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REPORT ON THE SURVEY AND GUIDANCE
OF
INDONESIAN STATE-MANAGED AMARTA KARYA

DECEMBER 1971

OVERSEAS TECHNICAL COOPERATION AGENCY
GOVERNMENT OF JAPAN

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CONTENTS

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登録No. 2491	5.2 0

	Page
I. Foreword	1
II. Outline of Amarta Karya	1
III. Major Considerations in the Present Survey	2
IV. Demand Forecast	3
1. Demand Forecast of Structural Steel in Indonesia	4
V. Conditions of Factory Location	5
VI. Outline of the Guidance of Management Policy and Operation Planning	6
a. Management Policy	6
b. Operation Planning	6
c. Planning of Modernization of Facilities and Equipment	8
VII. Conclusion -- Proposition to the Ministry of Electric Supply for Public Utilities Concerning the Plan of Rehabilitation of the State-Run Enterprise, AMARTA KARYA	12
a. Considerations for the Ministry of Electric Supply for Public Public Utilities -- Necessity of Establishment of the Policy of Guidance and Assistance of AMARTA KARYA	12
b. Guidance and Incitement of AMARTA KARYA to Efforts	14
VIII. Epilogue	14

REPORT ON THE SURVEY AND GUIDANCE
OF
INDONESIAN STATE-MANAGED AMARTA KARYA

(Under the Supervision of the Ministry of Electric Supply for Public Utilities)

I. Foreword.

As suggested by the title of this report, the task assigned to us (Shirohata and Sekizawa) consisted in furnishing consultant's service to Amarta Karya for its rehabilitation and modernization of its facilities and equipment.

Generally speaking, a preliminary survey such as mentioned below should be conducted prior to the determination of the substance of guidance in making a diagnosis of a business. A preliminary survey of the external factors of a business such as (1) social and economic condition and (2) general managerial environment and actual management condition and internal factors such as (3) managerial goal, policy of management and organization with which to put it into effect will make it possible to determine the essential points of management analysis.

Since it is necessary that those who run a business in developing countries should have a sound understanding of the necessity of this preliminary survey before it is started, we requested Amarta Karya to prepare data in accordance with the purposes of survey outlined above. As a result, they submitted Some Note on AMARTA KARYA together with some other information. Judging by those data and other information collected from other sources, the following conclusions can be reached.

- (1) The business foundation is in a very unusual condition on account of the historical background of Indonesia which goes way back to her independence.
- (2) Lack of statistical information, difficulty of quantitative clarification of future plans, difficulty of forecasting the demand for the products of the industry and difficulty of determination of a proper business scale. There is thus a vicious circle established.
- (3) Difficulty of expansion of business activities under the high-interest monetary policy.

There are a great number of complicated and difficult economic problems, internal and external, in addition to the typical ones listed above, and the survey has made it clear that the principles of business management can hardly be applied to Indonesian enterprises as had been expected before the starting of the survey.

The mentality of business people, in particular, peculiar to the Mahommedans is beyond our comprehension.

II. Outline of Amarta Karya

P. N. AMARTA KARYA Capital: 30,000 (thousand rupias)

Another balance sheet states, however, that Statutory capital is 10,000 rupias.

Annual Sales: 89 million rupias, approx. 800 tons in 1970.

Products: Structural steel (steel frames, tanks, bridges, etc.)
and construction

Number of Employees: Office and technical employees; about 105
Factory employees: 194
(This number of employees are not actually employed).

Location of Head Office and Factory: City of Smaran in Central Java
There is an office in Djakarta.

This business enterprise uses the same buildings and facilities of the colonial days. A record is available which shows that the enterprise carried out about 3,000 tons of construction work in a year at the time of requisition. Thereafter, however, its construction work amount declined gradually down to 200 - 300 tons a year after the shift of the administrative power and days of inflation. Its construction work has recovered to a level of 1,000 tons a year.

Although the facilities and equipment are the quite old types of the days under the Dutch control, they have been maintained in good condition and have functionally not so deteriorated as expected. The principal products manufactured by this enterprise for the period from 1962 to 1971 are as follows:

- (1) Hangar materials such as 204-ton hangar of torpedo boats for the Indonesian Naval Force and 499-ton hangar of airplanes for Garuda Air Line.
- (2) Various types of roof steel frames such as 1,205 tons of steel frames for the radar base of the Indonesian Air Force and 664-74 tons of factory steel frames.
- (3) Various types of reservoirs; 5 reservoirs (max. 1,500 tons per reservoir) and other small types.
- (4) 3 road bridges (the span ranging from 36 m to 20 m).
- (5) Steel towers for electricity transmission and other structural steel such as steel frames of refrigerators and steel walls.

These are the principal items of products which have been turned out by this enterprise for the past ten years. Although it is under the supervision of the Ministry of Electric Supply for Public Utilities, the enterprise has not succeeded in acquiring sizeable orders for bridges and steel towers for electricity transmission. This fact clearly shows that the enterprise has been left to itself, almost uncared for by the Ministry of Electricity Supply for Public Utilities. (It is quite hard to comprehend why AMARTA has been selected as a business to be surveyed.)

III Major Considerations in the Present Survey

The "State-run enterprise" means nothing but the fact that the state had to own the business when Indonesia became independent of the Dutch control, since there was no racial capital with which to take over the requisitioned factories of the Dutch control. However, as joint boards of directors are organized to place groups of state-run enterprises under the supervision of each ministry and a basic policy of management, though

only nominal, is established for each state-run enterprise, it is of a different nature from the general private businesses. As mentioned in the text of Indonesia's written request to Japan, the state-run enterprises are not considered the same as purely profit-minded private businesses, since the former should be improved as an enterprise which is capable of efficient contribution to the performance of the Ministry of Electric Supply for Public Utilities. Unlike the private businesses which generally fill the public demand, those state-run enterprises are unable to map out their own plan of production in anticipation of public investment which is directly connected with the fiscal policy of the Government. Moreover, the disbursements of the yearly fiscal budget are not always made evenly throughout the year, and seasonal fluctuations in the fiscal disbursements are unavoidable. Be that as it may, the structural steel in which public investment will be made as the result of the five-year economic plan should be the major consideration in the basic discussion of the production scale of AMARTA, and it is characteristically not capable of such economic activities as to whip up the demand for itself.

In view of the situation in which Indonesia is as good as under the international control, however, it can hardly be expected that the Indonesian Government will take the initiative to map out the plan of investment from year to year. The forecast of five-year (long-term) demand may indeed be conceived -- for example, a planned investment in the road construction and repairs for the coming five years is reported to be 100 billion rupias -- but no information which substantiates the planned investment such as the number of bridges to be constructed, ratio of steel bridges to concrete bridges, etc. is available. Such being the situation, we had no alternative but to forecast too rough a gross demand referring to the data obtained from the World Bank.

On the other hand, importance was attached to the profit-earning power of the enterprise from the viewpoint of business analysis. However, its assets are not revaluated properly: they are revaluated at the cost of acquisition of those days some time after the past inflationary period. We were really at a loss how to revalue the present gross assets and how to interpret the figures entered in the balance sheet. Despite these difficulties, we have succeeded in a rough evaluation of the efficiency of management inferring the general financial and managerial ratios on the basis of the "gross capital" on the balance sheet and have therefore connive at the details.

It is also to be noted that, since AMARTA appears to have been left behind in the competition with powerful iron and steel enterprises under the supervision of the Ministry of Industry and a small demand is sought after by those enterprises, AMARTA is not in a position to expect appreciable improvement in its management. The powerful iron and steel manufacturing enterprises supervised by the Ministry of Industry are P. N. BARATA, P. N. SABAG MERAUKE, P. N. INDORA, P. N. BOMA and P. N. BISMA.

IV Demand Forecast

We have not been furnished any concrete information concerning the demand forecast by AMARTA KARYA and the Ministry of Electric Supply for Public Utilities. As a result, there was no alternative but to make a very macroscopic inference collecting information from the report of the World Bank obtained in Japan and results of road construction and electricity production carried out in 1969 as well as the five-year plan. For example, an inference was made of the number of small bridges to be constructed over the total road mileage determined with respect to the gross budget of 100 billion rupias of the first five-year plan on the basis of the actual expenses of road repairs per km. It was however not thought that the budget included the foreign-aided

construction of large-scale bridges such as one seen in Sumatra. Although the Government is of the opinion that it will sooner or later place restrictions on the import of pre-fabricated members of large bridges, it seems difficult for the Indonesian Government to ban their import in view of the intentions of aiding countries and technical level of Indonesia. Accordingly, the demand to be forecast consists of members of small bridges.

1. Demand Forecast of Structural Steel in Indonesia

a. Road Conditions and State of Existing Bridges

The first five-year plan earmarks 100 billion rupias including foreign aids for the maintenance of roads. However, the budget includes foreign aids, and it is not made clear at all how much of the work the Indonesian Government will be able to perform with its own economic means. Not much can be expected. In forecasting the future demand, we estimated that the members of small bridges would be purchased from Indonesian enterprises, whatever the form of road maintenance might be.

The results of road maintenance and bridge construction in the year 1969 were such that the mileage of roads repaired was 2,156 km and bridges repaired or rebuilt were 263. In other words, one bridge per 8.2 km of road mileage was repaired or rebuilt. The required fund was about 9 billion yen (backed by borrowings of \$28 million from the World Bank), that is, a little less than 4.5 million yen per km. If bridges are repaired or newly built on much the same level, the mileage of roads covered by the gross budget of 100 billion rupias will be 23,000 - 24,000 km. According to the data obtained from the World Bank, the total extension of bridges is 16,000 km for an extension of roads by 6,000 km for the qualitative improvement of roads. According to this plan, about 730 bridges, each being 20 m long on the average, will be built on the basis of the above calculation, that is, 1 bridge per 8.2 km of road mileage. According to our own experience in Eastern Java and Central Java, a bridge at every 7 - 8 m needed overhauling or rebuilding, and the average length of bridges was about 20 m. The estimation made above is therefore in accordance with our experience.

If all bridges are to be built of steel, these figures lead us to conclude that the steel requirements for the coming five years will be about 60,000 tons. However, Indonesians are not awakened to the significance of steel bridges and bridges of the rivet construction are accepted as a matter of course. In view of this fact, the demand for steel bridge members for the coming five years will be in the order of 20,000 tons at the very outside, even if Indonesians' recognition of the significance of welded steel bridges may be improved to a greater extent. In short, the yearly demand for steel bridge members is no more than 4,000 tons on the average, and the maximum monthly demand is estimated at about 500 tons. The demand of this size is not large enough to enable the present Indonesian manufacturers of steel bridge members (iron and steel manufacturers) to keep their mills running.

b. Steel Towers for Electricity Transmission

According to the first five-year plan, about 400 billion yen will be invested in the electric distribution system. The average expenses per km could not be determined for lack of information in Indonesia. In Japan, however, the cost of installation of electric transmission lines is said to be about 10 to 15 million yen per km. When this figure is used, the total extension of Indonesian electric transmission lines to be installed for the coming five years will be about 3,000 km.

The total requirements of steel tower members will be 60,000 tons, when estimated on the basis of the requirements in Japan, that is, about 20 tons per km. The budget of 400 billion yen mentioned above probably includes the construction of substations, and the actual demand for steel tower materials will be, though by mere guess, not more than 30,000 tons. Besides, foreign aids in the construction of projects will mostly take the form of imports of prefabricated steel towers. When they are taken into consideration, the actual demand for steel tower materials in Indonesia will be by far less than 30,000 tons. Suppose that 20,000 tons will be procured in Indonesia, and the demand for steel tower materials will be no more than that for steel materials of road bridges discussed above.

The existing Indonesian steel factories are capable of manufacturing structural steel such as steel towers. The point is therefore whether or not the Indonesian Government will be able to place orders with Indonesian steel manufacturers with foreign aids.

c. General Structural Steel

To state our conclusion first, the demand of the Indonesian industries at large for general structural steel will not be large enough for the time being, be the future demand what it may. Judging from the fact that the first five-year plan itself attaches prime importance to the improvement of the infrastructures of the country but secondary importance to the promotion of her general industries, the first five-year plan cannot be relied upon for marked effects on the demand for general structural steel. What is more, the present difficult economic situation has compelled Indonesia to adopt a policy of extremely high interest rates and low wages to restrain the inflation with the result that it can hardly be expected for the business scale to be enlarged in the private sector of the economy for the time being. "PURTAMINA" developed on the strength of petroleum resources, "ANEKATANBAN" developed on the strength of mineral resources, lumber businesses backed by the rich forestal resources and fishing businesses backed by the rich marine resources are a few developing enterprises in Indonesia, and it is hard to find other businesses which may develop on a large scale.

Such being the situation, no active construction of plants by Indonesian enterprises is under way except for that of foreign-capital businesses which see far into the future.

Although petroleum reservoirs, petroleum pipe-lines and petroleum refining facilities contain those products which may be manufactured by AMARTA, it has not been actively collecting the required information, and the Ministry of Electric Supply for Public Utilities is helpless by nature with regard to the collection of this sort of information. So long as the demand for structural steel caused by public investments is limited and AMARTA depends on the industrial promotion after the second five-year plan for the demand for its products, AMARTA should be placed under the supervision of the Ministry of Industry.

V. Conditions of Factory Location

The present conditions of location of Sumaran Factory are extremely disadvantageous. The factory is geographically located at a northern seaside of Central

Java. However, since the seashore on the side of the Java Sea is not fit for construction of ports and harbors, steel materials are transported from Djakarta or Surabaya districts of Eastern Java. The products of AMARTA are sold principally in Djakarta and vicinity, and the products are first transported by land to Djakarta or Surabaya, even when they are shipped by sea to Kalimantan and Sumatra. AMARTA is in a disadvantageous position in this respect as well. In view of the demand for steel products which may be brought about by the future river improvement in Central Java and petroleum production and its related industry, the location of Sumaran Factory may acquire some significance. However, it cannot help being handicapped for at least five years to come, that is, the period of the first five-year plan.

Since our assignment consisted in furnishing suggestions for the rehabilitation of AMARTA KARYA and modernization of its facilities and equipment, we proposed the improvement of the layout of Sumaran Factory. Fortunately, the enterprise owns a plot of land, as small it is, in the suburbs of Djakarta. It is recommended to move the factory there, interpreting the reconstruction of the factory in the broad sense of the term.

VI. Outline of the Guidance of Management Policy and Operation Planning

a. Management Policy

P. N. AMARTA KARYA must develop its capacity as an enterprise which can efficiently help the Ministry of Electric Supply for Public Utilities perform its operations.

- (1) Steel bridge members and products related to engineering works such as molding frames of concrete.
- (2) Structural steel products related to electric supply such as electric steel towers.
- (3) Structural steel products related to agricultural irrigation and service water supply and drainage.

AMARTA should attach importance to these products and make efforts to seek orders for structural steel products for general industrial purposes in order to achieve a constant rate of operation and attain the major results in the second five-year plan of the Government. It is also necessary that AMARTA should move its factory to Djakarta area at as an early date as possible.

- (4) AMARTA should seek advice and suggestions of the Ministry of Electric Supply for Public Utilities so as to develop out of a "fabricator" into a "general contractor".

b. Operation Planning

(1) Road Bridges

AMARTA should work out a production plan of standard steel members of bridges with a short span on the condition that it makes a strong appeal to

the Government for the adoption of standard steel bridge members. This measure has the following advantages, which should be concretely explained to the Ministry of Electric Supply for Public Utilities so as to increase the amount of work.

- (a) Simplification of plant facilities and equipment
- (b) Promotion of the improvement of workers' skill through repetition of the same type of work
- (c) Possibility of planned production -- resulting in the prefabrication of steel bridge members, shortening of delivery term and reduction of manufacturing costs.

(2) Electric Steel Towers

The domestic production of electric steel towers depends on the policy of the Indonesian Government. When viewed as a structure, the electric steel tower mainly consists of steel angles of universal sizes. The processing and anti-corrosive galvanizing of these products do not pose any technical problem to AMARTA. On the contrary, they are considered the types of products easiest for AMARTA to produce. Besides, the existing production facilities and equipment are most fit for the manufacture of these types of products.

AMARTA is capable of turning out 100 - 200 tons of these two items a month. What is needed is that the Ministry of Electric Supply for Public Utilities clarifies its policy of letting AMARTA have priority to its orders.

(3) Structural Steel for General Industrial Purposes

Bins and hoppers for use in concrete manufacturing plants, small gates and welded specials (especially ones for use in agricultural irrigation), those products serve industrial purposes. However, as they are closely connected with the engineering works under the supervision of the Ministry of Electric Supply for Public Utilities, they may be included in the materials for use in the improvement of infrastructures in the broad sense of the term. These products will be in demand immediately after the first five-year plan is put into effect.

The promotion of agriculture is one of the major themes of the first five-year plan. The distribution system of agricultural products will naturally be improved. From this point of view, the silo and silage for storage of rice and other cereals may be added to the production items of AMARTA.

It is recommended that AMARTA reviews all its plans of production on the assumption that an operation rate of about 200 tons a month will be attained when the demand for all those products are taken into consideration.

In those developing countries where all industries have not fully developed the demand is not so large that the manufacturers which respectively specialize in particular items of products can exist and develop. The fact is that the management of fabricators do not have a sufficient knowledge to foresee a possible demand for structural steel which a certain project

may bring about in the future. Accordingly, they do not know how to direct the selling activities and where to approach. The Ministry of Electric Supply for Public Utilities lacks guiding capacities in this report.

Under these circumstances it is most desirable for AMARTA to collect information as a general contractor as soon as possible in order to secure the necessary orders. When the Ministry of Electric Supply for Public Utilities has AMARTA function as a general contractor, it will find AMARTA in a position to develop its own planning ability.

c. Planning of Modernization of Facilities and Equipment

(1) Proposition of Layout Improvement and Approximate Estimate of Expenses Attached Table 1, II

As mentioned before, it is desirable to construct a new plant in Djakarta area in order to carry out the modernization of AMARTA in the broad sense of the term. It seems, however, next to impossible for AMARTA to construct a new plant for itself. It may also a problem to what extent the Government will be able to furnish aid to a particular enterprise. As a result of the consideration of these problems, we first submitted a proposition of improvement on the condition that the operation should be continued at the existing plant in Sumaran.

Radical improvement and investment are hard to carry out, so long as many items of products in small quantities are continued to be turned out. On the other hand, it is not practical to take measures of rationalization including mechanization in the labor market where cheap labor is abundant. To state a conclusion first, we have not gone farther than to present a proposition of minor improvement, which consists of improvement of the plant layout for betterment of the processes and introduction of welding techniques.

(2) Summary of Results of Analysis of the Present Management Earnings and Expenses of 1970 (something like a profit and loss statement) by AMARTA

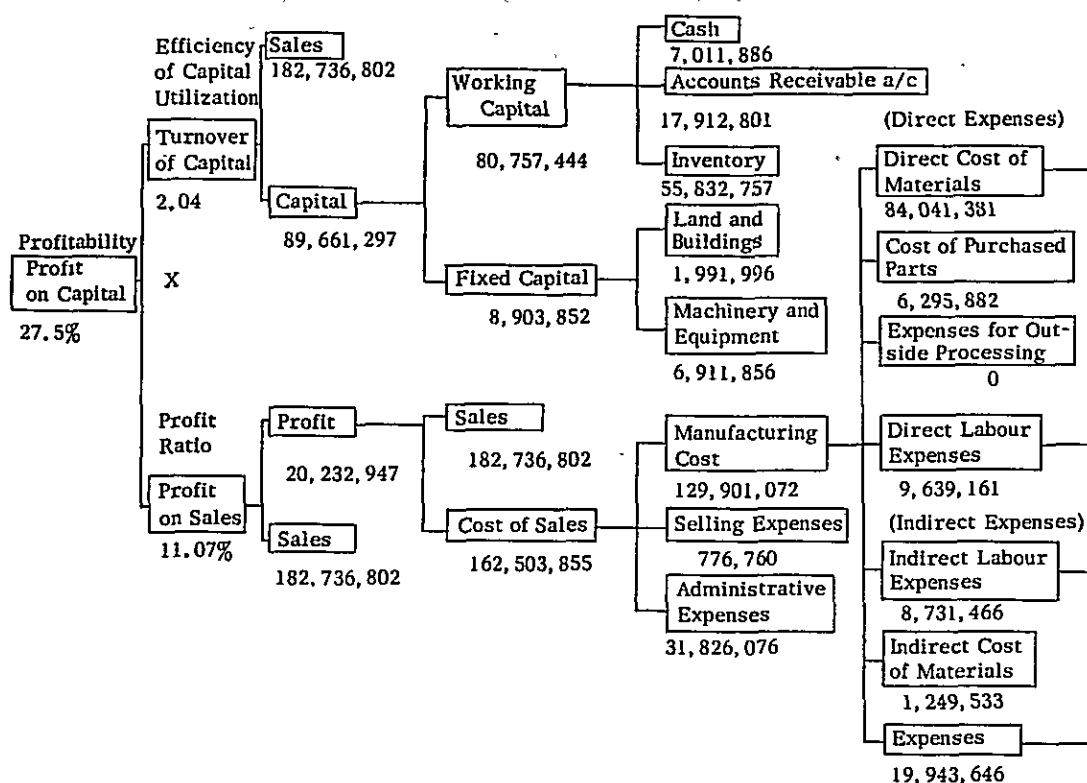
Sales	182,736,802 Rp.	
(only the completed mending construction works)		
Direct Cost of Sales	Δ 111,69,881	Personnel Expenses 14,926,993
		Ratio of Personnel Expenses to Direct Cost 7.8%
General Administrative Expenses	Δ 47,836,210	about 42% (of Direct Cost)
Depreciation	Δ 2,803,374	
	<u>20,487,337</u>	
Miscellaneous Income		
Sales of Scraps	283,763	
Miscellaneous Expenses	Δ 578,646	
	<u>20,192,948</u>	
Proceeds from Repairs to Construction Works of Preceding Year	<u>40,493</u>	
Profit before Tax	20,232,947	Profit on Sales about 11%
Tax of Assessment Corporation (Tax levied on Transaction)	Δ 7,727,095	
Profit after Tax	<u>12,505,852</u>	Profit after Tax on Sales about 6.5%

Judging from these figures of earnings and expenses, the condition of management of AMARTA is not considered unsound. It is however noteworthy that the ratio of the general administrative expenses to the direct cost of sales 42% is too high and that the ratio of the personnel expenses to the direct cost of sales 7.8% is quite low (suggesting that AMARTA is left far behind in mechanization). For lack of financial and operating information of the preceding two years, changes in the operating condition cannot be made clear.

What is more important, the fixed assets are not properly revaluated because of the past sharp inflations, and the inventory is also revaluated at a cost which does not reflect the current market value at all. The operating condition of AMARTA cannot therefore be compared with that of those business in other countries in a stable economic condition. The statement which is supposed to have been used as a balance sheet mentions a legal capital of only 10,000 rupiahs, while a capital of 30,000 is entered in the Table of Enterprises under the supervision of the Ministry of Electric Supply for Public Utilities. No information has however been made available as to when and how the capital was revaluated. Besides, some data were prepared in haste by AMARTA while our survey was under way. Such being the situation, it was quite impossible to collect at least as reliable figures as those available in Japan, and it was therefore out of question to make a detailed and precise analysis of the operating condition of this enterprise.

It cannot necessarily be said that the general administrative expenses in excess of 40% of the direct cost of sales are too high, since they depend on the structure of cost. They are too large all the same. They are open to question in many respects. It may be that the officers and staff members spend money to save the face of AMARTA as a state-run enterprise regardless of whether or not orders are placed with it and the officers charge their personal expenses to the enterprise. Be that as it may, the extremely low rate of operation seems responsible for the greater part of these anomalous administrative expenses.

The operating condition of AMARTA for the year 1970 will now be shown.



So far as judged from this table, the total capital was turned over two times a year and the operating profit ratio attained a level of 11%. The operating condition need not be taken so pessimistically. As mentioned above, however, the inventory and goods in process are evaluated at a cost of those days before the inflation. If they are revalued at the current cost, the turnover of the total capital will be reduced to less than one time a year. It is also to be noted that no profit could have been earned, if new materials had been purchased at the current market value or the inventory used as the direct materials had been revaluated at the price of requisition.

Suppose that the total capital is turned over two times a year and 100 tons of products are turned out a month (1,200 tons a year). Since those products sell for about 150,000 yen a ton, the annual sales will be in the order of 180 million yen. They will amount to no more than 240 million rupiahs, even if the proceeds from construction works which AMARTA is supposed to undertake as an additional line of business are added.

Accordingly, 120 million yen is the limit of the total capital employed judging from its turnover of two times a year. On the other hand, the total capital at the end of 1970 is close to 90 million rupiahs, although the problem of asset revaluation remains unsolved. Only 30 million rupiahs is an increase in total capital which can be expected. On the other hand, the profit ratio attained in 1970 should be considered as exceptional. If new types of steel materials (such as steel of high weldability, double U steel and other standard steel materials), the profit ratio will decline to about 5%, making

it more and more difficult to make new investments. Suppose that the total capital will increase by 30 million yen and one-third of it will be invested in the facilities and equipment. What AMARTA can do with the balance 20 million rupiahs will be only the improvement of the layout of Sumaran Factory and introduction of new welding machines.

The annual production was estimated at 1, 200 tons, because the present officers of AMARTA cited the same figure answering our question about the desired level of production (orders received). As they ardently desired to become a general contractor, the expected proceeds from construction works were added to the annual sales in our estimation.

As seen above, the annual production of 1, 200 tons is too small. AMARTA must secure more than 2,000 tons of orders at least a year.

At the end of August, AMARTA notified to us to the effect that the present total capital employed should be increased from 90 million rupiahs to about 120 million rupiahs (mentioning that they would effect a partial revaluation of the capital). The revaluation, if actually effected, will further worsen the profit earnings of the enterprise, rendering it less attractive as an enterprise in which new investments are to be made. Not realizing the meaning of the revaluation, the officers of AMARTA seem to have been persistently inviting foreign capitals to participate in it.

(3) Suggestion Concerning New Investments

On the basis of the results of analysis mentioned above, we would rather propose that a small-scale, but efficient, plant which can turn out about 200 tons of products a month will be newly built in Djakarta. (See "Proposition of Layout Improvement and Approximate Estimate of Expenses".) The means by which to convert the existing plant in Sumaran into a new one to be built in Djakarta will now be discussed. The Ministry of Electric Supply for Public Utilities has decided upon the conversion of the present P.N. into P.T. as a policy of the Indonesian Government. It is expected that proper revaluation of the plant will be made on that occasion. It is however, difficult to properly revalue the plant with disadvantageous conditions of location. As AMARTA is in possession of considerable quantities of paints and bolts and nuts as well as a large quantity of section steel as its inventory. The revaluation of those materials is also difficult. Particularly at present AMARTA receives an extremely limited number of orders, and the workers are left idle. Under these circumstances, however, AMARTA finds it difficult to lay them off, because it is a state-owned enterprise.

In view of this present situation, we propose that the following measures will be taken.

1. Steel frames for use in the construction of a new plant in Djakarta shall be manufactured at Sumaran Factory. The utilization of the idle manufacturing facilities and equipment, idle labor and materials in stock will enable AMARTA to build a new building without using new funds. The new plant shall be valued at cost and listed as an asset for private use.

2. The remaining stock and factory building, land, guest house and other assets shall be sold. Presently-owned facilities and equipment which stand further use shall be moved to the new plant, and those which cannot be used any more shall be sold. If they cannot be sold at reasonable prices, they shall be purchased by the Government as a temporary measure.

The proceeds from the goods sold shall be partly invested in the facilities and equipment of the new plant and partly used as part of the working capital. It is therefore most desirable that the Government should buy or dispose of them at as high prices as possible.

3. Only a required number of employees shall be transferred to the new factory. Surplus employees shall be discharged.
4. When the steps mentioned above are taken, the conversion from P.N. to P.T. shall take place.

We proposed in our interim report that the new plant be built as a branch factory in Djakarta. As the result of further analysis and examination of the general conditions of AMARTA after return to Japan, we have come to the conclusion that there is no alternative but to start afresh with a new plant and concentrate all activities at the new location. By "starting afresh" is meant the replacement as well as reinforcement of the managing officers. A new plant will not bear fruits, unless AMARTA has the managing officers who have the full understanding of the fundamental requirements of management.

VII. Conclusion -- Proposition to the Ministry of Electric Supply for Public Utilities
Concerning the Plan of Rehabilitation of the State-Run Enterprise,
AMARTA KARYA

- a. Considerations for the Ministry of Electric Supply for Public Utilities
-- Necessity of Establishment of the Policy of Guidance and Assistance of
AMARTA KARYA

In addition to the general discussion made in the summarized report of Mr. Tahara, we would like to make the following proposition. We could not establish a diagnosis of the plant to make concrete suggestions for the improvement of the work processes, because AMARTA KARYA had no orders to execute. However, we judged it absolutely necessary that the enterprise should improve its capacity with respect to the following four points.

- (1) Designing ability
- (2) Manufacturing capacity
- (3) General planning capacity in the plant and on the construction sites
- (4) Marketing and product planning abilities

They will now be discussed one by one.

(1) Improvement of the Designing Ability

Although AMARTA is able to prepare drawings for the products to be manufactured in the plant, its designing ability is not developed to such an extent that it can execute orders as a general contractor. The ability to understand various features of designs is required to execute orders for various types and patterns of structural steel products and increase the amount of work. The Government's assistance is necessary in this respect.

(2) Improvement of the Manufacturing Capacity

The improvement of the manufacturing capacity needs the intensification of the manufacturing facilities and equipment and technical education of the factory employees. The measures suggested in the separate sheet will be sufficient for the improvement of the manufacturing facilities and equipment for the time being. One of the expedients to have skilled workers will be to have employees receive practical training at a factory of an appropriate scale in Japan. The education of workers by the Indonesian Government should also be taken into consideration.

(3) Improvement of the General Planning Capacity in the Plant and on the Construction Sites

AMARTA must have the ability to understand civil engineering over a wide range to become a general contractor. It is particularly preferable for the management to acquire such ability. The ability of the staff members is not sufficient to obtain satisfactory results of operation as a general contractor. To achieve this objective it is the minimum requisite to have staff members with planning ability. The assignment of staff members to proper work and election of managing officers should be the problems to be taken into consideration on the part of the Ministry of Electric Supply for Public Utilities so that these abilities may be maintained at AMARTA.

(4) Improvement of the Marketing and Product Planning Abilities

The present ability of AMARTA to plan and develop new products is not sufficient. Generally speaking, a great number of businesses in those economically highly developed countries have been able to open up a market for their products.

Accordingly, it is necessary to guide AMARTA in such a way that it may make efforts to follow the example of those business in advanced countries. To attain this goal the Government should have the managing officers be trained by marketing experts and have them acquire the fundamentals of marketing. In this respect AMARTA may be placed under the supervision of the Ministry of Industry to advantage.

If the Government takes these problems into due consideration and the necessary steps are taken to move the plant to Djakarta, satisfactory results will be obtained by this enterprise in the future.

b. Guidance and Incitement of AMARTA KARYA to Efforts

We do not deny having received the impression that the managing officers of AMARTA KARYA depend too much on others. This may be attributable to the fact that they lack information about the domestic market and fundamental knowledge of management. When a business is to be run, it is almost impossible to formulate a plan of management without an outlook for the size the market is going to reach and types of market which may be opened up.

However, AMARTA has not actively carried out the collection and analysis of such information. Besides, the analysis of the financial condition of the factory is not sufficient, either, although it is absolutely necessary to cope with changes in the economic situation of the country. (However, it must fully be studied which organization should supervise the fabricator to advantage, Ministry of Electric Supply for Public Utilities or Ministry of Industry before the managing officers of AMARTA are to be blamed.)

It is indeed recognized that the managing officers of AMARTA have been making utmost efforts to secure orders, and it is a pity that their efforts have not been rewarded in the form of orders. We find it hard to understand that AMARTA has no priority to orders, although it is a state-run enterprise. Even if the conditions of the country do not admit of it, there should be a lot of measures to be taken. For example, it should be taken into consideration that the present stock is put in order to dispose of unnecessary goods so that the proceeds from them may be used working capital to facilitate selling activities. The steel materials are not stored in a satisfactory condition, although the factory employees whistle their time away, having nothing to do. No measure has been taken to have them rearrange and classify the steel materials stored outdoors of their own accord. If steel materials in stock are turned to account to produce products which can be sold, those employees can be kept occupied without using any working capital. The judgement of what can be sold, what consumers are in need of and what will become necessary as the society develops is of prime importance. The judgement in which the condition of the country is reflected is of major significance. The officers of AMARTA asked us about nothing but what should be manufactured. This sort of information should be sought by themselves. It is a normal way of things that they first try to arrive at some ideas of their own and the consultant then furnishes suggestions and advice about them.

VIII. Epilogue

We have discussed the main outlines of the plan of rehabilitation and modernization of an Indonesian state-run enterprise, AMARTA KARYA. To state our frank impression, it appears that the Indonesian Government does not have a clear-cut policy of administration for the state-run enterprises. We stated therefore the following recommendations in our interim report.

- (1) It is recommended that the Indonesian Government should decide upon a policy which will help AMARTA secure orders for road bridges of steel construction, electric steel towers and other structural steel. By the same token, we had the following experience during our stay in Indonesia. The Ministry of Electric Supply for Public Utilities placed orders for steel materials for use in the construction of

a truss bridge of rivet construction with AMARTA KARYA and all other enterprises under its supervision. To secure these orders was absolutely necessary for AMARTA KARYA to improve its condition of management and maintain its technical capabilities, particularly because AMARTA had no order to execute at that time. It was a great pity, however, that it failed to secure those orders despite its utmost efforts on account of a slight difference of quotation. In view of this fact and absence of outstanding orders at AMARTA, we are of the opinion that the Ministry of Electric Supply for Public Utilities should let AMARTA have priority to its orders for steel materials for use in the construction or repair of bridges under its supervision. The reason is that AMARTA is the sole manufacturer of structural steel under the supervision of the Ministry.

- (2) The Indonesian Government should furnish occasions of teaching and propagation of designing techniques of structural steel, knowledge of steel materials and steel manufacturing, and other related information for the purpose of increasing steel structures, especially road bridges of steel construction, in the public works in Indonesia or plan and enforce the standard specifications and designs with co-operation of the Japanese Government.

To cite an example, when a standard bridge of steel construction mentioned in the interim report is compared with a concrete bridge under the same condition, the former can compete with the latter in terms of its manufacturing cost. Even if the span is short and steel materials are expensive, the cost of the road bridge of steel construction is competitive enough as compared with a corresponding concrete bridge.

This is a tip of an iceberg. When the engineers of public works of your country come to recognize the features and usefulness of the bridge of steel construction, its demand will increase and the adoption of a welded construction will bring about another increase in the demand for bridges of steel construction, because the adoption of composite girders, for instance, reduces the cost of construction.

If the situation mentioned above appears while AMARTA is a state-run enterprise, it seems possible that AMARTA may come into contact with any one of the Japanese businesses.

The recommendations mentioned above were stated in the interim report. On the other hand, however, we could not help feeling something helpless about the fact that the attitude of the Ministry of Electric Supply for Public Utilities toward the state-run enterprise AMARTA KARYA always remained undecided. We cannot help doubting that the information contained in Form A1 furnished to us had been seriously prepared. The investigation with regard to the information will be necessary, if a secondary survey is to be made.

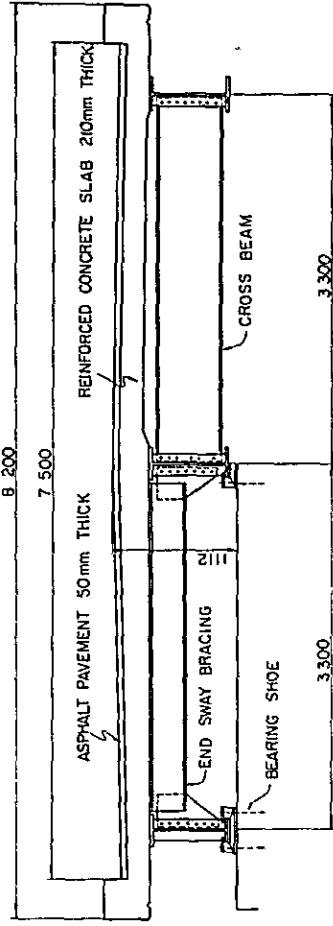
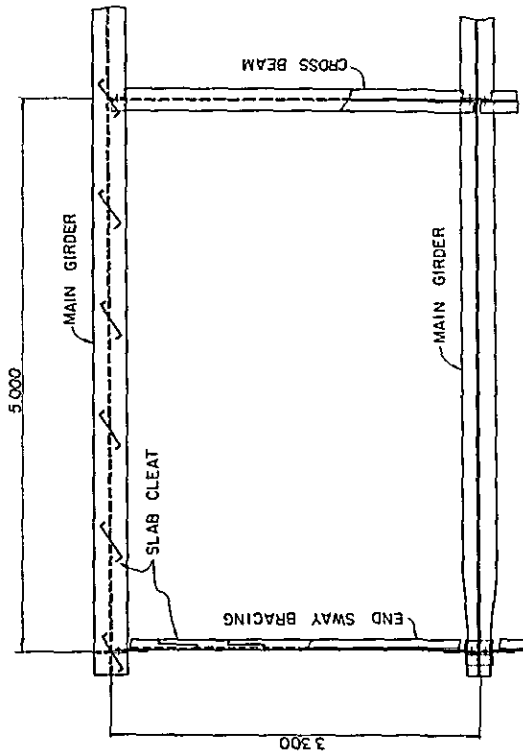
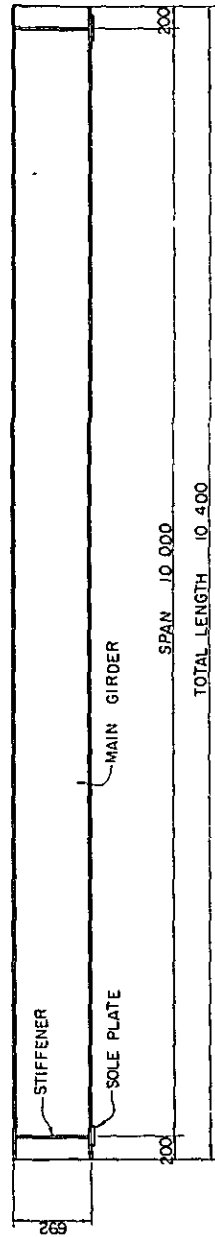
Sheet I Expenses

Price: exclusive of tax

Step	Item	Equipment	Imported fully	Imported partially	Self-made (design imp.)	Self-made	Note
First step	1.	welding machines*1	2,000,000 yen				*1 20 set
	2.	tools for welding		500,000 yen			*2 welding desk etc.
	3.	implement			500,000 rp		*3 foundation, setting and removing etc.
	4.	jig for welding	2,000,000 yen			500,000 rp	*4 modification for galva, shop etc.
	5.	others		300,000 yen	200,000 rp*2		
	6.	rearrangement of machine				1,000,000 rp*3	
	7.	reserve				500,000 rp*4	
		Sub total	4,000,000 yen	800,000 yen	700,000 rp	2,000,000 rp	4,800,000 yen 2,700,000 rp
Second step	1.	crane etc.		2,000,000 yen			
	2.	new machines*1	10,000,000 yen				*1 pipe bender, inspection equipment and drilling etc.
	3.	building modification			3,000,000 rp		
	4.	equipment for construction work	10,000,000 yen			2,000,000 rp	
	5.	reserve	3,000,000 yen			2,000,000 rp	
		Sub total	23,000,000 yen	2,000,000 yen	5,000,000 rp	7,000,000 rp	25,000,000 yen 12,000,000 rp
		Total	27,000,000 yen	2,800,000 yen	5,700,000 rp	9,000,000 rp	29,800,000 yen 14,700,000 rp

STANDARD BRIDGE (EXAMPLE 1)

SPAN OF BRIDGE 10 m
 WIDTH OF BRIDGE 7.5 m
 LOADING 20 TON TRUCK
 AXLE LOAD 16 TON
 SPEC JAPANESE HIGHWAY BRIDGE
 TYPE NON COMPOSITE PLATE GIRDER
 WITH REINFORCED CONCRETE SLAB



MATERIAL (PER 1 SET)

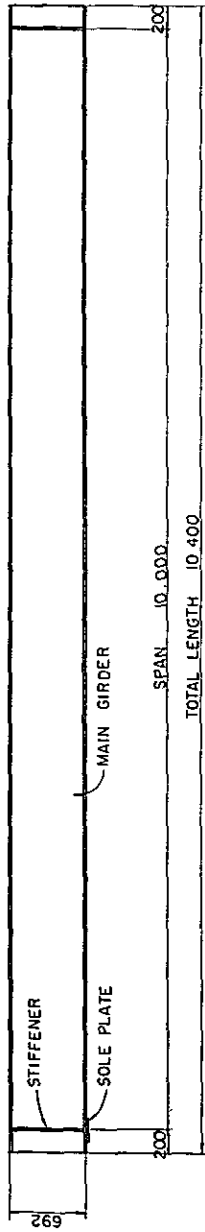
MEMBER	MATERIAL	SIZE	WEIGHT	REMARK
MAIN GIRDER	SM50Y	H-692x300x13x20	51.75	
STIFFENER	SS 41	PL-90x9x692	64	
SOLE PLATE	SS 41	PL-250x22x300	36	FIXED SIDE
SOLE PLATE	SS 41	PL-250x22x230	30	MOTV. SIDE
SLAB CLEAT	SR 24	/ - 13 x 540	25	
CROSS BEAM	SS 41	H-600x200x7x11	6.90	
END SWAY	SS 41	L-300x80x9	4.52	
BEARING SHOE	FC 25	PL-350x9x350	1.04	
ANCHOR BOLT	SS 41	M-30 x 480	1.02	WITH WASHER
FRICTION BOLT	F 10 T	M-22 x 60	3.9	FOR ERECTION

TOTAL STEEL WEIGHT 6,885 kg
 PAINTING AREA 96.2 m²

VOLUME OF CONCRETE SLAB 20.1 m³
 VOLUME OF ASPHALT PAVEMENT 3.9 m³
 WEIGHT OF REINFORCED BAR 3292 kg
 AREA OF FORMING 96.2 m²
 X STRENGTH OF CONCRETE AT 28 DAYS 225 kg/cm²

STANDARD BRIDGE (EXAMPLE 2)

SPAN OF BRIDGE 10 m
 WIDTH OF BRIDGE 7.5 m
 LOADING 20 TON TRUCK
 AXLE LOAD 16 TON
 SPEC JAPANESE HIGHWAY BRIDGE
 TYPE PLATE GIRDER WITH WOODEN PLANKING

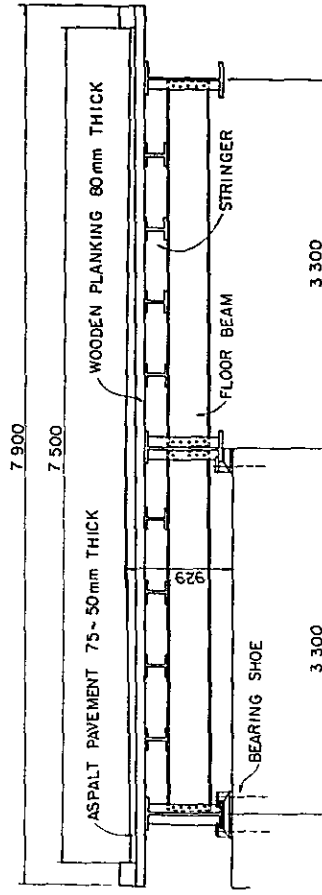
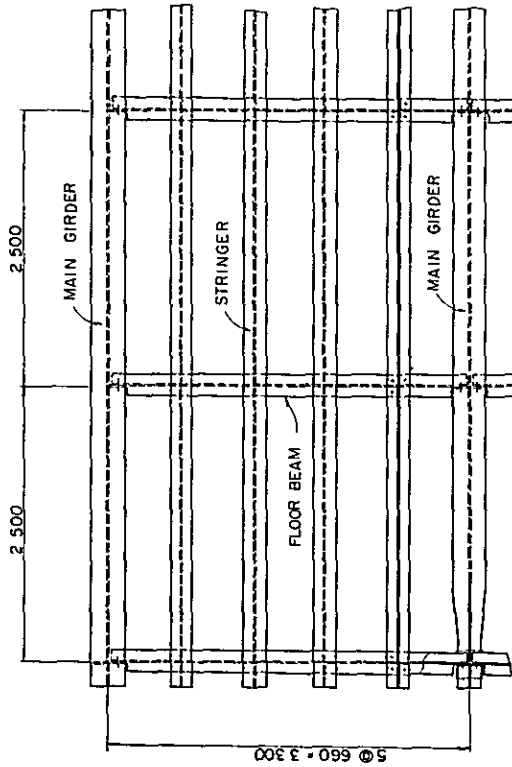


MATERIAL (PER 1 SET)

MEMBER	MATERIAL	SIZE	WEIGHT	REMARK
MAIN GIRDER	SM50Y	H-692×300×13×20	51.75	
STIFFENER	SS41	PL 90×9×652	96	
SOLE PLATE	SS41	PL 250×22×300	36	FIXED SIDE
SOLE PLATE	SS41	PL 250×22×230	30	MOK SIDE
FLOOR BEAM	SS41	H-400×200×8×13	21.50	
STRINGER	SS41	H-200×200×8×12	4.151	
BEARING SHOE	FC25		1.62	
ANCHOR BOLT	SS41	M-30×480	1.08	WITH WASHER
FRICITION BOLT	*	M-22×60	4.5	FOR ERECTION
*	*	M-22×70	7.7	FOR ERECTION
HOOK BOLT	SS41	M-13×140	1.62	FOR PLANKING

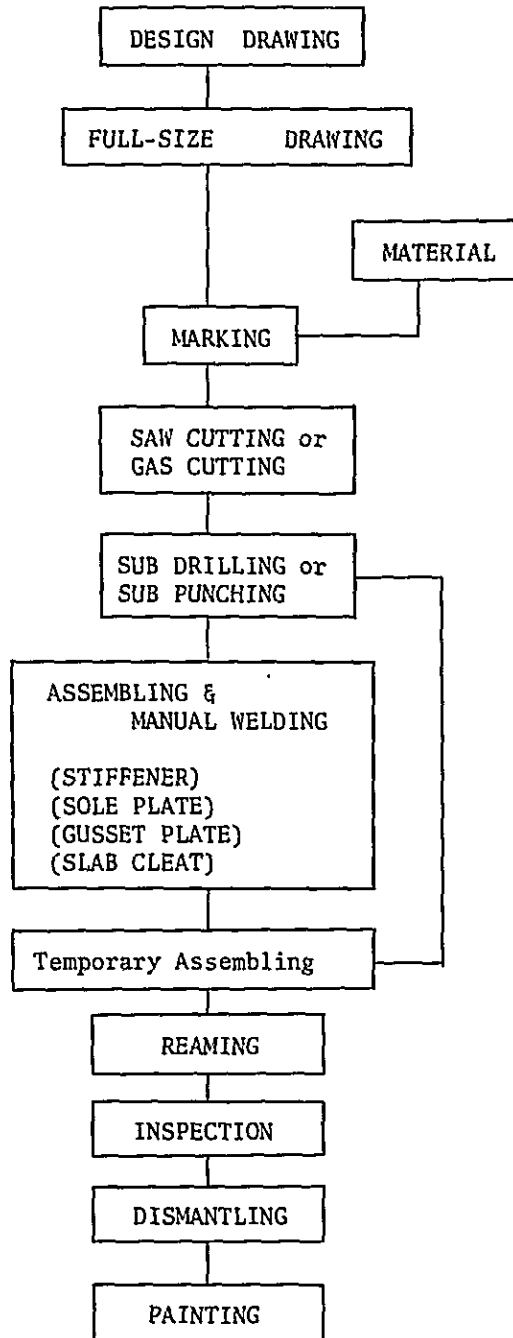
TOTAL STEEL WEIGHT 12192 kg
 PAINTING AREA 226 m²

VOLUME OF WOODEN PLANKING 7.2 m³
 VOLUME OF ASPHALT PAVEMENT 4.9 m³



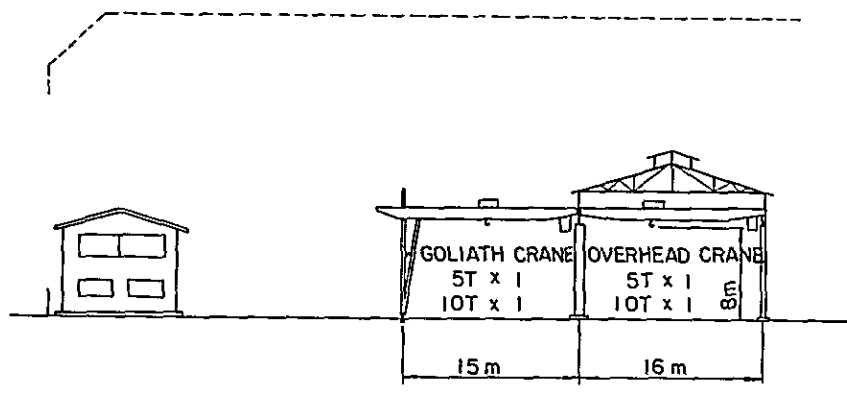
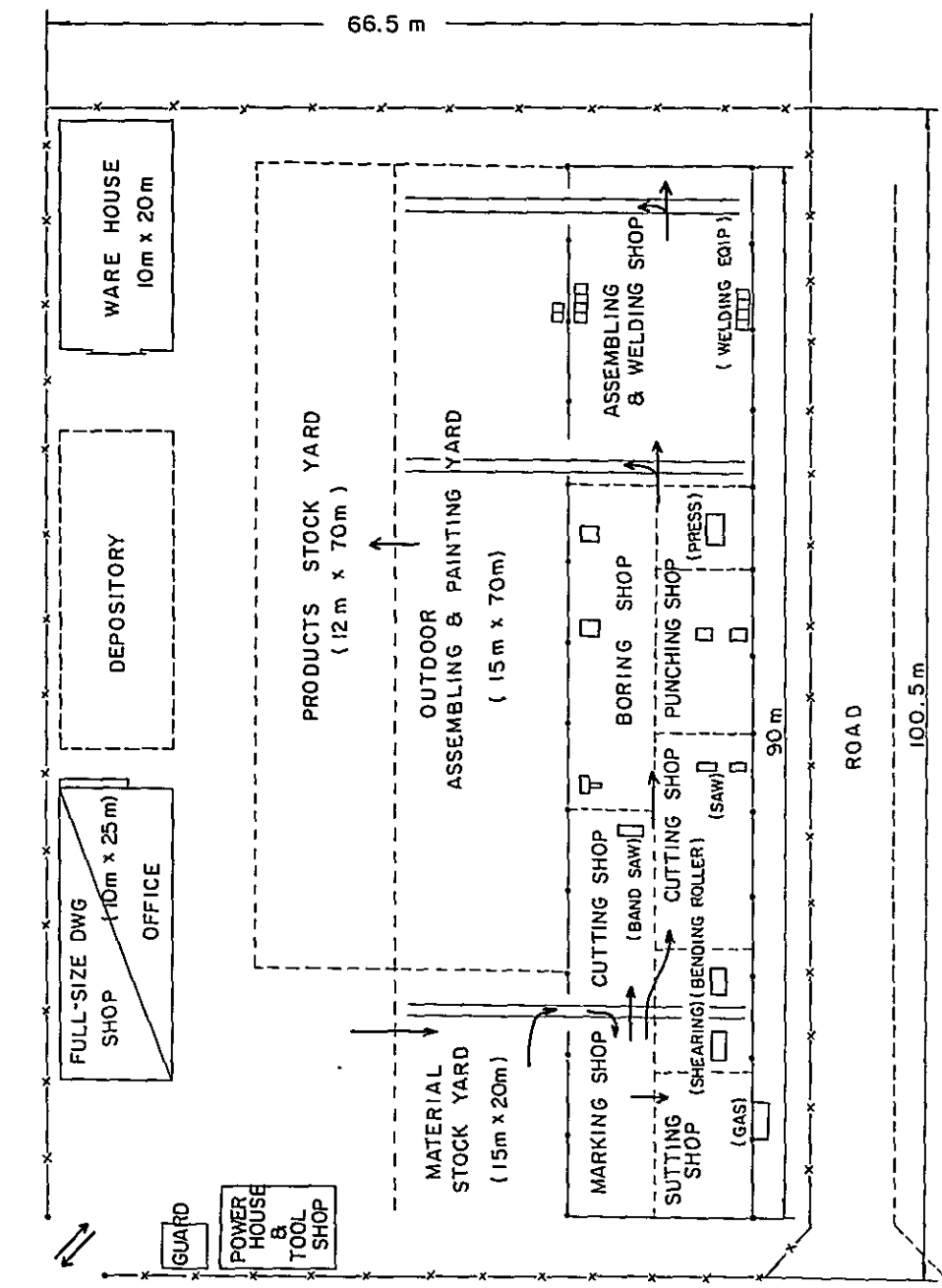
STANDARD STEEL BRIDGE

FLOW OF FABRICATION

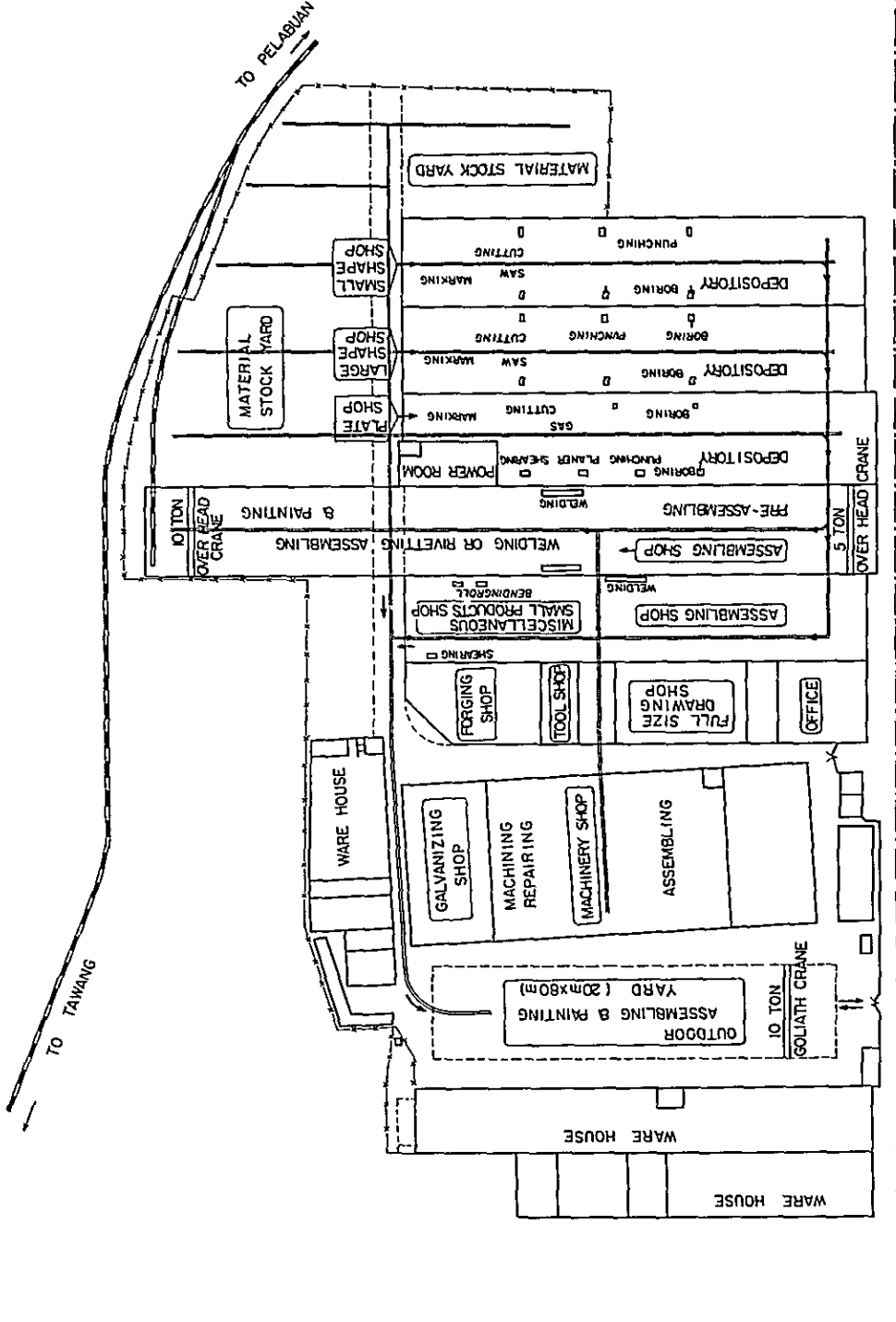


LAYOUT OF NEW DJAKARTA FACTORY

TANJUN PRIUK — MAIN STREET (DJAKARTA BYPASS) — BANDJUNG



Sheet - II NEW LAYOUT & WORK FLOW



Construction Expenses for New Djakarta Subfactory

(Rough Estimation)

Item	Equipment imported	Equipment self-made	Total
1. Building		office (10m x 25m) 5,000 (10 ³ Rp) warehouse (10m x 20m) 2,000 shop (16m x 91m) 41,000	48,000 (10 ³ Rp)
2. Equipment	1. Overhead crane (knock down) 10 ton x 15m 5 ton x 15m (hoist) 2. goliath crane (knock down) 10 ton x 15m 5 ton x 15m 3. machine 5 set 4. welding equip. 10 set	(assembling) 400 (making and assembling) 500 (steel structure assembling) 600 " 400	27,000 (10 ³ Yen) 1,900 (10 ³ Rp)
3. reserve		100	3,000 (10 ³ Yen) 100 (10 ³ Rp)
Total		50,000 (10 ³ Rp)	

Organization of New Djakarta Factory

