information dealing with the goods produced by this enterprise. Present and forecast demand for the product is evaluated. Then, basing on this data, experts forecast input-output data for the enterprise as well as manufacturing capacity. Today we cherish the idea that the enterprise should have a part of its manufacturing capacity free in order to be capable to switch rapidly to the new type of commodity.

The enterprises present evaluated market information to their superior organizations for them to form indicative plans of output. The information presented by the enterprises includes assessment of government contracts awarded to the enterprise and other relevant figures and estimations. After this the enterprise sets down to investment planning bearing in mind that it must operate its

own investment resources. The enterprise can apply for bank if its investment funds are not large enough to cover planned investment.

Renewal and development construction works are effected according to contracts signed with external contractors and with the help of non-contracted plant construction.

Local departments of State Committee of Supplies envisage distribution of materials and equipment for the enterprises (if this equipment and materials are not of foreign origin, i.e. if they are not imported or scarce.) It is a little bit more difficult for the enterprise to acquire imported equipment if it does not have current account in hard currency with Vnesheconombank of the USSR. Distribution of equipment is effected according to project papers presented by the enterprise.

As we have already mentioned the enterprises often stick to recommended standards and normals for investment. They tend to observe standards covering timing and specific (unit) investment in order to secure the highest possible investment efficiency. It is done although the enterprises are free in choice when they operate their own investment funds or loans granted by commercial banks. All terms and conditions of projected construction are envisaged in the Contract which stipulates rights and liabilities of the counterparts and settles down time of construction and all other conditions. No third person is engaged in contracting and no one is to control and supervise construction except

customer. But all aforesaid does not include environmental norms and standards, fire-safety controls and some other national standard applications.

2.2. The Sources of Data Relevant to the Calculations.

2.2.1. The Sources of Information about National Evaluation of the IPs Parameters.

Statistic data and aggregated statistic standards are used to evaluate IPs' parameters. There are two main sources of information: accounts, records and selected statistics, (seldom nationwide statistics). Most important data is provided by the first one, i.e. by records and accounts covering investment policy. These records and accounts are presented by customers, and cover actual volumes of investment, construction in process, types of construction projects. These data are presented in quantitative and in value meanings. Quantitative figures play greater role when introduced industrial capacity as well as social infrastructure objects are evaluated. Statistic records give information about investment limits, about fixed capital and manufacturing capacity introduction. (Renovated and reconstructed capacity is also recorded.)

Special census of construction in process is periodically conducted as well as inventory stock listing, residential construction listing and other types of records.

These measures facilitate full coverage of economic activity in investment sector of economy.

Other sources of information on parameters are:

- balance of productive capacities and fixed assets in building construction,
- records and reports that describe renovation and reconstruction processes at the enterprises,
- actual equipment balance,
- actual material balance,
- data on investment structure.

Specific (unit) investment standards and other normals and standards, retrospective comparison data, actual data on productive capacity gains due to renovation of operating enterprises, actual data on productive capacity gains due to reconstruction of operating enterprises.

Let us dwell upon the basic methods of statistic computations. The term "Gross National Product" (GNP) was introduced in the USSR since 1988 although it is a generally accepted term for other countries. GNP is estimated in addition to other aggregated nationwide coefficients and values. GNP value defines the result of economic activity in material and nonmaterial sector of economy and allows to make comparison between economic standards of different countries and to make these comparisons more accurate and precise.

GNP value covers economic results of all economic entities, manufacturing and non-manufacturing, productive

and nonproductive.

GNP value is computed as 'gross added value' produced by all sectors of economy. GNP value does not cover expenditures included in finished goods costs (raw material, fuel energy and other material resources processed) and it does not cover services rendered to economic entities. When we assess income, we evaluate total revenue of economic entities and individuals stemming up from commercial operations (economic activity) and we take into consideration annual depreciation (prices comparable). Index of fixed capital renovation is computed as ratio between liquidation value of replaced assets and assets value at the beginning of the year (livestock is not included).

Modern economic developments, liberalized planning system require profound economic analysis and advanced forecasts of investment policy. To be more precise we must say that now we do not have single investment sector of economy. Today it is decentralized to a certain extent.

Aggregated statistic data must include following items: total investment and divisions of investment (centralized, commercial, budgets etc.), bank loans allocated to investment of various types. Advanced investment policy in the USSR demands for a comprehensive data bank covering information on investment in this country and abroad. There may exist two basic approaches to the problem of data bank of investment. First approach describes this data bank as dialogue pattern system with easy access to the data

satisfying users' requests, but the second approach is aimed at proficient users and envisages new functions of administrator of the data bank. He would be entitled to define structure of the data bank, keep it operative and flexible. Moreover he would be entitled to training and consulting users. Clients will be able to work with the data bank and receive requested records, accounts and other information. Time spent by user to learn control over system would be beneficial because of extraordinary opportunities to exploit the system. This approach has already proved to be advantageous with the data bank on scientific-research developments in the Soviet Union. Basic information might be presented in form of tables and charts composed of data taken from various sources home and abroad. This information will describe following items: investment policy of the country, design and constructing skilled personnel, indexes and coefficients of investment, other topics.

2.2.2. The Sources of Information about Parameters Evaluation at the level of Economic Entity.

Bookkeeping records are one of most important sources of information on investment. There are two types of account: general accounts and analytic (separate) accounts.

General accounts are following: 'Erection and installation works - in process', 'Complementary works',

'Machines and equipment in work', 'Overheads', 'Wages and salaries', 'Cash', 'Bank accounts', 'Bank loans', 'Stock capital', 'Profits', etc. Balance sheet is composed quarterly and at the end of the financial year.

Price information constitutes another source of commercial information. Price information may be used for micro-economic level as well as for macro-economic level.

There exist various price lists and basic contract prices and tariffs for all kinds of works and services rendered by contractors to customers (erection works, installation works, price of equipment, tools and instruments prices, etc.).

Aggregated source of information is Contractor's list of Construction (so-called "titul"); budget and cost calculations are widely used for information too.

All documents composed of future construction (projects, calculations, etc.) should be regarded as an information source for successful assessment of the IP. These documents should reflect all technical-and-economic results that have been obtained due to construction of the object by stages.

One must take into consideration all costs and expenditures incurred during object erection, in order to improve standards applicable to investment projects. Local conditions should be taken into account because of diversified investment. All peculiar features of the region must be investigated and thoroughly regarded during project

stage of the IP. Normals and standards applicable to the certain IP have to be adjusted and verified for them to be comparable with reality.

Basic data preparation embraces General calculation analysis and object cost calculation analysis.

Construction costs cover all types of works and are fully reflected in cost calculation under relevant articles. These articles of the Costs calculation absorb such items as 'Site preparation', 'Erection of main industrial buildings', 'Energetic facilities erection', 'Transmission facilities', 'Transportation facilities', 'Water facilities' and other overhead facilities construction.

Here we would like to present data sources for costs and expenses grouped according to the chapters of financial calculation.

1. Land allotment costs computed by price of land and price lists for land allotment works, project leases control sizing, etc. There are special price lists or charts covering land allotment prices in various regions of the Soviet Union.

2. Compensation for allotment of the private houses located on the allotted land. Replacement costs.

3. Compensation for allotment is computed in accordance with estimated value of the allocated objects or balance value of the objects if these objects are owned by cooperatives. Land cadasters are used for value estimation of private houses and constructions if they are to be moved,

replaced or dismantled. Special estimation acts may be composed where depreciation of the object is calculated and if replacement work is expedient.

4. There may emerge some problems with dismantling and disintegrating of existing buildings and constructions when reconstruction work is underway as well as problems with new buildings and construction that should be erected. Then there must be extra investigation and estimation of costs.

Financial calculations of the objects are effected in the same way as General Financial calculation. Financial calculation is based on job-operation calculation.

When project task for contractor is designed, there must be Financial calculation computed by way of generalized values and coefficients and this is to be compared with other analogues (if any) and duly adjusted in accordance with individual terms and conditions of the construction. Price lists are used when it is necessary to estimate environmental costs and cost of site rehabilitation as well as cost of wall or fence put in place around the territory of the object. This cost is calculated by price list regarding one meter as a unit of calculation.

For estimate miscellaneous costs (e.g. cost of provisional building and constructions) one can use 'Standard miscellaneous costs guidebook' where all these costs are listed. One can find there all costs of provisional buildings and constructions and costs of construction base expansion. There is another Handbook

covering standard costs of winter works because winter works are more costly than the summer works. This Handbook is called 'Standards of extra costs of winter-time construction and erection works'.

Project costs are based on calculations computed with the help of special Handbooks, Guides and Reference books issued by State Committee of Building Construction (Gosstroi).

Extraordinary and unscheduled costs are computed as actual costs and these costs are added to final costs calculation and to Financial calculation.

In order to estimate final costs of construction we compute following types of costs: erection costs, installation costs, equipment costs, costs of tools and instruments, other capital costs directly connected with building construction process.

But there may emerge some problems in overheads estimation. We define administration overheads, general overheads, manufacturing overheads and other types of overheads that can be incurred during the construction period.

General overheads stand for total general services and administration expenses and indirect shop labour expenses (overtime costs). Service expenses cover extra wages of labour force directly engaged in erection and installation works, social security taxes, welfare expenses, health expenditures and others.

Main expenditure items in building construction are depreciation of equipment and tools, provisional buildings and constructions, research-and-development costs, project costs, material test costs, site preparation costs, etc.

It is very important to have all basic data on the object because then it can be described, timing may be set as well as volumes, partners, construction site location and other distinctive features of the object. To obtain all basic data one must have technologic rules and standards, construction map and card of the object, typical projects, schedules, schemes and plans covering all possible cases and options of construction works.

Scientific research information is used when Project Evaluations are composed especially patents for inventions, all kinds of licences, other data on advanced experience and skills in the area. Catalogues, Handbooks, Guides, Glossaries and Research Papers supply this type of information.

2.3. Institutions Supervising National and Regional Parameters in the Soviet Union, their Functions and Responsibilities.

There are many economic units and other organizations which are involved in investment policy and which actively form it. This bunch is comprised of economic departments and ministries, R & D centers and institutes, design institutes,

enterprises and other customers and contractors. All these organizations involved are investigated in detail in the Report N 3. Here we would like to dwell upon the headlines of their activities in investment sector of economy.

2.3.1. State Planning Committee (Gosplan).

Gosplan is an economic research Headquarters of the Soviet Government. It exercises main functions by conducting socioeconomic development policy of the USSR, by facilitating economic changes in the country (switching to market economy), by putting planned investment in conformity with newly formed economic structures, by estimating total amount of investment expenditures and by evaluating planned sectorial distribution of investment, by forecasting distribution of investment; by establishing long -term standards designed for better investment effects; by elaborating investment ratio between centralized and commercial investment expenditures, by planning the structure and volume of centralized public (government) investment (bearing in mind that this ratio must envisage fulfillment of all major economic tasks as well as security goals of the country), by facilitating technologically advanced investment projects.

State Experts Commission investigates all major economic problems including General Plan of Productive Forces Deployment, other Plans of Development, Project

Evaluations of major economic objects to be erected. It elaborates and works out instructions, standards and normals. It conducts investigation of other pre-plan and pre-project documents, including papers of offshore objects and joint ventures. Two departments comprise State Expert Commission. First department evaluates and investigates all presented data. The second department (consists of expert-members of Expert Council) is academic group of the Commission. Experts of this group are recognized independent scientists from academic and training bodies of the Soviet Union.

There is a new procedure for expert assessment of the investment projects which was elaborated and established in 1987. This procedure allows to investigate large-scale investment projects in order to prevent negative effects of these projects such as pollution and other environmental damage that may occur due to the development of the projects.

That's why Gosplan is vested with the power to analyze and estimate all possible negative effects stemming up from running of the projected large-scale economic units. Gosplan has the right and opportunities to provide complete analysis of the productive forces development plans, in order to secure environmental requirements when expert evaluation of various development plans is conducted.

2.3.2. State Committee for Building Construction (Gosstroi) and Other Authoritative Bodies in the Area.

State Committee for Building Construction (Gosstroi) is a Union-republican administrative body, a constant body of Council of ministers of the USSR that governs building construction in the Soviet Union. Gosstroi is responsible for implementation of the decisions adopted by the highest governing bodies of the Soviet Union in capital construction sector of economy. At the end of 1989 functions and power vested with Gosstroi have been verified and checked for the purpose of more precise distinction between the authoritative bodies engaged in building construction activities in the country. It controls government contracts fulfillment together with other authoritative bodies of Council of Ministers and republican governments; conducts technical policy in building construction area. Gosstroi does the work of aggregation of the data on starting-up of the objects (together with State Committee for Statistics, Goscomstat) and processes other data relevant to building construction. Gosstroi analyses technical-and-economic situation in building construction sector of economy, investigates and evaluates trends in development, elaborates and devises appropriate measures in order to improve construction activity in the country. Gosstroi controls fulfillment of the programmes of reconstruction and erection

of the objects and industrial complexes. Consultant's investigation (experts' investigation) mainly depends on budget costs calculation (i.e. its amount). It also depends upon what authoritative body is superior to the customer. Gosstroi investigates if the construction is on the large scale and if the object is of great importance to the national economy, if project of the object is endorsed by Council of Ministers of the USSR or by Council of Ministers of the Union Republic. State Committee for Science and Technology takes part together with State Committee for Prices.

Aggregated report on the results of investigation is issued by Gosstroi.

If budgeted costs are over 4 mln roubles, then consultant's investigation is effected by ministerial advisory group together with experts attracted from Republican Councils of ministers. If budget costs are less than 4 mln Rbls then investigation is conducted in accordance with ministerial rules and applications.

Here exists this pattern: if the project should be confirmed and adopted by republican Council of Ministers, then Republican Committee for Building Construction investigates the project. If only ministerial confirmation is needed then ministerial expert crews investigate the projects.

All relevant papers, computations, calculations and other documents are verified under this consultant's

investigation. All these papers must be in conformity with National standards and parameters. Budget costs calculations are most thoroughly verified. After consultant's investigation is over expert team issues special account where following items are exposed: General assessment of the Project, Technical-and-economic coefficients describing budget costs calculation, Recommendations and advisory remarks, Quality assessment of the project.

All recommendations and advisory remarks must be taken into consideration and effected in order to obtain confirmation of the authoritative body. Expert crew usually follows all stages of correction and conveys its evaluations over to organization in charge of confirmation.

Consultant's investigation turned out to be very effective especially when material input is concerned. Due to consultant's investigation it was possible to save up to 250000 tons of steelworks and 464000 tons of cement. 470 objects have been investigated during 1987-1988. (See: "Economics of Construction", 1989, N 8, p. 58).

But in this country we are looking forward to establishing completely independent experts organization where recognized professionals would be able to work on investment projects' investigation.

Building construction ministries do not exercise full power today and we think that in 1990-1995 administrative system in building construction sector of economy will cease to exist. We think that ministries will transform into

administrations of newly formed associations, concerns and other economic conglomerates that are coming into being in this country. Administrative functions of the transformed ministry will be absolutely different from the previous ones. Soviet republics may establish one Department of building construction for it to coordinate construction throughout the republic. This department would be engaged in elaborating different juridical papers and special standards facilitating advanced development and successful policy in construction sector of republican economy. This department may define structure of investment and republican priorities in investment sector.

Regional and local administrative bodies effect regulation of relevant building construction industry by way of planning of capital expenditures, coordinating activities of local contractors. They control plans fulfillment and quality of erected objects as well as facilitate development of industrial base of construction firms.

For example, in Byelorussia complex measures are devised by Republican Government in order to facilitate switching to new economic structures. As far as investment policy is concerned only upper limits of centralized investment would be obligatory for the republican investment sector. These limits would be defined by the Soviet Government as well as allocated materials and government contracts awarded to Byelorussia. Byelorussian Government will independently establish priorities for investment

spending financed by Republican budget. It can award contracts to republican building construction contractors as well as sign contracts for social infrastructure objects. So, Byelorussia is vested with freedom to operate its own investment resources regardless of construction costs and expenditures. Similar rights are granted to Volgograd regional administration. It can use all regional investment funds to create all kinds of objects including non-manufacturing public objects. But all these investment expenditures must be financed by regional budget. Volgograd regional administration has rights to attract contractors (except all -union-contractors) if these contractors have idle capacities after government contract is awarded. Regional administration projects are aimed at expansion and development of local productive capacities, basic and social infrastructures, transportation facilities, etc.

Environmental measures are planned and executed by enterprises and local administrations and funded from local budgets and funds of the enterprises. We think that during 1991-1995 we may expect further strengthening of the executive functions of local administrations. They will beneficially influence building construction industry, taxation, banking system and other spheres of economic life of the Soviet Union.

2.3.3. Banks in the USSR.

There are special banking institutions in the USSR that facilitate development of industrial construction. Major role here is played by the Industrial Construction Bank of the USSR which is called Promstroibank (PSB). The special banks and their branches issue loans and credits for industrial investment. Their activities cover all sectors of economy. As it is stipulated by bank laws in the Soviet Union Promstroibank and other special banks issue long-term loans and finance investment of state, cooperative enterprises and public organizations. They allow short-term loans and settle payments for various entities engaged in building construction and geology. The banks provide finance for operational expenditures, for repair works on capital goods owned by building construction firms and other relevant firms and organizations (e.g. installation firms, project firms, drilling firms). These banks raise money for capital spending, form reserves and effect other kinds of banking operations. As a matter of fact these banks facilitate credit operations in investment sector of economy.

Today special banks are oriented at credit operations development within the framework of investment cycle. They have an opportunity to control financial soundness of their clients and supervise material and labour balance.

But we are convinced that some of these functions are stale and hinder future development of these banking institutions. We think that special banks should become independent credit institutes in order to exercise credit functions and drop other, not relevant to banking operations. We are deeply convinced that special banks can exercise their control functions by way of loans and credits i.e. by commercial means. They have to drop administrative measures that have proved to be absolutely ineffective. There may be merits and credits granted to efficient building contractors and this way will lead to increase in efficiency of building contractors' work. Interest rates are the best possible lever to operate contractors' activity. For example if project is completed before scheduled time and its quality is appropriate then interest rate may be reduced down to 50% of initial rate.

If a contractor is behind planned schedule, the bank can cut back a loan or cancel a credit.

Today banks have the rights to allow loans for new objects with construction cycle exceeding standard time of construction computed for these types of objects as well as for the objects in process which have limits of investment or volumes of erection and installation works less than is needed for finishing them in scheduled time. Enterprises and organization which want to start construction or reconstruction works on industrial objects have to provide funds completely covering planned investment costs and

perfect time schedule of construction. At the same time a wide network of commercial banks is being created in the Soviet Union. These banks attract spare capital of enterprises and pay interest, by this way commercial banks receive an opportunity to take active part in investment. We hope that all banks of the USSR will become commercial and will be able to compete for clients.

2.3.4. Enterprises.

In accordance with the State Law on State Enterprise adopted by the Soviet parliament in 1987 enterprises formulate programmes of continuous modernization and renovation of material-and-technical base (i.e. fixed assets), concentrate available reserves for proper reconstruction and re-equipment of their productive capacities. These measures may be backed up by development and expansion funds, other funds and reserves. Bank loans may be also attracted for these purposes. As far as government centralized investment tends to shrink in volume, enterprises will be able to operate greater material and money resources, investment projects of enterprises would be sufficiently provided with materials and contractors' bids. Today all enterprises have an ultimate right to develop projects and strike relevant contracts with project design and research organizations and estimate construction costs of industrial building construction. An enterprise has an

opportunity to work out relevant papers (budget costs calculation, project papers, other documents) if construction of industrial and social objects is financed by enterprise itself or by bank loans and credits. Time schedule of erection works is designed by customer and coordinated with contractor.

By act of law an enterprise ensures standard time of construction, other normals and standards (profitability, introduction of industrial capacities in due course, etc.)

An enterprise can have contract covering full time of construction. Moreover, customer, general contractor and subcontractors ensure starting up of productive capacities in due time and bear responsibility for its quality.

The law on enterprise is considered to be subject to several amendments which will secure broader opportunities for enterprises in the sphere of investment. Present version of the law envisages centralized investment expenditures if an enterprise is going to launch large-scale reconstruction and expansion works and if it is going to erect social objects though this activity of an enterprise may not attract centralized investment expenditures provided by state budget. Projected version of the law omits this opportunity for an enterprise to enjoy budget investment (Special provisions applied).

2.4. Timing of changes.

Timing is a great thing when investment policy is assessed and evaluated, because a lot of investment projects are not finished in due time.

We think that many investment projects are not finished in time because there was too little of fundamental research work and applied research. Often there are no alternative versions of investment project and it seems impossible to select the best alternative. There are flaws in material supply and we suffer from incompetent and unskilled manpower as well as from labour shortage. Time schedule of construction is being prolonged and distorted by various reasons.

Sometimes we face overestimated project efficiency and underestimated construction time computed by designers. It becomes especially vivid when centralized capital spending are projected. But we hope that these factors will become less adverse due to the switch to commercial investment policy, when investment projects would be backed up by investment funds of enterprises, regions and localities.

Losses incurred due to 'freezing' of investment, badly affect general situation in construction. Construction process may be stopped if standard time (contract time of construction) has expired. Losses incurred may be computed this way.

$$y_z = K_{t_{ch}} \cdot E_{on} \cdot t_{ch} + K_{t_{ch}-1} E_{on} (t_{ch} - 1) +$$

$$+ K_{t_{ch}-2} \cdot E_{on} (t_{ch} - 2) + \ldots + K \cdot E_{on},$$

$$K_{t_{ch}}, K_{t_{ch}-1}, K_{t_{ch}-2}, \ldots K \quad (2.1)$$

Where (2.1) stand for annual investment expenditures after expiration of contract time of construction;

t_{ch} - overtime construction,

K - final year investment expenditures,

E_{on} - efficiency standard rate (computed on the basis of profit increase).

Alongside these losses one may encounter with intangible losses (i.e. production potential losses due to deffered start-up of productive activity of an enterprise and due to moral depreciation of would be goods and commodities). Moreover these adverse circumstances hinder contractual relationships between customer, contractor and subcontractors and some juridical problems may emerge and become a stumbling block for all members of investment projects.

By act of law there would be severe penalties for nonperformance of contract and tardiness penalty if customer failed to ensure productive activity of an enterprise in good time. This is done when investment is budgeted by centralized investment funds. Customer would be charged 3% of the sum constituting incomplete investment.

Investment contract is signed by customer and contractor for full time of investment project. According to

the law customer should present package papers on project to contractor within 15 days since annual State plan of economic and social development was adopted. General contractor must send over to customer a draft contract and time schedule of works. Customer in its own turn investigates this draft contract, signs it, and sends back within 10 days. Contradictions are infrequent, but if they occur contractor tries and settles the problem within 15 days since reception of the letter, where customers' remarks and recommendations are listed. In case of failure the problem is presented at superiors (if any).

General flow of contractual activity in investment sector of economy looks like following: customer sends over to contractor all relevant papers before July 1 of the year preceding planning year (all required documents are listed in special instructions issued by Gosstroi of the USSR).

We would like to stress once again that there are severe penalties for nonperformance of contract envisaged by new bills and acts of law. Tardiness penalties of all kinds would become widely exercised by both sides. There are penalties for delay in project papers or PE delivery, penalties for delay in draft contract presentation and for delay in supplementary contracts presentation, etc. For all kinds of delay guilty party pays 250 roubles a day during the whole time of delay.

Penalty of 0.05% of annual turnover of erection and installation works is paid by guilty party if contract is not signed in due course (but not more than 1000 Rbls per day).

2.5. Miscellaneous Features.

(Value Analysis Applied to the Control over Economic Parameters).

Highly effective method of Value Analysis (hereafter VA) is used for parameters control in some regions of the Soviet Union. VA appears to be a combined and comprehensive method of special measures introduced in order to expose, to predict and to reduce excessive costs by way of investigation of the functions inherent to the scrutinized object and those costs that facilitate these functions.

The design stage of construction plays a major part during the whole life cycle of the erection of the object. Although only 2% of the capital spendings allocated to the project may by attributed to the design stage this job secures the future successful work of the object.

That is why VA is mostly important during this stage of IP.

The qualitative functions and special features of the object are being assessed by certain coefficients that stipulate technical and technological qualities of the object.

Combined analysis of these main features and conditions allows investigators to enjoy benefits of the VA, giving an opportunity to assess not only economic factors but social, environmental, architectural and design factors as well.

To impose certain structure upon the process of construction we have to expose its main elements and try,

having these elements as a base, to comprehend the sophisticated erection process. Moreover, we have to screen all possible versions of the erection stage of the project and to reflect the succession of the stages. It seems important to draw attention to the stages, components and versions of the construction building object and parallel to this we have to estimate relative costs of these stages, components, etc.

Each case of analysis of the certain object must be supplied with precise assessment and revision of all the components and versions of this building construction project. We have to underline the fact that not only components but stages as well have certain succession in implementation. The succession of stages is determined for each case independently.

Each component of the building construction project has several versions. For instance, different equipment and machines can be used for excavation works. This equipment may differ in quality as well as in quantity. Amount of work that should be completed and its types are closely connected with the final purpose of the object under construction. If there are several versions of development for each component they should be elaborated not only by way of plain selective search, but by way of combined version assessment correlated with other construction stages and components.

Here we would like to introduce some symbols:

X^{L}_{jm} - stands for amount of work placed in certain hierarchy system expressed in enlarged standardized units on

the 'i'-th stage of construction under 'j'-component and version of the separate component of the project erection process.

e.g.

$i = 1$ - building construction works

$i = 2$ - acquisition of the equipment and materials needed for the object to start its productive activity

$i = 3$ - installation of the equipment

$i = 4$ - other works

S_{jm}^{i} - direct estimate costs per unit of the relative general works

$y_{jm}^{i} \begin{cases} 0 \\ 1 \end{cases} \forall j m$ - a variable value that facilitates selection of the construction versions under different components (j) and versions (m); at the same time it rejects ill versions and adopts feasible versions

Minimization model of direct estimate costs will be formed in this way:

$$F = \sum_{i} \sum_{j} \sum_{m} S_{jm}^{i} X_{jm}^{i} y_{jm}^{i} \rightarrow min \qquad (1)$$

$$\underline{C}^{i} \leq \sum_{j} S_{j}^{i} \leq C^{-i}; \quad \forall i \qquad (2)$$

$$S_{j}^{i} = \sum_{m} S_{jm}^{i} X_{jm}^{i} y_{jm}^{i} \qquad (3)$$

$$\sum_{i} C^{i} = C \qquad (4)$$

$$y_{jm}^{i} = \begin{cases} 0 \\ 1 \end{cases} \forall\, i, j, m \qquad (5)$$

$$x_{jm}^{i} \geq 0 \quad \forall\, i, j, m \qquad (6)$$

Where $\underline{C}^{i}$ is the limit sum of expenditures that can be allocated to the i-stage of building construction.

C - is limit sum of investment allocated to the project

$\underline{C}^{i}$ - is the minimal limit sum that can be allocated to the i stage of building construction. This minimal limit sum is imposed for us to get a selection of optimal expense budget version for relative building construction versions.

Limitations under numbers 2,3,4 describe the election procedure of the versions that can be adopted for implementation with certain regard of the limit sum of investment allocated to each stage of building construction project and to the project as a whole.

We can facilitate further step from direct expense

budget estimate to calculation of costs of the selected version of building construction with the following formula:

$$Ц = \left(\sum_i \sum_j S_j^{ij}\right) \cdot K_{nj}^i \cdot K_{uj}^i \cdot K_{n\ell ji}^i$$

where -$Ц$ is calculation of costs of building construction;

$K_{nj}^i, K_{uj}^i, K_{n\ell ji}^i$ - coefficients which allow to take into consideration overheads, capital spendings according to the adopted plan, miscellaneous (limited) expenses allotted to the i stage and to the j component of building construction accordingly.

There is a special list of expenses which covers the whole life cycle of building construction. We can list expenses by commercial elements: wages and salaries, materials, depreciation, miscellaneous expenses, but there may exist another grouping of the expenses more or less aggregated. As each combination of separate versions and components of the building construction project brings us to a certain version of construction process, we have to list the expenses allocated to the life cycle of the process according to the adopted version of construction object. To clarify the forecoming let us examine the Chart 2.1, where we distinguish the first two stages of building construction process. (i=1,2).

As it proceeds from the Chart 2.1 several different combinations of component versions are available. For instance the combination

$$y_{11}^1 \rightarrow y_{22}^1 \rightarrow \ldots y_{51}^1 \rightarrow y_{12}^2 \rightarrow y_{21}^2 .$$

Chart 2.1.

Separate versions' selective examination.

Stages (i)	Components (j)	Versions, or component combinations (m)	Symbol (y^{c}_{jm})
1	2	3	4
i=1 Erection works (buildings & constructions)	j=1 Preparation of the construction site	Replacement of the existing buildings	
		m=1 - manual labour and one type of equipment.	y'_{11}
		m=2 - machines' work	y'_{12}
		m=3 - m1×m2 combination	y'_{13}

1	2	3	4
	j=2		
	Auxiliary objects erection	m=1 moving in and installation of the prepared building and constructions	y'_{21}
		m=2 Erection of the temporary objects in place	y'_{22}
		m=3 - m1×m2 combination	y'_{23}
	. . . . .		
	j=5		
	Elaboration of the evaluations	m=1 Concrete blocks.	y'_{51}
		m=2 liquid concrete of one sort (brand)	y'_{52}
		m=3 liquid concrete of another sort (brand)	y'_{53}

1	2	3	4
i=2 Acquisition of equipment, and other inventories to start the enterprise operating	j=1 Acquisition of electric power equipment j=2 Electric power supply	m=1 Generators m=2 Carburator engines m=3 Diesels m=1 Other types of equipment {I / II} m=2	y_{11}^{2} y_{12}^{2} y_{13}^{2} y_{21}^{2} y_{22}^{2}

This combination gives us certain version of the building construction, where the preparation of the construction site is made by manual labour, auxiliary construction objects are erected in site, industrial buildings are made of concrete blocks, carburator engines are supplied and the 1-st type of electric equipment. We think that it is most useful to attract experts to facilitate selection of the best version and reject less advantageous versions. The expert team establishes K = number of all possible versions, i.e. K=1,2,... K - all possible combinations y_{jm}^{i}.

Every combination under i, j, m has its own direct budget costs. These direct budget costs have symbol C_K. According to the adopted system of symbols C_K may be showed as follows:

$$C_K = \sum_j \sum_i \sum_m S_{jm}^i X_{jm}^i Y_{jm}^i \qquad (2.2)$$

for K=1,2... n of possible combinations 'i'

For each K=1,2...n we distinguish figures

Z_K - life cycle costs of the erected object (without depreciation).

T_K - operational period of industrial object can be established by version selection with

$$\frac{C_K + Z_K}{T_K}$$

taken as a criteria with imposed limitations 2 - 6.

Under optimization problem formulation the target function takes into consideration total direct budget costs and life cycle costs per year of the object's activity. This function can be expressed as follows:

$$f(x) = \frac{\sum_i \sum_j \sum_m S_{jm}^i X_{jm}^i Y_{jm}^i + Z_K}{T_K}$$

For us to exercise detailed analysis we may introduce costs structure of life cycle of the object due to costs elements. Then we substitute Z_K for Z_K^e , where

e - are corresponding elements of the 'e' costs.

Z_K^e allows us to work on the problem having certain costs allocated to the life cycle of the object and limitations imposed on the individual elements of the costs.

We know that each erected object has its own destination and purpose. Its destination is expressed by the functions (main and supplementary). There are some major problems when we try to evaluate function execution. They are: undefined nature of the functions and their elements, measurement of the distinguished functions and their elements, methodological evaluation of the complex assessment of the correspondence of the objects' destination and planned level. When we assess destination of the object we use qualitative features and qualified experts are attracted to the job at this stage. Later we will try to put the procedure in detail and describe qualitative analysis of the erected (designed) object.

Here we may distinguish some parameters (approximately) of the industrial object being under erection: industrial parameters: output capacity, labour productivity, level of automatization and mechanization, quality of the products, etc.; socioeconomic parameters: creativeness of the labour, rational utilization of labour force, industrial and architectural design etc. Environmental problems: residuals processing and level of pollution by industrial residues, etc.

Experts can specify particular functions attributed to every separate object. If we expect quantitative assessment of the object's correspondence to its destination by the VA method, we have to work on the following research stages:

1. We must assess and evaluate each separate function's importance and importance of every individual element.

2. We must assess individual elements of the functions for each version of building construction. Special scale is used.

3. We involve aggregation procedure for the estimates we got for separate versions of construction and combine them into complex quantitative estimation.

In order to evaluate the importance of the distinguished function and its elements, we have to list functions and their elements according to the adopted targets and under several levels of hierarchy of the individual elements.

By expert's evaluation we verify the list of the functions and their elements placed in the certain levels of hierarchy. Then we assess every element and function at each level of hierarchy, i.e. we try to estimate the weight of the function or element in the bunch. General requirement here for all weights is that the sum of different weights should be equal to 1 at every conjunction of the branch in the level of chosen hierarchy. This requirement facilitates the work on aggregation of individual estimations.

The next step for us, after we have built a system of weights for building construction objects, is computation of estimations for every analyzed object (Chart 2.2).

In this Chart we show how we can assess each individual version as a whole. There may be another type of assessment, where we use smaller steps, stages, components and even component versions of the construction process. This will make qualitative assessment procedure more precise. But at the same time it is not always useful to assess qualitative parameters of smaller ingredients of the project.

Chart 2.2.

Template-chart for expert opinions fixing

Versions of building construction	The highest grade elements' assessment			
	1	2	.....	y_n
1	B_{11}	B_{12}	.....	$B_1 y_n$
2	B_{21}	B_{22}	.....	$B_2 y_n$
3				
K	B_{K1}	B_{K2}	.....	$B_K y_n$

Each version is assessed by the expert team and graded according to the special grading system. The best possible project wins the best score and, bearing this in mind, the

expert team judges every version by the highest-grade elements. Zero score is given when the object doesn't possess the function. Complex assessments of the distinguished construction versions may be effected by one or another type of aggregation. It seems most convenient to use aggregation method based on Euclid's distance. In this case the obtained assessments can be standardized by maximum of scores got by the individual construction object (version). Chart 2.2 clarifies the foregoing.

For every column j (j=1,2,...n) of score B_{ij} (i=1,2,...n) we choose maximal value $-B_{max}$ and divide it by all elements of the volumes.

Standardized values are:

$$n_{ij} = \frac{B_{ij}}{B_{max\,j}} \quad \forall\, c,j \qquad (13)$$

Aggregated assessment of the i-object is composed with the assistance of the following formula:

$$A_i = \sqrt{\sum_j P_j \,(1 - n_{ij})^2} \qquad (14)$$

where P_j - is a weight of the j-element of the highest grade

Here we must stress that aggregation process should be conducted (see f(14)) according to the target tree, which is depicted in Chart 2.2, i.e. we use the succession of the elements being united down to the first level. And the

aggregated assessment effected by the distinguished functions of the individual version would be a complex assessment of the destination of the object. By other words this will be a complex qualitative assessment of the building construction object.

Selection of construction version with the relatively highest quality could be expressed the following formula:

$$L(A) = A_i \rightarrow max \tag{15}$$

$$\underline{n}_j \leq n_j \leq \overline{n}_j \; ; \; \forall j \tag{16}$$

$$A_i = \sqrt{\sum_j P_j \cdot (1 - n_{ij})^2} \; , \; \forall i,j \tag{17}$$

$$n_j = f(c) \quad \forall j \tag{18}$$

where

$\overline{n}_j, \underline{n}_j$ - upper and lower limits of the standardized qualitative assessment of the object by individual elements of the highest grade

$f(c)$ - costs function

These costs facilitate the achievement of the certain qualitative level by j element of the highest grade.

In order to have the best version of construction we usually combine three major elements, i.e. budget costs of construction, life cycle costs and successful functioning of the object. This enables us to work with combinations of the

first two features (minimum costs - maximum quality of the object) or we can work with individual features put together. The combination of the features 1,2,3 can be effected by formula (9) as the target function and limitations 2 - 6 and 16.

It seems very interesting to work with version solutions estimated under various limitations of C_{ij} ; Z_j, and A_i (i= 1,2...n).

These limitations have been presented earlier, and they may enable us to exercise euristic methods for us to select the best construction version. Moreover it will give us an opportunity to take into consideration not only economic, but social and environmental features of the project.

Value analysis may save 10 to 15% of IP costs, reducing construction period as well.

Report 3

Organizational set-up for project planning in the USSR

Plan of the Report

3.1 The relationship between the national development plan and project preparation and evaluation.

3.2 The procedure of investment decision making especially in cases of the projects financed by the government, private investment, joint venture projects.

3.3 The role of the agencies involved (government, banks, consulting companies, investors, promoters, intermediaries etc.).

3.4 Other relevant topics.

Foreword

This report ends up the succession of three independent reports and it is prepared in compliance with UNIDO's task received through 'ITC Inter Trade Consult' (Vienna, Austria) consulting firm.

The authors did their best to cover all topics that are of interest to Chinese experts from the Research Institute for Standards and Norms, Beijing, when it did not run counter to UNIDO's requirements. So we presented a piece of Standard Project Evaluation and filled blank of General Budget Costs Calculation. We tried and paid great attention to the procedure of coordination of project decisions and Project Evaluation.

As far as this Report is the last in a row and because of some changes that took place in our economy just in the past few weeks, we tried to expose some new trends and tendencies that are developing in the USSR. We are aware that this fact forced us to repeat some items of the previous Reports but in the Report 3 we focused our attention on the near future of Investment Policy in the USSR.

3.1. The Relationship between the National Development Plan and Project Preparation and Evaluation.

3.1.1. Macroeconomic planning in the USSR.

Soviet economic planning is the oldest system of economic planning in the world. The USSR combines current planning and long-run planning and ensures its persistent and successive basis. It is done by way of The Guidelines of Social and Economic Development which are being designed for the period of 15 years and by State five-years Plans (with annual plans within the five-year plan).

A Concept of social and economic development of the USSR is being elaborated as an independent pre-plan strategic document. This document precedes The Guidelines of Social and Economic Development and is designed for the period of 15 years.

When plans are worked out several approaches are taken into consideration: intersectoral, sectoral, territorial, programme and functional. The initial stage of plans' elaboration is concept stage of planning. This stage serves as a political and economic basis for the planning process and includes long-term strategic goals, means and methods. Targets and priorities are established at this stage, shifts in the structure of national economy and in investment policy as well as in scientific progress. Today we recognize social and environmental problems as the hottest ones, at the same time we

pay due attention to defence capacity of the USSR which is based on the principle of sufficient defence.

The Concept is revised and prolonged every five years and if it is necessary some changes may be introduced.

Draft of the Concept is based on the Complex programme of scientific progress in the USSR, on the long-term economic programmes, state target scientific-and-technical programmes, socioeconomic drafts and forecasts of executive bodies of Union Republics, of trade-unions, ministries and other authoritative bodies as well as on the forecasts made-up by scientists and sociologists.

The Concept covers following parameters: macroeconomic (rates and proportions of economic development), functional (investment, environment etc.), sectoral, material resources and organisational management. Today we think that foreign trade and informational parameters may be added.

State Planning Committee (Gosplan) together with State Committee for Science and Technology and Academy of Science work out the Draft of the Concept. Today more Soviet scientists are participating in this process. When this Draft is examined and investigated by the Soviet Government (we think that Supreme Soviet will exercise this function together with relevant bodies of Union Republics) it serves as a basic document for the elaboration of the Draft of the Guidelines of Economic and Social Development of the USSR.

The Guidelines of Social and Economic Development of the USSR are worked out for the period of 15 years. There the

details and targets are set for each five-year-period and the first five-year-period targets are set more definitely, with executive bodies listed.

During the elaboration of this document Gosplan goes hand in hand with Supreme Soviet Commissions, and executive bodies of Council of Ministers, Gosplan attracts to this work leading research, project and scientific organizations, institutes and scientists.

Today we see the new problem of planning system of the USSR in the relationships between the Central bodies and operating enterprises. During the last few years the enterprises compose economic plans for themselves and exercise contractual activity seeking most beneficial contracts in accordance with recommended planned values, direct consumer contracts and contracts with supplying bodies (material-and-technical suppliers).

Enterprises send over through superior organizations (concerns, associations, ministries, republican authoritative bodies) generalized economic information to Gosplan for this body to process it and work out state plans of social and economic development by way of sectoral and territorial plans.

Gosplan elaborates the State plan of social and economic development of the USSR based on the data presented by concerns, associations, ministries, republican planning bodies etc. This plan defines economic coefficients, indexes and other economic values for each year of five-year period. Gosplan pays

great attention to the problems emerging when different economic complexes are concerned and when their interests are entangled. The Draft of the State Plan of Economic and Social Development prepared by Gosplan is sent over to Council of Ministers. Then the Soviet Government introduces this Draft to the Supreme Soviet of the USSR.

All economic entities (enterprises, organizations, firms, etc.) independently plan production output (output of goods and services) basing on the market situation and five-year development plan of the entity.

Basic planning data is being used to form the five-year plan of the enterprise. This data covers government contracts, constant economic standards and norms. Controlling (indicative) values reflecting more or less exactly national demand for the product of the enterprise and marginal industrial efficiency are the data on total output (in money terms), profit in foreign exchange, achievements of the enterprise in social sphere, etc. As we have already stated these values are not obligatory, they appear as recommended ones.

3.1.2. Investment Policy & Investment Activities.

Project preparation and evaluation occupy substantial place in planning and management system of the USSR. All financial and material spendings effected in order to gain economic and social effect are considered to be investment. One can invest Soviet roubles, foreign currency or any kind of property (materials, equipment etc).

Capital spendings may be effected in the form of financial investment and in the form of equipment and materials in order to ensure reproduction of fixed capital and other elements of national wealth. Investment may be effected in all sectors of national economy and all objects disregarding the character of property may enjoy investment excluding those dangerous objects that may be hazardous to people's health and to environment. These objects can not be created under the investment projects if they may violate civil rights, ownership etc.

As we want to exercise indirect ways and methods of macroeconomic management i.e. no direct interference of state into the economic life of the enterprises, which envisages only decentralized and credit facilities for investment, territorial and local investment markets and other radical changes in investment policy; we have to forecast some changes in relationships between national plan of social and economic development and project preparation and evaluation.

Governmental management of investment concentrates on investment policy formulating, on strategic goals and targets of this policy and on creating beneficial conditions for achieving these goals and targets.

Alongside this process new indirect economic methods are being introduced into practice of investment management. These methods embrace taxation, credit facilities, depreciation rates, competitive government-financed contract allocation, price limits, licences and quotas for production of goods,

credits and benefits for intersectoral and international investment, etc.

National planning of investment sector looks like this. National investment policy is stipulated and evaluated in The Concept of social and economic development of the USSR and construction sector of economy is evaluated in this document too. Targets and goals of investment policy as well as sources of investment and expected economic results of the programmes are detailed in The Guidelines of Social and economic Development of the USSR. Guidelines for Construction Sector of economy and priorities for government contractual activity are also defined in this document. Five-year plans establish controlling values of scale and structure of investment and contractual activity.

Sources of investment and objects are defined together with government contracts on industrial objects and social infrastructure which are to be financed by state budget. At this stage of planning certain limitations are imposed on centralized investment and allocated material back-up. System of corrections of planned values is also imposed at this stage of planning.

Annual control data is subject to correction as annual plans are being fulfilled.

Methods of investment and contracts management can be corrected too if they run counter to economic reality. Planned investment reserves are allocated to the objects according to the selected priorities.

It appears to be very beneficial and reasonable to effect combined investment backed up by state republican and regional (local) budgets as well as by sectoral centralized investment funds and by investment funds of the enterprises, firms and organizations.

So, we must say, that in the framework of the national strategy of economic development, total volume of investment is defined and it is based on profound investigation of national income allocated to consumption and accumulation funds, depreciation fund and other sources of reproduction. Total volume of investment is defined and its structure is also evaluated and estimated in order to select the best version of allocation to industrial and social sectors of economy as well as to compute the volume of investment allocated to the industrial complexes operating in the economy.

Volumes of future investment are computed in such a way that they will ensure progressive structure of national economy and will be able to secure planned rates of economic growth and rates of public welfare.

Here we must say that investment should be coordinated with other economic values especially with material resources allocated to capital construction industry and with construction capacities of the industry based on the General plan of Development of Construction and Construction Materials production Industries.

So, let us dwell upon the accumulation fund. This accumulation fund of national economy is a part of social

(owned by society as a whole) product which is used to ensure increment in manufacturing and non-manufacturing fixed capital, current capital and to increase state reserves.

We may use forthcoming scheme in order to estimate accumulation of fixed capital (cattle excluded) and increase in value of work-in-progress.

1. Investment in building construction.
2. Acquisition of equipment and tools effected by budget-financed organizations.
3. Writing off of the investment.
4. Repair works (including repair works in process).

5. Total investment increasing fixed capital estimate (1 + 2 + 3 + 4).
6. Fixed capital put-in-place.
7. Acquisition of equipment and tools effected by budget-financed organizations.
8. Total fixed capital put-in-place (6 + 7).
9. Repair works of fixed capital (finished).
10. Depreciation of fixed capital.
11. Residual value of liquidated fixed capital.
12. Total accumulation (5 - 10 - 11)
    including:
    fixed capital (8 + 9 - 10 - 11)
    construction in process (5 - 8 - 9)
    repair works in process (4 - 9).

Estimation of fixed capital accumulation (cattle excluded)

for the planned period may be effected with the help of fixed-capital balance where fixed capital is registered in full value minus depreciation. One should first draft a balance reflecting full value of fixed capital (without regard for depreciation) in order to estimate elements of the former balance (volume of repair works, depreciation rate, etc.)

Estimates of accumulated current capital and inventories of branches of economy are coordinated with current capital calculations.

Volume of investment is closely connected with national welfare balance. Fixed capital balance exposes reproduction process defined by branches of economy and by forms of property. Original balance of fixed capital (without regard for depreciation) describes physical conditions of fixed capital, and the balance of fixed capital minus depreciation describes the process of the transfer of value of fixed capital.

Balance of fixed capital without regard for depreciation is computed like this: fixed capital at the beginning of the year, plus projected (forecasted) fixed capital put-in-place, minus written-off (depreciated or other reasons) fixed capital at the end of the year equals to fixed capital at the end of the year.

Practice of planning and macroeconomic analysis shows that it is necessary to develop advanced system of generalized indexes, coefficients and values reflecting social-and-economic growth of the country. It turns out to be more vivid in investment sector of economy. In order to cope with this task

in this country we started to compute GNP value since 1988. This value adds up to the values of national income, social product and others and is considered to be an advancement in macroeconomic management.

Today we start to reassess present methodology used to compute indexes of accumulation fund. This methodology is widely used when plan and analytic works are conducted in order to estimate basic proportions of national economy, investment efficiency, etc (using the French accounting system). But here in the USSR we still use some methods of estimation of accumulation that are to be improved because they are based on pure investment volumes (i.e. annual depreciation of fixed capital is excluded). These methods are loosely connected with allocation of investment resources for simple and increasing reproduction processes in the USSR.(1)

As there is a widening gap in absolute output volumes of investment products and fixed capital put-in-place, the estimates that are being obtained due to these methods become more and more invalid because accumulation fund estimates are based on the volume of means of labour in industry and relevant economic estimates of their annual consumption (depreciation).

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(1) Refer to: Vodyanov A.A., Zamaraev B.A. Methodologic problems of national economy development generalized indexes computation. - Transactions of the Academy of Sciences of the USSR ('Isvestya AN SSSR'), ser. Economica, # 5, 1989, pp. 23-35.

Besides accumulated in operating industry fixed capital depicts radical changes in proportions of accumulation fund and sometimes these changes run counter to the real trends in economy.

Peculiar features of investment viewed as advanced value display themselves in the fact that basic macroeconomic proportions are shaped when accumulation fund is being planned. Efficiency parameters of national economy and turnover time of resources during the whole cycle of reproduction are being formulated and planned as well. Gross national investment demand should be computed with full account of capital intensity of capital goods production.

Today investment planning greatly depends on structure shifts which take place in the USSR and which are caused by social changes in the Soviet Union.

Several figures may be very helpful to bring about the situation. In 1989 the share of national income spent for consumption and non-manufacturing building construction reached 83% (82.3% in 1988).

The share of the accumulation fund is being reduced according to the plans. So in 1986 consumption fund was 74.2% of national income and accumulation fund reached up to 25%. Here we can distinguish certain trend in national income spending. It seems to be quite beneficial as far as social needs are concerned.

Table 3.1. Social parameters of economy.

(%)

Indexes	1985	1990 (plan)	1995 (plan)
Current consumption and social building construction share in the national income	81	86.7	87-90
Consumer goods industry share in total amount of industrial output	26	28	31-33
Imported consumer durable goods in total amount of imported goods	15.4	18	23-24
Share of nonindustrial investment in total amount of investment financed by all organizations (5-year period)	23.3	26.7	35-36
Share of construction-installation works done for non-industrial objects in total amount of works	37.7	44	55-57

Today we seek improvement in investment policy in the framework of general changes in Soviet economy.

The Soviet government stated that in 1991-92 it will take measures to reduce the number of industrial objects under construction by 20-25% of the total number; to cut short construction in process, to liquidate its extra volumes, to reduce construction cycle by way of resource concentration.

The Soviet government will introduce optimal proportions to budgeted construction with the help of long-term bank loans granted to the contractors on the competitive basis. Other measures will deal with industrial capacities of building construction industry. They are to be renovated and reconstructed.

Building construction ministries should be reshaped into commercial concerns, consortia, corporations. Leasing and cooperative firms and entities will be also favoured.

Small constructions shops will be created and protected by the economic entities where there is no need in powerful construction firms.

Enterprises, associations and self-accounting intermediary firms will acquire a lot of coordinating functions because state bodies will be reoriented and restructured.

And here we must say that the Soviet government set down to elaborate new Act of law regulating investment activities in the Soviet Union. It is due to be issued by the Supreme Soviet in 1990.

3.1.3. How investment plan is elaborated and adopted

While in Moscow, Chinese experts expressed their wish to get some additional information on large investment projects. They considered it to be of great interest to examine this problem in detail. So, in spite of the fact that this problem has been investigated in the Reports 1 and 2, we found it possible to dwell upon the problem in separate chapter and bring about the government contracts for huge investment objects. The forthcoming procedure will come into life in 1991-1992 with some minor changes.

So here we would like to say it once again that centralized government all-union investment is effected in the form of government contract.

A certain construction object may be subject to government contract and its budget cost calculation is presented by state bodies as well as all other terms and conditions of the object (per annum) including social and environmental objects relevant to the main one.

Government contract is financed by centralized public investment and by current assets of all other investors. Investment resources of all other investors are attracted on the basis of joint stock. All members of joint-stock company are free and have access to the project according to the share of the paid-in capital.

There may be no free investors if the object is ultimately governmental and the government exercises full power over its

construction. Government contract will be placed on competitiveness basis (contractors will have to compete for the contract). As we have already said this contract will be awarded to the best contractor. But some objects that are considered to be very important ones won't be subject to contractors' contest. The contractor will be obliged to accept the contract. The Soviet government will choose the form of contract placement taking into account specific features of the object.

It's proposed that the government contract should be directly awarded to the investors or to republican bodies vested with the power to effect investment. This is done irrespective of the form of the contract (either competitive or obligatory). The Soviet government, the government of the Union Republic or other bodies or organizations vested with relevant power should exercise supervising functions and bear all responsibility for the effective construction of the object.

Construction objects effected under the relevant government contract must be provided with all kinds of material resources. Investors' interests are secured by acts of law adopted by the Soviet Union or by the Union Republics.

Final quality control should be effected by the customer, local authorities, and State Controlling bodies. All general standards accepted in the country as well as contract terms and conditions should be met by the contractors.

Terms of payment are stipulated by bilateral or multilateral contracts.

Payment for industrial objects must be effected to prime contractor only when environmental and social objects which should be created according to the contract are finished and examined by the experts.

And here we would like to bring about some particular features of the investment policy conducted in the regions where environmental problems are acute and where there is higher rate of danger for environment or of natural disaster.

It is planned to allocate funds in the framework of centralized public investment for the works to be done in the regions with high rate of environmental danger. These funds alongside people's contributions and contributions of the public organizations and charitable funds would be allocated to construction-installation works in the regions with higher rate of environmental danger. Local municipal authorities are rested with the power to effect these works in order to improve environmental conditions in the region. These works are done in the framework of centralized and municipal public investment.

Centralized public (all-union, republican, municipal) investment will be effected in the form of government contract for environmental objects in certain regions, i.e. government contract will envisage a package of measures aimed at better environment in the region.

We expect that these kinds of investment projects, as well as investors and contractors participating, would enjoy tax allowances and certain grace period.

Special insurance investment reserve is expected in the

attracted money (contributions) will back up rescue and restoration works conducted in the Soviet Republics which suffered from natural disasters or accidents. This reserve will help to reduce negative consequences of the catastrophes.

Centralized investment backed up by this reserve would be effected as an obligatory government contract.

All contractors engaged in restoration works would enjoy tax allowances and other privileges, such as special compensating payments for extra expenditures connected with restoration works (e.g. emergency compensation for urgent transportation of labour and material resources to the area from other regions of the country).

3.1.4. How construction lists are designed and adopted

Construction lists and other object papers are considered to be most important documents where planned tasks and volumes are detailed. These papers serve as a major source of construction and project data for the contractors.

Five-year plans include lists of objects constructed on the new sites and enterprises and economic objects where large-scale reconstruction and expansion works would be effected during the five-year-period according to the plan of public centralized investment. Councils of Ministers of Union republics, ministries, concerns, intersectoral Research & Development complexes send the list over to Gosplan (State Planning Committee of the USSR) and outline reasons for the

required volume of investment.

This list covers construction-in-progress started in the previous years and projected objects which would be constructed during this five-year-period. This list usually embraces industrial objects but sometimes social objects are also included in this list if they are of great importance irrespective of their budget costs.

Construction lists of the objects set up definite tasks for contractors as far as time and volume of industrial capacities to be put-in-place are concerned. These lists define volume of investment, erection and installation works, construction period, prime contractors, and manufacturers of the equipment.

New investment projects are designed in accordance with the Development plans of national economy and the Development plans designed for regions with relevant Project Evaluations (Refer to the Report 1).

An adopted object list serves as a ground to consider the object under construction planned for the next five-year-period as an object in progress.

If the objects listed as financed by the government do not have appropriate adopted projects and project evaluations then major technical-and-economic values should be supported by other relevant papers (e.g. sectoral and territorial development plans, technical-and-economic Reports).

Gosplan takes into consideration all recommendations of the ministries, republican governments and other authoritative

bodies and formulate government contracts that would be later adopted by the Soviet Government. These contracts estimate industrial capacities that should be put in place in due course. These contracts are distributed between construction sites, enterprises and objects and Gosplan fix these contracts in the State five-year plan of social and economic development.

Indexes and other economic values relevant to the projects listed for the government contract are adopted be the Council of Ministers of the Union republics, by ministries, concerns and other authoritative bodies and should be coordinated with State Planning Committee of the USSR.

Indexes and other economic values for the objects where large-scale reconstruction works should be done are adopted almost in the same way.

General directors and other high ranking executives of the enterprise which is going to invest its own money in reconstruction or expansion examine and adopt relevant indexes and economic values as far as this investment project is concerned.

In accordance with the adopted Lists of objects the Construction lists (or sheets) are worked out. They are elaborated for the whole construction cycle of the object.

The Construction lists of the new objects are elaborated in compliance with the adopted project and costs calculation documents which give all necessary information on industrial capacities that should be put in place, on objects, volumes of investment, erection and installation works and estimated data

on construction-in-progress.

Construction time is calculated with the help of time standards and if there are no such standards construction time is computed according to the time period estimated in project. Standard efficiency of investments and requirements for advanced technological development must be observed in the investment projects.

The Construction list of the new object includes data on budget costs of construction, on time schedule of construction, on customers and contractors, on project-and-design organization and on procuring organization.

Investment and volumes of erection and installation works done by foreign (capitalist) firms according to the compensation agreements as well as for the objects created by joint venture are settled due to the terms of the contracts.

When investment objects are designed for imported equipment time of construction is computed and estimated so that when installation works and testing of equipment is over the guarantee period of the imported equipment is far from its expiry date.

The Construction lists of the new industrial objects are subject to the following procedure of adoption.

1. When construction of the object is financed by investment fund of the enterprise or if it is partially financed by the local, municipal or regional budgets, or centralized investment funds and reserves of the ministry, the Construction list is adopted by the executives of the

enterprise or/and relevant organization.

2. If construction of the object is financed by centralized funds and reserves of the ministry, then they establish this procedure by themselves.

3. If construction of the object is financed by centralized public investment, then the Councils of Ministers of the Union republics, all-union ministries and other authoritative bodies adopt these lists in accordance with the accepted procedure.

The Construction lists of the objects for R & D organizations, Academy of Sciences of the USSR and for Academies of Sciences of the Union Republics as well as the underground transport facilities are adopted in the same way as for industrial objects.

The Construction lists of the objects where foreign capital is involved are adopted in compliance with the procedure designed for the relevant industrial and social objects.

But we are inclined to think that in the near future the obligatory planned regulation of contractual activity (including the Construction lists) will be cancelled.

3.2. The Procedure of Investment Decision-Making

3.2.1. The Procedure of Investment Decision-Making for Investments Effected by the Enterprise.

The Enterprise formulates the programme of perpetual

modernization of its material and technical base, concentrating its efforts and resources on the technological renovation and reconstruction based on advanced projects.

It estimates resources available for this purpose and evaluates the means that can be attracted from expansion fund, other funds and with the help of bank loans and credits. The enterprise estimates reasonable demand for materials and amount of contract works.

The enterprise works out itself or strikes contract with project organizations for project and costs documents.

The enterprise examines and adopts these documents and the Construction lists of industrial and social objects projected and financed by the enterprise.

The enterprise coordinates the time schedule of the works with the contractor. It accepts (or does not accept) project papers presented by the designers.

The enterprise is free to choose the method of construction, whether to find a construction firm or use its own construction shop or department. If it strikes a contract the latter must cover the whole time of construction.

A constructor together with the customer should ensure construction schedule and bear responsibility for the quality of erection and installation works.

Sometimes, government contract may be awarded for industrial and social objects financed by enterprises or by other organizations if these objects are of great importance and if they are put forward by enterprises, local municipal authorities and ministries. Ministries and other authoritative bodies of the USSR do not have the right to make any changes in government contracts when they are adopted by Gosplan.

We would like to state it once again that in this country we are looking forward to introducing comprehensive system of competitive contracts. Some contracts are already competitive but this must become common practice.

Government contracts for consumer goods production are estimated in money value. Volumes of production should ensure certain equilibrium between commodity turnover and commodity resources (inventories). Government contracts cover only basic products that are produced by manufacturing branches, agriculture and other branches of economy.

Surplus consumer goods produced by the enterprises go to the market and are not regulated by government contracts. All products produced by the enterprises according to other contracts also go to the market. Moreover, government contracts tend to decrease in volumes in order to facilitate market relations and commercial activities of producers. As far as government contracts are being rationalized producers should demonstrate higher rate of responsibility when working under government contracts.

System of penalties is supposed to be introduced in order to secure fair work of the producers. This system will envisage

penalties for the enterprise if the latter rejected government contract without valid reasons or if it failed to observe the terms of the contract. Penalties will be charged and paid out of the consumption fund of the producer.

This measure seems to be necessary because restructuring of investment policy goes rather slowly and meets some obstacles.

In 1989 government plans for capital assets to be put in place were only 92 % fulfilled. And only 50 % of planned industrial capacities were operative in 1989. Only 145 objects of total 395 (about 40 %) proved to be ready to operate in 1989 (in 1988 - 59 %). As to the total volume of effected government investment, in 1982 it was 27.6 billion roubles more than fixed capital put in place. That means that a lot of money was wasted and investment was inefficient. That is why we think that the sooner we reform the national economy the better. And this reform must be based on new principles of self-accountance, profitability, market relations, economic equilibrium.

A new Act of law is reported to be underway. This Act of law will cover all kinds of activity of socialist enterprise (and not only that of state enterprise). We expect that there won't be any regulations imposed on profit distribution. All enterprises will be able to create special funds for expanding their operations and providing better social welfare for the employees. And what is more important there would be no standard rates obligatory for the enterprise when the latter is creating these special funds. The State will be able to

regulate commercial activity of the enterprise only with the help of taxation.

3.2.2. How joint ventures are established

During last few years we witnessed active process of establishing joint ventures in this country. Now it becomes clear that free economic zones will be introduced as well. As investment policy has its particular features for joint ventures we would like to dwell upon the problem.

There are several successive stages of this procedure. You will find the structure of the procedure and executive authorities in the Chart 3.2.

Chart 3.2. How joint venture is established

Stages	Executives
1. Goal and targets of joint venture	Enterprise or other economic entities
2. Research work done in order to find the best foreign partner	Enterprise or intermediary firm
3. Business talks and joint venture proposal formulation	Enterprise
4. Joint venture efficiency evaluation	Same
5. Elaboration of joint venture evaluation	Same
6. Coordination work and establishment of the joint venture	Shareholders
7. Business talks. Final agreement. Documents signed.	Enterprise or other economic entities & foreign partners

In fact joint venture proposals are prepared by partners where one of them is a Soviet enterprise or organization. This preparation work results in the package of documents including Establishment Agreement, Status of new joint venture and evaluation of joint venture.

As a matter of fact one must do a lot of work in order to establish a new joint venture in the USSR because it is necessary to examine and analyze all juridical, managerial, economic and other problems which emerge when a new joint venture is due to appear.

In order to find foreign partner one may take the following steps in the research work.

First, one may examine and investigate a wider circle of potential partners (including smaller firms and companies) producing the commodity or service in question.

Then one should do some research work in order to find out whether these candidates are eligible (if commodities they produce are competitive) and whether they are willing to cooperate.

Economic evaluation of joint venture should be based on the following topics.

Costs of importing of goods must be compared with the costs of the analogue product produced in the USSR by joint venture.

Quality standards of the goods to be produced must be examined, evaluated and compared with the imported products of the same kind.

compliance with the national standards, as well as that of the import-substituting products manufactured by the joint venture.

Export output of the joint venture is considered to be an important feature due to the fact that all joint ventures should be profitable as far as foreign exchange is concerned because foreign partners are interested in profits in hard currency.

Analysis of all relevant data according to this scheme should be conducted by the enterprise which is going to establish new joint-venture together with ministries.

Problem of joint-venture feasibility may be solved when profound and accurate analysis of basic economic values and coefficients of the enterprise is effected.

This analysis covers quality of produced goods and their competitiveness, technical-and-economic parameters of the enterprise. It helps to decide whether the enterprise can effect its capital contribution in the form of capital goods. Buildings and constructions owned by the enterprise are also analyzed in order to find out whether these buildings and constructions may comprise fixed capital of the new joint venture. Comparable evaluation of the enterprises proposed by foreign partners also may be useful.

Prognosis analysis of the future joint venture and long-term cooperation with the foreign partner seems to be beneficial as well.

Final partner selection should be based on this analysis because it provides comprehensive evaluation of the

opportunities.

Ownership capital of the joint-venture is furnished by partners. Ownership capital is furnished according to the regulations imposed on the activity of the joint-venture. And so, ownership capital has definite natural and money composition. In natural form ownership capital consists of natural resources, land, equipment, buildings and constructions, communication and transportation facilities. Ownership capital composition in money terms is based on money worth of its elements, which in its turn is based on contract prices and international market prices. Capital composition in money terms may be analyzed from different angles. For example ownership capital may be compared with total costs of the project; partners' shares may be compared; elements of partners' contributions may be analyzed as well as own stock and debt capital of the joint-venture.

Profit gained by the joint-venture may be allocated to ownership capital and partners can make extra contributions to ownership capital of the joint-venture.

Partners estimate total output of products of the future joint-venture enterprise and estimate costs and expenditures covering the initial stage of joint-venture's activity. Partners then coordinate their shares and time schedule of allocations that would secure the break-in period. When it is necessary to estimate soviet enterprise contribution or other problems with foreign exchange emerge the official exchange rate established by State Bank of the USSR is applied.

Partners coordinate the date of fixing the exchange rate used to estimate Soviet capital contribution. Date of signing contract may be this date but partners are free to choose.

Price of land, price of natural resources or rights to use land or natural resources are considered to constitute Soviet contribution to ownership capital. Estimation of this contribution is conducted in accordance with mutually accepted method and is based on the principle of mutual benefits.

Basic approach to these methods is presented in special document "Estimation of land, natural resources, buildings and constructions allocated to ownership capital of joint-ventures or leased to joint-ventures by the Soviet side".

Price of buildings, basic infrastructure, communication facilities and social infrastructure allocated to ownership capital of the joint-venture as Soviet contribution is estimated in accordance with contract prices of objects of this kind constructed in the USSR by foreign contractors. Depreciation of operating buildings, constructions and facilities should be estimated and deducted from the initial price of the object.

Average unit values published in international reference books on construction may be used to estimate price of buildings and other objects according to their class and quality. International price lists and market prices are used when price of equipment must be estimated or when partners want to purchase equipment using their own or attracted capital.

Each partner must estimate his resources in order to know

whether he would be able to invest his own money or capital goods or he would be forced to borrow. Joint venture recognizes no liabilities for loans attracted by a partner in order to provide his paid-in capital.

When total amount of raised capital is estimated and if it is not sufficient to start business activity joint-venture may apply for credit to the banks. And therefore it accepts certain liabilities.

Today there is a lot of new opportunities for Soviet people and foreign investors in the USSR.

In March 1990 the Supreme Soviet of the USSR adopted new Property Law regulating ownership relations in the Soviet Union. This Law will come into life on July 1, 1990. According to this Law there are three types of property: state property, collective property and property of soviet citizens. There may exist property of foreign states, international organizations, foreign corporations and private persons. Mixed property is also allowed. From now on Soviet people can own small shops and other small business if they work there. The Soviet government will protect property rights of all these proprietors.

We think that alongside joint-ventures other forms of economic activity of foreign investors may be rather beneficial. And we are sure that it is important to work out an advanced system of privileges, credits and guaranties in order to attract more foreign investors. It seems to be rather good to create special investment zones and free econom[illegible] of construction industry where international economic [illegible]er would

be feasible.

We think that it would be very beneficial for Soviet and foreign partners to concentrate construction activity on the objects where imported equipment and technologies will be used.

Export capacities may also be in the scope of this business as well as import-substituting production. This will lead to broader competitive contracts which will be awarded to foreign contractors and government will definitely support this kind of commercial activity. These contracts may be awarded to construction firms or to procurement firms supplying equipment, materials or technologies. Acquired experience and skill may be successfully used for joint export operations in the third countries.

Property rights of foreign investors are protected by Soviet law. And we would like to say that there soon will be a package of bills which would provide extra protection for foreign investors. For instance, if an investor is forced to stop his business because of some circumstances that do not depend on his will he will be able to claim refunding of actually effected investment.

And now we find it useful to dwell upon the problem of foreign investors on government contracts. Today the majority of soviet experts is inclined to solve the problem in the following way.

Government contracts should be awarded to foreign firms and companies which win international tenders organized by the Soviet side in order to secure the best possible contractor.

3.2.4. A Draft scheme of coordination procedure applied to projects and project evaluations.

Here we present procedure of coordination of projects and project evaluations applied in the USSR in detail.

Table 3.1. Coordination procedure applied to projects and project evaluations

Organizations and other authoritative bodies exercising executive functions	Articles of coordinated documents	Disputed questions	PE (TEC)	
			Technical Regualations and coordination of planned decisions	Decision making
1	2	3	4	5
State Committee for Building Construction	PE (construction articles)	PE, design task.		+
Republican Committee for Building Construction	PE (construction articles)	PE, design task.		+
Regional design-and-research institute	PE, Design task, Project	Design task, Basic topics	+	

1	2	3	4	5
		of PE and project		
Branch ministry	Design task	List of equipment	+	
Branch research institute	Basic technology	Technological flow and equipment	+	
Customer	PE, project (draft project)		+	+
Sanitary and medical office	Planned project decisions	Sanitary and environmental problems con-	+	

1	2	3	4	5
		cerning the project, processing of residuals, etc		
	Special rehabilitation zone around the object, technology and construction problems concerning environment	Project coordination (Draft project)		
Health and Medical	Planned project	Health and		

1	2	3	4	5
organizations	decisions	Medical problems	+	
Weather Forcasting organization	Planned project decisions	Environmental problems	+	
Local and municipal supervising bodies	General plan of construction, basic infra-structure and other facilities	Observation of accepted standards on the construc-tion site and adhering areas	+	
Ministry of inland waterways		Construction of moors and	+	+

1	2	3	4	5
		system of deliveries		
Ministry of communications		Communication system	+	
Regional offices of pipeline protection	Gas pipelines Water pipelines	Pipelines protection	+	+
Department of gas mains	Gas pipelines	Coordination of technical regulations near gas mains	+	+
State Forest Inspection	General plan	Forest rehe-	+	

1	2	3	4	5
	of construction	bilitation measures		
Public utilities offices	Sewerage, watermains, ventilation, etc	Plans of these facilities	+	+
Local transportation firms	Planned project decisions	Transportation facilities	+	
Trade unions	Construction process	Social, medical and other services Safety of labour		

1	2	3	4	5
Republican government	Construction site selection	Land allotment		+
Regional agriculture department (for agriculture establishments)	Plan of recultivation of land	Recultivation of land		+
Regional or local geological department	Selection of construction site	Construction site in the areas where mineral resources are developed	+	+
Intersectoral commission		Material		

1	2	3	4	5
of State Committee for Supply and Procurement		allocation		
Ministries Superior to the enterprises involved	Share of contribution	Coordination of share of contribution	+	
Prime contractor	Planned project decisions, technical regulations applied to construction design works	Coordination of technical regulations applied to construction design works Basic data on objects budget costs	+	

1	2	3	4	5
		reports		
	Design and construction articles, general budget costs objects budget costs reports	Coordination of objects budget costs, recommendations on general budget costs report and on objects budget costs reports		
Civil aviation department	Tall houses and constructions	Coordination of dimensions		

1	2	3	4	5
		and construc-		
		tion sites		
Ministry of transportation	Planned project decisions	Railways and technical regulations applied	+	
Railway department	Railways	Coordination of project decisions	+	
Energy department	Planned project decisions and articles on electricity	Technical regulations and coordination of	+	

1	2	3	4	5
		draft project		
	Planned project decisions, articles on hot water	Technical regulations and coordination of draft project	+	
Municipal authorities (city, township, etc)	Planned project decisions	Permit for construction	+	
		Housing	+	
		Storing of unprocessed residuals,	+	

1	2	3	4	5
		manpower supply, shares of the third organizations	+	
Civil architecture and design department	Planned project decisions	Architecture and design task	+	
	Architecture and construction articles	Coordination of architecture and construction decisions		+

1	2	3	4	5
Local fire inspection	Planned project decisions	Technical regulations for fire-department construction	+	
	Construction decisions	Fire and explosion security, fire control		
Local canteen trust	Planned project decisions	Canteen feeding arrangement		
		Technical	+	

1	2	3	4	5
		regulations		
	Construction decisions and technology	Technology of canteens	+	
Firms installing canteen equipment	Technology	Coordination of working papers	+	
Municipal hot water mains department	Articles on hot water supply	Questions dealing with water mains installation	+	
Local sewerage and water	Planned project	Technical	+	

1	2	3	4	5
department	decisions	regulations Water and sewerage offshots		
Gas department	Planned project decisions	Technical regulations for gas off-shots Coordination of the project papers and working papers		
Road police department	General plan	Roads,		

1	2	3	4	5
	and transport schemes	parking lots, transit roads	+	
Landscape department	Sanitary zone	Rehabilitation questions		
Communication department	Planned project decisions Articles on communication and signals	Telephones. Coordination of project decisions	+	
Radio network	Planned project decisions. Radio network	Technical regulations for radio	+	

1	2	3	4	5
		network		
Road Board	Access roads	Coordination	+	

So as you may see this procedure is rather difficult and painstaking. That is why now this procedure is being rationalized and simplified since a lot of bureaucratic bodies are eliminated and reorganized.

One of Moscow research institutes has developed a new, advanced procedure which may be widely used by State Committees, republican governments, ministries and by other authoritative bodies of the USSR for project evaluation. This procedure was named "Complex analysis of project decisions and project evaluations" - CAPD. It is based on computer processing of basic information necessary for the project decision making.

CAPD is aimed at higher investment efficiency. Another target for this procedure is the development of material base of industrial construction as well as improvement of living conditions.

This means that project decisions made with the help of this procedure will ensure concentration on quality and on efficiency of construction. It will lead to putting emphasis on reaching final results of construction process instead of controlling the intermediate results and it will rationalize utilization of material resources.

CAPD will concentrate on the design stage of the project, especially on the stage of Development schemes and plans. Project evaluations and technical-and-economic computation will become an efficient tool of decision making.

CAPD will secure observance of industrial development priorities even at the initial stages of design works.

Application software gives perfect opportunity to examine following functions of the project:

- it becomes possible to survey the object on the landscape (to 'put' it on the landscape),

- it is possible to generalize and decompose functions of the object and analyse its external ties with environment as well as to examine construction requirements,

- it is possible to forecast its behaviour,

- it is possible to evaluate several versions of project decisions as far as quantitative values are concerned.

Dialogue pattern is used and all operations of the users are displayed by computer.

Information may be displayed in various forms:

- data lists,

- spreadsheets with variables that can be processed in rows/columns,

- analytic computations of fragments of construction and other components of elaborated object.

Iterative subprogram "economic eficiency - quality" plays substantial part in this procedure.

This subprogram allows the users to set planned investment volume, set expected time of "doubling the capital" of investment (i.e. period of time which is needed for return of the invested capital and profit gain equal to

invested capital). Then the user can evaluate versions of development, reconstruction, expansion or new construction, etc and choose the best version of planned investment. This subprogramme provides users with full information about erection-installation works, construction costs, profits, contract price of construction, price of design works etc. User may alter any of his previous operations with variables and fix new economic values displayed by the computer.

"Economic efficiency - quality" subprogramme allows to alter investment set-ups, tactics and acquire the best possible versions of investment.

3.3. The Role of the Agencies Involved (Functions and Relations)

A lot of agencies and organizations takes part in investment projects realization. We have already covered some of the questions dealing with agencies involved in Report 2. In this Report we would like to dwell upon the problems we failed to cover in the previous Reports. So we must state that authoritative bodies of the Communist Party of the USSR exercised ultimate power as far as investment policy was concerned. Party Congresses, Plenary meetings, Politburo made decisions over main problems of investment policy. The Supreme Soviet of the USSR played no important part in these questions. It was a formal supplement to Party decisions. And the Soviet government remained executive

body.

Today this situation is changing and as the Act of law on investment is being worked out, the roles of different authoritative bodies are being outlined.

We think that the Supreme Soviet of the USSR will probably accept some additional functions. Beginning from 1991-1992 this legislative body will exercise following functions as far as investment policy is concerned.

The Supreme Soviet of the USSR will work on the problems of volumes and structure of centralized public investment, target complex nationwide programmes and it will work out the list of the objects financed by the Soviet government. This work will be done simultaneously with the adoption of State Plan of Social and Economic Development and State budget of the Soviet Union at the Sessions of the Supreme Soviet of the USSR.

Experts consider it to be advisable for the Supreme Soviet to announce national referendums on large target complex programmes of nationwide importance.

Investment Policy will be formulated by national and republican governmental bodies, Academies of Sciences of the USSR and Union republics under close guidance and supervision of the Supreme Soviet of the USSR and Supreme Soviets of Union Republics.

The Supreme Soviet of the USSR will compose the list of target complex programmes of nation-wide importance that will be launched in planned period and local Soviets

together with republican governments will work out these programmes in detail.

The Supreme Soviet will examine volumes and structures of centralized public investment and target complex programmes with the help of specially established Experts' Commission of the Supreme Soviet. If this Commission approves volumes and structures of planned centralized public investment and target complex programmes, then these projects will be sent over to the Supreme Soviet of the USSR for approval.

The Soviet Government is not vested with the right to attract foreign investment, loans or accept other liabilities if this is not approved by the Supreme Soviet.

The Supreme Soviet of the USSR according to the proposals put forward by Republican Supreme Soviets defines the list of the regions where environmental danger exists. It defines volumes of investment and other relevant topics.

The Republican Supreme Soviets have the right to grant privileges and credits to economic entities which are directly involved in investment projects financed by government and aimed at environment protection.

The Supreme Soviet of the USSR will demand regular reports of Supreme Soviets of Union Republics dealing with the problem of centralized public investment allocated to environment projects in the regions with higher environmental danger.

The Supreme Soviet of the USSR will probably be the one

to approve Insurance Investment Fund budget which is reported to be created in the framework of State System of Stocks and Reserves.

So, respectively we should dwell upon the functions of the Soviet government as far as investment policy is concerned.

The Council of Ministers of the USSR will issue orders and decrees securing further improvement of investment policy, the development of building construction industry and other relevant problems. The Soviet government will effect its executive functions through State Committee for Building Construction and through State Planning Committee (Gosplan).

The Soviet government will approve the list of objects constructed under government contracts, which will be composed by State Planning Committee. The Soviet government supervises the programmes of development of architecture and capital construction worked out together with Academy of Sciences of the USSR.

The problem of government special assessment bonds is being disputed now. These bonds will allow to raise capital for centralized public investment if the government is short of funds. The Council of Ministers of the USSR will be able to apply to the Supreme Soviet in order to get permission to attract international capital to finance centralized public investment.

We assume that the government is unlikely to have the

right to attract foreign investors without permission of the Supreme Soviet of the USSR.

Council of Ministers of the USSR is expected to formulate principles of establishment of joint stock companies which can be engaged in government contracts. Certain privileges for these joint-stock companies will be also worked out.

Councils of Ministers will establish regulations and the order of awarding government competitive contracts. Then Councils of Ministers of the USSR and Union Republics will have to name administrative bodies bearing responsibility for material procurement.

Council of Ministers of the USSR and republican governments together with all other involved agencies and public organizations elaborate drafts of target complex programmes of nation-wide importance that should be introduced in planned period.

Council of Ministers is supposed to take the responsibility for the equilibrium between planned volumes of centralized public investment and volumes of investment allocated to objects-in-progress and launched constructions according to target complex programmes, their feasibility and coordination of investment.

Republican and local administrative bodies according to this scheme execute following functions.

They take part in the elaboration of national development plans and in coordination of planned decisions

dealing with these republics and regions. They may grant privileges and impose limitations on investors and contractors including restrictions on land allotment and deployment of industrial enterprises. They supervise labour force balance in the region, secure social and environmental standards. They allocate local and regional budget funds to various projects. These bodies work out and approve plans of capital construction in the region. The scope of directly planned projects is restrained and include republican and municipal construction objects effected under republican and municipal contracts and financed by regional budgets and/or subsidized by state budget.

Special investment bank is expected to be created. This bank will finance and grant loans to organizations engaged in strategic investment and innovation projects which are closely connected with the process of establishing free market of building contractors, training of personnel, advanced management systems, restructuring of investment policy and building construction industry.

We assume that this bank will take active part in international integration projects, joint-ventures, and we hope that this bank will work on the problems of analysis of the capital markets.

Regional bodies begin to play more active role in the formulation of investment policy. Councils of Ministers of Union Republics, regional executive bodies actively participate in elaboration of Development plans (15 year

perspective plans) and participate in other long-term projects.

These administrative bodies compose regional and intersectoral target programmes, prepare recommendations on regional industrial complexes and centres.

They compose programmes of contract construction works for industrial objects of republican and local subordination and for social objects irrespective of their subordination. Aforesaid does not refer to investment financed by enterprises and organizations (share of this type of investment totalling to 49% of gross volume of investment in 1989 (40% in 1988). As we have already said the Gosstroi (State Committee for Building Construction) should drop some of its functions and concentrate its work on control over architecture and building construction. It should work out technical policy and management system, forecasts and surveys of construction business. Gosstroi should participate in elaboration of legislative acts on construction. Gosstroi will be probably engaged in elaboration of the following standards and normals: safety standards, quality standards applied to construction materials and erected buildings (detailing standards regulated and approved by the Supreme Soviet of the USSR).

This committee may work out recommended regulations and standards, design standards, standards for erection and installation works, quality control standards, regulations applied to competitive contracts, generally accepted terms

and conditions of contracts, price estimations, and other standards.

At the same time Gosstroi should issue following recommended additional and complimentary standards and regulations that may be applied to construction firms as reference data:

- unit investment rates
- investment efficiency target rates
- investment cycle longevity
- typical rates of fixed capital per worker for construction firms
- typical management systems
- advanced technological flows
- other relevant standards and regulations.

Republican Committees for Building Construction (if they do not cease to exist) may work out some standards and regulations for construction firms too, such as the quality standards for construction materials, finished objects and erection and installation works.

Republican Committees for Building Construction may elaborate rules for construction works, quality control rules and regulations, issue regulations for contractors and customers, contractors and subcontractors, banks, etc.

They may establish rules for competitive contracts, estimation of contract prices, standard rates of investment efficiency applied to the region, construction cycle and all other standards and normals that can be under the

supervision of these bodies. Regional executive bodies will be probably engaged in control over land allotment, environment protection, leasing rates, tax rates, prices of construction materials and some other problems.

In fact Ministries of building construction will cease to exist. Large construction entities will be reformed into corporations. Large building corporations and amalgamations will show certain flexibility in order to provide their departments, subsidiaries and branches with commercial spirit. Intersectoral cooperation and coordination may be shaped in the form of associations, consortia, groups, syndicates.

Specialized building ministries should be transformed into self-accounting corporate structures and administrations of these ministries should be transformed into the Headquaters of these corporations. So this will ensure the transfer to competition between building corporations together with decentralization of building departments of the ministries.

3.4. Other Relevant Topics.

General budget costs calculation.
(Fragment of project evaluation).

General budget costs calculation is computed to estimate full construction costs and costs of

erection-installation works envisaged by the project in the framework of two-stage design or by the draft project if one -stage designing is applied. General budget costs calculation (hereafter GBCC) is considered to be the basic document used for planning and financing of the construction works, for effecting payments, and for other relevant topics. Moreover economic efficiency of project decisions is computed according to the GBCC (budget costs values are used for estimation).

GBCC is composed according to generally accepted procedure described in "Instructions on compositions, elaborations, coordination and approval of project and budget costs documents on building construction". Classified nomenclature of various types of buildings, constructions and other objects has been worked out and now is used for budget costs calculations. Homogeneous costs and expenditures are accrued and treated in the same aggregated article (item) of expenditures. Refer to Table 3.2.

Table 3.2.

General budget costs calculation
in the sum of 2730710 roubles
with 7950 roubles refunded.

General budget costs calculation of industrial building (shop)

Prices of 1984

NN	Names of articles objects, works and costs	Budgeted costs (thousands of roubles)				
		erection works	installation works	equipment, furniture, tools	other expeditures	Total
1	2	3	4	5	6	7
1	Article 1. Preparation of construc-					

1	2	3	4	5	6	7
	tion site					
	Preparation of					
	construction site	147.92	-	-	0.18	148.1
	Total Article 1	147.92	-	-	0.18	148.1
	Article 2. Basic					
	manufacturing					
	objects					
	Industrial					
	building (shop)	682.64	103.86	602.19	-	1388.69
	Total article 2	682.64	103.86	602.19	-	1388.69
	Article 3.					
	Supplementary					
	objects and					
	service facilities					
	Administrative					

1	2	3	4	5	6	7
	building	222.86	18.79	45.23	-	286.88
	Scrap metal					
	storehouse	3.01	0.46	-	-	3.47
	Total Article 3	300.13	47.11	64.64	-	411.88
	Article 4. Energy					
	facilities					
	In-site					
	low-voltage cables	0.83	2.08	-	-	2.91
	Out-site					
	high-voltage					
	cables	10.76	34.59	-	-	45.35
	Total Article 4	11.59	36.67	-	-	48.26
	Article 5.					
	Transportation					
	facilities					
	Asphalt roads	27.13	-	-	-	27.13

1	2	3	4	5	6	7
	Total Article 5	56.24	2.39	-	-	58.63
	Article 6.					
	Basic infra-					
	structure					
	facilities					
	(water mains,					
	sewerage, gas					
	pipelines etc.)					
	Water refining					
	system	47.92	7.8	3.87	-	59.59
	Total Article 6	278.6	8.33	4.04	-	290.87
	Article 7.					
	Rehabilitation					
	of the territory					
	Vertical landscape					
	rehabilitation	5.38	-	-	-	5.38

1	2	3	4	5	6	7
	Total Article 7	33.05	2.1	0.1	-	35.25
	Total Articles 1-7	1510.17	200.36	670.97	0.18	2381.68
	Article 8. Temporary buildings and constructions					
	Temporary buildings and constructions - 3.1%	46.82	6.21	-	-	53.03
	Total article 8	46.82	6.21	-	-	53.03
	Total Articles 1-8	1556.99	206.57	670.97	0.18	2434.71
	Article 9. Other relevant expenditures					
	Winter prices of					

1	2	3	4	5	6	7
	works - 2.1%	32.7	4.34	-	-	37.04
	Total Article 9	32.7	4.34	-	59.08	96.12
	Total Articles 1-9	1589.69	210.91	670.97	89.77	2561.34
	Article 10. Administration costs and supervision costs Supervision costs - 0.2% of total sum 1-9	-	-	-	5.12	5.12
	Article 11. Personnel training	-	-	-	-	-
	Article 12. Design and development works					

1	2	3	4	5	6	7
	Design works	-	-	-	84.72	84.72
	Total Articles 1-12	1589.69	210.91	670.97	179.6	2651.17
	Emergency reserves - 3%	47.69	6.33	20.13	5.39	79.54
	Total GBCC	1637.38	217.24	691.1	184.99	2730.71
	Contract price	1589.69	210.91	-	-	1949.78
	Refunded money	-	-	-	-	7.95

Refer to: Romanova K., Zharkovskaya E., Isaeva G. Labour standards and budget costs calculations. - Moscow, 'Stroiizdat', 1989, pp. 256-260.

Epilogue

Here we would like to dwell upon the problem of formulating new investment policy in this country. A lot of scientists take part in this process and authors of the presented paper also investigate this problem.

It is supposed that in 1990-1991 the investment sector of economy will manage to overcome current crisis and the economic situation will be more stable. New legislative acts regulating investment and building construction will be adopted and we hope that grounds for market relations in this sector of economy would be established.

It is now being planned and we hope that these plans will come true, that basic elements of market relations in investment sector of economy will be created by 1992-93. National and regional investment markets will be coordinated and closely bonded with each other and with the international investment market.

Contractors' market is also expected to be established by this time. Various forms of property will help to form this market. Competitive contracts as well as contracts on delivery of materials and equipment will play an important role in boosting investment market. Investment banks and credit agencies are being established today by enterprises, cooperative firms and by other economic entities in order to have free investment funds. State banks are not alien to this process and actively participate in it seeking

cooperation with foreign banks.

Different intermediary firms and agencies will play positive role in supplying information to clientele operating in the investment sector of economy. Insurance firms in building construction are also favoured.

"General terms of contracts" are being prepared in order to rationalize contractual activity in compliance with the new economic system.

This document envisages higher status of contract, partners' independence and competence to enter into contracts. We think that these "General terms of contracts" will be designed in compliance with the internationally accepted terms and conditions.

It seems feasible to take into account the interest rates when investment demand is being planned. Municipal and government bonds system for financing capital spendings is likely to be introduced. Secured bonds (secured with the commodities which will be produced by the enterprise when it starts production) as well as credit privileges may be also used to raise capital for centralized public investment. Corporate profits of the enterprises using this form of attracting capital may be tax exempt for the period of loans repayment. There may be centrally established uniform borrowing rate for long-term investment loans in order to increase investment efficiency. This borrowing rate may be computed for each year depending on the economic situation in the country.

Price policy in building construction is expected to be altered and prices will be formed on the market by all members of investment process.

We think that domestic prices of construction works and materials will be adjusted in compliance with the international prices. During the next 1-2 years a comprehensive system of compensations for risks is likely to be elaborated. Customers and contractors will include risk compensations in terms of contracts and thus they will secure their profits and stable rates of construction costs. National quality control inspection is expected to be established in order to ensure quality control over erected objects. This inspection will be absolutely independent and it will exercise control over national and republican objects in order to secure observance of the decisions adopted by legislative bodies of the USSR and the Soviet government.

It is very important to get over the monopolistic trends in building construction sector of economy. That's why the establishment of amalgamated building concerns covering residential, public and industrial building is discouraged. Thus, we think that creation of smaller construction firms must be encouraged by way of tax credits, privileges and government contracts, local and municipal contracts awarded to these smaller firms. We assume that large associations of building contractors that are able to cover half of building contracts in the region must be

refused registration.

Information on competitive contracts proposed by the government or by the local authorities must be available for any contractor in the field.

All contractors applying for competitive contracts should have equal rights and opportunities irrespective of the form of property, size and place of registration.

Free investment zones and areas are likely to be established in the Soviet Union and internationally accepted regulations should be adopted for these zones and areas. Here in the USSR the status of these zones is being elaborated as well as requirements for the consortia of Soviet firms and corporations that will operate in these zones and areas in compliance with the adopted and prepared for adoption international agreements on foreign investments.

Soviet Union has accumulated profound experience in the area of investment process and today the reforms are underway in order to change the out-dated approaches and methods.

We hope that this experience and theoretical outlooks will be beneficial for our Chinese counterparts.