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2. All capital construction to be undertaken by each bureau or company belonging to this ministry shall be governed by these regulations, in addition to the other existing regulations concerning capital construction.

3. All capital construction to be undertaken by each bureau or company belonging to this ministry must make the following preparations for each project:

- a. Plans
- b. Designs
- c. Collection of materials
- d. Engineering work
- e. Inspection, transfer, and conclusion of project

4. The Capital Construction Office of this ministry is responsible for the completion of all capital construction.

5. Both the Capital Construction Office and its contractors are responsible for the completion of all capital construction to be undertaken by the contractors.

6. The head of the engineering section of each capital construction unit is responsible for maintenance of work schedules, attainment of the highest quality of engineering work, and the proper use of construction materials.

7. The head of the materials section of each capital construction unit is responsible for the uninterrupted supply of construction materials according to the work schedules.

8. Each bureau or company will handle the construction of its own project. Only when a bureau or a company does not have the capacity to carry out the capital construction will it be allowed to obtain a contractor. A contractor may be sought in the following places, but only in the following order: (1) from the contractors sponsored by this ministry; (2) from the publicly owned contracting companies; and (3) from the privately owned contracting companies.

9. Each capital construction to be undertaken by a bureau or a company must be in accordance with the national economic construction policy and the allocation of capital investments.

10. Each bureau or company must submit to this ministry a monthly report listing the names of personnel engaged in each capital construction, and the progress of engineering work.

11. The construction fund will be disbursed by this ministry to each project according to the progress of engineering work and depending upon the needs of each project for funds.

12. The main portion of the engineering work of each project may not be started until it is approved by this ministry. The completed project may not be put into operation until it is inspected and passed by the inspectors of each bureau or company.

Plans

1. Plans for capital construction must be prepared in conjunction with the construction policy and the amount of capital investments as determined by this ministry.

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2. Plans for capital construction for any year must be prepared in conjunction with the production plans of that year.
3. Plans for each capital construction, together with four copies of charts and explanations, must be submitted to this ministry for approval.
4. Plans for capital construction must include the following:
 - a. Building material quota for the construction of buildings.
 - b. Earth and stone material quota for the construction or installations.
 - c. Building material quota for the construction of installations.
5. Capital constructions which must be approved by this ministry before actual construction may start are as follows:
 - a. Construction of industrial plants.
 - b. Construction of workers' quarters which are not designed by this ministry.
 - c. Construction of hospitals, restaurants, clubhouses, nurseries, cooperatives, schools, etc., which have more than 1,000 square meters of floor space.
 - d. Construction of permanent-type bridges more than 15 meters long.
 - e. Construction of power transmission lines, or major repairs to hydroelectric and thermal-electric power plants.
 - f. Construction of a project costing more than 5 billion yuan.
 - g. Construction, by a privately owned contracting company, of a project costing more than one billion yuan.
6. All necessary changes to be made in capital construction because of changes in production plans will be determined by this ministry.
7. No changes in engineering work will be permitted until they have been reported to and approved by this ministry. All changes in engineering work which would increase the cost of a project by more than 10 percent of the entire cost of construction must be reported to this ministry for approval.

Designs

All plans for capital construction must accord with the following:

1. Current economic conditions, and standards of durability and safety.
2. The local climate, geological conditions, and environment, and the availability of local construction materials and manpower.
3. The building codes issued by the local or regional government.
4. All plans for the construction of workers' quarters must accord with the designs and specifications determined by this ministry.

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5. All plans for capital construction which will cost more than 5 billion yuan must be submitted to this ministry, together with four copies of the following, for approval.

a. Site plan, floor plan, foundation plan, side elevations, cross-section views of the project, geological map of the construction area, and plans showing the location of water pipes, electric wiring, heating systems, sanitation systems, etc. The plans and maps must be drawn up in appropriate scales, with the exception of building plans, for which the scale must not be smaller than one to 100.

b. Plans for the construction of important parts of a building, such as the foundation, roof, beams, supports, stairways, etc., and the parts which are to be built with steel-reinforced concrete. The scale for these plans must not be smaller than one to 20.

c. Estimated cost for the construction of each important part of a building.

d. Plans indicating location, dimensions, etc., of sewer and drainage pipes.

6. For all capital construction costing less than 5 billion yuan, four copies of floor plans, or layouts, of the project must be submitted to this ministry upon completion of the project.

Collection of Materials

1. Each bureau or company will handle the collection of construction materials for its own project.

2. If necessary, the personnel of this ministry will give advice on the quality, quantity, specifications, and other matters concerning construction materials.

3. Each bureau or company must submit to this ministry a report listing the name, type, quantity, and price of each material; the source of materials; the type of transportation to be used for the collection of materials; the amount of materials to be stocked; the estimated consumption of materials per certain period; etc.

4. The amount of construction materials on hand, if the source of materials is nearby, must be sufficient to provide for 15 days of normal operation; if the source of materials is distant, the amount must be sufficient to provide... for 30 days of normal operation.

Engineering Work

1. All capital construction to be undertaken within a city limit must be carried out according to the building codes of that city.

2. Before starting actual engineering work, each bureau or company must submit to this ministry a detailed report containing the following information:

- a. Name of project
- b. Location of project
- c. Starting and finishing dates of project
- d. Work schedules

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- e. Construction-material quota
 - f. Source of construction materials
 - g. Whether the work is to be undertaken by the bureau or company, or by a contractor
 - h. Estimated amount of work to be completed during 1950
 - i. Capacities and capabilities of construction machinery
 - j. Total cost of construction
 - k. Disbursement schedules of construction fund
 - l. Plans and charts of project
 - m. All other information relating to project
3. All capital construction must be carried out according to the plans and specifications.
 4. This ministry will assign personnel to inspect each project during construction.
 5. Each bureau or company must set up regulations concerning the administration of capital construction to be undertaken by a contractor.
 6. Each bureau or company must set up regulations concerning the administration of capital construction to be undertaken by itself.
 7. All matters concerning the organization, administration, recruiting, and welfare of workers will be handled individually by each bureau or company. Each bureau or company will also set up its own regulations concerning the administration of workers, and send these regulations to this ministry for approval.
 8. Each bureau or company must set up work schedules and schedules for materials.
 9. This ministry will determine the assignment and allocation of technicians and engineers according to the work schedules, progress, and needs of each project.

Inspection, Transfer, and Conclusion of Project

1. All completed projects costing less than 5 billion yuan, all newly constructed buildings of less than 1,000 square meters of floor space, and all completed repair work must be inspected and approved by the bureau or company which had undertaken the capital construction or by the personnel of this ministry. However, each bureau or company must submit the result of its inspection to this ministry.
2. Requests for the inspection of completed projects costing more than 5 billion yuan and of newly constructed buildings of more than 1,000 square meters of floor space will be handled in one of three ways, as follows:
 - a. The bureau or company may request the inspection of the project by the personnel of this ministry by submitting to this ministry the date of completion of the project.

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b. The bureau or company may conduct preliminary inspection by using its own inspectors and representatives of various sections, and it may then request the inspection and approval by this ministry of the result of such preliminary inspection.

c. Preliminary inspection may be conducted by the inspectors of this ministry, together with the representatives of various sections of the bureau or company which had undertaken the project, in order to prepare a report to this ministry requesting final inspection by the personnel of this ministry.

3. Transfer of completed projects will be handled by the production and capital construction sections of each bureau or company. Detailed information on such transfers must be reported to this ministry for approval.

4. Transfer of completed projects will be documented in four copies of certificates signed by the parties involved. Two copies will be kept by each bureau or company and two copies will be sent to this ministry.

5. Each contractor must prepare four copies of the construction guarantee for each project completed by him. Two copies will be kept by each bureau or company and two copies will be sent to this ministry.

6. At the end of each month each bureau or company must prepare and submit to this ministry a construction expense-account sheet.

7. Within one month after the completion of each project each bureau or company must prepare and submit to this ministry a final expense-account sheet.

8. With one month after the end of each year, each bureau or company must prepare and submit to this ministry an annual report on the completed portion of a project.

II. REPORT OF INVESTIGATION BY THE MINISTRY OF INDUSTRY OF CONDITION OF CAPITAL CONSTRUCTION IN NORTHEAST CHINA (14 June 1950)

The investigation, by the Ministry of Industry, Northeast People's Government, of several capital construction projects which are not in progress has revealed that the progress and the quality of engineering work in capital construction are seriously deficient.

According to incomplete statistics as of the end of April 1950, of the total of 4,254 capital construction projects to be undertaken by the Ministry of Industry during 1950, only 37 had been completed, and only 493 were in progress.

Another investigation made since May 1950 disclosed the existence of numerous cases of inferior engineering work, excessive waste of materials, funds, and manpower, and lack of responsibility among the leaders of organizations in charge of capital construction work. According to the investigation, the inferior engineering work resulted from imperfect plans and preparations, careless workmanship on the part of workers and technicians, and lack of responsibility and supervision on the part of leaders.

In many places, inferior construction materials also produced inferior engineering work. In many cases, the materials received by the construction units were not made or cut to specifications, were damaged or broken in transit, or were not carefully inspected for defects.

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The investigation found that, besides the inferior engineering work, there were frequent layoffs of workers in various projects as a result of inadequate supply or preparation of materials, lack of necessary tools and machinery, etc., which caused unnecessary delays in engineering work.

The reports of the investigations have shown the extremely serious condition of nearly all phases of capital construction, and have demanded immediate improvement of this situation. Improvement depends upon the leaders of the organizations engaged in capital construction. In the past, many bureau, plant, and mine chiefs did not clearly understand all the phases or problems of capital construction. This situation must be corrected immediately. Henceforth, the leaders of all organizations engaged in capital construction must concentrate their efforts on attaining (1) the highest quality of engineering work, (2) increased efficiency of workers and elimination of waste, (3) rigid enforcement of control and inspection of construction materials, and (4) strict compliance in all phases of capital construction with the Provisional Regulations Concerning Capital Construction, issued by this ministry 5 April 1950 [See I, above].

Since 5 months have already passed in 1950, only by our diligent efforts will we be able to complete the plans for this year. June through October is the most productive period of the year; then comes the rainy season. Therefore, we must not lose any time in organizing and undertaking all capital construction projects which are to be completed during 1950.

III. PROBLEMS CONCERNING CAPITAL CONSTRUCTION IN NORTHEAST CHINA

During May 1950, four investigation teams, each consisting of representatives of the Economic Planning Committee, Ministry of Industry, and Ministry of Finance and Economics of the Northeast People's Government, carried out investigations of capital construction projects being undertaken at the An-shan Steel Mill, the Pen-chi Iron and Coal Company, and various plants under the Textile Control Bureau and the Machinery Control Bureau. The investigations revealed the existence of the following problems concerning capital construction, all of which need immediate attention by all concerned.

A. Problems of Planning

1. Plans for capital construction of industrial plants in Northeast China for 1950 are creating serious problems in the execution of engineering work, in the use of capital investments, and in the collection of construction materials, thereby seriously affecting the progress of construction work. These problems result mainly from the lack of thoroughness and perfection in planning. Ordinarily, no plan can be drawn up without an actual survey of the construction site, or an actual estimate of the number of workers and the amount of materials needed for the project. The fact is that many plans had been drawn up without these two basic steps in the planning of a construction project. The following are examples of how some of the plans were prepared:

The plans for capital construction of the Ta-shih-ch'iao Manganese Ore Processing Plant of An-shan Steel Mill called for the installation of 12 new automatic winches, and the repair of one narrow-gauge railway track. The estimated number of workers needed for this work was 444. The actual work, however, called for the repair of two railway tracks and some railway equipment, and of four existing winches, besides the installation of 12 new winches. This work required 2,369 workers instead of 444.

A plan was drawn up for the repair of a large wooden bridge at the iron mill at East An-shan. Actually, it needed to be completely rebuilt.

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The plan for the restoration of a building at the No 5 plant of the Machinery Control Bureau called for partial repairs of the building at a total cost of 7,500,000,000 yuan. Actually, a new building at a cost of 15 billion yuan, was needed.

The building of 54 ovens at the Ta-shih-ch'iao Manganese Ore Processing Plant was estimated to require 506 tons of fire resistant bricks and 540 tons of cement; it actually needed 1,347 tons of bricks and only 110 tons of cement. Such discrepancies in the estimation of cost and amount of materials needed were very common in various projects.

2. The prices of construction materials listed in the plans varied greatly from the actual market prices. For instance, the prices of metal products and electrical equipment listed in the plans were less than half the prices of these products in the open market. The price of brick in one plan was listed at 800 yuan, compared with 1,600-2,000 yuan in the open market. The price of concrete tile in another plan was listed at 700 yuan, compared with 8,000 yuan in the open market. Again, the price of one cubic meter of sand was listed in a plan at 108,000 yuan, compared with 250,000 yuan in the open market.

3. The workers' wages, on the other hand, were listed much lower than the current wage standard. Plans for a rubber plant listed the daily wage of a carpenter at 120,000 yuan, compared with 140,000 yuan at the current wage standard, and the daily wage of unskilled labor at 60,000 yuan, compared with 80,000 yuan. The total wages for the entire project were estimated at 1,200,000,000 yuan, compared with the actual wages of 1,900,000,000 yuan.

B. Use and Control of Funds

1. The investigations also disclosed that the amount of capital construction funds actually used for the construction is too low, and the amount of accumulated funds is too high. For instance, as of the end of April 1950, the An-shan Steel Mill received a total of 1,350,000,000,000 yuan of construction funds, of which only 700 billion yuan was spent on construction. The balance of the fund was set aside as follows: 470 billion yuan for materials, 400 billion yuan for wages, 170 billion yuan deposited in bank or invested in bonds, and 60 billion yuan for materials not yet on hand.

A rubber plant belonging to the Light Industry Control Bureau received a total of 7,270,000,000 yuan of construction funds as of the end of April 1950, of which only 1,250,000,000 yuan was spent for the construction; the balance is still deposited in a bank.

Unless this excess accumulation of funds is immediately reduced, it will be impossible for the government to plan for the smooth circulation of construction funds.

2. The wasteful use of funds is also common in many projects. For instance, most of 850 rolls of oil paper purchased by the Textile Control Bureau was unusable because the paper was of inferior quality; the loss was more than 400 billion yuan. Most of 80,000 pieces of asbestos shingles purchased by the Pen-chi Iron and Coal Company was unusable; the loss was 30 billion yuan.

When materials are not supplied as scheduled, work must stop at the construction site. For example when about 1,100 workers of the Shen-yang Construction Unit arrived at An-shan to work on the project the preparation of materials and equipment had not yet been completed, and the construction had to be held up for 5 days; the loss was more than 3,000 man-days and 200 million yuan in wages.

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3. Control of cash funds is not strictly enforced. Ordinarily, cash payment is made only for materials distributed by the state-owned companies; however, the An-shan Steel Mill, for instance, paid out the railway transportation fees with cash during March 1950.

4. Illegal use of construction funds was also discovered in the recent investigations. For instance, the chief of a textile machinery plant was paying the wages and the entertainment expenses of the plant guards out of the construction funds.

5. The proper management of construction funds is not unified, and there is no definite policy for keeping expense accounts of each project. Some projects have neither definite budgets nor the personnel to maintain expense accounts. It is absolutely necessary for each person in charge of a construction project to realize that all construction projects must have budgets prepared before the beginning of construction work, that all construction projects must prepare monthly expense accounts during construction, and that all completed projects must prepare final expense accounts.

C. Supply of Materials

1. The most serious problem in capital construction is supply of construction materials. Inadequate supply of materials immediately disrupts the engineering work. Inadequate supply of materials also creates excessive stockpiling of unnecessary materials, and makes the coordination of supply and work schedules impossible. The following are examples of this defective supply:

Although the An-shan Steel Mill, produces steel materials for its own capital construction, it was once faced with a storage of steel materials because the materials it had produced were not made to specifications.

The Kirin Paper Mill, which belongs to the Light Industry Control Bureau, had to wait 4 months to install 28 papermaking machines at the mill because it took that long to get the needed steel materials from the An-shan Steel Mill.

2. Defects in specifications of materials were found most commonly in lumber. For instance, the Electrical Industry Control Bureau, which needed lumber 12 meters in length or longer received all of them in 12 meters or shorter. Also, of the 330 cubic meters of lumber received by the bureau during April 1950, about one half of the total amount was received was unusable because it was of inferior quality. These problems, however, can be solved by the Forestry Control Bureau.

3. Most of the bricks being used in capital construction are not only too expensive but of poor quality. For instance, about 40 percent of the bricks purchased by the Machinery Control Bureau were unusable. These problems can be solved by government standardization of the size and quality of bricks produced at all privately owned and publicly owned brick factories.

4. The most critical shortage in construction materials is in various sizes and types of metal products and electrical equipment. To remedy this shortage, the foreign-trade sections of the government must increase the import of collection of these critical items.

5. To eliminate the waste of construction materials, each construction project must establish systems for keeping records of all materials received and consumed and for controlling, distributing, and inspecting all materials.

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