E. C. No. 103

ESTIMATES COMMITTEE
1958-59

THIRTY-THIRD REPORT

(SECOND LOK SABHA)

MINISTRY OF STEEL, MINES & FUEL

Hindustan Steel (P) Ltd.

Rourkela, Bhilai and Durgapur Steel Projects

LOK SABHA SECRETARIAT
NEW DELHI
February, 1959

THIRTY-THIRD REPORT OF THE ESTIMATES COMMITTEE(SECOND LOK SABHA)

C O R R I G E N D A.

Preface, page (x), line 8: For 'sports' read 'ports'

Page 6, para 18, line 3 of footnote: Add '16 lakhs' at the end.

Page 9, para 24, line 6: For 'combines' read 'combine'

Page 12, para 36, line 4: For 'Finanical' read 'Financial'

Page 12, Footnote:
(i) Line 1: For 'Febrbary' read 'February'
(ii) Line 2: For 'tha' read 'that'
(iii) Line 2: For 'articlen' read 'articles'
(iv) Line 5: For 'sauction' read 'sanction'

Page 17, para 51, line 2: For 'Projects' read 'Project'

Page 38, para 111, item 3 of the Table, col.2: Add 'A' after the word 'Zone'

Page 43, para 122, line 9: Close the bracket after the word 'plant' and delete the bracket in line 10.

Page 43, para 124, (1) Rourkela, line 3: For 'These' read 'There

Page 49: For the heading 'Financial Matter' read 'Financial Matters'

Page 52, para 145, line 3: For 'at read 'in'

Page 54, line 2 of the footnote: For 'par' read 'part'

Page 100, para 2, line 4: For 'to' read 'the'

Page 130, line 11 from below: For '1:5' read '1.5'

Page 134: Transfer the figures below col.6 to col.

Page 135, line 4: Delete the word 'except' occurring between 'models' and 'for'

Page 149, item (vi), line 1: For 'Extension of' read 'Extension and'

Page 150, line 1 of the Table, col.4: For '750,000' read '750,600'

Page 158, S.No.20, line 1: For 'Committee' read 'Committees'

Page 160, S.No.33, line 4: For 'not' read 'no'

Page 166, S.No.73, line 1: For 'conditions' read 'condition'

Page 170, S.No.96, lines 5-6: For 'aprivate' read 'private'

Page 170, S.No.96, lines 10-11: Delete the words 'Anyone of them might be appointed Chairman'

Page 171, S.No.105: Insert the word 'that' after the word 'suggest' occurring in line 1

Page 175, S.No.128, line 4: For 'statr' read 'start'

Page 176, S.No.132, line 2: For 'payments' read 'payment'

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MEMBERS OF THE ESTIMATES COMMITTEE, 1958-59

1. Shri Balvantray Gopaljee Mehta—*Chairman.*
2. Shri Shripad Amrit Dange
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27. Shrimati Renu Chakravartty
28. Shri M. Sankarapandian
29. Shri Jhulan Sinha
30. Shri Ramji Verma.

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*Elected w.e.f. 28-8-1958 *vice* Shri Mahavir Tyagi resigned.

**Elected w.e.f. 17-9-58 *vice* Shri J. Rameshwar Rao resigned.

†Elected w.e.f. 23-9-58 *vice* Shrimati Renuka Ray resigned.

‡Elected w.e.f. 23-9-58 *vice* Shri Nemi Chandra Kasliwal resigned.

††Elected w.e.f. 17-12-58 *vice* Shri Vijayram Raju resigned.

SECRETARIAT

Shri S. L. Shakdher, *Joint Secretary.*
Shri A. R. Shirali, *Deputy Secretary.*
Shri R. K. A. Subrahmanya, *Under Secretary.*

INTRODUCTION

I, the Chairman, Estimates Committee, having been authorised by the Committee to submit the Report on their behalf, present this 33rd Report on the Ministry of Steel, Mines & Fuel (Department of Iron & Steel)—Hindustan Steel (P) Ltd., Rourkela, Bhilai and Durgapur Steel Projects.

2. The Committee adopted on the 2nd December, 1958 the first draft of the Report which, after incorporation of certain changes authorised by the Committee, was forwarded on the 23rd December, 1958 to the Ministry of Steel, Mines & Fuel for verification of facts stated therein. At this stage, the Ministry brought to the notice of the Committee certain additional information in regard to some of the points dealt with in the Report. Such information has been taken into account in finalizing the Report.

3. A statement showing an analysis of the recommendations contained in this Report is also appended (Appendix XXVI).

4. The Committee wish to express their thanks to the Officers of the Ministry of Steel, Mines and Fuel (Department of Iron & Steel) and Hindustan Steel (P) Ltd., and Messrs. Tata Iron & Steel Co. Ltd., Jamshedpur for placing before them material and information in connection with the examination of the estimates. They also wish to thank Sarvashri Biren Mukerjee, Managing Director, Indian Iron & Steel Co., Ltd., Burnpur; G. D. Somani, M.P.; Kamalnayan Bajaj, M.P.; M. N. Dastur, Consulting Engineer, Calcutta and D. S. Mulla for giving evidence and making valuable suggestions to the Committee.

NEW DELHI;

The 25th February, 1959

BALVANTRAY G. MEHTA,
Chairman,
Estimates Committee.

PREFACE

The Estimates Committee took up the examination of the estimates relating to the Rourkela, Bhilai and Durgapur Steel Projects in July, 1957 when they called for preliminary information in regard to the projects from the Ministry of Steel, Mines and Fuel. This was furnished by October, 1957. In December, 1957, the Committee issued a questionnaire calling for further information in regard to the projects which, however, was not received fully till July, 1958. Thereafter, the Committee took the evidence of officials of the Ministry of Steel, Mines and Fuel and Hindustan Steel (P) Ltd. in July, 1958 and again in September, 1958. During the discussions certain points remained to be clarified and information on these was called for in writing, but was not received fully even by November 1958, when this report was drafted. Further, a note recorded by a member of the Committee who visited Rourkela and discussed several matters with the Resident Director, was forwarded to the Ministry on 1-11-58 for confirmation but was not returned by the Ministry till the Report was finalised on 2-12-58.* A list of references which remained unreplied to on 2-12-58 is given at Appendix I. The Committee fail to understand why it should have taken so long for the Ministry and the Hindustan Steel (P) Ltd. to furnish information called for by the Committee and would like to point out that the late receipt of information in several cases contributed to the delay in the submission of their report.

II. The Committee in examining the estimates of the Ministry of Steel, Mines and Fuel—Hindustan Steel (P) Ltd., have been deeply conscious of the importance of this Ministry because it deals with an industry which is vital to the industrialisation and progress of the country's economy, without which there can be no economic independence for India. Furthermore, it is one of the most important industries in the Public Sector and, therefore, a matter of keen and abiding interest for the entire nation.

III. The construction of three ten lakh tons steel plants undertaken almost at the same time was a stupendous task which involved planning and detailed examination of matters ranging from high policy questions to those of the minutest detail. These included negotiations and agreements with foreign consultants for

*The reply was received from the Ministry on 5-12-1958.

technical assistance, examination of project reports, selection of plant and machinery suppliers with particular reference to future demand for steel, determination of end-products to meet the need of the country, placing of contracts for civil engineering work which had to be co-ordinated with the plant supply, location of projects, supply of raw materials such as iron ore, coal, limestone, water, power, etc., transport needs both at sports and on railways, selection and training of the man-power requirements etc. The achievement of this tremendous undertaking would be such that on its completion the country for the first time would be producing its current steel requirements, thus reducing the dependence on foreign countries for supplies of steel and thereby saving the country nearly Rs. 200 crores of foreign exchange on account of steel that was imported. Further the country might even be able to export steel after a few years.

IV. There can be no two opinions that the Government owned steel plants should be set up economically and run efficiently and that they should take the pride of place in an industry which is of strategic importance in the development of the nation's industry and prosperity. In the setting up of these three public-owned plants the public exchequer has contributed a huge sum of money. The estimates of the three steel plants excluding ancillaries which were estimated to cost Rs. 333 crores are now likely to cost Rs. 439 crores, the rise in the foreign exchange component itself being Rs. 64 crores (having increased from Rs. 228 crores to Rs. 292 crores). The ancillaries would cost another Rs. 120 crores of which the foreign exchange component would be Rs. 38 crores. Thus, the total cost has risen to about Rs. 560 crores excluding escalation. It is important to find out the causes for this increase to take stock of the mistakes that might have occurred so as to avoid such lapses in future since more steel plants will have to be set up in the public sector if the rate of growth in the country is to keep pace with the demands of national expansion. With this end in view the Committee took special care to examine critically the weaknesses and mistakes that have occurred in the Ministry of Steel, Mines & Fuel in the setting up of the steel projects.

V. The Committee do not minimise the magnitude of the task that faced the Ministry in setting up three gigantic steel plants nor do they wish to belittle the achievements that have already been made in this regard. Nevertheless, they were distressed to come across in their examination of the steel projects

several peculiar and undesirable features relating to them. While these are dealt with in detail in the Report, the more important ones are briefly stated below:—

(1) *Planning*. It appeared that forethought and adequate planning had not gone into the decisions taken from time to time to set up the Steel plants in the country. Even as early as 1948, there were plans to set up steel plants; consultants were appointed; reports were obtained and decisions were taken only to be dropped for re-consideration. Had steel plants been set up then, they might have cost on the basis of the consultants estimates 50 to 60% of what the steel plants now under construction would cost and would have been in production when needed most.

The First Plan contemplated the setting up of a pig iron plant which did not mater alise. Further, the decision to set up the first steel plant in 1953 was based on an assessment of the demand for steel in 1952 which was admitted to be conservative with the result that while at first it was thought that a single plant of 5 lakh ton steel capacity would be adequate, in less than 2 years it had to be revised in favour of a decision for three steel plants of 10 lakh ton capacity each in view of the needs of the Second Plan.

With regard to the cost of the projects, firm estimates were not available when they were undertaken. Even now the estimated cost of production in the plants and the estimated ratio of capital and output have not been determined with any great approximation and in any case are subject to a number of important conditions.

The site of the Rourkela plant had to be shifted at an additional cost of Rs. 3 crores on account of the original site having been found to be rocky.

Limestone of the special quality required for the production of L. D. steel at Rourkela plant might have to be obtained from quarries some of which might be even 300 miles away.*

Mechanisation of the iron ore mines and the construction of the coal washeries were not planned to coincide with the completion of the plants with the result that the ore and coal required for the plants in the beginning would have to be obtained from other sources, the additional expense on transport of iron ore alone at Rourkela being estimated to be Rs. 68 lakhs per year.

*It was pointed out, however, that the requirements in this respect were 1·7 lakh tons only per annum and that this was not a material consideration in the siting of the Rourkela Project which had to take into account the larger requirements of other raw materials, particularly of iron ore.

The development of the engineering industries for utilisation of the products of the plants do not also seem to have been properly planned and there is a fear that there may be unused surplus of pig iron or steel when all the plants go into production.

Adequate thought has not been given to the question of the dispersal and decentralisation of the steel industry so as to facilitate all round development of the country, particularly with reference to medium and small-scale industries.

Though all the three projects were taken up simultaneously they do not appear to have been planned together.

(2) *Consultants and Agreements*: Separate consultants were appointed for each of them, while one of them was also appointed as consulting engineers to Government at a stage when the preliminary work in respect of all the projects had been completed. The Consulting Engineers are expected to check on the advice given by other con ultants and have in fact doubted the wisdom of introducing the L. D. process at Rourkela.

The partners of the combine of consultants of the Rourkela plant are also major suppliers of plant and machinery for that plant. This can hardly be considered a satisfactory arrangement since there is a possibility that the advice given by the consultants may not be objective. Further, the agreements entered into with the consultants appear to contain some ambiguities. Thus, it was accepted that the general consultants for the Rourkela plant were not expected to give detailed drawings etc. for the civil engineering work of the plant as a result of which separate consultants had to be appointed for the purpose at a cost of Rs.65 lakhs though no such distinction was made in the case of the consultants for Bhilai and Durgapur Projects.

The contract with the ISCON for the construction of the steel plant at Durgapur provided for the payment of about Rs. 15 crores for certain services some of which appear to overlap with those of the consultants while some others could hardly be termed as technical services. Even then, no commensurate reduction was secured in the fees payable to the consultants on that account.

No provision has been made in the agreement with either the consultants or the contractors for the Durgapur Steel Plant for association of Indians in planning or designing the plants. Provision made in that respect in the agreements with the consultants for Rourkela and Bhilai do not seem to be fully utilised. This meant that though fees amounting to Rs. 10 crores had been paid to the consultants, adequate steps were not taken to acquire the know-how of the plants.

(3) *Contracts*: The contract for the Durgapur plant is a package deal with its attendant defects mainly in regard to the absence of scope for obtaining adequate technical know-how in setting up the steel plant. It contains, what is believed to be rather high, a provision of 15% for escalation.

Some of the contracts entered into for the construction of the Rourkela plant contain certain extraordinary provisions. Thus, under one contract equipment like earth-moving machinery, concrete mixers, trucks, water-supply appliances, etc. of the value of Rs. 60 lakhs, is proposed to be hired at a charge amounting to Rs. 75 lakhs over a period of three years. Under another contract a large number of German carpenters were brought from Germany at a total cost of Rs. 20 lakhs to the project to reinforce the Indian contractors who had fallen behind in their work partly because of the delay in supply of designs, etc. by the suppliers of the plant and machinery. In both cases, it appeared that the antecedents of the contractors were not verified before the contracts were awarded.

(4) *Delays in completion*: The projects do not seem to be progressing according to schedule. It was admitted that even on the basis of the latest schedule of commissioning, there would be a delay of about six months at every stage in the Rourkela plant going into production except the first blast furnace which would be delayed by about 3 months. It is also anticipated that there might be further delay before the plants went into full production. It has to be considered in this connection that delays in commissioning and production would necessitate corresponding import of steel thus straining the foreign exchange position and would involve an estimated expenditure of about Rs. 10 lakhs per day at each plant.

(5) *Costs*: The costs of the projects have been rising. While their original estimate, as indicated in the Second Plan was Rs. 353 crores, it was revised upward to Rs. 439 crores, within a short period. Both these estimates excluded certain items of work which were estimated to cost Rs. 120 crores. The cost of one of the sections of the Rourkela plant alone, *viz.*, the Rolling Mills, went up from Rs. 48 crores to Rs. 72 crores. As a result, the cost of the three plants is now estimated to be between Rs. 130 to 180 crores each. Even these estimates are not stated to be final. The rise in costs was explained as partly due to increase in the level of prices, but it seems evident that it is also due to unsatisfactory estimation, planning, agreements and contracts. It has also to be considered that as against the present estimates

of the three plants, the cost of the steel plants recommended by the Consultants appointed in 1949, was Rs. 90 crores for a ten-lakh-ton plant.

(6) *Organisation* : Until 1-4-57, the Bhilai and Durgapur Projects were managed departmentally while the Rourkela Project was managed by a Government Company. Thereafter all the projects are administered by a Board of Directors of the Hindustan Steel (P) Ltd., comprising mostly of Government officials with little or no experience of such an enterprise. Further, the volume of work to be disposed of being too much, the Board have left the bulk of it to be disposed of finally by a Committee of Directors consisting of two to four Government officials. These can hardly be considered satisfactory arrangements and have probably contributed to the various disquieting features in regard to the setting up of the Steel plants.

VI. The Committee have recommended in the report, the appointment of Committees for further enquiry in regard to the various doubtful features and defects, which were noticed during the examination of the estimates of the steel projects, but which could not possibly be exhaustive. It is desirable that there should also be a comparative study of the procedures and methods adopted for setting up the three plants at least for future guidance. There is, therefore, the need for a comprehensive examination of the projects with particular reference to their legal, financial and technical aspects. Further, these projects represent the first undertaking of the Government of India in the Iron & Steel industry and their number is bound to increase with the economic development of the country. It is, therefore, desirable that the Government should take steps to pool their experience of setting up the plants so as to enable them to determine on a scientific basis the pattern of future projects.

VII. With the above end in view, *the Committee suggest that a team of experts comprising persons well-versed in industrial, financial, legal and technical matters, might be appointed to make a more comprehensive study of the projects with particular reference to the agreements with consultants, project reports, contracts, arrangements made for training the personnel, etc. not necessarily to pick holes in regard to them but to enable with their help to make suggestions for avoiding difficulties in future. The Committee also recommend that the report of the team so appointed should be made available to Parliament.*

I

HISTORICAL

A. Introductory

The importance of iron and steel in this industrial era cannot be over-estimated. Indeed, these are the key raw materials which vitally affect the economy of a country. India produces only 13 lakh tons of finished steel as against the world's steel production of 27 crore tons. The *per capita* steel consumption, which is considered as an index of the material standard of living of the people and a yardstick for measuring the industrial and economic development of a nation was in 1956 only 22 lbs. of ingots in India as against U.S.A.'s 1317 lbs., U.K.'s 842 lbs. and U.S.S.R.'s 486 lbs.

2. The foundation of India's present iron and steel industry was laid in 1871 with the setting up of a small open top furnace at Kulti for the production of pig iron. Since then, the Tata Iron & Steel Works at Jamshedpur, the Indian Iron & Steel Works at Burnpur and the Mysore Iron & Steel Works at Bhadravati have been established. Between 1912, when the Tata Iron & Steel Works were set up, and 1939 the production of steel made steady progress in the country as would be evident from the figures of steel production given below:

Year	*Production of Steel* (tons)
1916	99,000
1921	126,000
1929	400,000
1933	483,000
1936	604,000
1938	702,000
1939	842,905

3. During the Second World War, the production rose from 842,905 tons in 1939 to 1,149,308 tons in 1943. Immediately after the War, the production of steel declined "because of the intensive use of the plant and machinery during the war period and the lack of adequate replacement" as pointed out in the Planning Commission's 'Programmes of Industrial Development 1951-56'. However from 1949 again it started recording an upward trend and during 1950 and 1951 it was 976,100 and 1,050,111 tons respectively. This, however, was not sufficient to meet the requirements of steel in the country, as is evident from the fact that the imports of steel into the country during 1949, 1950 and 1951 amounted to 398,000 tons, 284,000 tons and 178,000 tons respectively.

B. Place of Steel in the Plans

4. The First Plan estimated that the annual requirements of steel would rise from 23 lakh tons in 1952 to 28 lakh tons by 1957. A target capacity of 16·5 lakh tons finished steel was, therefore, laid down which was to be attained by 1957-58 by the completion of the expansion schemes of the three main producers in the private sector (TISCO, IISCO and Mysore Iron & Steel Works). The First Plan also provided for the completion of an integrated plant at Rourkela producing 3·5 lakh tons of pig iron. Much progress could not, however, be made with regard to the latter project. Consequently, the total indigenous production during the First Plan period was only 58 lakh tons while the imports during the five years—1951 to 1955—amounted to about 20 lakh tons valued at about Rs. 140 crores.

5. As the developmental activities gathered momentum in the final year of the First Plan, the demand for steel increased substantially while the indigenous supply during 1955-56 was 13 lakh tons only. A rapid survey of the requirements was made in 1954 and it was estimated that in view of the all-round progress expected to be achieved as a result of the implementation of the two plans, the requirements of steel by 1960 would be in the neighbourhood of 45 lakh tons. With a view to bridging the wide gap between the indigenous production and requirements of steel, the Second Five Year Plan accorded a high priority to the production of steel.

6. Under the Industrial Policy Resolution of 1956, all new units in iron and steel industry are to be set up only by the State. This does not, however, preclude the expansion of the privately owned units or the possibility of the State securing co-operation of private enterprise in the establishment of new units when the national interests so require. The Second Five-Year Plan, therefore, envisaged the construction of three steel plants of ten lakh tons ingot capacity each in the public sector at an estimated cost of Rs. 353 crores, excluding Townships and further expansion of the Tata Iron & Steel Works, the Indian Iron & Steel Works and the Mysore Iron & Steel Works. The target of 45 lakh tons was to be attained as follows:

	Existing production 1955	Target for 1960
	(in lakh tons)	
1. By the expansion of the existing works:		
Tata Iron & Steel Works	7·8	15·00
Indian Iron & Steel Works	3·3	8·00
Mysore Iron & Steel Works	0·3	1·00
2. By the establishment of new works in the public sector:		
Rourkela Plant	..	7·2
Bhilai Plant	..	7·7
Durgapur Plant	..	7·9
	11·4	46·80

C. Earlier proposals

7. The question of expansion of the steel industry in the country has been under consideration of the Government of India since 1945. During that year, the Government set up a panel to prepare a plan for the development of the industry. On the basis of the recommendations of the panel, Government decided to set up two steel plants of 5 lakh tons ingot capacity each and appointed the following two consultants in 1948 to survey and report on various matters connected therewith:

1. M/s. Kopper Co. & Arthur G. Mckee & Co. of U.S.A.

2. The International Construction Co. of U.K.

8. The consultants reported in 1949 that on the basis of the demand for steel and the supply position thereof there was need for one or more plants to produce not less than ten lakh tons of steel. The particulars of their recommendations will be found in Appendix II from which it will be seen that the plants of 10 lakh tons steel ingot capacity would then have cost less than Rs. 90 crores, exclusive of townships etc.

9. These recommendations were considered by Government in May, 1949 in consultation with the State Governments and it was decided to have two plants—one in Madhya Pradesh and the other in Orissa, of which one plant was to be taken in hand immediately. However, subsequently, due to financial difficulties Government decided to drop the proposals for the time being. Explaining why the proposals were not proceeded with, it was stated by the Ministry that in view of the magnitude of the expenditure involved and of the complicated nature of the undertaking, it was decided to give further thought to the subject and to take the advice of the Planning Commission in regard to the priority to be given to the project and the amount of money that could be made available for it. In 1953 Government decided to put up an integrated iron and steel plant instead of a steel plant contemplated in 1948 and 1949. Consequently the recommendations made by the earlier consultants were got re-examined by a Technical Mission whereupon they were abandoned in view of altered circumstances and a fresh examination of the matter undertaken. It was not until 1954 that the decision to set up a new steel plant materialised. Thus, *in deciding to give further thought to the Consultants' reports, the Government lost five valuable years and a very good opportunity to put up the steel plants in the country at a cheaper cost and at a time when they were most needed. Had the steel plants been erected as suggested in* 1949, *they would have gone into production by* 1954 *or* 1955 *and they would have*

saved the country from importing large quantities of steel which cost large sums of money in the shape of foreign exchange. During the period 1955-57 such imports amounted to Rs. 320 crores and this drain on foreign exchange will continue until the present plants under construction go into production. It is also to be noted that the estimated cost of the plants recommended by these consultants *viz.* about Rs. 90 crores for a 10-lakh ton plant was very much lower as compared to the cost of the present plants, which is going to be between Rs. 130 and Rs. 180 crores.* The delay has also resulted in the slowing down of industrial development and expansion, current foreign exchange crisis and higher cost of construction all of which will in turn affect the cost of production of steel at a time when world prices will be going down.

D. Negotiations for Rourkela Plant

10. In 1952, the World Bank suggested that a technical investigation might be made in regard to the additional demand for steel at that time, taking note of the expansion programme of the private units. As a result a Technical Mission was appointed. The Mission which was assisted by the Iron & Steel Controller in its investigation reported that the deficit in the steel supply required for the country in 1958 was 400,000 or 500,000 tons mainly of the plate category. The estimate was, however, increased five-fold within two years. *While the reasons for the earlier low estimates were not furnished to the Committee, it is obvious that they were wrong.*

11. On the basis of the World Bank Technical Mission's report and in pursuance of the decision to put up an integrated steel plant, Government examined the question of the machinery for putting up the plant and for that purpose considered the desirability of obtaining financial and technical assistance from abroad. Attempts to obtain financial assistance from USA and UK were not successful. Negotiations were then conducted with M/s Krupp and M/s Demag of Germany who showed interest in assisting the Government in putting up a plant. The Secretary of the then Ministry of Production visited Germany in 1953 and signed a memorandum of association with a firm consisting of a combine of M/s Fried Krupp, Essen and M/s Demag Aktiengesellschaft, Duisburg. The agreement provided for technical and financial participation of the firm in the construction of a new steel plant with an initial capacity of 5 lakh tons which was estimated to cost Rs. 80 crores. Further the combine were to be appointed consultants for the steel project, for which they were to receive a fixed fee equivalent to Rs. 2·148 crores.

12. The Committee were informed by the representatives of Government that the negotiations with the German Firms as a result of which the memorandum of Indo-German Association was signed,

*It was explained to the Committee on 7-1-59 that if a decision to set up the steel plant had been taken in 1949 orders could have been placed for plant and equipment about a year or so later. By then the Korean boom had come in, the devaluation of the rupee had taken place and a seller's market was developing rapidly in manufacturing countries. It was also stated that between the submission of the Reports of the three Consultants in 1949 and the year when orders were placed for the plants in Rourkela, Bhilai & Durgapur Projects in 1956, prices of materials and level of wages moved sharply, particularly in Germany & in U.K.

were carried out by a single-member delegation, consisting of the Secretary of the then Ministry of Production, unassisted by any financial, technical or legal adviser. It was explained that the memorandum was not really technical and that the proposals evolved by the Secretary in consultation with the German firms were referred by him to Government from time to time and were considered and approved by Government at the highest level. *The Committee feel, in this connection, that it is always desirable that such negotiations should be conducted by a negotiating Committee consisting of officials, non-officials and experts instead of singly by officials. They would also like to reiterate the recommendation contained in para 22 of their 16th Report (First Lok Sabha) that there should be a specialised machinery within the Government to scrutinise carefully agreements before they are signed.*

13. Following the agreement with the German combine the latter submitted a preliminary project report for 5 lakh tons integrated iron and steel plant in May, 1954. It was accepted after it was scrutinised by an expert Committee.

Later in January 1955 the consultants submitted the detailed project report.

14. Meanwhile in 1954 Government instituted another survey into the demand for steel, which revealed that by 1960-61 the country would require 45 lakh tons of finished steel (60 lakh tons ingot steel). This meant that, even after allowing for further expansion of steel plants in the private sector, a gap of approximately 30 lakh tons of ingot steel had to be bridged. As a result, Government decided that the first steel plant (Rourkela) in the public sector should, even initially, have a capacity of 10 lakh tons of ingots. This necessitated revision of the layout and the general specifications for the production units and the maintenance sections of the plant. Consequently, a supplementary agreement was entered into with the consultants in July, 1955 for submitting a revised project report, and the amount of fees payable to them was raised from Rs. 2·148 to Rs. 2·853 crores. The final project report making provision for all these was submitted by the consultants in November, 1955. It was examined by Government, in association with Shri J. J. Ghandy and Shri P. Kutar of TISCO and accepted shortly after.

15. Thus, the change of decision regarding the capacity of the steel plant resulted in delay in the commencement of the work on the plant by nearly a year and also entailed payment of extra fees amounting to about Rs. 70 lakhs. It would be difficult to conjecture whether any such amount would have had to be paid to the consultants had their first project report itself been for a 10-lakh ton plant, but there could be little doubt that some avoidable expenditure was caused by the lack of proper assessment of the demand for steel at the initial stage. Meanwhile the world economic conditions changed and prices rose. *The Committee believe that had the conclusion of contracts for supply*

*of plant and machinery not been delayed, as it was, due to revision of the project report, it might have been possible to purchase at least some of the plant and machinery at lower prices. It is also not clear whether the Government were conscious of the rising prices and whether if they had attached any importance to this factor, they would have allowed such delays in finalizing project reports and in dealing with this matter in such leisurely manner**.

E. Negotiations for Bhilai Plant

16. While the project reports of the Rourkela plant were still under consideration, the Government of India entered into an agreement with the Government of U.S.S.R. in February 1955 for the establishment of an integrated iron and steel works at Bhilai. The Agreement was negotiated by a negotiating committee consisting of selected Secretaries of the Government of India. The project report was considered by a team consisting of 25 experts. A delegation of eleven official and non-official experts visited the U.S.S.R. to inspect representative steel works and factories manufacturing metallurgical equipment and to report on the design, equipment and working of the types of plants offered in the preliminary project report, the steel making processes employed in the country etc. The Committee were informed that the team which visited the U.S.S.R. made certain valuable suggestions which were taken into account by the Russian consultants in preparing the detailed project report.

F. Negotiations for Durgapur Plant

17. A technical mission was invited in 1955 from the U.K. under the Colombo Plan, to study the economic and technical problems connected with the establishment of a third steel plant. The mission submitted its report in August, 1955. The recommendations of the mission were generally accepted by the Government. The Indian Steelworks Construction Co. (London) (a consortium of several British steel plant and other allied manufacturers) were thereupon invited to send a delegation to discuss ways and means of constructing the plant and to find out whether there was a satisfactory basis for entering into a contract with a single agency for the supply and erection of the plant in Durgapur. The consortium submitted its preliminary report and estimates in January, 1956. Six months later the final estimates and specifications were received and, after negotiations, a contract was concluded in October 1956.

18. The proposal received from ISCON was examined in consultation with the Consulting Engineers, *viz.*, the International Construction Company, a British firm. *The Committee regret to observe that in this case no Indian experts were associated with the consulting engineers in the examination of the reports as was done in the case of Rourkela and Bhilai projects.*

*It was pointed out on 7-1-59 that it was likely that the relatively small increase in the level of prices and wages which took place in the interval would have been more than off-set by the increased cost of expansion from the ten lakh tons stage to the tons stage.

G. Birla Proposal

19. The Committee understand that in 1954 Messrs. Birla Brothers had made a proposal to set up a plant of 10 lakh tons capacity of ingot steel with foreign assistance mainly British. During the evidence given before the Committee, the Secretary of the Ministry confirmed that there was a proposal to put up a plant with two blast furnaces and other sections designed to produce about 675,000 tons of finished steel, and stated that it would have required a capital of Rs. 100 crores, inclusive of railway facilities, provision of water supply, etc., of which about Rs. 10 crores only might have been contributed by private capital. He added that the proposal would have involved a large loan of £60 millions from foreign parties which would have to be guaranteed by Government and that the balance of the initial expenditure might have had to be advanced by Government. The Government considered that private capital of Rs. 10 crores would be too small in relation to Rs. 100 crores which would be required for the project, and after careful consideration, Government took a policy decision that the future development of steel should be in the public sector. The proposal made by Messrs. Birla Brothers was consequently rejected.

20. The Committee made an enquiry from Shri B. M. Birla in regard to the above proposal and were informed as follows:—

> ".....generally it could be said that the negotiations had advanced considerably and the estimated cost of the plant, including township, housing etc. was very substantially lower than the proposed Govt. plant. Negotiations were concluded for requisite finance from British, American and Indian sources without any Government aid or guarantee. However, it did not materialise because of Government refusal."

21. In view of the strategic importance of the steel industry on account of which it has found a place in Schedule 'A' of the Industrial Policy Resolution, *the Committee entirely agree with the decision of Government not to allow the erection of new steel plants in the private sector.* In this connection they were also informed that the negotiations for the Durgapur plant were 'in a sense' a continuation of the Birla proposals and that the difference in the estimated costs of the Durgapur plant and that envisaged under Birla proposals was mainly because the former is a bigger plant with a greater variety of products and with provision for rapid expansion with relatively minor additions. It was also stated that there was also a larger wheel, tyre and axle plant and that the process of steel making was also superior.

H. Conclusion

22. (i) ***There is evidence that if decision to set up steel plants had been taken in time, they would have cost 40 to 50% less.***

(ii) ***The requirements of steel were not assessed properly in the initial stages, with the result that much valuable time was lost in***

preparing project reports and in revising them while the world prices of plants were rising and finished steel was being imported at the sacrifice of much needed foreign exchange.

(iii) *Three different methods were followed in negotiating with German manufacturers, Russian Government and the British consortium. It is not clear why the method of appointing a large expert Committee to study the Russian offer which yielded good results was not followed in the case of the other two negotiations. Indeed, it is regrettable that the latter two had undesirable features, which have been pointed out elsewhere in the report.*

II

THE ORGANISATIONAL SET-UP

A. Formation of the Hindustan Steel (P) Ltd.

23. The three steel projects *viz.*, the Rourkela, Bhilai and Durgapur have been vested in a joint stock company, *viz.*, the Hindustan Steel (Private) Limited since 1st April, 1957.

24. The Company was originally formed in January, 1954 under the Companies Act, to construct and manage the proposed steel plant at Rourkela in pursuance of the agreement between the Government of India and the combine of the two German firms, *viz.* Fried Krupp, Essen and Demag Aktiengesellschaft of Duisburg. Originally the German combines was to contribute to the share capital and have proportionate representation on the Board of Directors, but their share was taken over by the Government of India in December, 1956 for reasons explained in para 53.

25. The Bhilai and Durgapur Projects were under the direct control of the then Ministry of Iron and Steel (Now Ministry of Steel, Mines and Fuel) till March, 1957, when the preparatory work on the two projects was over. Plant and machinery had been ordered and arrangements made for civil engineering work practically in all the major sections of the plants. At that stage, Government considered that it would be advantageous if all the three projects were brought under a unified Company management and transferred the Bhilai and Durgapur projects to the Hindustan Steel (Private) Ltd., as from 1-4-1957.

26. Explaining the reasons for the departmental management of the two projects prior to 1.4.1957 the representative of the Ministry told the Committee that Government felt that in the initial stages of such projects, departmental control was of advantage. *The Committee, however, feel that it would have been desirable to entrust the projects to the Company from the beginning since the machinery of Government departments is not generally suited to undertake such projects departmentally, even in the initial stages, when in fact the bulk of the negotiations are carried out and agreements entered into.*

B. Board of Directors

27. At the head of the Hindustan Steel (P) Ltd., there is a Board of Directors in whom most of the executive powers of the company are vested. The number of Directors is not to be less than two. The Committee observe that the number of Directors on the Board has

varied from time to time. It was at one time thirteen, at another time eleven and now it is ten. *The Committee feel that the minimum of two which has been prescribed is too low for an organisation of this magnitude and allows a wide range of variation in the strength of the Board which is not desirable for sound administration of the projects. The Committee suggest, therefore, that the minimum number required for the Board of Directors might be raised suitably and wide fluctuations in the total number avoided as far as possible.*

28. The Board of Directors of the Hindustan Steel (P) Ltd., at present, consists of the Chairman, two non-officials, three General Managers of the three Steel Plants and four other Government officials of whom two are Secretariat officials [*viz.*, the Secretary, Ministry of Steel, Mines and Fuel (Department of Mines and Fuel) and Joint Secretary of the Ministry of Finance]. Till recently, the Secretary of the Ministry of Steel, Mines and Fuel (Department of Iron and Steel) was also the Chairman of the Board of Directors. At present, however, a retired Chairman of the Railway Board is the Chairman of the Board of Directors of the Company.

29. It needs no special mention that the responsibilities of the Board of Directors are very onerous. As pointed out in the year 1955 by the Advisory Committee on Organisation of National Coal Board of U.K.:—

> "It is the Board's task to secure uniformaly good management for the various units for which they have become responsible. They must secure efficient capital development and the replacement capacity. They must see that the benefits of large-scale organisation are rapid throughout the whole undertaking. . . . The Board must also establish for management new standards of performance since in a big undertaking, however much its products compete with those of others, financial profits and losses are not by themselves a sufficiently delicate instrument for measuring the success of particular units. Last, but perhaps most important of all, the Board must establish confidence, loyalty and discipline among the managment team. . . . . ".

These tasks would suggest that right choice of the members of the Board of Directors is imperative for the success of an undertaking.

30. In this connection, it is of interest to note that in U.K. the statutes, under which industries are nationalised, define the qualifications of the Chairman and other members of the Board of Directors somewhat on the following lines:—

> "Chairman and other members of the Board shall be appointed by the Minister. . . . from amongst persons appearing to him to be qualified, as having had experience of and having shown capacity in industrial, commercial or financial matters, applied science, administration or organisation."

The Committee feel that the Government would do well to define in similar broad terms the qualifications of the Chairmen and Members of the Board of Directors of Industrial undertakings in the public sector in this country. The Committee would also suggest that keeping in view the tasks to be performed and the requirements therefor, members of the Board of Directors might be drawn from a wider sphere than at present and that more technical experts, experienced men from public life and from various non-official sources be appointed to the Board, though care would have to be taken that no one with a direct interest in the same industry in the private sector is appointed. They further suggest that the terms of service of the Directors might be so framed as to attract capable men.

31. The Committee would also like to refer to the following recommendation made by the Advisory Committee on Organisation of the National Coal Board of U.K. and *suggest that Government might consider whether in our own circumstances, it is feasible to adopt a similar principle in the case of the H.S. (P) Ltd., and other nationalised Undertakings*:

> "that it should be recognised that the part-time Members of the Board would have the right of access to the Minister if they had any matter of importance affecting the industry to which they wished to draw his attention, and would be responsible for exercising that right."

32. The Committee observe that, at present, the official and non-official Directors of the Company, except the Chairman, 3 General Managers of the Plants and one other Director, work on a part-time basis, which might prevent them from giving their exclusive attention to the affairs of the company. They find, for example that one non-official Director attended 23 out of 37 meetings of the Board of Directors while another attended 3 out of 12 meetings. None of them, attended the meetings of the Committee of the Board. *The Committee feel that in the interest of the Company, more full-time Directors should be appointed on the analogy of the Railway Board and that, to the extent possible, continuity among the full-time Members should be ensured.*

33. *The Committee further recommend that, for better administration and co-ordination, each full-time Director should be entrusted with the responsibility of certain Departments of the Company* e.g. *Engineering, Staff Matters, Coal Washeries, Raw Materials, etc. The need for such Directors and their functions might change when production in all the plants commences* e.g., *it might be necessary to have such departments as Production, Marketing and Purchase, Industrial Relations, Staff, Finance, Research, etc. Therefore, the position and the functions of full-time Directors might be reviewed from time to time.*

34. **The Committee were informed that there was a proposal to expand the present Board of Directors and to appoint more Directors from non-official sources.** ***The Committee***

welcome the proposal and suggest that in making new appointments, the recommendations made above might be kept in view.

C. Government Control

35. The Ministry of Steel, Mines and Fuel (Department of Iron and Steel) exercises overall control over the three steel projects and is responsible for their planning and construction, and also for the control on price and distribution of iron and steel and generally for the development of the steel industry in the country.

36. Under the Articles of Association of Hindustan Steel (P) Ltd., the President is to determine the number of Members of the Board of Directors of Hindustan Steel (P) Ltd., and also to make their appointment. The General Managers and the Finanical Adviser and Chief Accounts Officers of the projects are also appointed by Government. The Auditors of the company are appointed by the Government on the advice of the Comptroller and Auditor-General, who under the Company Law may also conduct a test audit.

37. Proposals or decisions of the Board of Directors in respect of the following are subject to the approval of Government:—

(i) Any programme of capital expenditure for an amount exceeding Rs. 40 lakhs;

(ii) Winding up of the company;

(iii) Appointments to grades the maximum of which is Rs. 2,000 or more p.m.; and

(iv) Any matter which, in the opinion of a Director, is of such importance as to be reserved for the approval of the President.

The Government has also the right to issue directives or instructions as considered necessary in regard to the finances, conduct of business and affairs of the Company.*

38. The Committee observed when evidence was tendered before them that the Secretary of the Department of Iron and Steel was more or less the principal spokesman for Government as well as the Hindustan Steel (P) Ltd. Though this might be due to the fact that till recently the Secretary was the Chairman of Hindustan Steel (P) Ltd., it appeared to the Committee that it was suggestive that there was no clear demarcation between the Company and the Government. While this might be inevitable because of the presence of a large number of officials, particularly, the high Secretariat officials, on the Board of Directors, the Committee would like to repeat what they had pointed out

*The Committee were informed in a note received on the 17th Febrbary, 1959 tha 83 cases were referred by tne Hindustan Steel (P) Ltd., to Government under the articlen of their Associatior, 68 of these being of capital expenditure over Rs. 40 lakhs erch in value. In addition 607 cases of imports etc. involving foreign exchange were referred to Government for sauction of foreign exchange. It was also stated that one directive was issued by Government to the Company regarding rousing standard in the steel townships

in a number of their earlier reports (*e.g.* the 9th, 16th, 39th, 41st, 43rd, etc., Reports of the Estimates Committee of the First Lok Sabha) that the association of Secretariat officials with the Board of Directors had blurred the responsibilities of the Company and the Government *inter se* and had thereby vitiated the very purpose of forming a Company. It had also, to a large extent, come in the way of an objective examination of the proposals of the Board by Government, especially in cases where the Secretary of the Ministry and the Joint Secretary (Finance) were Members of the delegation of the Company which negotiated a number of agreements and contracts for the projects some of which had to be approved by Government *i.e.*, generally by the same persons in their capacity as advisers to Government. This would mean that Government would have to share directly a good measure of responsibility for the working of the projects. *The Committee, therefore, recommend that the association of the Secretariat officials on the Board of Directors of the Hindustan Steel (P) Ltd., might be terminated as early as possible.*

39. However, so long as the present system of Secretariat officials being members of the Board of Directors continues, *the Committee suggest that there should be some arrangement in the Government for examination of matters, which come up from the Company for their consideration and approval, by officers different from and independently of those who are on the Board, so as to facilitate objective and independent examination of these matters and thereby fulfil the purpose for which they are required to be referred to Government.*

40. The Articles of Association of the Hindustan Steel (P) Ltd., provide that any matter, which, in the opinion of a Director, is of such importance as to be reserved for the approval of the President, should be referred to Government. The Committee feel that the clause could provide opportunity to the company Directors as well as the Government officials, who function on it, to refer any matter to Government and thereby evade taking responsibility for the decision. The Committee feel that it is not desirable for sound administration of the projects that there should be ambiguity in such matters. *They, therefore, recommend that the circumstances in which the Government might intervene in the affairs of the Company should be clearly specified and that, except in such circumstances, the responsibilities of the Company with regard to the projects should be specific, and unambiguous.*

D. Committee of the Board of Directors

41. The Board of Directors have set up a Committee for the disposal of business in between the meetings of the Board of Directors. It consists of the Chairman, the Deputy Chairman, the Director of Finance and such other Directors as may be available. The Com-

mittee exercise full powers of the Board of Directors subject to Section 292 of the Indian Companies Act. The decisions taken by it are final in themselves and do not require ratification or confirmation by the Board. The Committee is entitled to meet thrice a week but met 89 times from September, 1957 to August, 1958 during which period, the Board met only 7 times. The quorum for its meetings is two and the number of Directors attending the meetings has varied from 2 to 4. No non-official Director has ever attended the meetings of the Committee.

42. *The Committee consider it strange that the Board of Directors should set up a Committee with an indefinite membership and with such wide powers. They also find it strange that the administration of the Rs.* 560 *crore steel projects rests largely with two to four officials or erstwhile officials of the Government who have had no previous experience of steel industry, or of any industry for that matter.*

43. The problems which come up before the Board of Directors are of a large variety and the Committee doubt if one Committee set up by the Board would be able to handle all of them satisfactorily. *They fear, that the problems referred to the Committee might not receive due consideration in all cases. They, therefore, feel that it might be advisable for the Board to have a number of Committees for different purposes with different but specific membership instead of one multi-purpose Committee. In the new Committees, the non-official Directors might be given an active part to play by making them Chairmen of some of the Committees. By this arrangement all the members of the Board would be associated with the work of the Board in one way or the other so that they might bring to bear on the subjects they deal with, greater experience and, therefore, better judgment.*

44. *The Committee also recommend that the existing practice of circulating to the Board the decisions of its Committee should continue and that in addition such decisions should also be specifically reviewed at subsequent sittings of the Board to enable the latter to give suitable guidance whenever necessary to the Committee in their future course of action.*

E. Location of Head Office

45. The head office of the Company is located at New Delhi. It was explained by the representatives of the Company and the Government that in the initial stages of organisation of the projects, the Company would have to be in close touch with Government and the location of the head office of the company in New Delhi facilitated liaison between the Government and the Company. The Committee feel that one reason for locating the head office at New Delhi might, perhaps, be the fact that several Secretariat officials were also members of the Board of Directors while the Secretary of the Ministry

was till recently also the Chairman. As regards liaison with Government, the Committee agree that it is essential in policy matters but would like to point out that the H. S. (P) Ltd., is expected to look after all day-to-day matters and administration of the projects. Further other government undertakings like the Indian Telephone Industries (P) Ltd., Air-India International, Life Insurance Corporation etc. whose headquarters are away from Delhi have on that account apparently found no difficulty in maintaining liaison with Government. *The Committee, therefore, do not appreciate the location of the head office of the H. S. (P) Ltd., at Delhi. They feel that its location nearabout the area of operations would enable Hindustan Steel (P) Ltd., to function independently on business lines instead of looking to Government for advice and guidance in all matters.*

F. Organisation at Project Sites

46. At the project sites, there is a General Manager and a F. A. & C. A. O. besides other Heads of Departments for each project. The General Manager of the Rourkela plant has changed twice in the last four years while the General Manager of the Bhilai plant has changed once in the last three years. One of the General Managers so changed was a retired officer of the India Stores Department, who was employed on a five years' contract at a salary of Rs. 3500/- p.m. but was transferred within about 1¾ years from the steel plant to a coal washery. The present General Managers of Bhilai and Durgapur Projects belong to the Indian Civil Service while the General Manager of Rourkela, designated as Resident Director, is a railway engineer.

47. The Committee had occasion, in their 9th Report (1st Lok Sabha), to deprecate the tendency of entrusting the management of industrial undertakings in the public sector to civil servants. They find, however, that this tendency continues to persist with the result that Government officials, who are specially trained in the Governmental methods of work are employed in the undertakings requiring industrial and business knowledge while the Government Departments themselves are faced with shortage of trained officers. Another anomaly which often results from this arrangement is that while some of the junior officials are in charge of these public undertakings their seniors hold posts in the Secretariat on account of which the former often find it difficult to exercise independent judgment in various matters. *The Committee consider that the selection to such responsible posts as General Managers of Steel Projects should be made not merely from among civil servants but from a wider sphere. The main consideration in this regard should be that the General Managers should be able to exercise the powers devolving on them without fear or favour and they should not look to headquarters for guidance or orders on routine matters. They should be able to deal with the Members of the Board of Directors or the Minister at near-equal level and maintain the autonomy of the local management subject to the*

general policies of the Company and the Government. In addition, it would be desirable for the General Managers to have some industrial background, particularly of the industry which they have to deal with. The Committee would also suggest that where these requirements are fulfilled, there should also be continuity in the posts of General Managers.

48. The General Managers of the three projects have been delegated certain powers (*vide* Appendix III) for their day-to-day administration. The Committee were told that these powers were revised as and when need was felt to enhance them in the interest of quick disposal of work. They were also told that an understanding had been reached between the General Managers and the Board in that where necessary, they could act in anticipation of the Board's approval.

49. In this connection, the Committee feel that the setting up and the operation of three huge steel plants together with their various ancillary plants involve responsibilities which might be difficult for a single centralised organisation to manage efficiently. They, therefore, consider that it would be desirable to decentralise the powers of the Hindustan Steel (P) Ltd., as much as possible. With this end in view, *the Committee suggest that there might be a Local Board of Management for each project which could function independently in all local matters. It might consist of the General Manager and all the Heads of departments of the project. The central co-ordination for the three projects which would be essential might continue to be provided by the Board of Directors of H.S. (P) Ltd., which might deal mainly with policy questions, matters of common interest, provision of finance, observance of Company Law requirements, etc.*

50. *While undertaking such a re-organisation, the organisation of the Gas Council and the Area Gas Boards in U.K. or alternatively of the National Coal Board in U.K. (briefly indicated in Appendix IV) might also be examined with a view to seeing to what extent it could serve as a model for the set-up of the Hindustan Steel (P) Ltd.*

III

CONSULTANTS AND AGREEMENTS

A. Indiengemeinschaft Krupp-Demag

51. (i) *Consultants as suppliers of equipment*:—The first consultants to be appointed for the steel projects at Rourkela were the Indiengemeinschaft Krupp-Demag Gmb H. formed by the combine of two firms, Fried. Krupp of Essen and Demag Aktiengesellschaft of Duisburg. An opinion was expressed before the Committee that these firms of consultants were essentially manufacturers of equipment and had no experience of consultancy service. On the other hand, it was explained by the representatives of Government that while it was true that the firms were essentially manufacturers of equipment, they were big manufacturers who had also acted as consultants in a few similar cases. It was also explained that, unlike in U.K. and U.S.A., there were few 'pure' consultants in Europe, where the practice was for the manufacturers themselves to prepare the designs etc. It was, therefore, stated that the mere fact that the firm was not purely a consultant would not detract from their capacity to give consultants' service.

52. The Committee understand, however, that the consultants in this case are also suppliers of a large part of the equipment for the project. They find that against the total value of Rs. 100 crores of plant and machinery required for the Rourkela Steel Project, the value of the contracts for supply of plant and machinery placed on the firms of M/s Krupp-Demag and their associates is about Rs. 28.5 crores. The Committee understand that, in commercial practice, when consultants are appointed a clause is usually provided for in the agreement with them to the effect that they would have no direct or indirect interest in the contracts for supplies. In fact, such a clause exists in the agreement entered into with the International Construction Company in regard to the Durgapur plant. No such precaution was taken while entering into the present agreement. It was explained that in the circumstances existing at the time the agreement was entered into, it could not be stipulated that the consultants would have no interest in the supplies of equipment. It was, in fact, contemplated from the beginning of the negotiations that they would also supply some plant and machinery. The Committee were informed that tenders of Krupp & Demag for supplies were examined with the assistance of the General Consultants—the International Construction Co. Nevertheless *they consider the arrangement under which consultants are also suppliers of equipment as not satisfactory since there is a possibility that the advice given by the Consultants might not be objective. In this connection, they consider it significant that the cost of the Rourkela Project has increased very much since the Consultants first prepared the estimates.*

53. (ii) *Financial Collaboration*:—Under the agreement entered into with M|s Krupp and Demag, the latter were to invest in the steel project an amount in Deutsche Marks not exceeding the equivalent of Rs. 9.5 crores, so as to associate them in the management—particularly during construction and initial operation—with a stake in the company. Besides it was hoped that such an association would attract further financial assistance from abroad. The German investment was to be regulated from time to time in relation to the volume of orders for purchase of machinery and equipment in Germany. It seems to the Committee that the linking of the investment by the Combine with the orders for plant and machinery to be placed on them, to some extent, limited the area from which purchases of equipment could be made. Though the representatives of Government stated that they were free to import plant and machinery from any country they liked, it is not unlikely that it was originally intended that the purchases would be made from Germany so as to avail of the financial assistance offered by the Combine. As pointed out earlier, the bulk of the contracts for supplies of plant and machinery have actually been placed in Germany. However, at a later stage it turned out that German investment under the agreement would amount to borrowing at nearly 12 per cent interest. Consequently, their collaboration with the Company was dispensed with as a result of which one of the planks on which negotiations were carried out and the agreement entered into was removed. *The Committee are surprised to find that the agreement was defective in this respect and feel that these matters should have been examined more carefully at the initial stage of negotiations.*

54. (iii) *Services*: The amount of fees payable to the consultants is Rs. 2·853 crores, for which certain services are to be rendered which are indicated in Appendix V.

55. The Committee understand that these services do not include service with regard to civil engineering work. For this purpose, a consortium of four German firms—Hochtief A.G., Essen, Grun and Bilfinger A.G., Mannheim, Phillip Holzmann A.G., Frankfurt and Siemens-Bau-Union Gmbh, Munich, with Hochtief as the group leader, were appointed on 25th October, 1956, the Civil Engineering Consultants for the Rolling Mills and Steel Melting plant at the Rourkela Project. M|s. Hochtief have, however, resigned from the consortium on taking up the contract for the civil engineering work in respect of the rolling mills at Rourkela. The agreement concluded with the consortium falls into two parts—(i) preparation of designs for civil engineering work and tender documents; and (ii) continuous supervision of civil engineering work. In addition the consortium are required to assist in the scrutiny and settlement of contractors' bills. The fees payable for the services mentioned above are D.M., 4,100,000 (Rs. 45,83,800); D.M., 370,000 (Rs. 403,660) and Rs. 15,70,000 respectively.

56. An opinion was expressed before the Committee that there was a lacuna in the agreement entered into with M/s. Krupp & Demag in regard to their responsibility for civil engineering work and that the consultants got the benefit of it. On the other hand, it was explained by the representatives of Government that the functions of a civil engineering designs and supervision organisation were distinct and separate from those of either the consultants or the actual suppliers of plant and machinery and that the work relating to civil engineering was not part of the agreement with the technical consultants. It was further stated that the usual procedure in such cases was that the plant suppliers gave the load data and based on it designs were drawn up by a civil engineering organisation. In some cases that work was done by the plant suppliers as in the case of coke oven plants and blast furnaces at Rourkela where, however, separate remuneration had to be paid to the plant contractor for designing and supervising the civil engineering work. But in other cases, the plant supplier might not have the requisite civil engineering organisation to undertake such work which might then have to be got done by others. It was also stated that in the case of the Rolling Mills there were a number of plant suppliers and that in order to save time as well as to avoid difficulties of adjustment between different sections later on, it was decided to get the detailed civil engineering design prepared by a single agency which could work in close co-ordination with the plant suppliers. *The Committee are not satisfied with these explanations since the agreement does not specifically either include or exclude services with regard to civil engineering work and, to that extent, the agreement is apparently open to different interpretations. The Committee, therefore, suggest that the matter might be got re-examined by business and legal experts even at this stage and in case there is a possibility of securing a reduction in the fees payable to the technical consultants on this account it might be explored. They would also suggest that in future the duties of consultants should be clearly laid down in the Agreements.*

57. M|s. Krupp and Demag under the agreement entered into with them are to give plans for township and works and specifications for plant and machinery etc. The Committee were told that the consultants had furnished general plans both for the plant and the township but that it was not their responsibility to give detailed plan for the various units. It was also explained that there was always a difference between general drawings and detailed drawings and that if the consultants, who were engaged to prepare general drawings, were asked to prepare detailed drawings they would have to be paid extra remuneration. At the same time, it was stated that, in the case of Bhilai, the consultants had to give general as well as detailed drawings for the fees payable to them. Here again *it is not clear to the Committee why the terms of the contract with M|s. Krupp and Demag have been assumed to be limited to furnishing general plans. The Committee feel that this matter also needs to be enquired into from the legal and commercial angles.*

B. Technical Adviser

58. Besides the consultants referred to above, there is a Technical Adviser for Rourkela Project. He is stated to be an officer of the project who assists the management in technical matters. His functions are to scrutinise all the technical tender specifications received from the consultants and to send indents and technical specifications to the Chief Controller of Purchase for inviting tenders. After receipt of tenders, he conducts a detailed study of the technical features of the equipment offered. He handles all correspondence with the various contractors relating to details of designs and, where necessary, he considers alternatives and additions. He associates himself with the erection work. He also looks after all the technical work connected with the various plant contractors who number 35 and functions as the Chief Plant Manager or Chief General Superintendent. It is also intended that the Technical Adviser would be the Chief Officer for Operations when the plant goes into production. His association with the work on the project, it is expected, would enable him to take over the operation of the plant when the consultants' work is completed and they leave.

59. The present incumbent of the post of Technical Adviser is a foreigner employed on a 4 year contract from 26-12-54. His qualifications and previous experience are at Appendix VI. He is being paid a salary of $12.500, free of income-tax, per annum. He has a number of engineers to assist him in his work. The Traffic Manager incharge of incoming and outgoing traffic, the Superintendent of Workshops and Training, the raw materials department dealing with the prospecting and extracting of iron ore, limestone, dolomite, manganese etc. and the Chief Engineer (Plant), who is responsible for civil engineering work connected with the main steel plant, are under the charge of the Technical Adviser. Later, some of his deputies would be Superintendents of different units, when the plant goes into production.

60. The Committee feel that a number of functions of the Technical Adviser overlap with the work of the technical consultants; for instance, it is the work of the technical consultants to 'prepare forms of tender for inviting tenders', to 'examine and scrutinise tenders received, to discuss with tenderers and bring tenders into shape for ordering, issue, if necessary, further enquiries for plant and equipment required, prepare, tabulate and advise upon tenders, and generally place the Company in a position to issue orders for plant and equipment' and to 'supervise the erection, trial and initial operation of the plant'. There are also separate consultants to do the work relating to the iron ore mines and limestone quarries. The Committee doubt, therefore, whether there was any necessity for such a highly salaried Technical Adviser and his department for the Rourkela Project. Even in regard to his being the precursor of the operational staff, the Committee are not satisfied that the purpose is likely to be served by the appointment of a foreigner as the Technical Adviser, whose term will expire in December, 1958 before which the plant would not start functioning. While the Committee were told by the Secretary of the

Ministry that they were satisfied about the work of the Technical Adviser, they feel that if it was really the intention that someone should be associated with the consultants to get the know-how so that when they left he could take over the responsibility of operation of the plant, a well qualified Indian with prospect of a reasonably long term of service should have been appointed to the post and not a foreigner engaged for a limited term.

61. *The Committee, therefore, suggest that the need and justification for the post of Technical Adviser might be reviewed and, if it is considered necessary to continue the post, the practicability of appointing an Indian to the post, when the term of the present incumbent expires, might be considered.*

C. Techno-Export

62. For the Bhilai Plant, the agreement entered into with the Government of U.S.S.R. is for services usually rendered by technical consultants as well as for the supply of plant and equipment and of detailed working drawings. There is no question of preparing designs or specifications for the tenders as the supply of plant and equipment is an integral part of the agreement.

63. Part of the work of technical consultants, namely, preparation of the layout, the project report etc. is done by the designing organisations in the U.S.S.R. For the technical supervision of construction, erection and commissioning of the plant and machinery and for giving technical assistance in the training of Indian personnel in India, the Government of U.S.S.R. is to provide a reasonably qualified expert as Chief Engineer. For his assistance an appropriate number of Indian and Soviet engineers are to be appointed. A team of Soviet experts is to be provided to give technical assistance, supervision and advice on all technical matters relating to the work. The U.S.S.R. is also to provide a sufficient number of experts for a period of three years after the plants go into production to render technical supervision and consultant services as might be required by the Government of India. These are believed to be some special features of the agreement, which might with advantage have been introduced in the agreements entered into with the other consultants.*

64. The fee for preparation of the detailed project report, the detailed drawings and for a number of other general services is Rs. 2·5 crores. The salaries, travelling and other expenses of the Soviet experts engaged in supervision are paid extra.

65. The Committee understand that in Russia design organisations are independent of the manufacturing organisations. Therefore, even

*On 7-1-59 it was pointed out that in the case of Bhilai, the agreement was with the Government of the U.S.S.R. where the structure of the organisation was such that one single agency could be made responsible for supply of plant and equipment, preparation of detailed working drawings, supervision of construction and assistance in subsequent operation of the plant but in the case of other agreements this was not possible.

though the agreement was for the consultancy service as well as for supply of equipment for the Bhilai Project, the arrangement was said to have all the advantages of independent consultancy as well as of well-coordinated and integrated approach to the whole problem. The Committee did not hear any criticism of the agreement or its working with respect to the consultation service for the project.

D. International Construction Company

66. The International Construction Company are the consultants for the Durgapur Steelworks and the fee payable to them is Rs. 1·87 crores. Their principal functions are indicated in Appendix VII. The consultants are not required to prepare detailed estimates. They are not also to act as consultants in respect of mining properties, electric supply from outside and railway approaches except in a general way.

67. The agreement provides for complete consulting engineering services for £16 lakhs (Rs. 2·13 crores) subject to the proviso that the fees payable to the consultants would be reduced by £200,000 in case Government decided to place the contract for the whole or a large proportion of the work with one contractor. The proviso is effective in this case since the contract entered into with the Indian Steel-works Construction Co. Ltd. (ISCON) for the supply of plant involves a package deal. However, the agreement with the consultants does not specify the duties of the consultants in relation to such a package deal nor does it indicate the extent to which the duties would be reduced as a result. The Committee were told by the representatives of Government that the duties of the Consultants would be the same whether there was a package deal or not but in the former case the quantum of work involved for the consultants would be less and that the reduction in fees represented this reduction in the volume of work.

68. The Committee understand that under a package deal most of the designing and engineering work which is normally done by the consultants is done by the plant suppliers themselves and consequently the duties of the consultants are reduced very much. In fact, for the various technical services to be rendered by ISCON, the latter are to be paid fees amounting to nearly Rs. 15 crores. In the circumstances, *the Committee doubt whether the reduction of £200,000 in the fees of £1,600,000 payable to the consultants on account of the contract being given as a package deal was quite commensurate with the reduction in the duties of the consultants.*

69. Under another agreement, the International Construction Company Ltd., London have been appointed consulting engineers to Government for a period of six years. The agreement with them was signed in December, 1955 when much of the preparatory work of the three projects had been completed. The functions of the Consulting Engineers under the agreement are given in Appendix VIII.

70. In justification of the appointment of the International Construction Co. as consultants for general advice, it was explained on behalf of the Ministry that there were a number of problems connected with steel and re-rolling industry, preliminary investigations at Bokaro etc. on which advice was needed. Having engaged them, advantage could be taken where necessary to obtain a second opinion on certain matters relating to Rourkela and Bhilai Projects as well. The Government could also take the opinion of the International Construction Co. in respect of the orders placed on M|s. Krupp and Demag for supply of plant and equipment. In fact, the International Construction Co. were entrusted with the inspection of the equipment supplied by M|s. Krupp and Demag.

71. *The Committee feel that the appointment of consultants for general advice would have been understandable had they been appointed at a sufficiently early stage so that the necessity of appointing separate consultants for each Project could have been avoided. Considering, however, that they were appointed after separate consultants for each Project had already been appointed, the Committee feel that the utility of the General Consultants would be limited.*

72. *Further the Committee do not understand why there should be a foreign consultant to advise on the work of other foreign consultants —an arrangement which could, perhaps, be appreciated if there was no technical know-how within the country. However, they feel that the agreements with foreign consultants might invariably provide for a second opinion being obtained from indigenous consultants who, with their knowledge of the local conditions, might be in a position to make better contribution.*

73. It appears to the Committee that there is no systematic procedure for referring problems to the consulting engineers by Government. Problems are referred to them as and when necessity is felt for their advice*. *The Committee fear that under such an arrangement the services of the consultants might not be fully availed of. Besides, it is possible that, while unimportant cases might be referred to them, relatively more important matters might not be referred at all.* In fact, it came to the notice of the Committee that important matters like the award of the contract for the Civil Engineering work of the Rolling Mills at Rourkela where their advice would have been valuable were not referred to them at all. *The Committee, therefore, recommend that the duties of the consultants might be broadly defined as far as practicable in terms of specific problems which might arise in the course of the development of the industry or execution of the projects and a procedure established to refer all such problems to the International Construction Company as and when they arise.*

*On 2-2-59, the Committee were informed by the Min. of S.M. & F. that consultation with the International Construction Co. was not always in writing nor was it possible to reduce the discussions to writing. Besides advice on specific points, the Consulting Engineers were also associated with various technical discussions, scrutiny of tenders etc. A list furnished by the Ministry of S.M. & F. of cases where the I.C.C. were consulted in one form or other is reproduced in Appendix IX.

E. Fees to Technical Consultants

74. It is observed that the amount of technical fee payable to the consultants varies from project to project. Thus, at Rourkela it is Rs. 2·85 crores, at Bhilai it is Rs. 2·5 crores and at Durgapur it is Rs. 1·87 crores. However, for a proper comparison of the fees payable to consultants at the three Projects, certain differences in services rendered by them, etc., have also to be taken into account. These are:—

A-Rourkela:

(i) Unlike as at other plants, separate consultants have been appointed for the civil engineering work in respect of the Rolling Mills and the steel melting shop at a fee of Rs. 65 lakhs.

(ii) For the other units, the respective contractors|suppliers have been entrusted with the task of designing and supervision of the civil engineering work for which extra remuneration is stated to be payable to them.

(iii) The Consultants do not supply detailed drawings.

(iv) Actual expenditure incurred by the Consultants not exceeding Rs. 70 lakhs in respect of their Resident Engineer and his assistants at Rourkela is also to be borne by the HSPL.

B-Bhilai:

(i) The consultants are responsible for the drawings for the various units as well as for the civil engineering work but without any extra remuneration.

(ii) The HSPL has to incur expenditure on the salaries of Soviet Chief Engineer and other Soviet experts engaged in the supervision of construction of the plant. There is no ceiling on such expenditure but at present about 80 Soviet experts are stated to be stationed at Bhilai and their pay and allowances amount to Rs. 20 lakhs per annum, excluding other concessions *e.g.*, transfer grant, travelling allowance, medical attendance, insurance etc. The Minister of Steel, Mines and Fuel stated in the Lok Sabha on 19th November 1958, that the expenditure so far incurred on the Soviet Engineer and Soviet experts was Rs. 93·4 lakhs.

C-Durgapur:

(i) The respective suppliers of plant and machinery supply the detailed drawings for the machinery purchased from U. K. while ISCON are responsible for such

work in the case of machinery procured in India for which they are paid extra, being part of Rs. 15 crores paid for technical services.

(ii) The HSPL has also to make available the necessary number of Indian technical staff to assist the Consulting Engineers in their work.

75. *The Committee are surprised that while there is a ceiling on the expenditure to be incurred by the HSPL on the German staff at Rourkela, no upper limit has been fixed insofar as the Russian staff stationed at Bhilai is concerned. Further no estimate of the total expenditure by way of consultation on various accounts has been worked out so far.* The different terms and conditions of the agreements with the three consultants also make a comparison of the fees for consultancy at the three projects difficult. *The Committee feel that such a comparison by an expert Technical Committee is necessary with a view to laying down the broad principles on which the fees of consultants should be determined in future.*

F. Association of Indians in Designing work

76. Article 12-A of the Technical Consultants Agreement with M/s. Krupp and Demag provides that "as large a number of Indian personnel will be employed in the designing and construction of the work as is compatible with the over-riding considerations of the guarantee regarding speedy completion of the works and efficient operations thereof on commission." Article 5 of the agreement with the Government of USSR provides that "The Soviet Organisations shall associate at all stages of the work in India and in the USSR pertaining to the planning, construction, erection, operation and other matters relating to the work and the township and the associated facilities, a sufficient number of Indian nationals selected by the Indian authorities, with the object both of utilising the services of such Indians as well as for training them in such work." It appears that no such provision has been made in the agreement with either the International Construction Company with regard to Durgapur Plant, or the Indian Steel-works Construction Company.

77. A doubt was expressed before the Committee that full advantage was not being taken of the opportunity to gain the technical know-how from the consultants, while paying them large fees (amounting to Rs. 10 crores) so as to reduce dependence on foreign consultants for future projects. The Committee were told that no Indians or Indian Organisations or perhaps very few, had been associated with any of the consultants in planning and preparing designs for the projects. It was pointed out that the Russian authorities at Bhilai had been pressing the Government of India for fulfilling the terms of the contract in associating some Indian designing organisations with them in preparing the plans, for the project, but that the Government of India had not taken full advantage of the opportunity. As regards the Durgapur Plant, where the agreement

was for a "turn key" or "Package job", it was said that in such a contract no technical know-how could flow into the country even though the country would be spending about Rs. 150 crores on the project.

78. It was stated by the representatives of the Ministry during their evidence that a composite team of 24 men comprising of metallurgists, chemists, engineers, etc., was sent to Germany in 1954 for about a year and that the members of the team were associated with the consultants in the preparation of the layout, designing, drawing up of specifications and tender papers for the various plants and equipment required for the Rourkela Project. They were mostly men of experience in Steel production and had gained more knowledge and experience as a result of their association with the consultants. The representative of the Ministry also told the Committee that these men made some contribution to the work of planning and, in fact, one of them was mainly responsible for the layout of the rolling mills, but that it could not be said that, with the knowledge they had gained, they would be able to repeat the jobs by themselves.

79. The Committee understand that the team of 24 men which visited Germany did not submit any report either to the HSPL or to the Government on the training received by them, difficulties encountered etc. They were told by the Resident Director, Rourkela that since the Technical Adviser was also in Germany for a major part of the Team's stay there, it was not considered necessary to submit a report to the Managing Director who by himself could not deal with technical matters. *The Committee are not satisfied with the above explanation and feel that it should be obligatory on all such study teams sent abroad for training to submit a detailed report to the Company and the Government since they would serve as a permanent record.*

80. As regards the Bhilai Project, it was explained that ten men were sent to Russia of whom some had returned and were engaged in designing work. It was admitted, however, that it had not been found possible to send to the Soviet Union as many people, and as quickly, as envisaged under the original programme and that this was due to the shortage of the right type of men. It was stated that there was difference of opinion between the Russians and the HSPL in that while the former felt that anybody could be trained to be a design engineer, the latter considered that only those who had the required aptitude for that work could be trained. *The Commitee are surprised that valuable opportunities available under the agreement are not being fully utilized for getting the maximum number of Indians trained. They suggest that suitable men among those available should be selected and got trained as early as possible.*

81. The Committee understand that the team of experts which examined the Bhilai project report had advised that if men of suitable

experience and qualifications were not available for association with foreign experts, groups should be formed of persons of varied experience and associated with the consultants. *While the Committee were informed that one or two such groups had been sent to Russia, they feel that this is not adequate, and, therefore, suggest that the desirability of forming such groups in greater number and of attaching them to the consultants should be considered expeditiously.*

82. In the case of Durgapur, it was explained that there was no provision in the agreements with the Indian Steel-works Construction Company Limited, or the International Construction Company for association of Indians in the designing of the plant because the plant was tendered and bought straightaway and all preliminary stages were cut out. The Indian Steel-works Construction Company Limited had, however, engaged over 100 Indian engineers in their own Works, some of whom were doing designing work but mostly were associated with the manufacturing work. There were also some Indians on the staff of the International Construction Company under their employment. *However, the Committee are of the opinion that care should have been taken when entering into the respective agreements to provide for association of Indians in designing work.*

83. *In view of the foregoing, the Committee feel that an important aspect of the projects* viz., *the association of Indians in the planning and designing work, has not been given the attention it deserved. The plants which are being set up will not be the last of the kind and the country will require more of them. Greater consideration should, therefore, have been given to acquiring the know-how of the plants. The Committee would suggest that even at this stage, attempts might be made to associate Indians with the consultants in greater measure.*

G. Need for Indigenous Consultancy Service

84. The Committee inquired whether there were in the country any Indian consultancy organisations for the steel industry and, if so, whether it was not possible to engage any of them in the setting up of the three steel plants. They were told by the representative of the Ministry that one such organisation had been recently set up in India but that their services had not so far been utilised by Government. He added, however, that it was the general policy of the Government to encourage consultancy and designing organisations in the country and to utilise them as they developed experience and capacity in particular fields of designing.

85. The Committee were also told that a designing bureau had been set up in Bhilai wherein 40 Russian experts would be training an equal number of Indians in designing and other allied matters, and that a similar arrangement had been made at Rourkela also and that the question of developing a designing and consultancy organisation in the country was very much in the mind of the Government, who were considering the ways and means of organising it.

86. *The Committee consider it unfortunate that Government have not so far found it possible to utilise for the steel plants as well as for the ancillaries such as ore mines, limestone quarries etc., the services of an Indian consultancy organisation which, according to the representatives of Government, was the only one existing in the country. In this connection they find it rather difficult to understand why Government found it necessary to enter in December,* 1955 *into a* 6 *year agreement with a foreign Consultant, namely, the International Construction Company, since it might perhaps have the effect of reducing the chances of the services of Indian consultants being utilised till after the completion of the three plants.*

87. It needs no special mention that the country cannot afford to pay large fees to foreign consultants and to depend on them indefinitely for future projects. It is, therefore, necessary that Government should take effective steps for developing Indian consultancy service. While the Committee were glad to be informed by the representatives of the Ministry that it was the intention of the Government to give first priority to local organisations in the Bokaro plant and in the expansion of the three plants at Rourkela, Bhilai and Durgapur, *they would urge that Government should take steps right from now to utilise indigenous talent to the extent possible, even for the plants which are coming up so that with the experience gained it might independently assist in the work relating to future expansion.*

88. *The Committee would also suggest that Government might expedite the consideration of the question of developing their own designing organisation which might gradually undertake all detailed planning and designing work for the expansion of the existing steel projects as well as for setting up the new ones. In this connection, they feel that it would be desirable for the organisation so set up to be independent of the body responsible for the execution of the Projects.*

IV

CONTRACTS

89. A large number of contracts have been entered into by the Hindustan Steel (P) Ltd., for the supply of plant and machinery, civil engineering work, etc., for the three steel plants. On account of the volume of work as well as the technical nature of scrutiny involved in the examination of such contracts, it was not possible for the Committee to undertake an examination of all the contracts within the time at their disposal. However, certain peculiar features relating to some of the contracts, particularly those for the civil engineering work of the blast furnaces and of the rolling mills at Rourkela, came to their notice during the course of the examination of that Project and are set forth in the succeeding paragraphs. Even in regard to these contracts, the Committee had difficulty in getting certain particulars from Government in time in spite of repeated reminders. These are referred to at the appropriate places in this Chapter. *The Committee, therefore, consider that a fuller examination of these two as well as other contracts entered into by the Hindustan Steel (P) Limited by a Committee of experts is called for.*

A. Contract for Civil Engineering work for the Rourkela Blast Furnaces

90. The Committee were informed in regard to the contract for the civil engineering work for the blast furnaces as follows:—

The contract was awarded to Messrs. Uttam Singh Duggal & Co., on 6th March, 1957—since theirs was the lowest quotation, and the difference between theirs and the next higher tender being about Rs. 30 lakhs—and they were to work under the supervision of the foreign blast furnace suppliers who were responsible for the preparation of designs and supervision of the civil engineering work. Even though the contract was awarded on the condition that the contractors would bring adequate plant and equipment to the site to enable them to adhere strictly to the prescribed time schedule, it was realised by August 1957 that the work would fall behind schedule by 6 months, due to the contractors' inexperience in specialised work of the type that was to be done, inadequacy of equipment and lack of technical personnel. The delay in bringing plant and equipment on the part of the contractors was also due to the plant suppliers not furnishing the detailed designs in time, the Indian firm having apparently accepted the contract without full knowledge of its details. The suppliers and builders of the blast furnaces, were of the view that it would not be possible for the work to be satisfactorily done because of its complicated nature without the assistance of specialised labour. The result

of not bringing the specialised labour would have, according to them, meant long delay in the construction of the bunkers and other connected work of the blast furnaces.

91. The Directors of the Hindustan Steel (P) Limited, considered the above matter on 30th August, 1957 and decided that the question of taking away the work from Messrs. Uttam Singh Duggal and Co., and entrusting it to some other contractor with more experience and resources should be examined. However, it was found on examination that no Indian contractor, who could do the work within the stipulated time, was available and that a foreign firm, if obtainable, would have taken time to organise the work, transport equipment and personnel to the site which might have rendered the cost disproportionately high. In the circumstances and in the light of the advice given by the suppliers and supervisors, the Hindustan Steel (P) Limited reinforced the contractors and got them to collaborate with a foreign firm who could provide the necessary know-how and supervisory and other technical personnel. For this purpose, negotiations were started with the firm, which functioned as the suppliers and builders of blast furnaces as well as supervisors for the work, and on their insistence a delegation consisting of some senior officers of the Hindustan Steel (P) Limited was sent to Germany along with a representative of the Indian contractors on 30th October, 1957. An expenditure of Rs. 19,508 was incurred by the Company on the delegation sent to Germany, which also discussed and finalised some other issues connected with the project. During the discussion the suppliers wanted the Indian contractors to start with 200 carpenters per day in December, 1957 and work upto 600 carpenters per day of three shifts by April 1958. After discussion it was agreed that ten foremen and twenty-six specialised carpenters would be sent to Rourkela from Germany for a period of six to twelve months on the following terms:—

Type of personnel	No.	Rate in D.M. per working day	Allowances in Rs. per calendar day
			Rs.
Foremen . . .	10	75 D.M. (Rs. 85)	40
Leading men and specialised carpenters . . .	26	65 D.M. (Rs. 73.6)	40

In view of the number of Indian workers to be engaged in the work, it was stated on behalf of the Ministry that the number of specialised carpenters brought from Germany was not in any way large.

92. The foreign blast furnace suppliers were also to be paid the cost incurred on the deputation of these personnel.

93. Under the above arrangement, thirty-six workmen came to India to assist and guide the Indian contractors, on the following dates:—

8 on	17-12-57
8 on	21-12-57
9 on	15-1-58
7 on	21-1-58
4 on	26-2-58

The items of work for which the men were imported are indicated in Appendix X. The additional cost to the project on account of this arrangement is expected to be about Rs. 13·7 lakhs for wages and allowances and about Rs. 7 to 8 lakhs for overheads, making a total of Rs. 20·7 to Rs. 21·7 lakhs. In addition, extra cost on account of timber for shuttering had to be incurred while an interest-bearing ways and means advance of Rs. 15 lakhs had also to be paid to the contractors.

94. The Committee inquired whether skilled workers of the type that were imported were not available in the country. The representative of the Ministry, while admitting that it might, perhaps, have been possible to pick skilled people within the country with some foreign experts to train them, said that when the decision was taken there was little time to find out the availability of persons who could do such work. There had already been some delay in the civil engineering work and there was a fear that the commissioning of the blast furnace would be delayed by several months which would have meant heavy loss. The Committee were told that in the circumstances, as a measure of precaution, the import of foreign workmen was considered a much lesser risk than that of causing further delay in the commissioning of the blast furnaces.

95. The Committee observe that there have been a series of failures in this transaction. The contractor tendered for the work without apparently knowing what the risk was. The tender was accepted without verifying that it had been prepared with full knowledge of the nature of work to be done. There was delay on the part of the German firm to supply designs etc. which in turn led to delay in the time-schedule of the work and finally to the decision to import foreign workmen so as to prevent further delay. In view of these circumstances, the Committee feel that a reasonable conclusion would be that the penalty of the extra cost to the project on these accounts should be elsewhere than on the Hindustan Steel (P) Ltd. The latter and the Government did not apparently take this stand and having been told by the suppliers that they would not be responsible for either the delay in the completion of the work or the quality thereof unless foreign artisans were called in, decided on the latter.

96. *In any case, the Committee feel that in view of the availability in the country of various categories of skilled workers and specialised labour, it should not have been difficult to get persons of the type*

required for the work in question and to train them, if necessary, with a few foreign experts, had timely efforts been made for the purpose. They cannot help concluding, therefore, that the decision to import foreign workers in the present case was an ill-considered decision and that the expenditure incurred on that account was avoidable.

97. The Committee find that the contractors, Messrs. Uttam Singh Duggal & Co., were previously given a contract in the Chandigarh Capital Project and that the Public Accounts Committee of the Punjab Vidhan Sabha, dealing with the Appropriation Accounts of the Punjab Government for the year 1952-53 and Audit Report 1954, had made the following observations with regard to them:—

> "The contractors had, in resiling from their verbal statement, betrayed an utter lack of good business principles and are, therefore, unworthy of any Government contract being given to them. The Committee, therefore, strongly recommend that in view of this misdemeanour, they and their allied concerns should be immediately black-listed by the State Government and intimation to this effect sent to the Government of India as well as to all other State Governments for information."

98. The Committee enquired whether the Hindustan Steel (P) Ltd. had ascertained from the Chandigarh Project authorities about the capacity, performance etc. of the contractors before awarding them the contract but were told that the above Report was published after the award of the contract. *The Committee, however, feel that irrespective of the publication of the Report, the antecedents of the contractors should have been verified from the Chandigarh Project Authorities before placing such a large contract with them.*

B. Hochtief Gammon Contract

99. The Committee were informed in regard to the contract for the civil engineering work of the rolling mills at Rourkela as follows:—

The civil engineering work of the rolling mills is the largest single work of civil engineering in the steel plant. As this work was massive, complicated and required close coordination with structural erection, it was necessary to have a contractor who had adequate resources and the necessary know-how. In response to tenders called for this work from a selected list of leading civil engineering firms in India and abroad, five tenders were received—3 for parts of the work and 2 for the entire work. It was the view of the General Consultants that the contract for the work should be awarded as a whole so as not to "raise difficult problems of coordination". As regards the two complete tenders that were received from Messrs. Britannia Building and Iron Co. and Patel Cementation, whose quotations were Rs. 6·89 crores and Rs. 8·11 crores respectively, the Consultants considered that the former had no idea of the nature of the work while no assurance was forthcoming from the latter (who had taken up work in Durgapur)

that the work would be executed in accordance with the time schedule so as to guarantee smooth progress of the subsequent erection work by the German contractors. It was, therefore, decided to award the contract to a foreign concern or to a partnership of an Indian and foreign concern with requisite resources, organisation and experience. Two firms—one English and the other, a combination of Messrs. Gammon (India) Ltd. and Messrs. Hochtief Ltd. were available for the award of such a contract. But, since the prices quoted by the two firms were similar, the latter was awarded the contract for Rs. 7·78 crores "because their time schedule was in general accordance with the planning, their requirements of foreign personnel were less, they had good amount of construction equipment already available in India and the foreign exchange content in their price was about half of the sum asked for by the English company".*

100. The negotiations with the two firms mentioned above were conducted by the Hindustan Steel (P) Ltd. with the knowledge of Government and the final decision was approved in principle on 5-8-57 by the Ministers of Steel, Mines & Fuel and of Finance. The letter of acceptance was issued on 10th August, 1957. The ultimate terms of the contract were finalised and considered by the Committee of the Board of Directors on 21-10-57 and approved with the Chairman reserving the decision under Art. 98(A) of the Articles of Association for the approval of Government. The decision of the Committee was taken note of by the Board of Directors on 26-10-57 and approved by Government with the concurrence of the Ministry of Finance on 13th November, 1957. The final contract was concluded on 24th June, 1958. The Consulting Engineers to Government were not, however, consulted before finalising this contract.

101. Messrs. Hochtief Ltd. was a member of the Consortium of Consulting Engineers, Civil Works, who were the consultants for the civil engineering work of the rolling mills. On entering into the contract in question, the firm resigned their membership of the consortium of consultants. The Committee understand that this firm was also associated with a contract at Kandla port and that, due to non-fulfilment of the contract, a penalty equivalent to the maximum that could be levied under the contract had been imposed on them and that the matter was under arbitration. The Committee note that here again the antecedents of the contractor were not verified before the contract was placed†.

* It was also stated that the price quoted by the firm ultimately selected was over Rs. 30 lakhs cheaper than the price quoted by the other firm both prices being on a target basis. Besides, the foreign exchange expenditure in regard to the former was about Rs. 1.60 crores less than that of the other firm.

†It was explained to the Committee in a note received on 9-2-59 that M/s. Hochtief were one of the leading Civil Engineering Consultants of West Germany and that Gammon (India) Private Ltd. were a well-known firm who had a number of civil engineering contracts with Government. The Project Authorities did not, therefore consider it necessary to make any special verification of the antecedents of the firms. It was also stated that the penalty on M/s. Hochtief in respect of the contract at Kandla was imposed on 21-2-58 i.e. about 6 months after the award of the present contract to them.

102. The following are some of the features of the contract with Messrs. Hochtief Gammon & Co:—

(i) It is for 3 years.

(ii) It provides for the payment of an imprest of Rs. 30 lakhs and an advance of D.M. 1,100,000 (Rs. 12,50,000).

(iii) It involves the payment of a fixed fee of Rs. 6,200,000 and overheads of the head offices of the two partners, payable partly in rupees (Rs. 2,120,000) and partly in D.M. (D.M. 2,800,000) (Rs. 31,81,818).

(iv) The contract is for a target price made up of Rs.50,640,000 for the cost of materials and labour and Rs. 15,654,000 for site supervision, equipment, etc.

(v) The above price is liable to adjustment for variation in price of materials and rates of labour. It is also liable to adjustment if the quantity of work varies from that given at the time when the contract was negotiated. In case the contract expenditure of the completed work falls below Rs. 66,294,100 with such adjustments as are provided in the contract, the contractors shall be entitled to a payment of the third of the saving effected subject to a maximum of Rs. 1,550,000. If the target expenditure exceeds the target or adjusted target cost, the contractors will be penalised and shall pay to the Hindustan Steel (P) Ltd. a third of the excess, subject to a maximum of Rs. 1,550,000.

(vi) Further, if the contractor completes the work prior to 30th September 1960 he shall be paid a bonus equivalent to Rs. 200,000 for every complete month by which the actual completion of the work precedes the 30th September, 1960.

(vii) It provides for the hire of certain constructional plant and equipment estimated to be of the value of Rs. 60 lakhs. The plant and equipment consist of earth-moving equipment, concrete mixers, simple trucks, pipes and other water supply appliances etc. Their details are in Appendix XI.

(viii) The hire and repair charges payable for the above would be 3·25 per cent during working time and 1·75 per cent during idle time on the basis of the price for new equipment. The hire and repair charges during the period of the contract are estimated to amount in all to Rs. 75 lakhs, consisting of Rs. 50 lakhs for hire charges, Rs. 10 lakhs for machinery spares and Rs. 15 lakhs, for the cost of labour and supervision of the repairs.

(ix) It provides for the payment of the cost of transportation of the plant and equipment from its source of supply to the project site and back after the completion of the work.

103. In regard to the payment of the imprest and advance, *the Committee wonder whether it was right to give such large financial assistance to the contractors when quite a number of other contractors engaged on civil engineering work have been working without such assistance.*

104. In regard to the provision for a target price in the contract, the Committee were informed that it was the best arrangement for a large work like the present one covering an extensive area where soil and foundation conditions were variable, where it was not possible to furnish all the detailed plans and detailed study and where assumptions of all the requirements and risks were not possible for the contractor. It was further stated that both Messrs. Hochtief Gammon and Messrs. Wimpey and Co. were willing to take up the work only on the basis of a target cost. In support of such an arrangement, the Committee were informed that although only the actual costs were payable to the Contractor, the contract provided a direct incentive to keep the expenditure below the target because in that event the contractor would share a part of the saving. *They feel, however, that since a separate firm of consultants (CECW) had been appointed exclusively for the civil engineering work of the rolling mills (and steel melting plant) at Rourkela at an enormous cost, it should have been possible for the Hindustan Steel (P) Ltd. and the Government to utilise their services in such a way as to remove the grounds which justified such a contract.*

105. *Hire of Equipment*: As regards the hire and repair charges of the equipment, it is observed that the Hindustan Steel (P) Ltd. would have to pay them at the agreed rate even if the equipment was second-hand provided it was in first class condition and that in all they would amount to (Rs. 75 lakhs) more than the value of the equipment itself (Rs. 60 lakhs). In this connection, the Committee enquired whether the feasibility of purchasing the equipment instead of hiring it was considered and were told that it was not possible to do so since the contractors were not willing to sell the equipment required, that the little effort that was made to purchase the equipment in the country was not successful and that there was no time to purchase it from other sources. In a note furnished by the Ministry to the Committee four months after the above reply was given, it was pointed out that according to a Committee on construction plant and machinery set up by the Ministry of Irrigation and Power, the cost of repairs and maintenance of different types of machinery similar to those to be used by the contractor at Rourkela varied between 40 to 100 per cent of the initial cost and that on an average it would amount to 80% of the initial cost during a period of five years assumed as the average life of such machinery. On this basis, the cost to the Hindustan Steel (P) Ltd.,

had the plant and equipment been bought, would have been Rs. 60 lakhs towards original cost plus Rs. 48 lakhs on repairs and maintenance and Rs. 18 lakhs as interest at 6% per annum, making a total of Rs. 126 lakhs for the estimated life of five years, *i.e.*, proportionately, Rs. 75 lakhs for a period of three years, which is the period of the contract in question. This, it was pointed out, was the figure comparable to the hire and repair charges of Rs. 75 lakhs proposed to be paid to the contractor. It was stated, however, on behalf of the Ministry that a more relevant consideration was whether the requirements in this matter could have been anticipated and the equipment purchased in time. Apart from the fact that this would have involved foreign exchange, it was contended that it was difficult to anticipate the requirements until the agency for construction and availability of equipment with that agency were both clear. It was also pointed out that the equipment of the type in question was considered to be an integral part of the tools of the trade of a civil engineering firm and that even if the Hindustan Steel (P) Ltd. had insisted on the contractor using the project's construction equipment, there would have been no corresponding reduction in the hire charges since account would have been taken by the contractor of the construction equipment, which he would have had to keep idle.

106. In this connection, the Committee enquired whether there had been any dissent in the Board of Directors in regard to the award of this contract and its terms. They were informed in a note, furnished to them four months after the enquiry had been made, as follows:—

> "On 26-10-57 when the Board of Directors took note of the decision of its Committee approving the terms of the contract, one of the Directors desired further information with regard to the availability of the construction plant and equipment and a comparison of the hire charges with the cost of purchasing such equipment. On such additional information being given to him at a subsequent meeting, he expressed the view that the hire charges of Rs. 50 lakhs appeared excessive in comparison with the estimated capital cost of about Rs. 60 lakhs. Further, he said that on a hurried enquiry he had been informed that more than 50% of the equipment proposed to be imported could be obtained in India.
>
> The Board of Directors, in considering the views of that Director, felt that all other relevant factors should also be taken into account. The alternatives available were contracts involving costlier and more onerous terms. None of the other contractors who had tendered were adequately equipped to do the job. The Director in charge of Rourkela was satisfied that the bulk of the equipment was not available in India and that to avoid loss of time which further searches would involve, it

would be better to leave the responsibility to the contractors. It was also reported by the Director in charge of Rourkela that the items which his colleague on the Board had stated as available in India, were not being imported by the contractor and in any case, most of them were of different specifications. In view of these, the Board of Directors, with the exception of the member who had raised the objection, approved the proposal."

107. In regard to the explanation that, under the formula recommended by a Committee set up by the Ministry of Irrigation and Power, the cost to Government had the plant and equipment been purchased, would have been the same as the charges proposed to be paid to the contractor, *it appears to the Committee that it ignores completely the fact that had the equipment been purchased by the Hindustan Steel (P) Ltd. and used on the work, it would still have had a substantial residual value, especially when the following two facts are taken into consideration*:—

(1) The plant and equipment hired under the contract includes certain types of machinery like workshop machinery which are likely to have longer life; and

(2) The hire charges payable include an element of repair costs for putting the machinery in working condition before leaving the job and for final overhauling in the plant-yard.

As regards the view that it was difficult to anticipate the requirements of the plant and equipment and the agency for construction, *it appears to the Committee that the difficulty arose because of inadequate planning and insufficient forethought in an important matter like civil engineering work of the rolling mills. In any case, the Committee cannot help feeling that the very fact that the information required by one of the Directors in regard to the terms for hiring the plant and equipment had to be supplied to him at a date subsequent to 26th October 1957, when the ultimate terms with the contractors were considered and approved by the Committee of the Board of Directors on 21st October, 1957, as also the fact that it took the Ministry four months to furnish an explanation to the Committee, is suggestive that a contract of the value of Rs. 7·78 crores was entered into after what appears to be inadequate consideration of its various provisions. In view of the foregoing it appears to the Committee that as a result of the provisions of the contract, considerable avoidable expenditure would be incurred adding to the cost of the project.*

108. The performance of the contractor is to be supervised by the Consulting Engineers, Civil Works and the Chief Engineer (Plant). *In view of the fact that a partner of the contracting firm was also a partner of the consortium of the consultants till recently, the Com-*

mittee feel that the Chief Engineer (Plant) should assume responsibility in providing effective and objective supervision of the work of the contractor.

C. Advances to Contractors

109. The total number of civil engineering contractors engaged for the Rourkela Project is over 74 of whom the Hindustan Steel (P) Ltd. have made advances to the following contractors:—

M/s Uttam Singh Duggal & Co.	Rs 27,99,926
M/s Modern Indian Construction Co	Rs. 9,89,000
M/s Tarapore & Company	Rs 8,62,000

The advance made to M/s Modern India carries interest at 5 per cent.

The following contractors at Bhilai have also been sanctioned interest (5 per cent) bearing advances:—

Hindustan Construction Co.	Rs 25,00,000
Ramji Dayawahla & Sons	Rs. 6,00,000

110. *The Committee feel that payment of advances to the contractors is contrary to the principle of open tender contracts and the grant of advances in the above cases has vitiated the terms of tender on which the contracts were placed. Further, the Committee do not appreciate why there should be discrimination in the matter of charging interest from the contractors on the advances given to them. They suggest that, if in some cases advances have to be given, there should at least be some uniformity in the terms of the advances granted.*

D. Increases in the value of contracts

111. The value of the following contracts in respect of the Rourkela Plant has been revised:—

S. No.	Name of the Contract	Original value of contract	Revised estimated value	Reasons for increase
		Rs.	Rs.	
1	Plant (Civil Engg.) Scrap Yard.	246,280	574,000	Due to increase in quantities of work.
2	Steel Melting Shop Civil Engg. Works	4,387,913	7,462,772	-do-
3	Earthworks in Zone	5,752,500	14,600,000	Due to shifting of site which resulted in the increase of rock excavation works.

4	Earthwork in Zone 'B'	5,891,600	15,864,000	Due to shifting of site which resulted in the increase of rock excavation works.
5	Earthwork in Zone 'C'	1,045,500	4,267,500	-do-
6	Earthwork in Zone 'C'	307,500	4,267,500	-do-
7	Earthwork in Zone 'D'	1,325,000	1,537,500	-do-

112. It was stated that in some cases the revision of the estimates of earthwork was due to shifting of site which resulted in the increase of rock excavation work. The rise in the estimated cost of work due to this reason is about Rs. 2·62 crores. The Committee asked for full particulars of the circumstances in which the rock excavation work had increased and shifting had to be done. This information was promised by the Ministry on 8th September 1958, but the Committee have not received it so far.* *They feel that the matter requires thorough enquiry with a view to fixation of responsibility as to why the site had to be shifted and what was the extra expenditure which was incurred due to the shifting of the site, apart from the extra cost involved in the increased rock excavation work.*

113. The Committee observe that the value of the contracts referred to earlier has gone up by nearly three times in many cases. *They feel that such a large revision of the contract value vitiates the terms on which tenders are called and contracts placed and that the necessity for such changes could have arisen only because the data on which tenders were called was not complete. The Committee consider this regrettable since it is an essential pre-requisite that before a work is undertaken full data relating thereto should be worked out.*

E. Other Civil Engineering Work at Rourkela

114. The contracts for civil engineering work in respect of the following plants had not been placed till May 1958:—

(1) Grey Iron Foundry

(2) Lime and Dolomite calcining Plant.

(3) Oxygen Plant

(4) Purification works at Steel melting shops and water works at the blast furnaces.

(5) Staging for the permanent water supply tanks.

It is understood that the contracts have since been awarded. The delay in placing the contracts is stated to have been due to the non-

*The note explaining the circumstances in which sites for the various units had to be shifted was received on 10-1-59 after the Report had been finalized and is reproduced as Appendix XII.

receipt of detailed plans. The Committee note that in the case of the blast furnace contract, the rolling mills contract as well as in the above cases, there has been delay on the part of the contractors or the consultants in giving the detailed plans. These delays have contributed to the delay in the time-schedule of the Rourkela project. *The Committee feel that the question of levying an appropriate penalty, on those who were responsible for the delay, should be considered.*

F. Contract with ISCON

115. (i) *Package Deal*: The contract for the erection of the Durgapur Plant with the Indian Steelworks Construction Co. Ltd. being on a package deal (turn-key) basis, the responsibility for planning, designing, supply of plant and machinery erection work, ect. devolves on the contractors. Since this offers less scope for the Project authorities to obtain the technical know-how in various matters, *the Committee feel that it is not in the interest of the country to enter into such package deals.*

116. (ii) *Escalation Clause*: The quotation for supply from U.K. of the plant and equipment by Indian Steelworks Construction Company for the Durgapur Plant is stated to be a firm one, subject only to escalation on account of increase or decrease of cost of materials and wages which is limited to a maximum of 15 per cent. The Committee were told that the contract was entered into at the time of rising prices and the limit of escalation upto 15 per cent was a measure of prudence. The Committee understand, however, that escalation only upto 5 per cent is considered to be normal in commercial practice. *They, therefore, feel that the limit of escalation that was agreed to was rather high.*

117. (iii) *Technical Services*: The contract with ISCON provides that the firm shall render technical services indicated in Appendix XIII for which the following charges are to be paid:—

(a) a sum of £ 3,178,170 (Rs. 4·24 crores)

(b) a sum of Rs. 9,88,76,400.

118. It is observed that the technical services required to be rendered by the ISCON partly relate to the preparation and submission of drawings, samples and models in respect of the plant to be procured in India estimated to cost, inclusive of the cost of Indian work, about Rs. 20 crores. They do not include any technical service in respect of the plant and equipment amounting to Rs. 75 crores which would be procured from U.K. The technical services to be rendered by ISCON also include provision of specialised European and Indian technical staff to inspect and supervise the erection of the plant and the execution of works at site, which, it is seen, is also one of the functions of the Consultants, *viz.*, International Construction Company. It is further observed that items like provision of office

accommodation, office furniture and equipment at site for the contractors, furniture for the dwellings of and operating vehicles for the specialists, etc., which are normally expected to be arranged and paid for by the contractors, are also included in the technical services. *The Committee feel that these items do not constitute technical services and would suggest that the appropriateness of charges on account of these as well as other technical services to ISCON should be examined by the Expert Committee referred to in para 75.*

G. Civil Engineering Difficulties

119. The Committee understand that one of the reasons for delay in the work, particularly at Rourkela, was the difficulty experienced in securing civil engineering contractors of the requisite experience and capacity for the projects. They were, however, told by certain non-officials that there was really no dearth of civil engineers in India but that certain procedures and practices adopted by Government had kept out good and reputable firms. In this connection, the practice of entering into negotiation with contractors, even after inviting open tenders, was particularly commented upon. This, it was pointed out, besides being against the open tender system also offered scope for corruption. *The Committee feel that these are serious statements and consider that they should be carefully inquired into by Government with a view to taking suitable and timely remedial measures. They also suggest that a Committee of technicians drawn from various interests might be set up to survey the extent of civil engineering capacity available in the country with a view to its maximum utilisation.*

V

PRODUCTION PROGRAMMES

A. Pattern of Production

120. The production of steel, as envisaged in the Second Plan, was placed at 45 lakh tons in 1960-61. The question of the distribution of end products among the existing producers and the new Government plants was examined by the Planning Commission in 1955, in consultation with the representatives of Government and the existing steel producers. The distribution as finally decided upon may be seen at Appendix XIV.

B. Schedule of Commissioning

121. According to the Programme of Industrial Development envisaged in the Second Five-Year Plan, the Rourkela and Bhilai Plants were expected to go into production as a whole by the end of 1959 while the Durgapur Steel Plant was to be in full operation by December 1960.

122. However, the target dates now fixed for the completion of the projects are as follows:—

ROURKELA

First blast furnace and Coke oven battery	1st October, 1958*
Second blast furnace and Coke oven battery	1st February, 1959
Third blast furnace and Coke oven battery	1st August, 1959
Steel melting plant	April 1959
Blooming and slabbing mill	April 1959
Hot strip mill	April 1959
Plate mill	May 1959
Cold rolling mill	March 1960

However, there is likely to be a further delay of 6 months in the completion of the Project.

BHILAI

Two blast furnaces, two coke oven batteries, two open hearth furnaces, and blooming mill	31st December, 1958*
The other sections of the Plant	31st December, 1959

*Only the first Coke Oven Battery was heated on 8th September, 1958.

*Only the first Coke Oven Battery was heated on 25-10-58.

DURGAPUR

First coke oven battery, and First blast furnace	31st October, 1959
Second coke oven battery, Second blast furnace, Three open hearth furnaces (out of seven) Blooming and intermediate mill, Billet mill and sleeper plant	30th April, 1960
Third coke oven battery, Third blast furnace, Four more open hearth furnaces, and 24" Merchant mill	30th April, 1961
Special furnace (for wheel, tyre and axle plant and Wheel, tyre and axle plant) . . .	31st July, 1961

NOTE—Pig iron would be produced on the day the blast furnace starts working while steel would be produced with the commissioning of the open hearth furnace.

123. Thus, the Rourkela Plant and the Durgapur Plant are expected to be in production as a whole much later than what was envisaged in the Second Five-Year Plan.

124. An opinion was expressed before the Committee that each of these steel projects could have been completed within two or three years and that the time that the projects would now be taking was too long. While admitting that due to many difficulties, which cropped up in the execution of the projects, some delay had occurred—about six months generally in all cases—the Secretary of the Ministry did not agree during the evidence he gave before the Committee, that there had been any inordinate delay in the execution of the projects. In this connection, the Committee would like to draw attention to the following facts:—

(1) *Rourkela*: The memorandum of Indo-German Association for the steel project at Rourkela was signed on 15th August, 1953 and the final project report was received in November 1955. These was thus an initial delay of over two years in the finalisation of the plan of the project.

Orders for the coke oven and blast furnace were placed in April 1956 and for the other major sections of the plant in October, 1956.

The Rourkela Plant is scheduled to go into full production in the latter half of 1960. Thus, it would be over seven years from the date the Memorandum of Association was signed, about 5 years from the date of the final project report and 3 years, 11 months from the placing of orders for the plant and machinery to complete the Rourkela Project according to the present target date.

(2) *Bhilai*: The Agreement between the Government of India and the Government of USSR for the establishment of integrated iron and steel works at Bhilai was signed in February 1955. The detailed project report was received on 9th December, 1955 and accepted on 8th March, 1956. The order for the Steel plant was placed in April, 1956.

The target date for the completion of the plant is 31st December, 1959. Thus it would take about 5 years from the date of the agreement between the two Governments, about 4 years from the date of acceptance of the Project report and 3 years, 8 months from the placing of orders for the plant to complete the work at Bhilai.

(3) *Durgapur*: The Report of the Coates Mission for the establishment of Durgapur plant was submitted in August 1955, while the pre-specifications and estimates by ISCON were submitted in January 1956. The order for the plant was placed in October 1956.

The final contract was concluded with the ISCON on 31st October, 1956 and the target date for the completion of the work is 31st July, 1961. Thus it would take six years from the date of the Report of the Coates Mission, and 4 years, 9 months from the date of the final contract and placing of orders for the plant to complete the work.

125. It would be seen from the foregoing that there is considerable variation in the time that might be taken for the completion of the three projects. *Considering that the Bhilai Plant is expected to be completed within four years, the Committee feel that it might have been possible, with better co-ordination to complete the other projects also within the same period. The delays, especially at Rourkela, have been regrettable.* In this connection a view was expressed before the Committee that judging from the progress made to date the projects might be delayed still further. They also understand that the World Bank has doubted whether full production in the three plants would be achieved until 1963.

126. *The Committee feel that the delays have partly contributed to the high costs of the projects.* Further so long as the plants do not go into production the country has to import steel at high cost thus straining the foreign exchange position. It has been estimated that every day's delay would involve an expenditure of about Rs. 10 lakhs at each plant. *The Committee, would therefore, urge the Government and the Hindustan Steel (P) Ltd. to take energetic action to ensure that the completion of the projects is not delayed beyond the target dates now fixed.*

C. L. D. Process

127. At the Rourkela Project, a new process called the L.D. Process (Linzer Dusentahl Process) is proposed to be used for making steel. It has been stated that this process is expected to have the advantages of lower capital and operating costs, higher rate of production, saving in space and ancillary equipment etc. Another interesting advantage of the L.D. process would be the use in it of large quantities of oxygen in obtaining which from the atmosphere, nitrogen would be available as a by-product and would be used for the manufacture of fertilizers.

128. The Committee, however, understand that the consulting engineers to Government, the International Construction Company,

have advised that India, which is yet in the initial stages of development of the industry, might have been conservative in the matter of adopting the L.D. process which has not yet been fully tried. The consulting engineers are stated to have pointed out two difficulties with regard to the use of the new process. Firstly, the pig iron produced in India would not be suitable for the process because of its high silicon content, and, secondly, the limestone which would be available near the plant would not be suitable for the process. They also advised that the layout of the steel-making shop be planned in such a way that, should the L.D. process prove unsuitable, the plant could be converted, with relatively minor modifications, to use the open hearth or the duplex process. The Committee understand that in order to meet the difficulties pointed out by the International Construction Company a de-siliconising plant would be put up to reduce the silicon content of the iron and that limestone of better quality which would be suitable for the process, would be obtained from another source at a distance of over five hundred miles. These would entail extra expenditure of nearly Rs. 30 lakhs annually on transport alone. However the Secretary of the Ministry appeared to be of the opinion that the extra cost would be much lower than the saving which would arise in the cost of production of steel under the process. It has been stated that, while works cost of crude steel under the conventional process in Rourkela would be Rs. 117 per ton, the works cost of such steel under the L.D. process would be Rs. 98 only. *The Committee hope that the anticipated benefits of the process would be realised but feel that this is a matter which needs further examination at expert level.*

D. By-Products

129. At the three steel plants at Rourkela, Bhilai and Durgapur, coal will be carbonised to form coke. During carbonisation, a number of valuable by-products like coal tar, ammonia liquor and benzole will be released. These will be further distilled and commercial fractions obtained.

130. (i) *Rourkela*: At Rourkela, provision has been made for the production of:—

Benzole
Toluol
Zylonol
Carbolic oil
Naphthalene oil
Anthracene oil
Pitch, etc.

Further, the adoption of the L.D. process at Rourkela will result in large quantities of nitrogen being available as a by-product. Making use of this and of the hydrogen from the coke oven gases, it is proposed to produce 580,000 tons of fertilizer-nitro-limestone.

The by-product plant in Rourkela is estimated to cost about Rs. 8 crores all inclusive.

131. (ii) *Bhilai*: In Bhilai, the following by-products will be produced:

Ammonia sulphate
Benzole
Toluene
Xylene
Solvent-Naphtha
Phenol oil
Naphthalene oil
Anthracene oil
Nathalene
Crude Anthracene
Crude Phenols
Pitch

The by-product plant in Bhilai is estimated to cost about Rs. 3 crores.

132. (iii) *Durgapur*: In Durgapur, the following by-products are expected to be available for sale:

Ammonia sulphate
Benzene
Toluene
Xylene
Solvent-Naphtha
Naphthalene
Road Tars
Wood preserving creosote
Sulphuric acid

The cost of the By-product Plants at Durgapur is expected to be Rs. 6·4 crores inclusive of Indian Plant and Indian Work and Technical Service Charges estimated at about Rs. 1·5 crores.

133. The Committee were informed that after stripping the coke oven gases at the three plants of their tar content and other elements for being processed in the by-product plant, the gases would be used as fuel. Further, in Rourkela the gases will also be stripped of hydrogen for use in the manufacture of fertilizers. They understand, that the gases which are proposed to be used as fuel could be used for better purposes. ***They, therefore, suggest that Government might have it examined whether there is any alternative use for such gases and whether it would be economical to put them to such use.***

134. The Committee note that the estimated cost of the by-product plant is highest in the case of Rourkela, being Rs. 8 crores against Rs. 3 crores in the case of Bhilai and about Rs. 6·4 crores in the case of Durgapur. The by-products which are to be processed in the various plants are also different. *The Committee suggest that the economic aspect of the selection and production of the by-products at the various plants might be got examined with particular reference to the difference in the estimated cost of the by-product plants as also their estimated working cost in the three projects.*

135. *Slag*: During the production of pig iron large quantities of slag are released. The Committee understand that slag is usually used for making cement, but that not all slag is so useful. In this connection they were told that Government have already sanctioned the following three schemes for the manufacture of cement at the three steel plants:—

S. No.	Name of the firm	Location	Total capacity (tons)	Name of the Steel plant close to the factory
1.	M/s A.C.C., Ltd. .	Durg	250.000	Bhilai
2.	M/s Orissa Cement Ltd., Calcutta . . .	Rajgangpur	725.000	Rourkela
3.	M/s Durgapur Cement Co. Ltd., Calcutta .	Durgapur	240.000	Durgapur

136. As regards the slag which might not be found suitable for cement making, *the Committee would suggest that the feasibility of putting it to alternative use*, e.g., *construction of roads, etc., might be examined.*

E. Marketing

137. The Committee were informed by the representatives of the Ministry that the Hindustan Steel (P) Ltd. did not contemplate setting up their own organisation for marketing steel except for making arrangements, like every other producer, for actual contractual processes of sale, movement, collecting money, etc. since the control over sale etc. of iron and steel was, at present, exercised by the Iron and Steel Controller. The Committee feel that with the completion of the expansion programmes of TISCO and IISCO and the setting up of the three steel plants in the public sector, the entire question of the organisation of, and the control exercised by, the Iron and Steel Controller might need reconsideration. Besides, the Hindustan Steel (P) Ltd. would also be producing large quantities of by-products, fertilisers, iron ore, etc. which would have to be marketed. *But it appeared to the Committee*

that no thought had yet been given to the question of setting up an organisation for this purpose. This seems surprising to the Committee, since production is expected to commence in the steel plants within the next year while marketing would need an Organisation with personnel who would have to be trained for the purpose. They would suggest that the question of setting up such an organisation should be examined at an early date.

VI

FINANCIAL MATTER

A. Capital

138. The authorised capital of the Hindustan Steel (P) Ltd. is Rs. 300 crores. The paid up capital at present is, however, about Rs. 198·7 crores, expended on the erection of the Steel Plants as follows:—

	(Rs in crores)
(*i*) Rourkela Plant	87
(*ii*) Bhilai Plant	70
(*iii*) Durgapur Plant	40
TOTAL	197

139. The Committee were informed that it was Government's intention that the capital expenditure of each of the three Government plants would be limited to Rs. 100 crores and the balance of the expenditure treated as a loan from Government to Hindustan Steel (P) Ltd. *Considering that the total cost of the three Government plants is expected to be over Rs. 560 crores, the Committee doubt whether the Hindustan Steel (P) Ltd. would be in a position to repay a loan of over Rs. 260 crores in the foreseeable future.* Further, the Committee understand that expenditure on certain items *e.g.*, Consultants Fee, Interest, Salaries and Allowances of Government Trainees etc., which could not be directly debited to any particular work or unit was being shown under the heading "Expenditure During Construction". No decision had yet been taken regarding the proportion for allocating this expenditure between capital and revenue. The matter was stated to be under discussion with the Company Auditors and it was expected that the procedure would be finalised soon. In this connection, the Committee were told by a prominent industrialist that in the private sector all expenditure incurred during the construction stage was usually capitalised and it was only after the unit went into production that expenditure was classified as revenue and capital. *If so, the decision to peg the capital of Hindustan Steel (P) Ltd. while helping to keep down the prices of steel products somewhat artificially, might not be in accordance with commercial practice. The Committee would therefore, suggest that the matter should be examined carefully before a final decision is taken.*

B. Estimates of Costs

140. It has already been stated earlier that the first estimate of the Rourkela Steel Project for a 5 lakh ton plant prepared in 1954

was Rs. 80 crores and also that the proposal of Messrs Birla Bros. to put up a ten lakh ton steel plant with foreign collaboration was estimated to cost far less than the present estimated costs of the three Government steel projects.

141. The original estimates for the three ten-lakh ton ingot steel plants, on the basis of which provision was made in the Second Five Year Plan were:—

	Total Estimate	Component of Foreign Exchange
	(Rs. in crores)	
Rourkela	128	89
Bhilai	110	67.5
Durgapur	115	72
TOTAL	353	228.5

142. The revised estimates which were given to the Lok Sabha by the Minister for Steel, Mines and Fuel during the debate, on the demands for grants on the 13th August, 1957 were:—

	Total Estimate	Component of Foreign Exchange
	(Rs. in crores)	
Rourkela	170	122
Bhilai	131	78
Durgapur	138	92
TOTAL	439	292*

143. The above estimates do not include any provision for likely increases in cost on account of escalation clauses, as also the cost of the following:—

1. Townships
2. Ore Mines and quarries
3. Coal Washeries
4. Fees to Consultants.
5. Fertilizer Plant at Rourkela

*The Committee were informed on 7-1-59 that the figure of Rs. 292 crores did not include the foreign exchange component of the cost of ancillaries which would amount to Rs. 38 crores.

6. Land
7. Prospecting and designing
8. Development of sources of water supply
9. Power supply facilities upto the perimeter of the Plant
10. Personnel required for operation including the cost of training.
11. Railway works outside the perimeter of the Plant
12. Personnel employed directly by the project
13. Customs Duty
14. Expenditure on medical services.
15. Office and such other ancillary expenditure.

The estimates for these items were not mentioned by the Minister, but a rough estimate was given to the Committee amounting to about Rs. 120 crores made up as follows*:—

	(Rs in Crores
Three Townships	42·0
Two iron ore mines, two lime-stone quarries, and one dolomite quarry	13·5
Fees to German, Russian and British Consultants	9·25
Water supply arrangements	4·5
Training Schemes	1·5
Cost of Soviet staff employed direct by the Project	4·5
Other expenditure on prospecting, electrical works, railway works outside the perimeter, cost of project staff and establishment, office expenditure, customs duty etc.	45.0
TOTAL	120·25

Note: It is observed that the cost of the Fertiliser Plant at Rourkela, which is not included in the above list, would, according to the Appraisal and Prospects of the Second Five Year Plan, amount to about Rs. 16 crores.

144. *The Committee do not appreciate why estimates of important items like townships, iron ore mines and quarries, electrical works, railway works, etc., were not originally indicated to Parliament. They are particularly surprised to find that even the fees of Consultants were not included in the original estimates.* It was explained to the Committee that it was difficult to estimate the expenditure in all these cases. Even if that were so, the estimates on some broad lines could have been indicated, or the items could have been mentioned with a note that charges on their account would add to the estimates finally, to enable the Parliament to have a complete picture. *The Committee suggest that a comprehensive statement showing the estimates of all the items of expenditure connected with the projects should be prepared and placed before Parliament at an early date.*

*The break-up of the cost of ancillaries, project-wise, is given in Appendix XV.

145. The section-wise break-up of the estimates is given in Appendix XVI. The Committee were told that the sections under which the estimates of the different projects are indicated are not at all cases comparable. *They feel that it is necessary for proper comparison of the estimates and the actual costs of the three projects that the estimates should be analysed on a uniform basis.* The Committee are aware that although the capacity expressed in terms of crude steel is about the same in the three plants *viz.*, ten lakh tons, the plants differ considerably otherwise but *they feel that an analysis could be prepared, broadly speaking, on a comparable basis after making allowance for such differences. In this connection, reference is also invited to para* 215 *of the Seventh Report of the Public Accounts Committee* (*Second Lok Sabha*).

146. *In this connection, the Committee also feel that in view of the expansion of the iron and steel plants in the private sector in the country, it would facilitate an assessment of the cost of the public sector projects if the expenditure incurred on the former especially on similar and comparable units could be ascertained and included in the analysis of costs suggested in the earlier paragraph.*

C. Increase in the Estimates

147. It is observed that, within a short period, the estimates of the steel projects went up from Rs. 353 crores to Rs. 439 crores, *i.e.*, to the extent of about 25% while the foreign exchange component increased by about 28 per cent. excluding Rs. 38 crores, the estimated foreign exchange component of the cost of ancillaries. This increase was explained by the representative of the Ministry to be generally due to:—

(a) Additions and improvments made to the project reports;

(b) Purchase abroad of structural steelworks, refractories and such stores, which it was originally thought could be procured from India. Prices abroad of these items are generally higher than in India;

(c) Under-estimation by the consultants and increases of prices and wages in Europe between the time of estimation and the time when contracts were concluded. This applies mainly to Rourkela; and

(d) Under-estimation by the Indian Steelworks Construction Company of cost of civil engineering and erection charges in India. This applies to Durgapur plant only.

148. The increases, as classified by the Ministry under the above four categories, are reproduced in Appendix XVII.

149. (i) *Rourkela*: The increase in the estimates of Rourkela project due to increases in wages, prices of raw materials and freight was stated to be about Rs. 11·69 crores. This is exclusive of the increase, the extent of which is not exactly known due to the delay in finalising

the plan of the project referred to in para 124, of over 2 years, during which period the general price level undoubtedly rose. The Committee were informed that this increase represented the difference in price level during the period of about eight to nine months between the preparation of the project report in November, 1955 and of the revised estimates in August, 1956. They were also told that in a period of rising prices, it was natural for the estimates to go up by 5 to 10 per cent within a year. The Committee observe, however, that in this particular case within a period of 1 year*, the rise amounted to above 12% of the original estimated cost of the Coke Ovens, Blast Furnaces, Melting Shops, Rolling Mills and Power Plant (Rs. 95 crores) and about 9.3 per cent. of the entire original cost of the Project (Rs. 128 crores). It is quite likely that the period of rise in prices continued even after August 1956 in which case there might be further increases in the estimates. *The Committee would, therefore, suggest that the estimates of the projects might be re-assessed and the differences explained properly.*

150. Another reason for the rise in the estimates was stated to be the provision of additions and improvements for the plant subsequent to the project report, which in the case of Rourkela amounted to Rs. 16.37 crores. It was stated that one such item was inland transport estimated to cost about Rs. 5 crores, provision for which was omitted from the original estimates. *The Committee consider it strange that such an item should have been omitted by the consultants from the original estimates. They also find it difficult to appreciate why additions and alterations of the value of about Rs. 11 crores should have been found necessary so soon after the project report was submitted.*

151. Another reason for the rise in the estimates was stated to be under-estimation by the consultants in the project report which at Rourkela amounted to about Rs. 14 crores. It was explained on behalf of the Ministry that an under-estimation of Rs. 14 crores in the context of the whole scheme was not very serious. It was also stated that the consultants had admitted that they had under-estimated the cost deliberately in the interest of the projects because there was always a tendency for the figures given by the consultants to be regarded as a sort of minimum on which negotiations could proceed for the contracts. *The Committee do not feel convinced by the reasons adduced for under-estimation and suggest that the matter might he pursued with the consultants.*

152. In this connection, it is of interest to find that the largest single item of increase in the estimates is in respect of the rolling mills where the estimates have gone up from Rs. 48.44 crores to Rs. 72.36 crores. In this case, the bulk of the supplies for the plant are to be made by the firms who constituted the consultants. The representative of the Ministry furnished to the Committee on 9th September,

*Considering that the price levels assumed in the Project Report in November 1955 were those obtaining at the time of *preparation* of the Report about 4/5 months earlier.

1958 a note (Appendix XVIII) explaining the circumstances in which the cost had gone up. As, however, it did not satisfactorily explain the reasons for the rise in the cost under different heads comprising the rolling mill, the Committee were promised by the Secretary of the Ministry on that day a further note on the subject which they have not yet received*.

153. (ii) *Bhilai*: So far as the Russian project estimate for Bhilai steel plant was concerned it was stated that it was virtually the suppliers quotation for such machinery and equipment, as was proposed in the report, for supply from the Soviet Union. The estimate of Indian costs was stated to be based on certain assumptions and was in no sense a quotation. It was however explained that the estimate of Indian costs out of the total estimate of Rs. 110 crores given in the detailed project report was examined by the Consultants to the Ministry, *viz.*, the International Construction Company, and the Civil Engineering Adviser to the Ministry of Iron and Steel, who were satisfied that the assumptions made were reasonable.

154. The Committee observe that in the case of the Bhilai project the estimates of the cost of construction equipment and of temporary works and structures required for construction went up by Rs. 15 crores. It was stated, in this connection, that no figures were given for that item in the detailed project report and that it was shown as one of the 7 items excluded from the estimates. *The Committee wonder how items of the value of about Rs. 15 crores came to be excluded from the project report. They would suggest that the cost of the six other items, which were excluded from the original estimates, might also be worked out and indicated.*

155. (iii) *Durgapur*: As regards the Durgapur project, it was stated that the initial estimate for plant and machinery to be imported from the U.K. was to be subject to an increase of not more than 5 per cent. in certain sections, in the final quotation. Further the figures for erection, civil engineering, shipping and transportation given in the original estimates were the contractor's preliminary estimates since Indian Steelworks Construction Company had indicated that it was not possible to estimate these costs in detail within the time available. The Committee observe that the increase in the cost of supplies of plant and equipment f.o.b. (Rs. 5.99 crores), the sterling component of technical services (Rs. 3.37 crores) etc. exceeds 5 per cent. of the foreign exchange component of the revised estimates and, therefore, *doubt whether the condition that the increase would not be more than 5 per cent. has been fulfilled. They would suggest that this matter might be examined and the scope for reducing the cost of the project in this direction explored. They would also like to be assured that there is no likelihood of large variations in the estimates on account of Indian cost.*

*The Ministry later furnished a statement explaining the difference of Rs. 11·7 crore in the f.o.b. par of the original and revised estimates. It was received on 31-12-58 *i.e.* after the Report had been finalized and is reproduced at Appendix XIX.

156. Thus, the reasons for the rise in the estimates of projects, which have gone up by 33 per cent. at Rourkela, 18 per cent. at Bhilai and 20 per cent. at Durgapur between 1955 and 1957 are not entirely satisfactory. No satisfactory reason also exists for not preparing originally estimates for a large number of items amounting to about Rs. 120 crores. The Committee were informed by the Secretary of the Ministry that the existing estimates were not final and that the latest revised estimates were under preparation*. *All this would suggest that proper care had not been taken in preparing the plans and estimates for the Projects. The Committee consider it regrettable that the Consultants who have been appointed at an estimated cost of about Rs. 10 crores for giving the plans and estimates of the projects did not give firm and accurate estimates of the costs of the respective projects and that the Government did not ensure their timely submission for their own information as well as that of Parliament.*

157. *In this connection, the Committee feel that the practice of first presenting partial and approximate estimates to Parliament for initial sanction and then asking for supplementary funds on a substantial scale gives a false picture of the cost of the work proposed to be undertaken since it does not enable Parliament to appreciate the economic aspect of the investment which they are called upon to make for that project. Besides, in such cases the subsequent increases have often to be agreed to almost helplessly in view of the investment that has already been made. They, therefore, urge that Government should, before approaching Parliament for approval of a Project, prepare and indicate realistic and firm estimates of all financial requirements which might not vary much except for unforeseen changes in general economic conditions.*

D. Review of Estimates

158. One of the duties of the accounts organisation at each project is to conduct an annual review of the financial estimates and forecasts of the project and submit the same through the General Manager to the Government of India. The Committee were informed that in actual practice no annual reviews have been prepared so far. However, monthly and quarterly progress Reports were being received by the Company which were forwarded to the Ministry of Steel, Mines and Fuel and thereafter to the Finance Ministry. *The Committee feel that it would be desirable to prepare the Annual Reviews also, since the monthly and quarterly Reports could not possibly contain a comprehensive and an overall picture of the financial position for the whole year.* The importance of such periodic reviews, particularly in respect of big projects, cannot be over-emphasised since they serve as an instrument of financial control for the top management, the

*The Committee were on 7-1-59 informed that there would not be any need to revise the estimates of Rs. 439 crores for the steel plants proper and that what was not final was the impact on the cost of the plants on account of escalation. It was admitted, however, that the estimate of Rs. 120 crores for ancillaries was not final.

Board and the Government and also help in the assessment or progressive performance against estimates, particularly in the case of the Steel Projects, the costs of which have been mounting. *The Committee would, therefore, urge greater attention to the preparation and scrutiny of financial reviews.*

E. Presentation of Annual Estimates to Parliament

159. The annual estimates of expenditure of the nationalised industries entrusted to companies owned wholly or partly by Government do not come up before Parliament. The expenditure incurred by Government by way of investment or loans to the companies are only shown in lump in the demands for grants. While the Committee are aware that the estimates of such companies, which are technically outside Government, cannot be presented to Parliament in the same way as the estimates of departmental expenditure, *they feel that it is necessary that Parliament should be given full information about the plans, programmes and estimates of the undertakings every year alongwith the budget documents and in advance of the annnual reports which are generally presented long after the year is over.*

160. In this connection, the Committee invite a reference to the recommendation contained in para 25 of their 20th Report (Second Lok Sabha) which is reproduced below:—

> ". . . . .the undertakings should prepare a performance and programme statement for the budget year together with the previous year's statement and it should be made available to the Parliament at the time of the annual budget. Further these bodies might also be encouraged to prepare business-type budgets which would be of use to Parliament at the time of budget discussion. In addition, the latest accounts and balance-sheets as well as the annual report should also be made available to Parliament at the same time."

F. Estimated value of out-turn and Products

161. The Committee observe that while the nature and volume of products of the different plants have been laid down, the estimated total annual value of the products to be manufactured has not been indicated. In this connection, it has been pointed out to the Committee that, if an industrial project is to be regarded as a sound economic proposition, there should be for every rupee invested in it at least two rupees worth of annual production and that the minimum should be at least 1 : 1. The Committee were informed by the representatives of Government that the ratio of production to investment in respect of the steel project had to be worked out but that it could never be 1 : 1 and also that there was no norm about it. *The Committee feel that this is a matter which should have been worked out at the stage of approving the project reports and not after the projects*

*have made substantial progress. They would suggest that the ratio of likely production to investment should be worked out and published at an early date**.

162. The Committee were informed that the cost of production of crude steel as well as of certain finished products in the new steel plants had been worked out. These are given in Appendix XX. They were, however, stated to be subject to the following qualifications:—

(1) They are based on the project reports of the respective consultants and the Indian Steelworks Construction Company and are not comparable because they are based on different assumptions with regard to capital cost, prices of raw materials and operating expenses. In this connection, it was stated that the Department of Iron and Steel, in consultation with Hindustan Steel (P) Ltd., was in the process of revising the estimates so as to bring them on a common basis taking into account, as far as possible, changes in capital costs, costs of raw materials, etc. and that it might take a few months to revise the estimates.

(2) They represent only the direct cost of production, excluding depreciation and other overhead charges, which have not been indicated. It was stated, in this connection, that the capital investment in the new steel plants being more than that in the plants at Jamshedpur and Burnpur, the cost of production on that account would be higher in the new steel plants where, on the other hand, the direct cost of production would be less**.

163. It has been estimated by a non-official expert who appeared before the Committee that the net cost of production in the new steel plants would be about Rs. 550 per ton, comprising Rs. 250 representing capital charges and Rs. 300 direct expenses. During the course of evidence, the Secretary of the Ministry stated that so far as the capital charges were concerned, he would say 'off-hand and without commitment' that the estimate of the non-official expert might not be far wrong in the case of Rourkela but that it (capital charge) might be a little less in the case of other plants. As regards the estimate of direct expenses, he would not accept the figures given by the non-official expert.

*On 7-1-59 the Committee were informed that based on the current export quotations (f.o.b.) of Japan there would be a unit output of Rs. 502·5 in Rourkela, Rs. 485·0 in Bhilai and Rs. 487·5 millions in Durgapur on the gross investment approx. of Rs. 2130, Rs. 1780 and Rs. 1690 millions respectively. Adoption of the current export quotations of Japan hardly seems to the Committee a proper basis for working out these figures.

**The Committee were on 7-1-59 informed that the lower operating cost in the Govern. ment plants would depend essentially on their ability to organise the plants as efficient production units which seems to the Committee as a very important and significant condition-

164. *In view of the above, it appears that the Government have not given sufficient thought to the question of cost of production in the new steel plants.*

G. Advance collection of financial data

165. The Committee understand that, when schemes are submitted for grant of permission for issue of capital in the private sector, the sponsors are required to submit various details, such as, (i) a complete estimate of the capital cost with the detailed break-up of the requirements, such as plant and machinery, land, buildings, townships, railway sidings, vehicles and other fixed assets, and also the requirements in regard to working capital, (ii) the manner in which the requisite funds are to be raised, (iii) the estimated value of products proposed to be manufactured, (iv) the estimated cost of production and (v) the estimated margin of profit. These details are also to be published in the prospectuses inviting public subscriptions. It has been suggested that these requirements should be followed equally by the undertakings in the public sector, where public funds are involved. It is said that such complete information only can give an idea of the soundness of any scheme and would, therefore, enable Parliament to evaluate the economic value of any project.

166. *It is evident from what has been pointed out earlier that all the information, which is required to be furnished initially in the case of private sector plants, had not been worked out in the case of the Government Steel Projects. The Committee are of opinion that in future it should be ensured, before a new industrial or commercial venture is undertaken in the public sector, that it fulfils all the conditions which would have to be fulfilled had it been undertaken in the private sector and that the proposals therefor should be subjected to the same degree of critical scrutiny from various aspects as is applied to the proposals of a private undertaking.*

H. Cost Accounting

167. The Committee were informed that the Hindustan Steel (P) Ltd., proposed to set up a Cost Accounts Organisation at each of the three plants. They were also told that three Cost Accounts Officers had already been recruited and were being trained. It was intended that after they had studied the Construction Accounts, familiarised themselves with the plants and also studied the commercial accounting in the existing industries, they would be given an opportunity to supplement their knowledge by foreign training to the extent necessary*. In evidence, it was further stated by the representative of the Ministry that these officers would also make on-the-spot study of cost accounting organisations in similar industries abroad. *Time and again, in*

*In addition the Committee were informed on 7-1-59 that 47 Cost Accountants had completed one year's course in cost accountancy in the School set up by the Department of Iron and Steel in Calcutta, another 38 were about to complete their training and that a further 50 candidates were being selected for the next course.

their reports, the Committee have emphasised the need for a well-trained and well-staffed cost-accounting organisation in industrial undertakings to serve as an efficient tool of financial and managerial control. They reiterate that early steps be taken to establish such organisation in the three plants on healthy and efficient lines so that an efficient costing machinery might be available from the time the production starts. They would also suggest that a study of costing organisations in the steel plants in the private sector as well as in other undertakings in the public sector should be made with a view to evolving an efficient and up-to-date system of costing for these projects. Further a close touch with the latest developments in this field in other advanced countries (e.g., U.K., U.S.A., U.S.S.R. etc.) might also be kept.

168. In this connection, the Committee had suggested in their Ninth Report (First Lok Sabha) that an Institute of Costs and Works Accountants should be set up to train sufficient number of men in this line on modern and up-to-date methods suited to the various types of undertakings. They were informed that an Institute already existed in Calcutta and it was not necessary to set up another Institute for the purpose. *The Committee, however, find that in spite of the existence of such an Institute satisfactory arrangements for cost accounting do not exist in most of the Public Undertakings. In view of the large requirements of properly trained Cost Accountants for the public undertakings, the Committee suggest that Government should reconsider the question of reorganising the existing Institute to enable it to fulfil the tasks expected of it, and also of decentralising its activities.*

VII

OTHER STEEL PLANTS IN THE COUNTRY

A. IISCO and TISCO

169. The First Five Year Plan included a Programme of expansion and modernisation of the production facilities of the Indian Iron and Steel Works at Burnpur, Kulti and Gua in West Bengal. It was intended to increase between 1953 and 1957 the designed production capacity of iron from 640,000 to 1,400,000 tons and of finished steel from 350,000 to 700,000 tons. The Second Five-Year Plan envisages a further expansion of the production facilities at Burnpur. It is intended to increase the designed capacity of finished and semi-finished steel products from 700,000 to 800,000 tons per annum. The programme is expected to be completed by December 1, 1959.

170. The Tata Iron and Steel Company undertook a programme of modernisation and expansion of their works at Jamshedpur in 1951 with a view to increasing the capacity of the Jamshedpur Works to 930,000 tons of saleable steel products. Besides, they have also undertaken another major work of expansion of the Jamshedpur Plant to about twenty lakh tons of steel ingots and 1,500,000 tons of semi-finished and finished steel products. This programme was scheduled to be completed by 31st May, 1958. Actually however TISCO's new blast furnace, which was described as the beginning of the final phase of the twenty lakh ton expansion programme, was commissioned only on 10-10-58. Some of the related works and ancillary works of the programme are to be completed by 30th June, 1960.

171. The Committee understand that though the expansion programme of the two Companies was not proceeding quite according to the time schedule, it could be expected that they would be completed within a reasonable time after the target dates and that the delay would not be much.

172. The Government of India have so far given the following financial assistance to IISCO and TISCO for their expansion programmes:—

(i) IISCO—An interest bearing loan of Rs. 7·9 crores and a special advance of Rs. 10 crores to meet their foreign exchange requirements. Government have also guaranteed two Loans of 30·02 million dollars (Rs. 14·25 crores) and 20 million dollars (Rs. 9·5 crores) given by World Bank.

(ii) TISCO—A special advance of Rs. 10 crores. Government have guaranteed 2 loans of 75 million dollars (Rs. 35·62 crores) and 32·5 million dollars (Rs. 15·43 crores) given by World Bank.

173. The Government have nominated a Director on the Boards of each of the two Companies to safeguard the interest of the Government relating to the loans given to the Companies. The question of repayment of the loans and the interest payable thereon has not been settled yet. *The Committee understand that the matter has been referred to the Tariff Commission and hope that an early decision will be taken with regard to these matters.*

B. The Mysore Iron and Steel Works

174. The Mysore Iron and Steel Works is owned and run departmentally by the Government of Mysore. It is located at Bhadravati near the Bababudan ranges of hills which contains extensive deposits of high grade iron ore and a rich forest. The plant is designed for charcoal smelting. The capacity of the steel works at the commencement of the First Five Year Plan was as follows:

	(tons)
Steel Ingots	30,000
Rolling Mill	25,000
Ferro-silicon Plant	5,000

Besides, there are a rod and strip mills and a plain sleeper foundry.

175. The First Five Year Plan envisaged the expansion of the Works to produce one lakh tons of finished steel. The expansion scheme of the Mysore Iron and Steel Works was reviewed in 1952-53 when it was found that the capital investment would be substantially higher than that envisaged under the Plan. Consequently, it was felt desirable to modify the pattern of production with a view to ensuring that the Plant would produce such end-products as could be sold at competitive prices in a free market, and to concentrate on high priced steel rather than on mild steel products. The Government secured the services of TCM experts to go into the question and submit a report on the best lines of further development for these works. The report was received in 1955 and, after further discussion, the broad pattern of development under the Second Plan was finalised.

176. The schemes which were undertaken by the Mysore Iron and Steel Works under the First Plan, completed, not completed and those which were included in the Second Plan are indicated in Appendix XXI.

177. The Committee understand that the erection of the spun pipe plant has been completed and arrangements are on hand to

start operations. Orders have been placed for the sintering plant in Germany. The ferro-silicon plant has also been sanctioned and orders are being placed on a Norwegian firm. As regards the other schemes for expansion of steel melting capacity, rolling mills capacity and ancillary works, it was stated that they were generally technically acceptable to Government. It was stated that the Government of Mysore were considering the quotations for supply of plant and machinery and were negotiating deferred payment terms. However, in the meantime, under the reappraisal of the Second Five Year Plan, the completion of the schemes has been deferred to the Third Plan period.

178. The Government of India have so far given Rs. 1,16,88, 303 by way of loan to the Government of Mysore for their First Plan schemes relating to the Mysore Iron and Steel Works. No Central assistance has, however, been given for the Mysore Iron and Steel Works during the Second Five-Year Plan. The Committee understand that the Tariff Commission had recommended that the whole system of accounts at the works should be placed on a commercial basis and that the Government of Mysore were considering the formation of a Corporation or a Company. They were also informed that the Government of India had informed the Mysore Government that any further financial assistance in the shape of loan or investment would be given only after the corporation or company was formed.

179. *The Committee consider it unfortunate that, though various expansion schemes for the Mysore Iron and Steel Works were included in the Plan since* 1950-51, *there has been little progress in that respect so far and that now as a result of rephasing of the Plan they have been further deferred. The Committee feel that the Mysore Iron and Steel Works is an existing unit of national importance and that its expansion programme ought to be expedited and its further development given greater attention.*

180. As regards financial assistance, *the Committee, while appreciating that it would be in the interest of efficient management of the works to organise it in the form of a corporation or a company, suggest that the matter might be settled by the Central and Mysore Governments by negotiation and that a speedy agreed solution be found to the problem so as to expedite its expansion programme.*

VIII

FUTURE DEVELOPMENT OF THE INDUSTRY

A. Utilisation of Steel

181. The consumption of steel in the country during the last 5 years was as follows:—

	(Tons)
1954	1,631,524
1955	2,159,679
1956	3,191,479
1957	3,076,155
1958 (Jan.—Oct. only)	2,077,435

182. As regards the future, the volume of steel production in the country by 1960-61 being estimated to be 45 lakh tons of finished steel, doubts have been expressed that there would not be adequate capacity in the country to utilise all the steel that would be produced and that there might be some surplus in certain categories of finished steel. As regards the prospects of exporting the surplus steel, doubts have been expressed on the grounds that firstly, there was a surplus of steel in the world at present, secondly China and Japan having entered the market, there was a strong competition, and, thirdly India's price advantage over foreign steel had been lost.

183. On the other hand the Secretary of the Ministry stated that he was convinced that the entire volume of the steel that would be produced, when the new plants went into production, would be fully required for internal consumption and that there would be no surplus left. He also said that engineering industries were being encouraged to produce steel goods for export by allotment of replacement quotas of steel in respect of exported steel goods, higher than the steel consumed therefor.

184. As regards the subsequent years it has been stated in the Explanatory Memorandum on the Budget of the Central Government for 1958-59 that the target for steel production during the Third Five-Year Plan would be 150 lakh tons. The Secretary of the Ministry stated, during his evidence, that if the rate of progress of industrial development was not affected for any reason, the demand for steel would rise but there could be any number of opinions about the target for the Third Five-Year Plan. He admitted, however, that no firm estimate of the future demand for steel had yet been made.

185. *The Committee feel that the question of the production of raw steel and its utilisation should be considered in a more realistic way.* It should be recognised that mere production of raw steel is not enough for the industrialisation of the country. It is equally important that there should be capacity for fabrication of steel into engineering goods, required in the country. It is, therefore, necessary, in order to prevent wide disparities between the production and the requirements of steel in future, that an estimate of the latter on some broad but realistic basis should be attempted. *For this purpose, the Committee suggest that an expert survey of the steel requirements of the various engineering industries in the country, both in the public and private sectors, on the basis of the existing capacity and that likely to be installed in the near future, should be conducted. The Committee further recommend that if the survey were to indicate that the capacity of the engineering industries would not be adequate to absorb all the steel that would be produced, Government should take suitable steps to augment the capacity of those industries as well as to instal additional capacity after taking into account the increasing requirements of the country in this respect.*

186. *The Committee also suggest that if after taking into account all the above requirements, there is still some surplus of steel left, Government should take suitable steps for finding an export market for it.* In this connection, they understand that the price of Indian Steel had gone up for various reasons, one of which was that the excise duty had been raised from Rs. 4 a ton to Rs. 40 a ton. *The Committee would suggest that Government might consider, at the appropriate time, whether reduction in excise duty on steel for export would result in better export market.*

B. Proposal for Bokaro Plant

187. The Committee were informed by the representatives of the Ministry that there would be a necessity for at least one more integrated steel plant in the Third Plan and that Government proposed to set it up at Bokaro. They were told that no final decision had yet been taken in the matter and that no commitment had yet been made. However, the Minister for Steel, Mines & Fuel announced in the Lok Sabha on the 11th September, 1958 that the consulting engineers to Government had conducted a preliminary survey and settled the approximate locations of the plant and the appurtenant township.

188. In regard to the location of the proposed plant at Bokaro, the Committee understand that the Coates Mission in 1955 had regarded the site at Bokaro as unsuitable for the setting up of a steel plant due to insufficient development of communications there. While the Committee were told by the representatives of the Ministry that the Communication facilities were being provided for under the Second Five-Year Plan, they wonder to what extent the communication facilities could have improved during the last three years for the views of the Mission to be no longer valid.

189. The Committee have mentioned earlier that there was no firm estimate of the future demand for steel. They, therefore, inquired whether it was not desirable before deciding to set up another plant to determine its production with reference to the pattern of economic development in the Third Plan and whether for this purpose it would not be desirable to await the formulation of the Third Plan. The Secretary of the Ministry admitted that there was need for a study of the nature and extent of demand with particular reference to the Third Plan before proceeding with the fourth plant but stated that if as a result of the study it were to be established that it was not necessary or possible to set up the fourth plant nothing would be wasted because the preliminary work that was being done would be necessary for the coal washeries.

190. The Committee also inquired whether it would not be cheaper and desirable to expand the existing plants before embarking on a new plant and were informed that the layout of the three plants being set up provided for their ultimate expansion to 25 lakh tons of ingot steel in the case of Bhilai and Durgapur Plants and to 20 lakh tons of ingot steel in the case of Rourkela. The Secretary of the Ministry also admitted that the expansion of the existing plants would fetch quicker and cheaper results and that it would be a first charge on the Third Plan, but stated that even after taking into account the expansion of the plants there would be need for another plant.

191. *The Committee have no doubt that the requirements of steel in the rapidly developing economy of the country would be continually rising and that arrangements would have to be made to meet the demand. They would, however, suggest that the exact extent of the future expansion and the mode of it should be carefully planned with reference to the best estimate of the requirements of steel in future years determined as suggested in para* 185.

C. Dispersal and Decentralisation of Steel Industry

192. The steel industry is at present mostly localised in one region. The Secretary of the Ministry stated during his evidence that the policy of Government was to disperse the industry but that it was limited by the availability of raw materials, especially coal. *The Committee feel that in the interest of the uniform development of the different regions of the country as well as for strategic reasons, it is desirable that the industry should be spread all over the country, and suggest that this important consideration should be taken into account while locating future steel plants, including that proposed for Bokaro.*

193. *The Committee further suggest that to overcome the difficulty at present faced regarding the availability of raw materials and thereby to facilitate dispersal of the industry, the Government should undertake an intensive survey of all the areas where the raw materials required for the industry might be available. They would*

*also suggest in this connection, that Government should examine the feasibility of using alternative fuel such as lignite where coal is not available**.

194. *The Committee feel that besides the need for the dispersal of the industry there is also a need for decentralisation of the industry on regional considerations.* Such decentralisation in their view would also lend strength to the economy since small-scale production would enable development of the industry in various parts of the country without waiting for accumulation of large blocks of capital and foreign exchange which are required by large plants. Another important advantage of such small-scale production would be that it would provide more employment to skilled and unskilled labour in different parts of the country as compared to large-scale and centralised industries situated in a few places. Besides, it would also help in reducing the strain on the transport system in the country. The Committee understand that this is the accepted pattern of development in China where a large number of medium and small iron and steel enterprises are being set up by local authorities alongside big plants. *They would, therefore, suggest that the feasibility of establishing on a planned basis in different regions smaller units producing maybe one or two types of products only, should be actively considered.*

195. In this connection, a suggestion has been made to the Committee that in appropriate locations outside the industrial belt *e.g.*, in certain districts of Madras, Bombay, Rajasthan, Mysore and U.P. where iron ore is available, but is not of the quality required for major projects, private parties might be encouraged to set up minor works to produce pig iron. The setting up of such minor works in different parts of the country in the private sector is stated to possess the following advantages:—

1. they would help obviate the shortage of pig iron experienced by foundries all over India;
2. they would help to some extent in striking a better balance in the regional distribution of the iron and steel industry; and
3. by supplying the raw material for the development of foundries, machine shops and other light engineering industry they would help the industrialisation of regions around such sites.

196. The Committee understand that Government had received 18 applications for setting up pig iron plants in the private sector. Of these licences were granted to two, four were admitted for grant of licences, two had been rejected and ten were yet under consideration. The plants for which licences have been given are subject to

*It was stated on 7-1-59 that a pilot plant was under construction in Jamshedpur in which experiments with lignite and other fuels would be carried out for the smelting of ore.

a maximum capacity of 15,000 tons per annum. The considerations on which the licences were issued have been stated to be—

(i) use of non-metallurgical coal;

(ii) distance from the main steel plants; and

(iii) cost of production.

197. During the evidence tendered before the Committee, it was stated by the Secretary of the Ministry that generally production in small furnaces would be costlier than in big furnaces, unless it was counter-balanced by other factors, such as, saving in transport, especially where the areas were distant from the main steel producing areas, existence of specialised markets etc. and that generally it would be uneconomical to operate them. While in times of scarcity and high prices such units in the private sector might be profitable, there might be demand for assistance from some of them when times changed especially after the Government plants went into production when considerable quantities of pig iron would be produced and be available in the country. The Government, therefore, thought that the maximum production which the small furnaces could undertake and secure the advantages of the factory which would counter-balance the high cost of production would be 15,000 tons. The applications for licences were dealt with on these considerations.

198. *The Committee suggest that in the interest of the decentralisation of the iron and steel industry, Government might consider within the framework of the Industrial Policy Resolution the desirability of granting more licences to the private sector for small plants for production of pig iron as well as similar other items.*

199. *The Committee also feel that the maximum capacity of the pig iron plants to be licenced by Government which is at present fixed at* 15,000 *tons, might be determined independently in each case taking into consideration all the economic aspects which would have a bearing on it.*

200. *The Committee further suggest that while granting licences for pig iron plants, Government might also take steps to explore and develop export markets for pig iron. In this connection, the Committee feel that if in the agreements, which are entered into for export of iron ore, a condition could be added that a portion thereof would be in the form of pig iron it might help the industry, provide more employment and also improve the foreign exchange earnings.*

D. Stainless and Special Steels

201. The Committee understand that there is no capacity in the country, at present, for the production of stainless steel and that the production of special alloy and tool steels is sporadic and insufficient to meet even the existing demand. The demand for tool and alloy

steels by 1960-61 is expected to be about 20,000 tons in addition to 7,500 tons of stainless steel. The figures of imports of stainless steel only during the last two years and their value are given below:—

	(tons)	(Rs. crores)
1956—57.	6,311	3·93
1957—58.	3,855	2·50

202. The Committee understand that the expansion programme of Mysore Iron and Steel Works included in the Second Plan provided for the manufacture of 15,000 tons of stainless steel. They were, however, informed that the scheme for manufacture of stainless steel at Bhadravati had since been rejected by the Planning Commission. It was explained during evidence that the technical opinion received by Government was that Bhadravati would not be the proper place for locating the stainless steel plant. The reasons for this were that while there were two processes for manufacture of special steel, namely, charcoal process and scrap process, the former was old fashioned and all the advanced countries of the world had adopted the latter. The Committee were also told that the matter had, however, been referred to the consulting engineers on whose advice it would be decided whether the plant should be located at Bhadravati or near one of the new steel plants, where the scrap would be of good quality and suitable for manufacturing special steel as compared to other scrap.

203. The Committee find that on a review of the expansion schemes of the MISW included in the First Five Year Plan, it was considered that the MISW should concentrate on high priced steel rather than on mild steel products. Further, the pattern of development of these works during the Second Five Year Plan which includes a proposal to set up a stainless steel plant was drawn up on that basis and also after taking into account the opinion of TCM experts. In view of these circumstances, as also in the interest of regional development of the country, *the Committee feel that the feasibility of entrusting the production of stainless and other special steels to the Mysore Iron and Steel Works instead of setting up another plant for the purpose, should be considered.*

204. The Committee were told by a non-official witness that, at present, there were in the country many electric furnaces of five to ten tons capacity which were being used for steel castings and that some applications had been made to Government for the grant of licences for putting up more electric furnaces of higher capacity which could be used for the manufacture of special steels. The Secretary of the Ministry told the Committee that these applications were being considered by Government in the light of advice given to them with regard to the proposal to set up a plant for the manufacture of special steels. *The Committee, however, suggest that Government might also consider the question regarding the grant of licences for the setting up of small scale furnaces for the manufacture of special steels from the angle of the decentralisation of the steel industry.*

E. Ancillary Industries

205. *The Committee feel that besides the various schemes mentioned elsewhere, such as those for setting up a fertilizer plant, an alloy and tool steel plant, a basic refractories plant, slag cement plants etc. in the vicinity of the steel projects, there is a great scope for the setting up of ancillary industries of medium and small scale type for producing various types of raw materials required by the steel plants. They, however, find that not much advance planning has so far been done in the matter. They suggest that avenues for setting up medium and small scale industries should be fully explored in consultation with the Planning Commission. Further, adequate provision for such industries should be made in the lay-outs of the plants as well as of the townships.*

F. Joint Advisory Council

206. There are several interests connected with the iron and steel industry in India. The more important of these are the integrated steel plants which are coming up in the public sector, the Mysore Iron and Steel Works owned and operated by a State Government, the TISCO, the IISCO, pig iron plants and re-rolling mills in the private sector, the different producers of raw materials for the industry, the railways and port-trust authorities, etc. who are responsible for transport; the consumers and consumer industries; the Iron and Steel Controller, and the Government. All these interests have their own problems which act and react on others. *The Committee feel that in order to ensure balanced development of the industry there should be proper coordination among all the interests.* The Committee were informed that such coordination was being ensured by Government at present. *They doubt, however, whether the Government could by themselves ensure satisfactory coordination among these interests. The Committee feel that for solving the problems of the industry there should be a machinery for joint consultation among the various interests and that the problems should be settled by mutual understanding and agreement among them. They, therefore, recommend that Government might set up a Joint Advisory Council for the iron and steel industry exclusively, consisting of representatives of all the interests, namely, the Hindustan Steel (P) Ltd., Government of Mysore, producers in the private sector, producers of raw materials, the railways, the Ministry of Transport and Communications, engineering industry, the Iron and Steel Controller, the D.G.S. & D. etc. and some men from public life to represent the consumer interest. The Council might, to the extent possible, consist of experts who have distinguished themselves in their respective fields. The functions of the Council might be to advise on the production programme, distribution, transport arrangements, scientific research on steel technology, development of Indian know-how and training therefor and such other problems. The Committee recommend that early action be taken in the matter.*

IX

RAW MATERIALS AND TRANSPORT

A. Requirements of Raw Materials

207. The main types of raw materials required for the manufacture of iron and steel are iron ore, coking coal, limestone, manganese ore, refractories and dolomite. The other materials, important but required in lesser quantities, are chrome ore, sulphur, tin, spelter (zinc), nickel, flurospar and various alloys such as ferro-silicon and ferro-phosphorous.

208. The annual requirements of the raw materials for the steel industry in 1960-61 when the steel plants in the public sector would go into production are estimated as under:—

(In lakhs of tons)

	Rourkela	Bhilai	Durgapur	MISW	TISCO	IISCO	Total
Iron Ore .	17·00	19·40	19·40	2·0	32·00	21·8	111·6
Coal . .	16·00	17·90	18·30	0·5	35·00	24·67	112·37
Limestone .	5·23	5·51	6·17	..	9·00	6·50	32·41
Dolomite .	0·28	0·09	4·20	..	0·9	0·40	5·87
Manganese ore	1·12	0·33	0·64	..	0·6	0·40	3·09

B. Arrangements for Supply

(i) *Iron Ore*

209. (a) *Rourkela Plant.*—Iron Ore for the Rourkela Steel Plant has to be obtained from the mines at Taldih (Barsua) 42 miles from Rourkela, which are being developed for the purpose. There has, however, been some delay in the mechanisation of these mines and as a result supplies are not expected to be available till the beginning of 1960. As regards the delay, the Committee were informed that though the geological data in respect of the particular region, was available at the time of deciding upon the location of the steel plant, decision about the exact location of the mines was not taken in time. It was stated that the placing of contract for the supply and erection of the main plant and equipment, after inviting competitive tenders, and the difficulties with regard to civil engineering works also contributed to the delay.

210. The railway line between Dumaro (Barsua) to Bondamunda (Rourkela) intended for transport of iron ore is not expected to be ready before September, 1959. It was explained that since the mines were not expected to be ready for operation before October, 1959, it did not appear that any useful purpose would be served by completing the above railway line before September, 1959. Besides there was considerable pressure on the railways for new construction work. They were, therefore, advised to divert their efforts to other equally important construction work leaving this line to be completed by September, 1959.

211. The Committee were told that in view of the delay in the mechanisation of the Taldih (Barsua) iron ore mines, the ore required for Rourkela would be obtained from Gua region which is about 140 miles from Rourkela. They understand that this might involve an annual extra expenditure of Rs. 68 lakhs on transport alone besides some congestion on the main railway line from Gua to Bombay. *The Committee feel that even if mechanisation of the mines at Taldih (Barsua) had been delayed, iron ore could have been lifted manually and the mines worked as was proposed to be done in the case of mines for Bhilai plant, especially since the Taldih mines are only 42 miles from Rourkela as against Gua, which is 140 miles from Rourkela. The Committee suggest that the feasibility of doing so and of simultaneously expediting the construction of the Railway line from Dumaro to Bondamunda be urgently considered.*

212. (b) *Bhilai Plant*: A new mine is under construction at Rajahara, 60 miles from Bhilai, which will supply iron ore for the Bhilai plant. Contracts have been concluded for the supply of plant and equipment. The mine is, however, not expected to be mechanised in time for the commissioning of the blast furnaces by the end of 1958. It is, therefore, proposed to manually collect and use 'float ore' for the first 12 to 15 months of operation of the steel-works.

213. In this connection, the Committee were told that the 1955 Agreement with the Government of U.S.S.R. did not include the construction of mines within its scope as, it was hoped that, Indians would design the work with the help of the Russians. After some work had been done at Bhilai and broad outlines had been prepared, it was found that the data required by the Russians could not be supplied conveniently by the Indian side. Further suitable number of experienced designers and draftsmen were also not available. In November, 1957, therefore, it was decided to entrust this work also to the Russians.

214. The first blast furnace at Bhilai is scheduled to be commissioned by December, 1958 but the tenders for the civil engineering work at the iron ore mines are yet to be invited. *The Committee feel that the difficulties now experienced in this case could have been foreseen and it might have been possible to get this work completed in time.*

215. (c) *Durgapur Plant*: Iron ore for this plant will be drawn from a new mine at Bolani (Gua region) 204 miles from Durgapur which

is being developed by a company in which Government have the major share. The Company hope that these mines would be ready in time for the first blast furnace which is due to be commissioned by the end of 1959.

(ii) *Coal*

216. The reserves of high grade coal in India being limited, the plans for the production of coke in the steel plants envisage (i) the preliminary washing of inferior coal, and (ii) the utilisation of blends of coal with a view to reducing the proportion of consumption of high grade metallurgical coal. For the former, an amount of Rs. 10 crores has been provided in the Second Five Year Plan for establishing coal washeries in the public sector at Kargali, Dugda, Patherdih and Bhojudih. The first two will supply washed coal to the steel plants in the public sector while the latter two will supply washed coal mainly to the steel plants in the private sector. The Committee were told that the washery at Kargali which is expected to cost Rs. 2.38 crores is almost completed.

217. As regards the Dugda washery, tenders were called for the work late in 1957, the last date for their receipt being 11-1-58. Although about eight months have elapsed, the contract for the supply of plant and machinery, the Committee understand, has not been finalised so far. In extenuation it was stated that certain clarifications were still awaited from the parties concerned and that a decision was likely to be taken very soon. The Committee were informed that the washery, which was originally estimated to cost about Rs. 2.5 crores, would now cost between Rs. 4 to 4.5 crores (as against Rs. 2.38 crores for Kargali Washery) and that it would not be ready for operation before the end of 1960. The delay in its completion will also necessitate the use of unwashed coals from the Jharia fields at the Bhilai plant. *In this case also, the Committee feel that the programme for the completion of essential ancillaries should have been planned sufficiently early.*

218. The Committee understand that the guarantees given by the suppliers of plant and machinery are subject to the condition that they would be worked only with coal of particular specifications. There is a possibility that since the reserves of the country's good quality coal are limited, it might be difficult for the Hindustan Steel (P) Ltd. to fulfil that condition. While the representatives of the Government assured the Committee that there would be no default on that account and that they expected to be able to supply coal of the stipulated quality, *the Committee feel that such a condition is likely to provide a loophole for the suppliers from honouring their guarantees and might well have been avoided.*

(iii) *Limestone*

219. The Committee understand that limestone available in the neighbourhood of Rourkela would not be suitable for the steel melting shop at Rourkela (for the production of L.D. steel) and that for this

purpose about 1.7 lakh tons of special quality limestone would be required each year. They were informed by the Ministry that investigations have been made to locate sources of supply at Jukehi, Maihar, Katni, and Satna and preliminary discussions have also been held by the Project authorities with the quarry owners. In this connection the Committee find a difference of Rs. 7 to Rs. 18 per ton in the freight charges between Birmitrapur, from where the supply of limestone was expected to be obtained originally, and the above places which would mean an extra expenditure between Rs. 11·9 and Rs. 30·6 lakhs annually on transport alone. They also find that no decision has yet been taken in the matter although the steel melting shop, even according to the revised schedule is due to be commissioned between May and November 1959 (The original schedule was April, 1959). *The Committee have earlier pointed out delays in the completion of iron ore mines, coal washeries etc. and find faulty planning in this case as well. They hope that an early decision will be taken in the matter.*

(iv) *Refractories*

220. Refractory bricks of various kinds are required for the coke ovens, blast furnaces, open hearths and other departments of the steel plants. At present 33 factories in the country are stated to be manufacturing various types of refractories, their total installed capacity being 4,98,240 tons per annum.

221. The Committee were told that the existing capacity was not sufficient to meet the requirements of the steel plants in the public and the private sectors and that a conservative estimate of the imports of refractories for the constructional needs of the three Government plants during the period 1956-59 would be 150,000 tons costing about Rs. 4 to 4·5 crores. Schemes for additional capacity are stated to have been licensed while the Government were also negotiating the possibility of putting up at least one refractory plant for the basic refractories as a subsidiary of the Hindustan Steel (P) Ltd.

222. In this connection the Committee find that the contract for the Coke Oven Plant at Rourkela which was concluded with Dr. Otto & Company on 22nd May, 1956 stipulates supply of the required quantity of refractories by the foreign contractor and that out of the f.o.b. value of supplies amounting to D.M. 49,535,950, a sum of D.M. 13,116,600 (Rs. 14,905,225) is intended to cover the cost of refractories. The Committee were informed by the Ministry that it was provided in the contract that the supplier could use refractories material produced indigenously in case the HSPL were fully satisfied about the quality and that the question of substituting imported bricks by indigenous bricks was under consideration.

223. Since the manufacture of refractories is already established and necessary experience and skill in that line are available in the country, *the Committee feel that the production of refractories, except, perhaps, for some special types, for meeting the needs of the three plants might have been possible indigenously, had this been planned*

sufficiently in advance. They would urge that steps should be taken to ensure that the proposed Government plant and the schemes which have been licensed are completed as early as possible.

(v) *Other Raw Materials*

224. Each of the steel plants would require on an average about 5,000 tons of sulphur, 1,600 tons of quartzite, 10,000 tons each of bauxite, ferro-manganese and ferro-silicon and 2,000 tons of flurospar annually. While there is no difficulty in obtaining quartzite, bauxite, ferro-manganese and ferro-silicon from within the country, sulphur and zinc are stated to be imported by the steel plants in the private sector for the present.

225. *The Committee would suggest that the investigations for locating and exploiting the sources of these raw materials in the country should be expedited.*

(vi) *Water Supply at Rourkela*

226. When the site for the Rourkela plant was selected, it was expected that there would be adequate supply of water for the plant, in the neighbourhood, where there are three rivers, namely, Sankh, Koel and Brahmini. Information had been gathered from the Orissa Government authorities which was stated to be based on the statistics of over 60 years flow in the river that there would be about 90 to 100 cusecs of water available in the Brahmini, while the plant would require only 60 cusecs of water and the township about 10 cusecs. But in May, 1955 the river Brahmini dried up and it had only 28 cusecs of water. The dry season of 1955 was stated to be very unusual occurrence in respect of these rivers which had not happened for about 31 years. Further, the minimum requirement of water for the plant and the township was revised and placed at 125 cusecs. It was, therefore, decided to have a storage reservoir by means of a dam across the river Sankh in order to ensure continuous supply of water. The work has been entrusted to Hirakud Authorities and is expected to cost about Rs. 1·9 crores. This is an additional item of expenditure not contemplated when the project was approved.

227. In this connection, the Committee learn that the Consulting Engineers to the Government (International Construction Company) had expressed doubts about the water supply arrangements being ready in time. The representatives of the Government while admitting the above fact stated that much progress had since been made. *The Committee hope that Hindustan Steel (P) Ltd. would take all necessary steps to ensure that the water supply arrangements are ready in time for the commissioning of the plant.*

(vii) *Scrap*

228. The Committee were told by the representatives of Government that the price and distribution of scrap were controlled and that

of the three varieties of scrap, all available industrial and rerollable scrap was not only fully utilised but that considerable quantities of such scrap were, also, being imported. There was, however, some exportable surplus of melting scrap. The figures of arisings, consumption, imports and exports of scrap of different varieties are given in Appendix XXII.

229. It is well recognised that scrap is of great importance in the steel industry but the Committee find that there is no machinery to collect all available scrap in the country. The Secretary of the Ministry stated that considering the size of the country and the number of places where scrap would arise he could not visualise a central organisation which could collect all the scrap. He was of the opinion that to some extent it should be left to a free play of the market in which the price, the demand and the supply would find their natural level. This might, however, necessitate the decontrol of the price and distribution of scrap. The Committee have no data at their disposal on which to reach any conclusion in this matter. *But they would suggest that an agency like the State Trading Corporation might undertake to purchase all the scrap at such prices as might attract maximum collection and distribute it on such lines as Government might direct. In addition, the Government of India with the assistance of the State Governments, Municipal Corporations and other local bodies might institute a concerted drive for the collection of all available scrap in the country. In this connection they would suggest that the measures adopted in certain foreign countries like Germany, Russia, China etc. might be usefully studied and adopted to the extent possible.*

(viii) *Power Plant at Rourkela*

230. The Committee heard of a report that the specifications originally laid down for the power plant at Rourkela were changed after receipt of tenders and that they were modified and finalized by the Technical Adviser while he was in Germany to suit the suppliers. They therefore discussed this matter with the representatives of the Ministry on the 9th September, 1959 who promised to ascertain the position and furnish a written note on the point. *The Committee regret to observe that the requisite information was not furnished to them until they had finalized their Report, and as such could not examine the matter in detail.**

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*A note was furnished on the 31st December,1958 and is reproduced at Appendix XXIII. *Inter alia* it mentions

"When tenders were received certain new factors were brought to light and as a result of the discussions with the tenderers, certain specifications were changed. The final order for the power plant was placed on the basis of the revised specifications which were approved by the consultants for the Rourkela steel plant, the Technical Adviser and M/s International Construction Co., Consultants to the Ministry of S.M. & F. It was the opinion of all these agencies that the revised specifications were the best on technical and practical grounds. The modifications were finalized in Germany."

Since, the estmiates of cost of the Power Plant have gone up by about Rs. 2 crores (from Rs. 6·72 to Rs. 8 62 crores), it is desirable that this matter is also examined in detail by the Technical Committee suggested in para 75.

C. Transport

231. The Committee understand that the completion of the new steel plants would involve the movement of about 2·64 crore tons of raw materials and 54·6 lakh tons of finished products every year, excluding by-products. The Ministry of Railways in consultation with the Ministry of Steel, Mines and Fuel are stated to have finalised the requirements of new lines, rolling stock and line capacity works on the existing lines. The major works are stated to have already been programmed and are expected to be completed in time. Steps are also stated to have been taken by the Port Authorities at Calcutta and Visakhapatnam for handling the large volume of traffic likely to pass through these Ports in connection with the setting up of the three plants. Further, at Calcutta the H.S. (P) Ltd. have constructed a basin at Fuleswar (about 19 miles down the river) to handle the Rourkela consignments and a jetty at Bhadreswar (which is about 17 miles up the river) to handle Durgapur Consignments. The jetty at Bhadreswar is stated to be permanent and is expected to be utilised for the fourth steel plant as well. This arrangement is expected to cost about Rs. 20 lakhs but it was stated that the cost would be more than compensated as a considerable volume of traffic was expected to pass through these jetties.

232. It was observed from a note furnished by the Railway Board in regard to the steps taken by them for providing rail transport facilities for the different steel plants that no arrangement had been made to meet the enhanced traffic which might arise due to expansion of MISW. It did not also appear that any arrangement had been made to procure special types of wagons required for transport of by-products of the steel plants. A reference was, therefore, made to the Railway Board on the 4th February, 1958 seeking clarification of the position in these respects. While information in respect of the first point above was not received till the date of this report, in regard to the second point, the Committee received the following reply from the Railway Board on 31st October, 1958, *i.e.*, nearly 9 months after the reference was made.

> "It was only in the middle of August 1958 that the Hindustan Steel (P) Ltd. furnished the data to the Board and have sought for their advice regarding the type of tank wagons etc. which should be used for the movement of by-products from the Steel Projects. This aspect has been referred to the Research, Design and Standardization Organisation of the Railway Board and reply is still awaited."

233. *In this connection the Committee cannot but feel surprised that the need for the special requirements of transport of by-products was apparently realised only after they took up the matter with the Ministry in February, 1958. The Committee fear that considering*

that the by-products plant at Rourkela is expected to go into production by October, 1959 the wagons required for the transport of by-products might not be available in time due to delay in initiating action to procure them. They would, therefore, suggest that action to finalise the requirements of wagons etc. might be expedited. They would also urge that the additional transport requirements of MISW might be assessed and early action taken to meet them.

234. Since all the five Steel Plants are located in the same region and are mainly served by the S.E. Railway, a very heavy burden has fallen on that Railway, which has to cater to the traffic requirements of other industries like coal, paper, cement, fertilizers, aluminium etc. as well. The existing load on the Railway is likely to increase further with the location of new industries in that region on the completion of Hirakud Dam. *The Committee would, therefore, suggest that with a view to relieving pressure on the S.E. Railway, the possibility of developing minor ports and/or inland waterways to handle at least a part of the iron & steel traffic might be explored.*

235. The Committee understand that there had been some accumulation of equipment at Vizag Port because it was not possible to handle all the shipments at this Port in time, particularly with ships of the type chartered by the U.S.S.R. Further there was a shortage with the Railways of a particular type of wagons required for the transport of equipment. A demurrage of about Rs. 57 lakhs is stated to have accrued as a result of this accumulation.

236. *The Committee feel that the difficulties which arose could have been anticipated and unloading facilities augmented in time so as to avoid the bottleneck in the clearance of the cargo which resulted in such heavy demurrage charges, especially since it was subsequently found possible to effect improvements at Vizag and to augment the cranage. In this connection they would also refer to the recommendation contained in para. 213 of the 7th Report of the P.A.C. (Second Lok Sabha).*

237. The Committee understand that there was delay in laying railway track within the perimeter of the works at Rourkela which resulted in some delay in unloading the machinery and equipment there. It was explained that this happened because the suppliers did not send tackle in time with the help of which the machinery was to be unloaded. Besides, there was shortage of shunting locomotives, the three steam locomotives with them being inadequate and the required number of sidings were not available at the plant. The Committee were, however, informed that efforts had since been made to ease all these difficulties and that the project authorities were in a position to handle all the equipment and machinery coming from different ports. *In this case also the Committee feel that the traffic hold-up at Rourkela could have been avoided with proper planning and liaison with the suppliers.*

D. Export of Iron Ore

238. The figures of the quantities of iron ore exported during the last seven years and the value realised therefor are given below:—

Year	'000 tons	Rs. (lakhs)
1951-52.	280	100
1952-53.	810	370
1953-54.	1,200	553
1954-55.	1,008	421
1955-56.	1,362	627
1956-57.	1,924	1,003

239. The Committee understand that recently a long-term arrangement had been finalised for the export of two million tons of iron ore annually to Japan. It was explained that because of the large reserves of iron ore available in the country Government had agreed to export it so as to earn foreign exchange.

240. *While recognizing the need for exporting surplus iron ore at the present moment, the Committee would suggest that arrangements for the export of iron ore should not be made on a long-term basis so that the country might get an opportunity to review the policy of exporting this basic raw material. They have already suggested elsewhere that the possibilities of exporting pig iron instead of iron ore should be explored.*

E. Export of Manganese Ore

241. The following quantities of manganese ore have been exported during the last few years:—

Year	'000 tons	Value (Rs. lakhs)
1952-53.	1,439	2,180
1953-54.	1,565	2,424
1954-55.	990	1,293
1955-56.	1,364	1,668
1956-57.	1,593	2,646

242. The Committee understand that the reserves of manganese ore in the country are limited and that there is no substitute for this important raw material in steel making. Further this ore is the primary raw material for the manufacture of ferro-manganese, a valuable product. *The Committee feel, as in the case of export of iron ore, that if instead of manganese ore, ferro-manganese, capacity for which is being increased, could be exported, it would not only help in preventing large exports of valuable manganese ore but also provide employment to a large number of people in the country in the ferro-manganese manufacturing industry and earn more foreign exchange for the country. The Committee therefore, recommend that the feasibility of restricting the export of manganese ore and of increasing that of ferro-manganese should be explored.*

X

PERSONNEL MATTERS

A. Staff strength in the Ministry

243. The expenditure incurred on the pay and allowances of the staff in the Ministry of Iron and Steel (now Department of Iron and Steel in the Ministry of Steel, Mines and Fuel) during the last three years has been as follows:—

	1955-56	1956-57	1957-58 (Upto Sep., 1957)	Budget estimates for 1958-59
	Rs.	Rs.	Rs.	Rs.
Pay of Officers . . .	1,10,154	2,71,217	1,75,207	3,00,000
Pay of Estb.	37,987	1,24,956	96,241	2,11,700
Allowances & Honoraria. .	58,478	1,74,385	1,15,191	2,25,700

244. Thus after the transfer of work relating to the Bhilai and Durgapur Projects to the H.S. (P) Ltd. with effect from 1st April, 1957, there has been no reduction in the expenditure on staff in the Ministry. It was, stated by the representatives of the Ministry that this was due to the fact that they had been entrusted with the additional responsibility of looking after the Steel Plants in the private sector, ferro-manganese industry etc. It was further stated that the transfer of staff to the H.S. (P) Ltd. required certain formalities to be completed which took some time and the staff continued to be borne on the strength of the Ministry.*

*It was pointed out in this connection that the strength of the Department of Iron & Steel prior to the transfer of Bhilai and Durgapur Projects to the HSPL, after the transfer, and as at present was as follows:

Date	Class I	Class II	Class III	Class IV	Remarks
31-3-57 . .	21	43	74	61	
April, 57 . .	25	51	88	69	(including staff received from Min. of Heavy Industries).
After transfer of staff to HSPL. .	9	43	80	64	
20-2-59 . .	12	55	74	59	

It was also stated that of the present staff, six Class II Officers and 8 Class III staff were surplus and were awaiting to be transferred to other Ministries or Departments.

245. *The Committee suggest that the requirements of staff in the Ministry (Department of Iron and Steel) be reviewed.*

B. Headquarters Office of the H.S. (P) Ltd.

246. *Staff.*—The strength of the various categories of staff in the Head Office of the Hindustan Steel (P) Ltd. and their scales of pay are given in Appendix XXIV.

247. It will be seen that there are three Secretaries, two Joint Secretaries and two Deputy Secretaries, besides ten Executive Officers and other staff in the Head Office. The three Secretaries are in charge of various Sections *e.g.*, Bhilai, Rourkela and Durgapur while one Joint Secretary is in general charge. Of the others, one officer is in-charge of recruitment and one, of budget. The Committee have suggested earlier that at each project, there should be a local board of management which should be mainly responsible for all work relating to that project and that the headquarters office should be the co-ordinating authority. *They, therefore, feel that it would be desirable in the interest of efficiency and effective coordination if instead of three Secretaries each looking after a separate plant, one Secretary only is entrusted with the overall charge of coordinating the work in the three plants. He might, however, be assisted by Deputies, if necessary.*

248. There are at present fourteen stenographers and six stenotypists in the Headquarters office of the HSPL to render stenographic assistance to the three Secretaries, two Joint Secretaries, two Deputy Secretaries and the Executive Officers. The Committee understand that in the Ministries of the Government of India officers of rank equivalent to Deputy Secretaries and Executive Officers in the HSPL are not allowed stenographic assistance on the same scale.

249. *The Committee suggest that a systematic job analysis might be conducted in the Headquarters Office of the HSPL for determining the strength of the various categories of personnel so that uniform criteria are adopted for providing staff to the various officers, keeping in view the practice followed in the Secretariat of the Government of India and the various undertakings in the public sector.*

C. Staff at the three steel plants

250. From a statement showing the staff employed, their categories, scales of pay, etc. at the three steel projects furnished to the Committee, they observe that there is no uniformity in the designations and scales of pay of the posts in the three plants. There are also wide variations in the number of persons employed. At Rourkela, there are different scales of pay even for similar posts *viz.*, Purchase Officers. It was explained that the difference in the designations and pay scales of the posts at the Rourkela Project was due to certain historical reasons but that there was some uniformity in the matter at Bhilai and Durgapur.

251. As regards the disparity in the number of constructional staff employed at Rourkela and Bhilai Projects, although the schedules for operation of the two plants are nearly the same, it was stated that the variations were due to the different ways in which each project was working. The entire matter was, however, stated to be under examination with a view to bringing about uniformity as far as practicable. For this purpose, the General Managers of the three plants were stated to have been asked to finalise their cadres for various branches which would be examined centrally.

252. *The Committee feel that such a situation should not have been allowed to develop but hope that the review promised would be expedited and action taken thereon quickly. They suggest that in the project offices also, job analysis might be carried out and staff strength determined on a scientific basis. They feel that for this purpose, it might be desirable to entrust the work to a Central Team which might visit each of the plants and finalise its recommendations in consultation with the General Managers.*

D. Recruitment

253. The Committee are informed that the Hindustan Steel (P) Ltd. have prepared an estimate of the technical personnel required for the three steel plants, Department-by-Department and job-by-job in each plant and have also laid down the necessary qualifications and types of training required for different categories of jobs in consultation with the Russian, German and British Associates as well as Senior Officers of the Tata Iron and Steel Company and a manpower expert from the U.S.A. According to these estimates, the following staff will be required for the operation of the three Steel Plants:—

(i) 120 experienced engineers who would be entrusted with higher technical directions,

(ii) 1200 qualified engineers,

(iii) 10,000 skilled workers of different categories, and

(iv) 7,000 semi-skilled workers.

254. In this connection the Committee were informed that in the U.S.S.R., Germany and the U.K. generally a million ton steel plant was manned with about 5,000 to 6,000 workers. It was added that there was no reason to believe that the Indian worker was any less efficient than a foreign worker and that therefore there should be no need to have more workers in the new steel plants than were employed in the plants of about the same size in other countries, except in a very few instances where because of a high degree of physical strength and endurance required it might be necessary to have a few more workers. The Committee however, feel that different working conditions and wages may also have to be taken into consideration in regard to this matter.

255. Prior to 1-4-1957, when the Bhilai and Durgapur Steel Projects were managed departmentally, the recruitment of engineers was made largely through the U.P.S.C. Since then, the Hindustan Steel (P) Ltd. has undertaken the responsibility for recruitment, which is done centrally for the three steel Projects. Recruitment is made by a Committee of Senior Officers in association with advisers from outside.

256. *In this connection, the Committee would like to reiterate the recommendation contained in para. 75 of their 39th Report (First Lok Sabha) that a separate Public Service Commission with slightly different and more flexible rules and procedure might be set up for the purpose of recruitment to posts in the Undertakings in the Public Sector. Meanwhile the Committee would suggest that the existing Selection Committee should be broad based to include prominent non-officials and technical experts from outside, so as to create greater confidence in the objectivity of the selections.*

257. For the recruitment of Indian engineers abroad, two Selection Committees have been set up at London and Washington under the Chairmanship of Ministers (Economic) at the respective places. The Committee understand, however, that the response of the foreign trained Indian engineers for employment in the steel plants has not been encouraging. It was explained that although the HSPL had taken as flexible a view as possible, it was not possible to meet the demand of these engineers for high salaries, because of the fear of dissatisfaction likely to be caused among similar category of people from Indian Universities employed at the Steel Projects. *The Committee, in this connection, would suggest that some uniform standards regarding academic qualifications, types of training received, experience, etc., should be laid down for purposes of pay-fixation and given wide publicity.*

In this connection, they would refer to the reported recent decision of the Manpower sub-Committee of the Union Cabinet to maintain a pool of foreign trained Indian experts and *would suggest that the HSPL should draw on that pool for their requirements of foreign trained personnel as far as possible.*

258. The Committee were informed that the recruitment of unskilled workers, clerks etc. was made generally through the Employment Exchanges and that, other things being equal, the policy had been that displaced persons and local people were given preference. It was pointed out, however, that in the case of Muster Roll employment of skilled labour and work-charged establishment of grades higher than class IV, there was considerable difficulty in recruiting them through the Employment Exchanges and that consequently such persons were recruited directly by Selection Boards, without reference to local Employment Exchanges. It was also mentioned in this connection that at Bhilai some carpenters had to be recruited from Kerala since persons with requisite skill were not available from the Employment Exchanges or from local sources.

259. The following table indicates the number and percentage of local personnel employed in the various categories at Bhilai which alone were furnished to the Committee:

	Class III (including technical and Ministerial)	Class IV (including technical and non-technical)
I. (*i*) Number of persons from old Madhya Pradesh including parts transferred to Bombay . .	899	291
(*ii*) Percentage	27%	30·7%
II. (*i*) Number of persons from newly formed Madhya Pradesh	701	314
(*ii*) Percentage	21·3%	33·1%

Thus, at Bhilai, the percentage of local people employed at the project is less than 30.

260. In this connection, the Committee would also like to refer to the recommendations contained in para 24(i) and (ii) of their Sixteenth Report (First Lok Sabha) that unskilled and semi-skilled labour should be recruited mainly from among the local people. *They are surprised to find that in spite of the acceptance of the above recommendations by Government the position has not improved in actual practice. They would, therefore, urge that effective steps should be taken for the implementation of these recommendations.*

E. Training

261. The Committee were informed that in order to avoid competition between the Projects themselves and to ensure a fair distribution of available men and resources, organisation of training was done centrally for the three steel plants.

The following arrangements have been made for the training of engineers in foreign countries:

U.S.S.R.	686 (including 487 skilled supervisory staff.)
West Germany.	80
U.K.	300 (including skilled supervisory staff.)
Ford Foundation (U.S.A.).	900 (engineers and skilled workers.)

262. Besides, Canada and Australia have also agreed to train a few engineers. The Tata Iron and Steel Works, the Indian Iron and Steel Works and the Mysore Iron and Steel Works would train nearly 600 operatives. The Bengal Chamber of Commerce, the Engineers Association of India and the Indian Chamber of Commerce have also agreed to train at a time 3,000 skilled workers in the various engineering works of their Member firms.

263. The total number of engineers sent to different foreign countries such as U.S.S.R., U.S.A., U.K., West Germany, Canada, and Australia so far is 510 and a batch of 50 operatives has been sent to U.S.S.R. recently. These trainees are expected to meet the requirements of the first phase of the Steel Projects *i.e.,* for putting into commission the first coke oven and blast furnaces. Further batches of engineers and operatives would be sent abroad for training and it is expected that men required for the three steel plants in the next five years would be trained in this manner.

264. The Committee understand that the engineers sent for training abroad were generally those who were recruited direct after graduation and that in most of the cases, they were not given any preliminary training in India. *They feel that the deputation of raw graduates abroad for training might not prove very useful, as there is a possibility that for want of preliminary training they might not make the best use of training facilities and that therefore it would be desirable for the trainees to possess adequate technical experience as also some experience of the job that they are expected to perform on return, before they are sent for training.*

265. In regard to the number of engineers who have been or are proposed to be sent out for training a view was expressed before the Committee that it was too large. It was also suggested that instead of foreign training, foreign instructors could be imported to give training to others in India. *The Committee suggest that these suggestions might also be carefully considered by Government.*

266. Besides the above schemes, *the Committee attach great importance to the need for setting up training centres at the respective projects for providing training to various categories of personnel required for manning the projects.* In this connection they understand that the Technical Personnel Training Committee, in their report submitted in 1956, had recommended the setting up of a Technical Training Institute at each of the three Projects. *The Committee hope that these Training Institutes would be set up and arrangements for training made therein as early as possible.*

F. Employment of trained personnel

267. The Committee were told that 187 engineers had returned after training abroad and were employed on erection and constructional work at the Project sites. In this connection, a view was expressed before

them that these foreign trained personnel had not been entrusted with responsible jobs and were feeling frustrated. It was conceded by the Chairman, HS (P) Ltd., that it was possible that at some stage there might be more men than could be utilised against particular jobs for which they were trained but that it could not be helped since the requirements might suddenly come up in the various sections and they could not afford to wait for men to be trained as and when required.

268. *The Committee cannot help feeling that apparently persons were sent for training without earmarking them for the particular jobs which they would be required to do on return, and that the training programme was not phased to coincide with the commissioning of the plants. Further the employment of persons trained for operational jobs might not be of any material use during constructional stages. Such an arrangement might not be conducive to the morale and efficiency of the actual constructional staff. This being so, it might perhaps be advantageous if these persons could be detailed for practical training in one of the existing steel plants in the country for acquiring technical experience and skill in the job in which they were to be ultimately employed, till the time they were required for their particular jobs in the plants concerned. The Committee would suggest that the feasibility of such an arrangement might be considered. Further, they would suggest that the desirability of re-phasing the training programme according to the operation schedules of the various Units of the three plants might be considered so that the trainees return in time to take up their respective posts.*

G. Foreign Personnel

269. At present the number of foreign personnel in the employ of HS(P) Ltd., at Rourkela and Bhilai is 3 and 370 respectively. In Durgapur no foreigner is engaged by the company. Besides these, there are a number of foreign personnel in the employ of the contractors and of the consulting engineers. The Committee understand that to assist in the operation of the three steel plants initially a certain number of foreign engineers and workers would be required. A Technical Committee is stated to have been appointed by the HS(P) Ltd., to determine the number of such personnel in respect of each plant. The Technical Committee has assessed the total number of Russian experts required at Bhilai as 279 including 21 engineers of high supervisory category. As regards Rourkela and Durgapur, the Committee have estimated that in the officers' grade 63 and 59 non-Indian experts would be required for short periods as distinct from those who might be brought as commissioning teams.

270. In this connection, the Committee were told that in view of the expansion in the existing steel plants in the private sector, it was difficult to meet all the requirements of the three plants in respect of experienced personnel, from within the country and that foreign personnel would be required for a period of about two years normally although in the case of some posts it might be even longer. They were also told that

Indian understudies were proposed to be attached to the foreign experts so that in the course of time they would be able to take the position of foreign technicians.

271. The Committee realise the difficulties in securing sufficient number of suitably qualified and experienced Indian personnel for the steel plants. They observe, however, that the number of foreigners employed at Bhilai, 370 at present and 279 at the stage of operation, is considerably larger than that at the other plants. *The Committee would suggest that the number of foreign experts should be kept to the minimum and that efforts should be made to obtain the maximum results from them by a well-planned replacement by Indian counter-parts. For this purpose, it might perhaps be advantageous if the Indians are put incharge of the Sections as far as possible while the foreign technicians are entrusted mainly with the job of guiding them. The Committee feel that in this way Indians might be able to acquire the requisite experience in much shorter time and might also be able to gain necessary confidence which is so necessary for these posts.*

H. Association of Labour with Management

272. The Second Five Year Plan has stressed the need for industrial peace and planned economy and has advocated the participation of labour in the management of industrial undertakings. In para 19 of Chapter XXVII of Second Five Year Plan it has been observed:

> "In view of the fact that the public sector will grow in future, the manner of administration of industrial relations in public enterprises is of great importance for the success of the undertakings and for the fulfilment of the aspirations of labour. Any attempt, therefore, on the part of public employer to avoid the responsibility of an employer on the ground that he is not working for profit has to be discouraged. Managements of public undertakings should not normally seek exemptions from labour laws or ask for other concessions not available to the private sector."

273. The Committee understand that the system of association of labour with management is being tried in some of the enterprises in the private sector. They have no doubt that the co-operation of labour has a marked effect on industrial performance. *The Committee would therefore suggest that the feasibility of introducing the scheme of participation of labour with management in the new Steel Projects might be considered as early as possible.*

I. Townships

274. For each of the three plants, it is estimated that about 7,500 men of various categories would be required initially for operation. This number is expected to increase, when the works are expanded first to 13 lakh tons of ingots and later to 25 lakh tons. It is envisaged that

accommodation would have to be provided practically for all the engineers, the skilled and unskilled workers and in addition to the ancillary personnel required for the townships. Initially, 7,500 houses are to be built in each township and the layout would be capable of taking more houses so that ultimately the demand of a plant of 25 lakh tons might be met. *In this connection, the Committee feel that the layout of the townships should also provide for their eventual expansion when ancillary industries grow around the steel plants.*

275. *Town Planners*: The plans for the townships were prepared by Indiengemeinschaft for Rourkela, Shri D. S. Bajpai for Bhilai and M/s Stein and Polk for Durgapur. The work relating to the preparation of the layout of the township at Rourkela was part of the consultancy agreement entered into with Krupp and Demag. No extra fee was paid to the German consultants on this account. The fee paid to Shri Bajpai is Rs. 2,26,000 and to M/s Stein and Polk Rs. 2,52,000.

276. *Estimated Cost*: The estimated cost of the three townships including the cost of land, is stated to be as follows:—

	(Rs in crores)
Rourkela	13·74
Bhilai	15·81
Durgapur	14 (Approx.)

In justification of the costs of the Townships at the steel plants, it was stated that the aim was to provide therein facilities becoming of a Government undertaking and not below what was available to similar classes of people in private industry. In this connection, the Committee understand that townships for the Chittaranjan Locomotive Works and Sindri Fertilizers & Chemicals (P) Ltd., which have staff strengths of 7,703 and 5,168 respectively, were built at a total cost of Rs. 6·71 and 4·35 crores respectively. *They, therefore, feel that even after allowing for the fact that the layouts of the steel Townships provide for ultimate expansion to meet the demand of a plant of 25 lakh tons capacity, the cost of townships is rather high. Further the Committee do not appreciate why the estimated cost of townships (excluding land) at Rourkela, Bhilai and Durgapur being Rs. 9·69, Rs. 14·65 and Rs. 10 crores respectively, should vary so largely. They, therefore, suggest that this matter as well as the question of high costs of townships as compared to the Chittaranjan and Sindri Townships should be examined further.*

277. *Phasing of Construction*: A view was expressed before the Committee that in the public sector too many houses were being built some of which were lying vacant and that since production was more

important than construction of houses, it was desirable that the housing programme of the projects should be carried out in a phased manner spread over a period of years. *The Committee feel that while it would be necessary to construct some houses for the men working on the projects located at out of the way places, there is much force in the view* that construction of plant etc., should have higher priority than con*struction of houses and that all houses should not be built even before the projects start.*

XI

MISCELLANEOUS

A. Plant and Machinery

278 The arrangements for the supply of plant and machinery for the three steel plants are different since they depend on the nature of the agreements made for the setting up of the respective plants. The plant and machinery received and installed at each of the three plants is given below:—

Project	Main plant and equipment		Structural Steel		Other stores (including refractories)	
	Total tonnage received	Total tonnage installed	Total tonnage received	Total tonnage installed	Total tonnage received	Total tonnage installed
Bhilai	59,962	4,152	67,537	12,662	1,28,201	1,061
Durgapur	13,000	roughly 60%	18,000	roughly 60%	17,000	roughly 60%
Rourkela	1,80,000	45,000	..	..	..	..

279. Thus, while the extent of plant and machinery received differs from project to project, the percentage of machinery installed out of that received is 60 per cent. at Durgapur while at Rourkela and Bhilai it is 30 and 10 per cent. respectively. The Committee also understand that some uninstalled machinery is lying in the open. They were assured, however, that all the equipment which was likely to be damaged by rain or weather was moved into sheds or covered with tarpaulins and that no damage would occur to such machinery. While the Committee realise that to some extent plant and machinery has to be received in advance of its actual requirement especially in view of the distance from which it has to come, *they cannot help feeling, considering the extent of uninstalled machinery at Rourkela and Bhilai (at Durgapur the extent of machinery received is itself small) that there has been some lack of co-ordination between the suppliers of plant and the project authorities. The Committee hope that every effort will be made to rectify this.*

280. The three steel plants would require a large variety of spare parts and other equipment in the course of operation. It is understood that the initial supply of the spares has been arranged from the suppliers of machinery. The Committee were told that it would be possible to manufacture a number of spare parts required for the steel plants at the Heavy Machinery Plant which is being set up at Ranchi in collaboration with the Russians. The Committee feel, however, that apart from the

proposed Ranchi Plant there might be some indigenous capacity elsewhere even at present to produce some spare parts and equipment. *They recommend that Government might conduct a survey of the existing capacity so that equipment which could be produced in India might not be imported from abroad and also so that where possible suitable capacity might be provided for future requirements. Similar remarks would apply in regard to the requirements of plant and machinery for the steel plants to be erected in future.*

281. *The Committee feel that from the point of view of economy of maintenance and replacement of parts etc., of the existing plants as well as for the setting up of new units, standardisation of various components required for the steel plants is very important. They would, therefore, suggest that in view of the proposal to set up the Heavy Machinery Plant at Ranchi the question of standardisation of the various components might be actively examined in consultation with the Indian Standards Institution.*

B. Land Acquisition

282. The requirements of land for the three projects are as follows:—

	(In acres)
Rourkela	24,244
Bhilai	23,807
Durgapur	16,230

Upto April 1958, acquisition of land was as follows:—	(In acres)
Rourkela	18,819·54
Bhilai	20,685 35
Durgapur	10,615·35

The estimated cost of land is as follows:—	(Rs in crores)
Rourkela	1·98
Bhilai	1·16
Durgapur	1·97

283. Land is acquired through the Land Acquisition Agencies of the State Governments and compensation for the land acquired is paid on the basis of awards made under the respective Land Acquisition Laws of the States. The Committee understand that there has been some delay in payment of compensation to the land-owners. *They hope that the State Governments would expedite the payments so that the displaced persons might rehabilitate themselves quickly.*

284. The Committee were informed that for rehabilitation of displaced persons whose land had been acquired for the Rourkela project, the Government of Orissa had set up four resettlement colonies. Out of 367 families displaced upto November, 1957, 338 have been rehabilitated by the State Government. The balance of 29 have made their own arrangements. Out of 5,973 able-bodied displaced persons 3,878 have been provided with employment at the Rourkela project. As

regards Bhilai, under the Madhya Pradesh Resettlement of Displaced Land Holders Act, a Special Rehabilitation Officer is appointed by the Government of Madhya Pradesh for rehabilitation of displaced landholders. The compensation that has been paid includes, in addition to the cost of land, an element of compensation for displacement. All persons who got compensation are reported to have acquired land in other areas and settled down. The landless labourers have been absorbed as labourers in the steel projects.

285. *The Committee suggest that there should be maximum uniformity in the rehabilitation arrangements at the three projects. They feel that even though the responsibility for rehabilitation of displaced persons rests primarily with the State Governments, the project authorities might also lend full support and help to them in providing decent means of livelihood.*

286. When the steel plants are completed and go into production, the three townships will grow in importance and there may be movement of population to the townships. The Committee have elsewhere recommended that ancillary industries should be developed around the steel plants which might cause further expansion of the townships. *The Committee, therefore, suggest that provision should be made for allotment of some land to men not connected with the steel plants directly, to set up business and/or to settle down. Further, in order that there may be no speculation in the sale of land on the periphery of the steel plant area and also that there may be no ill-planned development of buildings in that area, the Committee suggest that the possibility of acquiring more land or otherwise regulating land transactions and building constructions in the neighbourhood may be considered.*

C. Research

287. The Committee understand that no fundamental research in regard to iron and steel making is conducted at present even by IISCO and TISCO. The National Metallurgical Laboratory at Jamshedpur, however, is *inter-alia* engaged in the work of development of new steels as well as research in ores and minerals required for the manufacture of steel. *The Committee, while appreciating the work done at the Jamshedpur Laboratory, feel that there is a great need for regular scientific study and investigation and application of results of research in this work. They, therefore, suggest that in view of the programme of expansion of the steel industry in the country proper plans might be made by the steel plants in the public sector from the very beginning for organising commercial and technical research on the operational side and that for this purpose the desirability of setting up well-equipped and organised research establishments in the steel plants or elsewhere might be considered.*

NEW DELHI;
The 25th February, 1959.

BALVANTRAY G. MEHTA,
Chairman,
Estimates Committee.

APPENDIX I

(*Vide* Para I Preface)

Information outstanding from the Ministry of Steel, Mines and Fuel (Department of Iron and Steel) as on 2-12-1958

S. No.	Date on which called	Particulars
1	13-9-1958	*Shifting of sites at Rourkela.
2	Do.	*Arrangements made for special quality limestone for the production of L. D. steel at Rourkela.
3	Do.	*Reasons for rise in the cost of Rolling Mills at Rourkela.
4	Do.	*Power Plant at Rourkela—original and revised specifications, etc.
5	Do.	*Date of Hochtief Gammon agreement.
6	25-9-1958	*Particulars about the deferred payment agreements and credit arrangements made for the three steel plants.
7	Do.	Particulars of the contracts entered into with Hochtief Gammon (other than for civil engineering works in respect of Rolling Mills at Rourkela).
8	Do.	*Terms of the contracts awarded to the German combine (Consultants for Civil Engineering Works) other than for the Rolling Mills at Rourkela.
9	Do.	*Details about the contract for the supply of Refractories placed on Dr. C. Otto & Co., Contractors for Coke Oven Plant at Rourkela.
10	Do.	*Steps taken by the Project Authorities to ensure that slums do not grow near the Steel Projects or the Townships built therefor.
11	1-10-1958	*Details of the various Branches at Bhilai and Durgapur Projects and the Head Office of the HSPL.
12	Do.	Latest position in respect of designations, pay scales, No. of persons employed etc. at the three Projects after the proposed re-organisation etc.

*Since received.

S. No.	Date on which called	Particulars
13	24-10-1958	*No. of cases referred by HSPL to Government under Art. 98 of their Articles of Association, directives issued by Government, etc.
14	Do. .	*Report of the high level Technical Committee appointed by the HSPL.
15	30-10-1958	*Cases referred by the Ministry to the ICC as Consulting Engineers to Government.
16	Do. .	Time taken by IISCO and TISCO to expand thier production capacity.
17	1-11-1958	*Confirmation of the note by Shri S. Supakar, M. P. on his visit to Rourkela.
18	27-11-1958	*Consumption of steel in the country during the last 5 years.

*Since received.

APPENDIX II

(*Vide* Para 8)

Features of the Schemes Submitted by the Consultants Appointed by Government in 1948

The International Construction Company recommended the establishment of two complete iron and steel plants, one of the capacity of 0·5 million tons of finished steel to produce sections, rails, merchant bars and wire rods at an initial cost of Rs. 59 crores, with a lay-out for ultimate expansion upto 8,20,000 tons of finished steel from one million tons of ingots at the total cost of Rs. 72 crores, and the other with an initial capacity of 0·5 million tons of finished steel producing, plates, wide strips, black sheets, galvanised sheets and tin plates at an initial cost of Rs. 70 crores, with a lay-out for ultimate expansion upto 7,33,000 tons of finished steel from one million tons of steel ingots at the total cost of Rs. 88 crores. The estimated cost of the plants was exclusive of land, railways upto works boundary, township, etc.

Messrs. McKee & Co. submitted plans for a plant of one million tons as well as for two plants of half-million tons each. The larger plant was to be so designed and equipped that all categories of the required products could be produced in it and approximately the desired tonnage of each. Of the smaller two plants one was designed to produce 5,75,000 tons yearly of heavy rolled steel sections, such as blooms, billets, rails, structurals and bars; the other plant for producing 5,80,000 tons of flat rolled steel including plates, strips, sheets and tin plate. This sub-division of products between the two plants was designed to make for economy in construction cost and in the cost of manufacture. The cost of construction of the larger plant was estimated to be about Rs. 90 crores and of the two smaller plants Rs. 50 crores and Rs. 62 crores respectively.

APPENDIX III

(*Vide* para 48)

Delegation of Powers to General Managers

Nature of Power	Extent of Power	Remarks
A. Establishment :		
1. Creation of posts on approved scales of pay .	Class II—one year. Class III & IV—Full powers Worked charged Establishment— Upto consolidated pay of Rs. 500/- against sanctioned etimates.	CFA/MRB CFA CFA
2. Appointments	As above except Junior Engineers/ Graduate Apprentices. All appointments to be made through properly constituted Selection Committees.	
3. Grant of Leave	Full Powers.	
4. Declaring an officer as Controlling Officer . .	Full powers. He will be the Controlling Officer in respect of his own TA bills.	CFA
5. To prescribe a Company servant's Headquarters and to define sphere of duty.	Full Powers.	

	Nature of Power	Extent of Power	Remarks
6.	Transfer of officers and staff	Full powers.	
7.	To decide whether a particular absence from Headquarters is absence on duty.	Full Powers.	
8.	To permit handing over charge away from Headquarters.	Full Powers.	
9.	Temporary and Officiating appointment of a Company servant to more than one post and fixation of pay and allowances.	For Class II and III— Upto three months, provided also that the vacancy is likely to exceed one month.	CFA
10.	Restrict the pay of an officiating employee .	Full Powers	
11.	Fixation of pay on initial appointment . . .	Class II, III & IV : Full Powers	CFA
12.	Grant of increments	Class II, III & IV : Full Powers.	
13.	Extension of joining time	upto 30 days.	
14.	Advances of pay and T. A.	Full Powers.	
15.	Advances for Conveyances	Full Powers.	
16.	Sanction of Imprest/Permanent Advance .	Upto Rs. 500/- in each case.	CFA
17.	To restrict frequency and duration of journeys on tour.	Full Powers.	
18.	To decide the point of commencing or end of journey in a station.	Full Powers.	
19.	To decide the shortest of two or more routes .	Full Powers.	
20.	To prescribe mode of travel and to allow mileage allowance by a route other than the shortest and the cheapest.	Full Powers.	
21.	Drawal of full Daily Allowance for halts exceeding 10 days.	Upto 30 days.	

	Nature of Power	Extent of Power	Remarks
22.	Acceptance of Fitness Certificates to join duty after leave on medical grounds.	Full Powers.	
23.	Grant of acceptance of honorarium or fee . .	Upto Rs. 1,000 in each case	CFA
24.	Retention of a Company Servant after 55 upto 60 years—one year at a time.	Class II*, III & IV—Full Powers	*MRB
25.	To prescribe the form of Surety Bonds to be executed by staff handling cash and stores etc.	Full Powers.	CFA
26.	To fix instalments for recovery of overpayment of pay and allowances.	Full Powers.	CFA
27.	Investiagation of arrear claims	Full Powers in respect of claims upto 3 years old.	
28.	Alteration of date of birth	Class II, III & IV : Full Powers	
29.	Acceptance of Resignation	Class II, III & IV : Full Powers.	
30.	Sanction payments under Women's Compensation Act	Full Powers	CFA
B.—*Works*			
1.	Administrative Approval to works	Upto Rs. 5 lakhs	CFA
2.	Excess over Administrative Approval . . .	Upto 5% subject to overall limit of Rs. 5 lakhs.	CFA
3.	Acceptance of Tenders for Works when Open tenders are invited and more than one valid tender received.	Upto Rs. 25 lakhs	CFA, MRB
4.	Invitation and acceptance of Limited Tenders for reasons to be recorded in writing.	Upto Rs. 15 lakhs	CFA, MRB (Above 3 lakhs)
5.	Acceptance of Contracts without calling for Tenders in emergent cases for reasons to be recorded in writing.	Upto Rs. 3 lakhs	CFA, MRB
6.	Acceptance of Contracts by negotiation after invitation to tender for reasons to be recorded in writing.	Upto Rs. 15 lakhs	CFA, MRB

	Na ure of Power	Extent of Power	Remarks
7.	Sanctions to commencement of work on an urgency certificate without a formal agreement but after administrative approval and technical sanction have been accorded.	Upto Rs. 3 lakhs.	CFA, IRB
8.	Maintenance and repairs to Roads and Buildings, Machinery and vehicles.	Full Powers	CFA
9.	Sale of stores to contractors at Book rate plus 10% of market rate whichever is higher.	Full Powers	CFA
10.	To fix rents for quarters, shops and business premises.	Full Powers	CFA
11.	To fix rates for the hire of machinery . . .	Full Powers	CFA
C.	*Contingencies and Miscellaneous* :		
1.	Contingencies	Full Powers	
2.	Stationery and stores (other than for works) .	Full Powers	
3.	Advertisement charges	Full Powers	
4.	Legal charges	Full Powers	
5.	Sanctioned Reserve Limit for consumable stores .	Upto Rs. 20 lakhs	CFA
6.	To declare stores as surplus/unserviceable and to prescribe mode of their disposal.	Upto Rs. 50,000/- in each case	CFA
7.	Execution of Insturments	Contracts : Deeds, Leases, Instruments and insurances of property ; service agreements ; security Bonds of Staff, etc.	

CFA=In consultation with FA & CAO.

MRB=A monthly report should be sumbitted to the Board.

IRB=An immediate report to be made to the Board in each case.

DELEGATION OF POWERS TO GENERAL MANAGERS AND PURCHASE/STORES OFFICERS

	Mode of Purchase	Extent of Power *or officers of equivalent rank				
		G.M.	CCP&S*	COP*	Sr.P.O.*	Jr. P.O.*
		Upto Rs.				
1	By Open tender or on the basis of DGS&D Rate Contract	25 lakhs	10 lakhs	2 lakhs	1 lakh	25,000
2	By limited tender	15 lakhs	1 lakh	25,000	..	..
3	By single tender including proprietary articles	50,000	25,000	..	..	..
4	By negotiation after invitation to tender	15 lakhs	50,000	15,000	..	..
5	Repeat Orders	5 lakhs	1 lakh	10,000	5,000	..

2. These powers shall be exercised in consultation with the Financial Advisers attached to the respective Projects or their authorised representatives. In case of a difference of opinion the General Manager should report to the Board the points of difference and the Financial Advisers' views in his own words in respect of items (1) to (4) above. In the case of repeat orders for supplementary agreements (vide paras 4 and 5 below) to General Manager may, where he feels that action cannot be postponed, take the final decision but all cases in which action is taken contrary to the advice of the Financial Adviser should be reported promptly and in sufficient detail to the Board.

3. These powers shall be exercised in accordance with the following general instructions:—

(*i*) *Open and Limited Tender* : All purchases should normally be made after a public invitation to tender. If in any case it is considered desirable to limit the invitation to tender to few approved contractors the reasons for doing so should be recorded in full in each case.

(*ii*) *Late Tenders* : Normally, late and delayed tenders should not be accepted. In exceptional cases, however, such tenders may be considered for reasons to be recorded in writing.

4. *Repeat Orders* : Repeat orders may be placed within three months of the original orders provided there has been no downward trend of prices.

5. *Supplementary Agreements* : A supplementary agreement may be negotiated and payment of extra amount sanctioned to cover any additional items subsequent to the placing of the original orders for reasons to be recorded in writing and provided:

(*a*) The total extra expenditure involved by one or more amendments does not exceed 15% of the original value in respect of each item thereof.

(*b*) The value of the original and supplementary agreement taken together is within the limits of the powers delegated above.

6. A monthly report of all orders above Rs. 1 lakh should be sent to the Board with brief particulars.

APPENDIX IV

(*Vide* para 50)

I. Extracts from Gas Act, 1948 of Great Britain

Area Gas Boards and Gas Council

Establishment and general functions of Area Boards.

1. (1) There shall be established Boards, to be known by the names mentioned in the first column of the First Schedule to this Act and in this Act referred to as "Area Boards", for the areas which are described in general terms in the second column of that Schedule and are to be defined by orders made under this Part of this Act, and it shall be the duty of every Area Board as from the vesting date—

(a) to develop and maintain an efficient, co-ordinated and economical system of gas supply for their area and to satisfy, so far as it is economical to do so, all reasonable demands for gas within their area;

(b) to develop and maintain the efficient, co-ordinated and economical production of coke, other than metallurgical coke, by them;

(c) to develop and maintain efficient methods of recovering by-products obtained in the process of manufacturing gas.

(2) Every Area Board shall have power to carry on all such activities as it may appear to the Board to be requisite, advantageous or convenient for them to carry on for or in connection with the discharge of their duties under the preceding sub-section or with a view to making the best use of any assets vested in them by or under this Act, and in particular; but without prejudice to the generality of the preceding provision—

(a) to manufacture gas, to acquire gas in bulk from any person including another Area Board, and to supply gas in bulk to another Area Board;

(b) to distribute gas in their area;

(c) to manufacture, treat, render saleable, supply or sell—

(i) coke and other solid fuels obtained by carbonization;

(ii) any by-products obtained in the process of manufacturing gas, coke or any such other solid fuels as aforesaid; and

(iii) any products made or derived from gas, coke or any such other solid fuel as aforesaid or from any by-product obtained as aforesaid;

(d) to sell, hire or otherwise supply gas fittings and coke fittings and to instal, repair, maintain or remove gas fittings and coke fittings and plant required by the Board or any other Area Board;

(e) after consultation with the Gas Council established under the next following section, to manufacture plant required by the Board or any other Area Board and to manufacture gas fittings and coke fittings, except for export:

* * * *

(3) Any Area Board may, by agreement with any other Area Board, give a supply of gas to persons in the Area of that other Area Board, and the powers conferred by the last preceding sub-section shall apply in relation to the giving of such a supply, and if any Area Board are unable to obtain the agreement of another Area Board under this sub-section, they may apply to the Gas Council for an authorisation to supply gas to consumers in the area of that other Area Board and the Gas Council may give an authorisation to supply gas to consumers in such part of the area of that other Area Board and upon such terms and conditions as may be specified in the authorisation.

(4) Every Area Board shall have power to do anything and to enter into any transaction (whether or not involving the expenditure, the borrowing in accordance with the provisions of this Act or the lending of money, the acquisition of any property or rights or the disposal of any property or rights) which in their opinion is calculated to facilitate the exercise or performance of any functions conferred or imposed on them by any enactment other than this sub-section, or is incidental or conducive thereto.

(5) In carrying out any such measures of reorganization and works of development as involve substantial outlay on capital account, every Area Board shall act in accordance with a general programme settled by them from time to time with the approval of the Minister, and the Minister shall consult with the Gas Council before approving any such programme.

(6) In planning and carrying out any such programme as aforesaid an Area Board shall consult with the National Coal Board, if that Board is engaged in the area of the Area Board in activities relating to carbonization, and with other persons operating coke-oven plants in the area of the Area Board.

(7) In exercising and performing their functions every Area Board shall promote the welfare, health and safety of persons in the employment of the Board.

(8) Subject to and in accordance with any directions given by the Minister under section seven of this Act, every Area Board shall reduce, so far as practicable, the price of gas and coke and avoid undue preference in the supply of gas and coke.

(9) For the avoidance of doubt it is hereby declared that the preceding provisions of this section, so far as they confer powers on Area Boards, relate only to the capacity of Area Boards as statutory corporations, and nothing in those provisions shall be construed as authorising the disregard by such Board of any enactment or rule of law.

Establishment and general functions of Gas Council.

2. (1) There shall be established a Council, to be known as the Gas Council, and it shall be the duty of that Council—

(a) to advise the Minister on questions affecting the gas industry and matters relating thereto; and

(b) to promote and assist the efficient exercise and performance by Area Boards of their functions.

(2) The Gas Council shall have power, if so authorised by all the Area Boards or a group of Area Boards, to perform services for, or act on behalf of, the Boards concerned in relation to matters of common interest to those Boards.

3. The Gas Council shall have power—

(a) to manufacture plant required by Area Boards, to sell or supply such plant to Area Boards, and to instal, repair, maintain or remove such plant;

(b) to manufacture gas fittings and coke fittings except for export, and to sell or supply such fittings.

(4) Every Area Board shall afford to the Gas Council facilities for obtaining information with respect to the property and activities of the Area Board, and furnish the Gas Council with returns, accounts and other information with respect thereto, and afford to the Gas Council facilities for the verification of information furnished, in such manner and at such times as the Gas Council may require.

(5) The Gas Council shall have power to do any thing and to enter into any transaction (whether or not involving the expenditure, the borrowing in accordance with the

provisions of this Act or the lending of money, the acquisition of any property or right or the disposal of any property or rights) which in their opinion is calculated to facilitate the exercise or performance of any functions conferred or imposed on them by any enactment other than this sub-section or is incidental or conducive thereto.

* * * *

Research.

3. (1) It shall be the duty of the Gas Council to settle from time to time in consultation with the Minister a general programme of research into matters affecting gas supply and carbonization and other matters affecting the functions of Area Boards or the Gas Council.

(2) It shall be the duty of the Gas Council to secure the carrying out of any general programme settled as aforesaid, and for that purpose they may themselves conduct research into any of the matters aforesaid and make arrangements with any other persons, including an Area Board, for the conduct of such research by them.

(3) Any Area Board may conduct research in accordance with arrangements made with the Gas Council as aforesaid, and may also, after consultation with the Gas Council, conduct research into such matters affecting the functions of the Board as are not included in the general programme settled as aforesaid.

Training and Education.

4. (1) It shall be the duty of every Area Board, in consultation with any organization appearing to them to be appropriate, to make provision for advancing the skill of persons employed by them, including the provision by them and the assistance of the provision by others of facilities for training and education.

(2) Every Area Board shall, from time to time, on being so required by the Gas Council, submit to them programmes showing them provision to be made by them under the preceding sub-section, and the council shall co-ordinate those programmes and settle from time to time in consultation with the Minister a general programme with respect to the provision to be made by the Area Boards as aforesaid, and the Area Boards shall give effect to the programme so settled.

Constitution of Area Boards and Gas Council.

5. (1) Every Area Board and the Gas Council shall be a body corporate with perpetual succession and a common seal and power to hold land without licence in mortmain.

(2) Every Area Board shall be constituted as follows:—

(a) not less than six nor more than eight members shall be appointed by the Minister from amongst persons appearing to him to be qualified as having had experience of, and shown capacity in, gas supply, local government,

industrial, commercial or financial matters, applied science, administration, or the organization of workers; and

(b) there shall be one other member who shall be the person for the time being holding the office of chairman of the Gas Consultative Council established under the following provisions of this part of this Act for the area of the Area Board:

Provided that until the Gas Consultative Council has been established, an Area Board shall be deemed to be properly constituted notwithstanding that the Board does not include the member referred to in paragraph (b) of this sub-section and, during any period before the vesting date, an Area Board shall be deemed to be properly constituted if the chairman and three other members have been appointed.

(3) The Minister shall appoint two of the members of each of the Area Boards to be chairman and deputy chairman respectively of that Board, and either the chairman or the deputy chairman of each Board shall be a person appearing to the Minister to have had experience of, and shown capacity in, gas supply.

(4) The Gas Council shall be constituted as follows:—

(a) the chairman and a deputy chairman shall be appointed by the Minister from amongst persons appearing to him to be qualified as having had experience of, and shown capacity in, gas supply, industrial, commercial or financial matters, applied science, administration, or the organization of workers; and

(b) the remaining members shall be the persons for the time being holding the office of chairman of an Area Board:

* * * *

(5) A person shall be disqualified for being appointed or being a member of any Area Board or the Gas Council so long as he is a member of the Commons House of Parliament.

(6) There shall be paid to the members of each of the Area Boards and to the members of the Gas Council such remuneration (whether by way of salaries or fees) and such allowances as may be determined by the Minister with the approval of the Treasury, and, on the retirement or death of any member in whose case it may be so determined to make such provision, such a pension to or in respect of that member as may be so determined.

Any such remuneration, allowances and pensions as aforesaid shall be paid by the Area Board concerned or, as the case may be, the Gas Council.

(7) The Minister shall, as soon as possible after the passing of this Act, lay before each House of Parliament a statement of the remuneration and allowances that are or will be payable under the last preceding sub-section to the members of each of the Area Boards and to the members of the Gas Council, and, if any subsequent determination by him under the last preceding sub-section involves any departure from the terms of the said statement, the Minister shall as soon as possible after the determination lay a statement thereof before each House of Parliament.

(8) The Minister may make regulations with respect to—

(a) the appointment of, and the tenure and vacation of office by, the members of any Area Board and the Chairman and Deputy Chairman of the Gas Council;

(b) the quorum, proceedings, meetings and determinations of any Area Board and the Gas Council;

(c) the execution of instruments and the mode of entering into contracts by and on behalf of any Area Board or the Gas Council, and the proof of documents purporting to be executed, issued or signed by any Area Board or the Gas Council or a member or officer thereof; and

(d) any other matters supplementary or incidental to the matters aforesaid for which provision appears to the Minister to be necessary or expedient.

(9) Subject to the provisions of any regulations made under the last preceding sub-section, every Area Board and the Gas Council shall have power to regulate their own procedure.

II. Extracts from Coal Industry Nationalisation Act, 1946

The National Coal Board

Establishment of National Coal Board and functions thereof.

1. (1) There shall be a National Coal Board which shall, on and after the primary vesting date, be charged with the duties of—

(a) working and getting the coal in Great Britain, to the exclusion (save as in this Act provided) of any other person;

(b) securing the efficient development of the coal-mining industry; and

(c) making supplies of coal available, of such qualities and sizes, in such quantities and at such prices, as may seem to them best calculated to further the public interest in all respects, including the avoidance of any undue or unreasonable preference of advantage.

(2) The functions of the National Coal Board (in this Act referred to as "the Board") shall include the carrying on of all such activities as it may appear to the Board to be requisite, advantageous or convenient for them to carry on for or in connection with the discharge of their duties under the preceding sub-section, and in particular, but without prejudice to the generality of this section,—

(a) searching and boring for coal in Great Britain, to the exclusion of any other person;

(b) treating, rendering saleable, supplying and selling coal;

(c) producing, manufacturing, treating, rendering saleable, supplying and selling products of coal;

(d) producing or manufacturing any goods or utilities which are of a kind required by the Board for or in connection with the working and getting of coal or any other of their activities, or which can advantageously be produced or manufactured by the Board by reason of their having materials or facilities for the production or manufacture thereof in connection with the working and getting of coal or any other of their activities, and supplying and selling goods or utilities so produced or manufactured;

(e) any activities which can advantageously be carried on by the Board with a view to making the best use of any of the assets vested in them by this Act;

(f) activities conducive to advancing the skill of persons employed or to be employed for the purposes of any of the activities aforesaid, or the efficiency of equipment and methods to be used therefor, including the provision by the Board themselves, and their assisting the provision by others, of facilities for training, education and research.

(3) The Board shall have power to do anything and to enter into any transaction (whether or not involving the expenditure, borrowing in accordance with the provisions of this Act in that behalf or lending of money, the acquisition of any property or rights, or the disposal of any property or rights not in their opinion required for the proper discharge of their functions) which in their

opinion is calculated to facilitate the proper discharge of their duties under sub-section (1) of this section or the carrying on by them of any such activities as aforesaid, or is incidental or conducive thereto.

(4) The policy of the Board shall be directed to securing, consistently with the proper discharge of their duties under sub-section (1) of this section,—

(a) the safety, health and welfare of persons in their employment;

(b) the benefit of the practical knowledge and experience of such persons in the organisation and conduct of the operations in which they are employed;

(c) that the revenues of the Board shall not be less than sufficient for meeting all their outgoings properly chargeable to revenue account (including, without prejudice to the generality of that expression, provisions in respect of their obligations under sections twenty-eight and twenty-nine of this Act) on an average of good and bad years.

Constitution of the Board.

2. (1) The Board shall be a body corporate by the name of "the National Coal Board", with perpetual succession and a common seal and power to hold land without licence in mortmain.

(2) The Board shall consist of a chairman and eight other members.

(3) The chairman and other members of the Board shall be appointed by the Minister of Fuel and Powers (in this Act referred to as "the Minister") from amongst persons appearing to him to be qualified as having had experience of, and having shown capacity in, industrial, commercial or financial matters, applied science, administration, or the organisation of workers.

(4) A person shall be disqualified for being appointed or being a member of the Board so long as he is a member of the Commons House of Parliament.

(5) The Minister shall appoint one of the members of the Board to act as deputy chairman.

(6) There shall be paid to the members of the Board such salaries and allowances as may be determined by the Minister with the approval of the Treasury, and, on the retirement or death of any of them as to whom it may be so determined to make such provision, such pensions and gratuities to them or to others by reference to their service as may be so determined.

The said salaries and allowances, and any such pensions and gratuities as aforesaid, shall be paid out of the revenues of the Board.

(7) The Minister may make regulations with respect to—

(a) the appointment of, and the tenure and vacation of office by, the members of the Board;

(b) the quorum, proceedings and meetings of the Board, and determinations of the Board; and

(c) the execution of instruments and the mode of entering into contracts by and on behalf of the Board, and the proof of documents purporting to be executed, issued or signed by the Board or a member, officer or servant thereof.

(8) Subject to the provisions of any regulations made under the last preceding sub-section, the Board shall have power to regulate their own procedure.

Unlike the Gas Act 1948 the Coal Industry Nationalisation Act 1946 does not provide for statutory decentralisation. In actual practice, however, there has been considerable 'managerial decentralization' as is evident from the following extracts from the book entitled 'The Public Corporation' by W. Friedmann—

"The only legal entity created by the Nationalisation Act was the National Coal Board itself, and the Act left the internal organization of the coal-mining industry to the Board. The Board grouped the coal-fields of Great Britain in nine (originally eight) geographical divisions, as set out below, but have not given the divisions a separate legal existence:—

Division	Territory
Scottish	Scotland
Northern (N. & C.)	Northumberland and Cumberland
Durham	Durham
North-Eastern	Mainly Yorkshire
North-Western	Mainly Lancashire & North Wales
East Midlands	Nottinghamshire and Derby
West Midlands	Mainly Staffordshire
South-Western	Mainly South Wales
South-Eastern	Kent

Each division (except South-Eastern) is similarly divided into a number of areas, each of which contains an average of 20 pits. Each area is divided into groups of collieries, containing from 1 to 5 pits, or occasionally into sub-areas. In some divisions coke-ovens fall within the areas, but in those divisions where carbonization activities are of most importance the coke-ovens are organized separately.

Headquarters and Divisional Organization

The National Board includes a full-time Chairman and two Deputy Chairmen without functional responsibilities and four other full-time Board members who, in addition to their non-functional duties, are responsible for Safety and Health, Manpower and Welfare, Labour Relations and Scientific Work respectively. At headquarters there are a Secretariat and Establishments Department under the Secretary, Production, Carbonization, Finance, Marketing, Labour Relations, Manpower and Welfare, and Scientific Departments, each under a Director-General, and Legal Department under a Legal Adviser. Each division is managed by a Divisional Board, which is in fact a committee of senior employees. Except in South-Eastern Division, a Divisional Board includes six full-time Members, namely a non-functional Chairman and Deputy Chairman, with Production, Finance, Marketing and Labour Directors. Each Division has its own Legal Department under a Legal Adviser. The Board say "Departments at Divisions have dealings with corresponding departments at national and Area headquarters on technical subjects—and this must be so unless the National Coal Board, the Divisional Boards and the Area General Managers, are to be distracted by too much technical detail from their main tasks. The lines of responsibility and command, however, run from the National Coal Board to the Divisional Boards, from them to the Areas, and from the Areas to the collieries. The principle is to delegate but not to diffuse responsibility." These words, inspired by the Board's first Deputy Chairman, the late Sir Arthur Street, remain as true today as when they were written. The coke-ovens in a division, where they are organized separately from the Areas, are controlled by a Carbonization General Manager who deals with Headquarters Carbonization Department on technical matters, but answers to the Divisional Board or to a particular member of that Board on policy. Carbonization Department are responsible for production only, and Marketing Department are responsible for the selling of the products of carbonization. There are also a number of special activities directly controlled by headquarters, as for example the Board's two Central Research Establishments, at one of which mining research is carried out, while at the other research is concentrated on problems

relating to the treatment and processing of coal, with a view to producing uniform smokeless fuel from cheap and plentiful types of coal.

Decentralized Administration

The Board have thus devolved on each division the general duty of working its own coalfield, reserving to themselves only such decisions as are essential. The amount of capital expenditure to be incurred by a Divisional Board in each year has to be laid down nationally, but a division can undertake without headquarters approval any colliery scheme costing not more than £250,000. Similarly, divisions decentralize to Area General Managers as much as possible; a typical Area General Manager has under his control a capital investment of £ 15 M., an annual turnover of £ 18 M., a labour force of 20,000 men, and an annual output of over six million tons of coal. The Area General Manager in his turn decentralizes on to a Group Agent who normally controls up to five pits or on to a Sub-Area General Manager; and the day-to-day management of each colliery rests by statute with the certificated colliery manager."

APPENDIX V

(*Vide* para 54)

Under para 3 of the Technical Consultants Agreement with M/s. Krupp & Demag for the Rourkela Project, the Combine shall—

(a) plan the general layout of the township,

(b) plan the general layout of the Works including Railway, road, gas, water, power, drains and effluent disposal systems with details thereof,

(c) plan the layout of each main and ancillary department of the Works with the requisite plan and machinery and details thereof,

(d) act as engineers in charge on site for the carrying into effect of the general layout of the Works, and the establishment and erection of the several main and ancillary departments with the requisite plant and machinery for the complete Works ready to start production,

(e) generally undertake all such duties as are commonly within the scope and functions of consulting engineers and in the particular :

(i) prepare plans and specifications of the required material, plant, machinery and equipment for the purpose of inviting tenders, *i.e.*, give technical specifications in the form of guidance data for the machinery and equipment shown on the layout plans as well as for the tenders to be prepared,

(ii) prepare forms of tender, in consultation with the Government, for the purpose of inviting tenders for the supply in appropriate groups and erection of the necessary materials, plant, machinery and equipment in such detail as would enable reputed firms specialising in supplies and erection work of that kind to submit detailed quotations,

(iii) examine and scrutinise tenders received, discuss with tenderers and bring tenders into shape for ordering, issue, if necessary, further enquiries for plant and equipment required, prepare, tabulate and advise upon tenders, and generally place the Company in a position to issue orders for plant and equipment,

(iv) advise on the design and supervise the manufacture of all plant and machinery ordered, progress and inspect the same before despatch to the site according to the terms of para 5(c) and (d),

(v) co-ordinate and regulate the despatch to the site of all imported materials, plant, machinery and equipment in accordance with the plan and progress of the construction work at site,

(vi) co-ordinate and regulate the despatch to the site of such materials as are supplied from India,

(vii) submit reports to the Government at such intervals as may be arranged later in mutual consultation on the progress of the manufacture and delivery of all plant, machinery and equipment ordered,

(viii) provide for the maximum utilisation of Indian Shipping and to avoid unnecessary demurrage, supply at the earliest possible date approximate data for the required shipping space and the weights to be shipped, and furthermore, supply colly-lists in accordance with the progress and completion of manufacture and packing in order to enable arrangements for shipping to be made with the Government shipping agents, and

(ix) supervise the erection, trial and initial operation of the plant.

APPENDIX VI

(*Vide* para 59)

Statement of Experience and Qualifications of Dr. Herman Klinar as Furnished by Dr. Klinar

1. During studies worked as a workman: 3 months

Alpine Montanqesellschaft Donawitz Blast Furnace and Open-hearth.

Two months: Bohler Stahlworke Kapfenberg Metallurgical Department.

2. From 1.4.1923—1.5.1925—Oberschlesische Eisenindus—trie Gleiwitz Jullienhutte Bobrek.

Assistant, Open-hearth

Assistant, Blast Furnace

Assistant Chief, Fuel and economical department.

3. From 1.5.1925—1.4.1932

Stahlwerk Becker A. G. Willich.

Chief Economical Engineer and Assistant to the Techn.

Director. During this time was sent in 1931 to Italy for reorganisation of the 23" rail mill for Ernesto Breda Corp.

Milano—Sesto.

During stay in Germany was member of the following Committees at the Verein deutscher Eisenhutt—enleute—Dusseldorf:

a. Blast Furnace

b. Steelworks (openhearth, electr. furnace)

c. Fuel and Economy

d. Lubrication

Wrote several technical papers which were published in Stahl u. Eisen.

4. 1932—Doctorate in Eng. from Aachen,

Theme: Secondary hardness of high grade steel.

5. From 1.7.1932—1.7.1938 Chief Fuel and Economical Engineer at Tata Iron and Steel Corpn., Jamshedpur, India.

Concerned with the reorganisation of the whole plant regarding fuel consumption and economy. In connection with these questions, worked out the necessary proposals for new and rebuildings of the plants and equipments,—gas cleaning plant, coke ovens, mixed gas firing at open hearth and Duplexplant, re-building soaking pits, new

gas distribution, new power plant. Cooperated with the Chief Engineer very closely for rebuilding of the new blooming and sheet mill and construction of the new blast furnace. In connection with the reorganisation was sent to Germany, England and U.S.A.

6. Left Tatas in 1938, went to Yugoslavia to take the job of the Techn. General Manager at the Iron and Steel work at Jesence. Stayed there till 1945. From 1938—1941 (April) the Steelworks made several new additions, built a new blast furnace and rebuilt the open-hearth and increased the production. They started with a new sheet mill and new machines for cold rolling.

During 1939—1940, made the new organisation plant which provided a new general layout for the Jesenice and Jovornik Works and an increase of capacity from 150,000 to 350,000 tons steel yearly. The proposal was worked out by Dr. Klinar. In 1940 was nominated as a lecturer (Dozent) in the University in Jubijana for metallurgy. From 1948, was nominated a member of the Committee for advising the Jugoslab steel works.

Chiefly was connected with the erection of the new steelwork at Sinica, Bosnia—with a final production of 600,000 tons a year. The plant was 3 blast furnaces with a production of 600 tons a day of pig iron each, a new steelplant with 4—60 tons open-hearth furnaces and 4—150 tons tilting furnaces, a new blooming mill 600,000 tons, new sheet bar and billets mill 300,000 tons, a wire mill and a new forging plant, new power plant, gas cleaning plant and water works.

In 1951, the new Iron and Steelworks at Sisak-Croatia with the Mannesmann tube mill with a capacity of at present 60,000 tons/year later 90,000 tons/year was started. Till now 2 blast furnaces, I open-hearth furnace and the tube mill have been erected.

In 1953, started with the general project of the new Iron and Steelwork at Skoplje (Macodonia). The general layout and selection of the metallurgical process was in hand of the metallurgical Institute, Ljubljana, where Dr. Klinar was Technical Adviser. This plant is exactly the same as the Hindustan Steel Plant, for the iron stage 500,000 tons/year steel for rolling plates and sheets. The second stage provided 1,000,000 tons/year steel with the production of plates and sheets. The general layout and the economical report was made chiefly by Dr. Klinar.

APPENDIX VII

(*Vide* para 66)

The functions of the International Construction Company, consultants for the Durgapur Project, are:—

(a) plan the general layout of the works at Durgapur complete in all respects;

(b) plan the layout of each main and ancillary department with the requisite plant and machinery and details thereof;

(c) prepare tender documents, issue enquiries, examine and scrutinise tenders and specifications received, and advise the Government as to their merits in fulfilling the production specified and give their opinion to the Government as to the suitability of the plant offered and as to the reasonableness of the prices submitted as compared with prices ruling at the time in the world market;

(d) approve the design and supervise the machinery ordered, progress and test and inspect the same, where required, before despatch to the site;

(e) supervise the coordination of manufacture and despatch to site using Indian shipping to the maximum extent where such ships are available, of all imported materials, plant, machinery and equipment in accordance with the plan of progress for the construction of the works, the necessary time schedule covering all stages of the work to be prepared as soon as possible;

(f) supervise the coordination of manufacture and despatch to site of such materials as are supplied from India in accordance with the plan of progress for the construction of the works;

(g) supervise the construction and erection at site and with a view to these being carried out in the order and at the speed required to complete the plant and put it in commission at the intended date;

(h) prepare and issue to the Government the appropriate certificates of satisfactory completion of each section of the works, and of the works as a whole and that the complete iron and steel works is capable of achieving the output specified in the agreement;

(i) advise generally and cooperate with the Government in arranging the services outside the boundary of the works;

(j) submit three-monthly reports to the Government on the progress of manufacture of all plant, machinery and equipment, ordered by the Government on the advice of the Consulting Engineers, and on work carried out at site at the same time pointing out such items as appear likely to be late and take steps to remedy the position;

Interim reports will, in addition, be issued as and when justifiably required;

(k) scrutinise claims for progress payments, issue certificates for work done overseas and in India, and issue certificates for payments due on shipment and submit monthly statements of all certificates of payments issued uptodate;

(l) In view of the importance of having a sufficient supply of adequately trained men available to start up the works the Consulting Engineers shall use their best endeavours to assist the Government in formulating suitable training schemes and to secure practical experience in works overseas for selected trainees.

It is understood that the work covered by this clause does not include the preparation of such design and detailed working drawings for manufacturing purposes as are usually provided by the manufacturers. These shall be provided by the contractors appointed for the work in question to the satisfaction of the Consulting Engineers.

APPENDIX VIII

(*Vide* para 69)

There is a separate agreement with the International Construction Company for general advice on steel matters, namely:—

(i) to advise the Government in the co-ordination of the development of the iron and steel industry along lines best suited to securing economical installation costs and high efficiency production.

(ii) to give advice on such problems or matters connected with the iron and steel plants that have been, or are being or are to be established in the public or private sectors and their expansion as may be referred to them by Government.

(iii) to give advice and comments on the lay out of the iron and steel plants being established or to be established by the Government and on the proposed departments in the respective plants and on the specifications and prices submitted.

APPENDIX IX

[*Vide* Footnote to para 73]

Matters on which the International Construction Co. have been consulted

A. *Steel Plants*

1. Rourkela.
   - (a) Coke Ovens.
   - (b) By-product Plant.
   - (c) Melting Shop.
   - (d) Rolling Mills.
   - (e) Oxygen Plant.
2. Bhilai—General.
3. Mysore—Extensions.
4. Mysore—Ferro Alloy Plant.
5. Bokaro.
6. Ishapore.
7. Electric Furnace Units.
8. Third 5-Year Plan Plants.
9. Alloy and Tool Steel Plant.

B. *Ore Mines*

1. Bolani.
2. Barsua.
3. Rajhara.

C. *Washeries (Coal)*

1. Dugda.
2. Bhojudih.
3. Kargali.
4. Patherdih.

D. *Limestone Quarries*

1. Birmitrapur.
2. Purnapani.
3. Nandini.

E. *Other Projects*

1. Heavy Machine Building Plant.

2. Foundry Forge Plant.
3. Steel Tube-Making Plant.
4. Steel Pipe-Making Plant.
5. Structural Fabrication Shop.
6. Mineral Wool Manufacture (using Blast furnace slag).
7. Refractory Plant.
8. Cement from Blast furnace slag.
9. Steel Foundries.
10. Roll Foundry.

F. *Reports on Processes*

1. Manufacture of Electric Sheets.
2. Sulphur Recovery from CO Gas
3. Sovaco Process.
4. Granulation of Iron.
5. Neill-Collin Scheme.
6. Duplex V Open-Hearth and De-Siliconizing.
7. Processes and Specifications for Blast furnaces in India.
8. Sponge Iron.
9. L. D. Process.

G. *General*

1. Raw Materials for Steel Plants, including Bricks.
2. Disposal of Effluents.
3. Ferro-Vanadium.
4. Ferro-Manganese.
5. Ferro-Silicon.
6. Rolls for Steelworks to be manufactured at the new Foundry Forge Plant.
7. Tinplate Production.
8. Fertilizer Plants.
9. Use of Dishergarh/Jharia Coals for Coke for Bokaro.
10. Power requirements for Steel Plants.
11. Requirements for Different Kinds of Steel.
12. Korba Power Station Progress.
13. Coordination with Railways on Traffic, Track Lay-out, Wagon Design, etc.
14. Coordination of outside services for Steel Plants, *i.e.* water, power, etc.
15. Works Insurance.
16. Spares Requirements.
17. Inspection in Germany of Krupp Demag Plant.
18. Routine Visits to Bhilai.

19. Routine Visits to Rourkela.
20. Selection Committees.
21. Inspection and Reports on Unloading and Handling at Calcutta Docks and Bhadreshwar Jetty.
22. Staff Organization at Steel Projects for Commissioning, Operation and Maintenance.
23. Sale Value of C.O. Gas.
24. I.S.I. Standards (Structurals).

APPENDIX X

[*Vide* para 93]

Items of work for which Workmen were Imported from Germany

(a) Assembling of sections of timber according to drawings for the construction and erection of the timber staging to support shuttering for bunker work;

(b) Placing the staging at site and checking the correctness of position and heights etc.;

(c) The placing of the shuttering in position;

(d) Manufacture of shuttering for bunkers according to drawings;

(e) Guiding carpenters of the Indian Contractor to carry out the work and where necessary to carry out the work themselves;

(f) Checking of the shuttering as erected and correction of defects and discrepancies;

(g) Managing the shuttering during pouring of concrete, so that concrete flows into all space and fully embeds the reinforcement;

(h) Removal of shutterings; and

(i) To guide the men and ensure proper pouring of concrete into forms, see to vibration of concrete where required and assist in the supervision to ensure work of a proper standard.

APPENDIX XI

(*Vide* para 102)

Contract for the Civil Engineering work for the Rolling Mills at Rourkela

List of Plant Equipment to be brought to the site and utilised for the work.

A—Quarry Machinery.

1	12 Nos.	Rock Drills. Atlas-Copco.
2	2 Nos.	Paving Breaker Do.
3	4 Nos.	Concrete Breaker Do.
4	2 Nos.	Atlas Air Compressor 10 m^3 each (ARI Stationary with self cooling).
5	1 Set	Rock Drills
6	1500 Rft.	Compressed Air pipeline 4" dia. (Flange pipe).
7	500 Rft.	Do. 3" dia. (Do.)
8	1000 Rft.	Do. 2" dia (Do.)
9	1 Set	Pipe Fittings (Elbows, Flanges, Sluice Valves, Cock valves Packing material, Water tap.)
10	6 Nos.	Compressed Air distributor 4" dia/3 x 1" dia.
11	1 No.	Air receiver 750 cft. with gauge, drain cock and safety valve
12	2 Nos.	Rock drill grinding machine (with Benches).
13	1 Set	Pipe fitter tools and thread cutting equipment.
14	1200 Rft.	Compressed air rubber hose pipe with couplings, and clamps in lengths of 50 ft. each.
15	1 No.	Insulated tank trailer appr. 1000 gallons capacity for drinking water supply.
16	1 No.	H.T. Transformer 200 KVA : 140 KW with L.T. distribution.
17		L.T. Overhead distribution line.
		(a) for compressor house 2 x 75 H.P.
		(b) for Light (distribution) 1 x 40 amp x 1 x 10 amps.
		(c) for site workshop. 20 amps.
18		Electrical installation (flood lamps, Workshops and Office as well as Quarry installation) and Earthing material.
19	2 Nos.	Rock shovel excavator 2 cyd. Rock shovel. 2 Nos. Portable loading silos (For trucks 3—5 tons).
20	1 No.	Motor grader for road maintenance at the whole site especially between quarry and crushing plant.

21 2 Nos. Exploder (100 sheets at a time).

22 2 Nos. Safety ohm Meter (for test of Electric Blasting lines).

23 1 No. Scraper plant at sand quarry.

[In case of over burden removal additional machinery (or hand labour) should be provided].

B—*Crushing and Screening Plant.*

The crushing plant as installed at Kandla will be utilised but following alterations should be made.

(a) Screen No. III will not be used. The fine grain will be 0—7mm (appr. 0—1/4")

(b) Screen No. I should be shifted back for the purpose that the storage capacity of the first bin containing the grain 30—50 mm. will be increased.

(c) The two upperdeck belt conveyor should be coupled so that the space between Screen I and II will be bigger in order to get larger bins for the other grains.

(d) The tunnel belt conveyor will discharge the different sizes of aggregates di ect into the feeding belt conveyor of the Batching plant through a two-way hopper.

One way for feeding the silos of Batching plant, the other for feeding a side conveyor which will discharge into trucks for the supply to other sites.

For the altera ions no additional machinery is required.

C—*Sand Unloading and Storage site.*

1 1 No. Unloading Hopper.

2 1 No. Oscillating Belt feeder 600 mm.

3 1 No. Chute between (2) and (4)

4 1 No. Belt conveyor (horizontal belt Conveyor of Batching plant which is surplus).

5 1 No. Steel support for item 4.

If screening of sand will be necessary due to the fact that the scrapped sand contains unwanted materials, the following machinery will be necessary as shown as under Items 6,7 and 8.

6 1 No. Belt Conveyor 10 m. long (Kandla sand screening Plant).

7 1 No. Double Deck Oscillating screen (interchangeable with the one of the screening plant).

8 1 No. Discharge chute for Item 7.

9 1 No. Bull dozer ' Cat D4'.

To B+C

The storage capacity of the crushing plant will be with the new arrangement approximately 5,000 m^3 which needs the operation of a Bull Dozer (Cat. D4).

A stock of approx. 10,000 m^3, should be provided beside the bins of the crushing plant as a Buffer stock in case of site requirement less than the crushing capacity or in case of repairs to the crushing plant where the buffer stocks should

be taken. For this purpose an excavator equipped with clam shell 1·1/2 cyd. will be required from time to time when necessary. For emergency cases hand labour should be engaged.

This site will be given a 500 KVA transformer.

L. T. Power distribution consisting of L.T. Line.

a. Crushing & screening plant .
b. Sand feeding & Storage . .
c. Lighting supply . . .
d. Supply to Batching Plant . .
e. Water supply . . . .
f. Compressed Air Plant . . } +Earthing material.

D—*Batching Plant.*

The Batching Plant as installed at Kandla will be utilised without any alteration.

The horizontal Belt conveyor of Batching Plant will be used at sand storage place.

E—*Concreting Plants.*

1 4 Nos. Kaiser concrete mixer 1 cyd. electric driven with feeding bucket with delivery chutes.

2 Nos. Do. 14/10
7 Nos. Do. 10/7

2 6 Nos. Pneumatic concrete conveyor each equipped as below :—

1 No. air receiver 2 m³ with drain cock, manhole in let and outlet coller 4" dia.

200 m. Conveyor pipes 150 mm. dia.

3 elbows 90°
4 elbows 45°
5 elbows 30°

3 3 Nos. Delivery chutes for the above.

4 30 Nos. Internal concrete vibrators.

F—*Compressed Air Plant for Concrete conveying and Rock removal at Construction pits.*

1 6 Nos. Air compressors Stationary ARI self cooled, 10 m³ each.
2 2 Nos. Central Air receiver 8—10 m³.
3 2000 ft. 4" compressed air pipe line.
4 1 Set Fittings for Item 3.
5 2000 Ft. Compressed air pipe line 2" dia.
6 1 Set Fittings for Item 5.
7 4 Nos. Rock Drills
8 1 Set Drill steel.
9 12 Nos. Concrete breaker.
10 1 No. Earth cable armoured lead cover.

11 10 Nos. Cable and box 100 amps.
12 10 Nos. T Boxes 150 amps.
13 2 Nos. Cable and box (Feeder side).
14 5 Nos. Distribution Board 50+20 amps.
15 5 Nos. Distribution Boards (Busbar chamber) equipped with :
1 No. 100 amps main switch.
1 No. 50 amps Mixer switcher + vibrator.
1 No. 20 amps Light Distribution Switch.
16 1 No. 250 KVA Transformer.
17 2 Nos. L.T. Distribution with O.C.B. 500 amps.
18 1 set. Different sizes of Rubber cable for movable machinery as concrete mixer, vibrators etc.

G—*Earthmoving Equipment and Aggregate & Material Transport.*

1 1 No. Rock shovel 2 cyd. Demag. with clam shell equipment and Dragline.
2 2 Nos. Northwest Dragline 1 cyd. equipped with clam shell.
3 5 Nos. Portable Belt Conveyors 10 m. long.
4 10 Nos. Mercedes 5 tons self dumping steel body trucks.
5 22 Nos. Trucks from Gammons.
6 10 Nos. Diesel Locomotives 22 H.P. 600 m. Gauge.
7 200 Nos. Tip wagons 1 cyd. 600 mm. gauge.
8 3 miles 600 mm. Rail track 22 lbs/yd.
9 12 Nos. Righthand 600 mm. points.
10 12 Nos. Lefthand 600 mm. points.
11 12 Nos. Flat trolleys
12 2 Nos. 8 wheeler long transport bogies.
13 3 Nos. Bull dozer D6 or D7.

H—*Water Supply (Drinking & Curing water.)*

1 2 Nos. High Pressure water pumps 3" & 4" electric driven 200 ft. head.
2 1 No. High pressure water pump 3" diesel driven 200 ft. head.
3 6 Nos. R.C.C. Ground tank with concrete cover.
4 2000 Rft. 4" water pipe line.
5 2000 Rft. 2" water pipe line
6 1000 Rft. 1½" Do.
7 2000 Rft. 1" Do.
8 1000 Rft. ¾" Do.
9 1000 Rft. ½" Do.
10 Fittings for pipe lines.
11 Electrical L.T. Line.

J—*Dewatering Pumps.*

1	2 Nos. 6" dewatering pumps non-clocking type, completely electrically driven 35 H.P. 100 ft. head.
2	2 Nos. 4" Do. 20 H.P. Do.
3	3 Nos. 2" Do. 5 H.P. Do.
4	3 Nos. 2" Do. 5 H.P. Do.

But Diesel Driven.

5	2000 Rft. 6" dewatering pipe made as of 8 Gauge sheets.
6	2000 Rft. 4" water pipes
7	4000 Rft. 2" Do.

Rubber cable for the above electric driven pumps

K—*Bar Bending Cutting and Welding Machinery.*

1	2 Nos. Bar Bending machines upto 50 mm. dia.
2	2 Nos. Bar cutting machines upto 50 mm. dia.
3	1 No. Butt welding machine and cooling plant.
4	1 No. L.T. distribution.

L—*Carpentary* (*Shuttering and Scaffolding*).

1	10 Nos. Electric driven circular saws (600 mm and 400 mm blade dia.)
2	2 Nos. Planning machine 600 mm. width.
3	2 Nos. Double planning machine 600 mm. width.
4	2 Nos. Band saws.
5	L.T. Distribution.

M—*Workshop for Vehicles and Diesel and Petrol Engines and Maintenance Station.*

1	1 No. Fuel Pump for Diesel Oil.
2	1 No. Fuel Pump for Petrol.
3	1 No. Lub. Oil distribution.
4	1 No. Inspection hoist or Ramp.
5	1 No. Vehicles washing outfits at Vehicle Part place.

Vehicle Workshop with three Inspection Pits

6	1 No. Turning lathe high precision.
7	1 No. Pillar drilling machine upto 1" dia.
8	1 No. Bench drill upto 3/4" dia.
9	3 Nos. Hand drills upto 1/2" dia.
10	1 No. Steam cleaner for parts.
11	1 No. Tube vulcaniser and inflating pump.
12	1 No. Hachsaw machine.
13	1 No. Hand shearing machine.

14 1 Set Small tools for vehicles (Gas and electrical welding plant).
15 L.T. Distribution.
16 Bench Grinder.
17 Battery charger.

N—*Main workshop.*

1 1 No. Heavy Duty turning lathe.
2 1 No. Shaping machine
3 1 No. Pillar drilling machine.
4 2 Nos. Bench Grinder.
5 2 Nos. Bench Drilling Machines.
6 3 Nos. Hand drilling machines.
7 6 Nos. Gas cutting sets.
8 4 Nos. Gas Welding sets.
9 6 Nos. Electric Welding machines.
10 1 No. Blacksmith's outfit.
11 3 Nos. Rack saw machines.
12 1 Set Fitter workshop tools.
13 3 Nos. Hand shearing machine 3/8".
14 Electrical tools.
15 1 No. Gantry crane, 5 tons lifting capacity or over head crane at workshop.
16 L.T. Distribution.

O—*General.*

1 Erection equipment.
2 Fire Fighting equipment.
3 Laboratory equipment.
4 2 Nos. stone crusher for Initial foundations.
5 6 Nos. Derrick cranes 2 tons capacity.

APPENDIX XII

(*Vide* Footnote to Para 112)

Note on the circumstances in which sites for various units had to be shifted at Rourkela

It has been explained by the Hindustan Steel Private Ltd. that an estimate for site formation in the plant site was prepared for an amount of Rs. 14·26 million in the last quarter of 1955 based on the preliminary data available for 1/2 million ton plant. This covered an area of about 4·0 km by about 1·3 km. The entire work was laid out with a gradient of 1 in 600 longitudinal (East-West) and 1 in 400 transverse (North-South). The total volume of earth work to be done in cutting was nearly 140 million c.ft. and the volume in filling was nearly 250 million c.ft. based on the preliminary survey data. As stated above, earth work in filling was much more than that in cutting and it was proposed not to fill up all the low ground with material by excavation and to leave hollows at suitable places for filling up later on with slag from blast furnaces. As the position regarding the filling that might be left out was not clear, provision was made only for the earth work that was to be done by excavation and filling that would be done from the excavated material. Accordingly, the estimate was prepared only to cover the cost of excavation and filling of 140 million c.ft. of earth work. The work of site formation was to be carried out very quickly. As such, detailed borings were not done to find out exactly the quantity and nature of the rock that would be met in the different zones, but from such observation as it was possible to do, it was estimated that the quantity of hard and soft rock excavation would amount to 1/6th of the total excavation and this was assumed for the preliminary estimate.

In order to carry out the large volume of earth work within a short time and especially because long leads were involved, three different contractors possessing mechanical equipment were entrusted with the work of site formation in all the four zones, namely, A, B, C and D.

When the production capacity of the steel plant was increased to 1 million tons, the area of the site also was increased to about 4·3 k.m. by 1:5 k.m. and the longitudinal and transverse gradients were fixed as 1:565 and 1:400 respectively. The estimated earth work for the 1 million ton plant based on preliminary data as given by the Consultants was about 4·2 million cubic metres (nearly 148 million cu.ft.).

Even after the plant site was finally decided there has been a subsequent extension of plant to the South to incorporate the final by-product distillation plants for tar and benzol, which were not contemplated in the earlier stages and also to the East to accommodate the extended marshalling yard that was re-designed for handing over of train loads at the work siding. A separate estimate for

earth work in site formation for the marshalling yard zone (zone 'E') was prepared in the first quarter of 1957 for an amount of Rs. 1,947,654. The earth work estimated was about 26 million c.ft.

The Annexure enclosed herewith indicates the salient figures of quantity and cost of estimated earth work for the 1/2 million ton plant that was prepared previously and that for the 1 million ton plant. The revised estimated cost for site formation in plant site will be about Rs. 43 million and the quantity of earth work will be about 196 million c.ft. in excavation and filling and 34 million c.ft. in filling alone from borrow pits. This revised estimate for earth work in site formation in plant site for the 1 million ton plant includes the revised estimate for zones A, B, C and D and also the estimate for zone E prepared in the first quarter of 1957. The main reasons for the increase in the cost of the revised estimate over the original estimate prepared for zones A, B, C and D are given below:—

(i) The area of the plant site was increased from about 4.0 k.m. × 1.3 k.m. provided for the 1/2 million ton plant to about 4.3 k.m. × 1·5 k.m. necessary for 1 million ton plant, thereby increasing the quantity of earth work required for site formation. Further, the extension of plant site to the South for accommodating the final by-product distillation plants for tar and benzol has increased the volume of site formation work. This extension was possible only adjacent to the by-product plant itself which happened to be at the South boundary in rocky area and this has increased the cost. The addition of zone E to accommodate the extended marshalling yard has also increased the cost by about Rs. 2 million.

(ii) The original estimate was based on preliminary survey data and on the assumption that 1/6th of the total excavation would be hard and soft rock. Actual experience had shown that the nature of the substrata was very much variable from place to place and the rock excavation had been found to be much more than what had been assumed. The percentage of rock excavation in respect of the total excavation is now about 47%. This seems to be the most important reason for the increase in cost.

(iii) The increase in the plant capacity has necessitated the re-adjustment in the layout and the shifting of the site towards the South and as a result a large area of high rocky ground had to be encountered. The shifting of the plant to the South was necessary, so that foundations for main plant units do not come on heavily filled up area on account or original contours of site. Final location of plant was decided as at present after the earth work quantity was taken for eleven different positions for different individual plant units. If location of plant had not been decided as at present the total volume of concrete work for the various plant foundations would have gone considerably higher as these foundations would have had to be built on very heavily filled areas which would have meant much higher total cost. Thus, although shifting of the site had resulted in increased earth work and rock excavation thereby increasing the cost of the site formation, this had been more than off-set by the reduced volume of concrete work for plant foundations.

(iv) Since the site formation work was prolonged due to the heavy increase of rock excavation, the excavated materials could not be taken to the filling areas along a direct haul road as in the meantime work was started on various plant units, railway tracks trenches for sewers, water-supply, cables, etc. and as a result, round about haul roads had to be used which increased the lead and hence the cost.

(v) Provision had been made now in the revised estimate for earth work required for temporary drains which were required for the drainage of the area during monsoon and for earth work required for formation for the road and railway tracks. This was not included in the original estimate.

In addition to the site formation work in zones, A, B, C and D that is being done by the contractors and whose contract value has exceeded the original contract value, the cost of site formation work on zone E and the cost of earth work for temporary drains, formation for roads and railway tracks done departmentally should also be added in order to find out the total estimated cost of site formation work for the 1 million ton plant. Hence the revised estimated cost of the site formation work for 1 million ton plant is Rs. 3·6 crores for zones A, B, C, and D plus Rs. 0·33 crore for earth work in temporary drains etc. and Rs. 0·19 crore for site formation in zone E and Rs. 0·12 crore for contingencies and work charged establishment which is equal to, say Rs. 4·3 crores against the original estimate of about Rs. 1·4 crores for 1/2 million ton plant.

ANNEXURE

EARTHWORK FOR SITE FORMATION IN PLANT SITE

Comparative Statement showing the Original and Revised Quantity of Earthwork and Cost

S. No.		Original estimates for 1/2 million ton plant					Revised estimate for 1 million ton plant				
		Quantity of excavation					Quantity of excavation				
		Soil cft.	Rock cft.	Total cft.	% of rock	Amount Rs.	Soil cft.	Rock cft.	Total cft.	% of rock	Amount Rs.
1	2	3	4	5	6	7	8	9	10	11	12
1	Zone 'A'	40,000,000	10,000,000	50,000,000	20	5,531,250	17,130,284	32,966,222	50,096,506	66	14,600,000
2	Zone 'B' . .	40,000,000	10,000,000	50,000,000	20	5,665,000	21,000,000	41,922,824	62,922,824	67	15,864,000
3	Zone 'C' . . .	20,000,000	2,500,000	22,500,000	11	1,537,500	33,000,000	6,000,000	39,000,000	15·4	4,267,500
4	Zone 'D' . . .	14,819,000	Nil	14,819,000	..	1,108,365	13,500,000	3,000,000	16,500,000	18·2	1,537,500
5	Zone 'E' . . .	..	..	..	..	..	19,140,000	6,725,000	25,865,000	26	1,890,926
6	Earthwork for temporary drainage and track formation work for permanent roads and rails etc. by Dept. labour in zone A, B, C & D .	..	..	..	..	..	640,000	960,000	1,600,000	60	3,300,000
	TOTAL	114,819,000	22,500,000	137,319,000	16·4%	13,842,115	104,410,284	91,574,046	195,984,330	46·8%	41,459,926

1	2	3	4	5	6	7	8	9	10	11	12
	Add 2% contingencies & 1% w/c estt.				415,263						1,243,379
					14,257,378						42,703,305
				Say Rs.	14,260,000					Say Rs.	4·3 crores

REMARKS :—

(1) The revised total cost of Rs. 14·6 million for item No. 1 includes also Rs. 2·465 million towards the cost of 34 million c.ft.of filling from borrow pits.

(2) Items Nos. 5 & 6 were not included in the original estimate.

APPENDIX XIII

[*Vide* Para 117]

The technical services to be rendered by the Indian Steel-works Construction Company for the Durgapur Project are to cover :—

(a) The preparation and submission of all drawings, samples and models except drawings, samples and models except for f.o.b. plant (to be obtained from the United Kingdom);

(b) The setting up of and maintaining so long as reasonably required, for the purposes of the contract :—

(i) a central technical and administrative organisation in Durgapur with a subsidiary office in Calcutta; and

(ii) five technical and administrative organisations at Durgapur for the technical control and administration of the execution of the following five parts of the works :—

Coke oven plant and power station

Blast furnace plant

Steel making plant

Rolling mill plant, wheel, tyre and axle plant central engineering and maintenance and foundry;

Civil engineering and building work;

(c) Coordinating the execution of the works on site and preparation of all necessary progress schedules;

(d) Progressing and inspection at the makers' works, of all plant and equipment to be obtained in India;

(e) Provision of specialist European and Indian technical staff to inspect and supervise the erection of the plant and execution of the works on site;

(f) Organising and controlling the provision and use of temporary services and use of mobile cranes and road and rail transport within the site;

(g) Cost of providing and maintaining temporary office accommodation on the site for the use of the Indian Steel-works Construction Company and its sub-contractors ;

(h) Cost of providing office furniture and equipment for the use of the Indian Steel-works Construction Company and the sub-contractors;

(i) Cost of providing furniture for the dwellings of the specialist technical and administrative staff required to perform (a) to (f) above; and

(j) Cost of providing and operating vehicles for the use of such staff.

APPENDIX XIV

(*Vide* Para 120)

Statement showing proposed Distribution of Steel Production—Capacity among various Producers

(000 Tons)

Sl. No.	Categories	Demand	TISCO		IISCO		Mysore	Rourkela		Bhilai	Re-rollers		Total	Balance Excess + Deficit —	British	Balance Excess + Deficit —
			Existing	Expansion	Existing	Expansion		Existing	Expansion		Existing	Expansion				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Heavy rails and fish plates	265 } 750	100	35	60	40	..	..	..	100	..	..	335+70 }	15 +85 }		
2	Heavy structural parallel	485 }	80	30	90	20	10	..	..	100	..	..	330−155 }	—85(Fish 80 plates—75 }		+10
3	Broad and parallel (flanged beams)	75	..	..	..	40	..	..	..	75	..	..	115	+40	..	+40
4	Crossing sleepers	30	3	27	..	..	..	..	..	30	..	..	60	+30	..	+30
5	Sleeper bars	*170	30	20	..	..	..	..	..	60	..	..	110	—60	60	..
6	Medium and light structurals	510	76	221	80	40	10	..	..	..	10	..	437	—73	138	+65
7	Deformed and pre-stressed concrete bars	30	..	..	..	..	10	..	..	..	..	..	10	—20	30	+10
8	Rounds and flats 1/2" and above	780 }	89	55	..	160	38	..	..	245	420	..	1,007	—133	140	+7
9	Rounds and flats 1/2" below	360 }														
10	Spring steel	30	4	..	..	..	2	..	..	..	9	3	18	—12	12	..
11	Wheels, tyres and axles	70	24	6	..	..	..	..	..	..	..	..	30	—40	40	..

12	Tinplates	150	..	..	..	..	..	..	..	..	80	20	100	—50	..	50
13	Plates 3/16" and above	300	100	..	..	..	..	100	100	..	..	..	300	..	..	..
14	Wire and wire products	100	..	..	..	..	5	..	..	..	40	55	100	..	..	..
15	Wire ropes	5	..	..	..	..	..	..	..	..	..	5	5	..	..	..
16	Tool and alloy steel	10	..	..	..	..	2	..	..	..	1	1	4	—6	..	—6
17	Stainless steel	15	..	..	..	..	15	..	..	..	..	..	15	..	..	..
18	Hoops and box strapping	60	..	..	..	..	8	..	..	..	15	22	45	—15	..	—15
19	Blooms and billets for forging	100	22	..	10	..	..	..	..	..	..	..	32	—68	95	+27
20	Sheets and strips (hot rolled)	650	150	..	110	10	..	190	190	..	..	..	650	..	..	..
21	Strips upto 12"	60	..	42	..	..	..	20	20	..	..	..	82	+22	..	+22
22	Strips over 12"	145	..	..	..	..	..	50	50	..	..	..	100	—45	..	—45
23	Skelp (for tubes and pipes)	100	72	34	..	..	..	..	..	..	..	..	106	+6	..	+6
	TOTAL—FINISHED STEEL	4,500	750	470	350	310	100	360	360	610	575	106	3,991		610	
24	Semis for re-rollers	700	181	99	..	140	..	..	..	140	..	†28	588		140	‡28

*Since sleepers could be produced from both steel and pig iron, the demand for steel sleeper bars would increase or decrease according to the conditions of availability of pig iron and steel.

†Production from scrap.

‡Exclusive of the ordnance factories production estimated at 50,000 tons.

APPENDIX XV

(*Vide* Para 143)

	Rs. in crores
ROURKELA :	
(*i*) Township	14
(*ii*) Ore mines in Barsua and lime-stone quarries in Purna pani	10
(*iii*) Fees to Consultants (Indien-Gemeinschaft)	2·85
(*iv*) Water-supply arrangements	2
(*v*) Other expenditure on prospecting, works undertaken by the Project outside the perimeter like railway and electrical connections, cost of Project staff, fees to other Consultants like CECW, customs duty, etc.	15
BHILAI:	
(*i*) Township	14
(*ii*) Ore mines in Rajhara and lime-stone quarries in Nandini and dolomite quarries in Hirri	10
(*iii*) Fees to the USSR	2·50
(*iv*) Cost of Soviet staff for supervision	4·50
(*v*) Water-supply arrangements	1·50
(*vi*) Other expenditure on prospecting, works undertaken by the Project outside the perimeter like railway and electrical connections, cost of Project staff, customs duty, etc.	15
DURGAPUR :	
(*i*) Township	14
(*ii*) Fees to Consultants	1·87
(*iii*) Water-supply arrangements	1
(*iv*) Other expenditure on prospecting, works undertaken by the Project outside the perimeter like railway and electrical connections, cost of Project staff, fees for general advice, investment in Bolani Ores, customs duty, etc.	12

APPENDIX XVI

(*Vide* Para 145)

ESTIMATES OF COST

The breakdown of estimates of the three steel plants, section by section, is as follows:—

Section	Original (in crores of rupees)	Revised (in crores of rupees)
ROURKELA :		
Coke ovens	12·85	17·05
Blast furnaces	13·50	15·29
Melting shops	13·52	15·57
Rolling mills	48·44	72·36
Central engineering	2·46	2·08
Power plant	6·72	8·62
General services	13·31	19·21
Transportation	9·51	11·12
Site preparation	7·77	8·70
TOTAL	128·08	170·00
BHILAI :		
Works layout	1·05	1·05
Coke ovens	10·29	10·78
Sintering plant	2·85	2·86
Blast furnaces	9·98	10·46
Open hearth plant	10·42	11·19
Rolling mills	41·05	42·37
Repair and auxiliary shops	7·43	7·61
Power supply facilities	11·57	12·90
Water supply & sewerage	3·37	4·84
Transport facilities	5·28	5·29
General works buildings	0·72	0·72
Unforeseen	5·99	5·99
Enabling works and construction equipment	..	15·00
TOTAL	110·00	131·06
		Or
		Rs. 131 crores roundly

DURGAPUR :

	Original (in crores of rupees)	Revised
Coke ovens	16·67	18·88
Blast furnaces	15·93	18·34
Melting shops	19·57	23·67
Rolling mills	30·70	32·53
Wheel, tyre & axle plant	7·62	10·83
Central engineering	5·27	5·70
Power plant	5·20	5·33
General services	6·43	7·68
Transportation	4·46	4·60
Site preparation	2·90	3·39
General civil engineering and central services	..	6·59
TOTAL	114·75	137·54

Or

Rs. 138 crores roundly

APPENDIX XVII

(*Vide* Para 148)

The differences between the original estimates of the three steel plants and revised one are due to :

	(Rs. in crores)
ROURKELA :	
(*i*) Increase on account of increases in level of wages, prices of raw materials and freight between the date of the estimate and the date of the tender	11·69
(*ii*) Increase on account of improvements and additions .	11·26
(*iii*) Cost of inland transport, not included in the estimates contained in the detailed project report . . .	5·11
(*iv*) Difference between revised estimates (based mostly on contracts concluded) and estimates in the detailed project report (which was merely the Consultants opinion) .	13·94
BHILAI :	
(*i*) Increase in size of power plant, use of chrome magnesite bricks, enlarged gas mains and conduits, and enlarged storage	3·3 to 3·5
(*ii*) Increase on account of switch over of refractories, structural steel work and the like for supply from the U.S.S.R.	2·76
(*iii*) Estimate of cost of construction, plant equipment and machinery and of temporary works and structures required for construction. (In the detailed project report no figures were given. This was shown as one of 7 items excluded from the estimates) . . .	15·00
DURGAPUR :	
(*i*) Increase in the f.o.b. cost in the final contract . .	5·99
(*ii*) Increase in the sterling component of technical services (formerly erection)	3·37
(*iii*) Increase in shipping and handling charges . .	1·47
(*iv*) Increase in cost of Indian material and Indian work .	7·57
(*v*) Increase in cost of wheel, tyre and axle plant :	
(*a*) F.O.B. Cost	1·88
(*b*) Rupee expenditure	1·50

(*vi*) Tar plant :

(*a*) F.O.B. cost	0·69
(*b*) Other costs	0·39

(*vii*) Other technical charges and switch over of materials :

(*a*) F.O.B. cost	0·54
(*b*) Rupee expenditure (Minus)	0·68

In the preliminary tender there was no provision for a tar plant. Another major improvement is that instead of the Duplex process the desiliconising open hearth method was adopted in the final tender. The wheel, tyre and axle plant will now be very much bigger than the one quoted in the preliminary tender and will produce a different type of wheels.

APPENDIX XVIII

(*Vide* Para 152)

Reasons for the cost of the rolling mills at Rourkela going up from Rs. 48 crores to Rs. 72 crores.

For the rolling mills the estimate in the detailed project report was Rs. 48·44 crores. In the revised estimate, the figure is Rs. 72·36 crores--an increase of Rs. 23·92 crores. During the negotiations in Germany in August 1956, this difference had been explained by Indien-Gemeinschaft as follows:—

The F.O.B. part of the two estimates are Rs. 32·37 crores and Rs. 44·07 crores—a difference of Rs. 11·70 crores. Of this:

	(Rs. in crores)
(*i*) increase in level of prices and wages	4·20
(*ii*) increase in price of furnaces *a	0·74
(*iii*) increase in price of rolling mills *b . . .	0·36
(*iv*) increase in price of electrical equipment *c . .	5·70
(*v*) increase in price of furnaces *d	0·36
(*vi*) increase in price of steel structures *e . . .	0·34

NOTES :

*a Due to provision of slag removal, anchorage of chambers, special design of roller-heart, increase in quantity of refractories due to their being imported.

*b Longer roller tables, some changes in design, additional grinding machine, additional ingot buggy, additional boiler and changes in tinning line.

*c A number of additions made during the detailed planning, cost of cables and signalling system, and motors and electrical equipment ultimately selected being different from what had been envisaged in the original project report. One of the main reasons was to standardise electrical equipment of three well known manufacturers so as to cut down the cost of spares and the cost of operation. These changes in electrical motors and equipment were scrutinised and approved by the International Construction Co in addition to Indien-Gemeinschaft.

*d Three additional cranes, elongation of sliding contact lines, increase of spans and load capacities and additional equipment like motor room ventilation.

*e Elongation of rolling mill bay by one span, enlargement of soaking pit bay, yard guntry and increased weight of structures for additional strength.

In the new estimates, ocean freight has gone up by Rs. 0·65 crores mainly on account of additional supplies and partly on account of increases in freight between the submission of the detailed project report and the preparation of the revised estimates. Erection costs—including civil engineering, structural and plant erection, inland transport and handling—have gone up by Rs. 4·62 crores on account of (1) provision for inland transport which had not been made in the original estimates, and (2) increased cost of Indian work. Costs of Indian suppliers have gone up by Rs. 2·60 crores. Additional spares have been provided to the extent of Rs. 4·35 crores. Strictly speaking, a considerable part of this should really not be treated as capital investment but as maintenance expenditure.

APPENDIX XIX

(*Vide* Foot note to Part 152)

Rolling Mills at Rourkela

Statement explaining the difference in the F.O.B. part of the original and revised estimates

(Figures in crores of Rs.)

Sl. No.	Item	Original Estimate	Revised Estimate	Increase	Increase on account of rise in cost of materials and wages	Increase due to other reasons	Remarks
1	2	3	4	5	6	7	8
1.	Furnaces	2·82	3·93	1·11	0·37	0·74 (*a*)	(*a*) Due to provision of slag removal anchorage of chambers, special design of roller-heart increase in quantity of refractories due to their being imported—provision for breakage being made.
2.	Blooming and Slabbing Mill	1·93	2·26	0·33	0·25	0·08 (*b*)	(*b*) Longer roller tables, some changes in design, additional grinding machine, additional ingot buggy, additional boiler and changes in tinning line.
3.	Plate Mill	5·26	5·96	0·70	0·68	0·02	
4.	Hot Strip Mill	5·99	6·83	0·84	0·78	0·06	
5.	Cold Rolling Mill including Tinning Line	3·78	4·47	0·69	0·49	0·20	
6.	Electrical Equipment for Rolling Mills	6·61	13·17	6·56	0·86	5·70 (*c*)	(*c*) A number of additions made during detailed planning; cost of cables and signalling system and motors

1	2	3	4	5	6	7	8
							and electrical equipment ultimately selected being different from what had been envisaged in the original project report. One of the main reasons was to standardise electrical equipment of three well-known manufacturers so as to cut down the cost of spares and the cost of operation. These changes in electrical motors and equipment were scrutinised and approved by the International Construction Co. in addition to Indien-Gemeinschaft. There has also been a certain element of underestimation of cost on the part of the consultants.
7.	Cranes . .	1·42	1·96	0·54	0·18	0·36 (*d*)	(*d*) Three additional cranes, elongation of sliding contact lines, increase of spans and load capacities and additional equipment like motor room ventilation.
8.	Steel Structure .	4·56	5·49	0·93	0·59	0·34 (*e*)	(*e*) Elongation of rolling mill bay by one span, enlargement of soaking pit bay, yard guntry and increased weight of structures for additional strength.
	TOTAL .	32·37	44·07	11·70	4·20	7·50	

APPENDIX XX

(*Vide* Para 162)

Works cost of crude steel in the three Steel Plants is estimated to be as under:

	Rs. per ton
Rourkela :	
Open hearth steel	117
L. D. steel	98
Bhilai :	
Open hearth steel	112
Durgapur :	
Duplex steel	104

Production costs, as estimated are :

Rourkela :	
Heavy plates (non-scarfed)	260
Medium plates (non-scarfed)	262
Sheets	306
Sheets (non-scarfed)	301
Autobody sheets	424
Tin plates	575
Heavy plates (non-scarfed and annealed)	308
Bhilai :	
Coke	30
By-products in gas	9·89 per ton of coke produced
Coke oven gas	9·48
Coke breeze	2·21
Pig iron	83
Rails and heavy sections	207
Billets	167
Other merchant sections	223
Durgapur:	
Coke	18·5
By-products	16
Pig iron	55
Billets	144
Merchant Sections	178
Medium Sections	161

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APPENDIX XXI

(Vide Para 176)

The Mysore Iron and Steel Works, Bhadravati

First Five Year Plan :

The expansion schemes undertaken by the Works under the First Five Year Plan *viz.*, (*i*) installation of two Electric pig iron furnaces for increasing the production of pig iron, (*ii*) expansion of Cement plant for increasing the production of cement, (*iii*) installation of an Acetic acid plant for manufacture of Acetic acid, and (*iv*) expansions to ancillary units like shops, foundries, tramways and mines were all completed and put into operation during the First Plan period. Two additional schemes (*i*) for expansion of cast iron pipe foundry and (*ii*) installation of an iron ore sintering plant were sanctioned during the latter part of the First Plan period. The erection of the spun pipe plant has been completed and arrangements are on hand to start operations. Orders have been placed for a sintering plant in Germany and shipment is expected shortly. This plant is expected to be erected and put into operation during the last quarter of 1958 or early in 1959.

The expansion schemes undertaken and completed during the First Five Year Plan period, the total outlay incurred and production targets achieved are given below :—

	Schemes	Expenditure incurred (Rs. in lakhs)	Annual production (additional tons)
1.	Two Electric pig iron furnaces . . .	111·40	55,000 pig iron
2.	Improvements to ore mines and tramways . .	51·89	Service units
3.	Cement plant extension .	70·28	54,000 cement
4.	Acetic acid plant .	17·41	240 Acetic acid
5.	Improvements to shops, foundry, yard etc. .	26·30	Service unit
6.	Extension to tramways .	4·40	Service unit
7.	Cast iron spun pipe plant .	40·52	17,000 Erection completed and ready for operation.
8.	Iron ore sintering plant .	7·43	Plant ordered abroad. Shipment expected to start shortly.

Second Five Year Plan :

The following schemes of the Mysore Iron & Steel Works are included in the Second Five Year Plan :

	(Rs. in lakhs)
(*i*) Spun pipe plant	15
(*ii*) Sintering plant	30
(*iii*) Ferro-silicon plant	150
(*iv*) Expansion of steel melting capacity (*v*) Extension of rolling mill capacity	300
(*vi*) Extension of modernisation of ancillary works to cater to the revised requirements of the production section of the works	100
TOTAL	595

APPENDIX XXII

(*Vide* Para 228)

Statement showing Arisings, Consumption and Export of Scrap

(Figures in long tons)

Year	Arisings			Import		Consumptions		Exports	
	Industrial	Rerollable	Melting	Industrial and Rerollable	Melting	Industrial and Rerollable	Melting	Melting	Value (in lakhs of rupees)
1952	70,400	61,470	7,50,000	943	Nil.	1,32,000	3,61,000	3,29,604	528
1953	86,700	54,000	8,00,000	767	Nil.	1,41,000	3,71,800	3,92,506	628
1954	85,500	50,200	6,00,000	807	Nil.	1,36,000	4,37,800	1,26,977	193
1955	77,600	36,600	6,00,000	6,190	Nil.	1,20,000	4,38,800	1,51,047	203
1956	71,600	24,000	6,50,000	23,282	Nil.	1,18,000	4,78,800	1,75,707	370

APPENDIX XXIII

(*Vide* Foot note to Para 230)

Note on the Power Plant at Rourkela

The Power Plant at Rourkela will be a 75 MW thermal power station operating on steam raised by the surplus gases of the Steel Plant such as Blast Furnace and Coke Oven Gas. Arrangement is provided for the use of oil and coke breeze also as fuels.

The specifications for the Power Plant were prepared by the consultants, Indien-Gemeinschaft Krupp Demag, GmbH generally approved by the Technical Adviser. The main features of the Plant are briefly as follows :—

The Plant consists of 4 boiler units with a steaming capacity of 125/150 ton per hour. There are four condensing turbo blowers for providing air to the Blast Furnaces, each with a capacity of 120,000/160,000 CBM per hour with a discharge pressure of 2·3 KG/SQ. CM.

For generation of electric power there are three sets of condensing turbo alternators each of 25 MW capacity. For purposes of emergency, 2 diesel alternator sets of 480 kw each are also provided. The Power House will operate in parallel with the Hirakud Sub-station at Rourkela.

The technical specifications for the Plant were drawn up on the basis of general requirements. When tenders were received certain new factors were brought to light and as a result of the discussions with the tenderers, certain specifications were changed. The final order for the power plant was placed on the basis, of the revised specifications which were approved by the consultants for the Rourkela Steel Plant, the Technical Adviser and M/s. International Construction Co., consultants to the Ministry of Steel, Mines and Fuel. It was the opinion of all these Agencies that the revised specifications were the best on technical and practical grounds. The modifications were finalised in Germany.

Some of the main deviations from the original specifications are indicated below :—

	Specified	As ordered
Feed Water Temperature	180 Degree C	170 Degree C
Air Preheaters .	2	1
Fly ash collector . .	1	Nil.
Fluctuation . . .	Peak load 28 MW in 4 seconds	30 in 10 second and Maximum 36 MW in 11/12 seconds
Turbine for Blower rating .	4890/8050KW	11,000 KW for 3.85 atapress
Cooling Towers	18	14
Water treatment plant	2×40 ton/hr.	2×72 ton/hr.

	Specified	As ordered
Jet erector	Steamjected Ejector	Waterjet Ejector
Air conditioning	Not mentioned	Supplied
Deareation	BetweenTemp. 105 Degree to 150 degree	Final temperature of 170 Degree C
C.W. Pump House crane	15 ton	10 ton
Diesel Engine capacity	1000 Kw.	2×500Kw.
C.W. Pump .	Alternative Steam drive	Electric Motor Separate source for energy.

APPENDIX XXIV

(*Vide* Para 246)

The Secretariat of the Head Office of the H.S. (P) L. consists of:—

		Rs.
Secretaries	3	1100—1800
Joint Secretaries	2	800—1150 plus a special pay of Rs. 100/-.
Deputy Secretaries	2	800—1150
Executive Officers	10	275—25—500—E.B.—30—800
Accountant	1	200—20—500
Senior Assistants Junior Assistants	27	160—10—330 80—5—120—E.B.—8—200—10/2—220
Cashier	1	160—10—330
Copyist	1	80—5—120—E.B—8—200—10/2-220
Stenographers	14	160—10—330
Steno-typists	6	80—5—120—E.B.—8-200—10/2—220
Clerk-typists	21	60—3—81—E.B.—4—125—5—130
Messengers	25	30—1/2—35
Daftries & Jamadars	7	35—1—50

APPENDIX XXV

Statement showing the summary of conclusions/recommendations of the Estimates Committee relating to the Ministry of Steel, Mines and Fuel—Hindustan Steel (Private) Limited—Rourkela, Bhilai and Durgapur Steel Projects.

S. No.	Reference to Para No. in the Report	Summary of Conclusions/Recommendations
1	2	3
1	VII (Preface)	The Committee suggest that a team of experts comprising persons well-versed in industrial, financial legal and technical matters, might be appointed to make a more comprehensive study of the Projects with particular reference to the agreements with Consultants, project reports, contracts, arrangements made for training the personnel, etc., not necessarily to pick holes in regard to them but to enable with their help to make suggestions for avoiding difficulties in future. The Committee also recommend that the report of the Team so appointed should be made available to Parliament.
2	9	In taking a decision on the Consultants' Report the Government lost five valuable years and a very good opportunity to put up the steel plants in the country at a cheaper cost at a time when they were most needed. Had the steel plants been erected as suggested in 1949, they would have gone into production by 1954 or 1955. They would also have saved the country from importing large quantities of steel which cost large sums of money in the shape of foreign exchange.
3	10	The estimates of future deficits in the steel requirements of the country, reported by the Technical Mission appointed in 1952, increased five-fold within 2 years. While the reasons for the earlier low estimates were not furnished to the Committee, it is obvious that they were wrong.
4	12	The Committee feel that it is always desirable that negotiations for agreements etc. should be conducted by a negotiating Committee of officials and non-officials and experts instead of singly by officials. They would also like to reiterate the recommendation

1	2	3
		contained in para 24 of their 16th Report (1st Lok Sabha) that there should be a specialised machinery within the Government to scrutinise carefully agreements before they are signed.
5	15	The Committee believe that had the conclusion of contracts for supply of plant and machinery for the Rourkela Plant not been delayed, as it was, due to revision of the project report, it might have been possible to purchase at least some of the plant and machinery at lower prices. It is also not clear whether the Government were conscious of the rising prices and whether if they had attached any importance to this fact, they would have allowed such delays in finalising project reports and in dealing with this matter in such leisurely manner.
6	18	The Committee regret to observe that in the case of Durgapur, no Indian experts were associated with the Consulting Engineers in the examination of the reports as was done in the case of Rourkela and Bhilai Projects.
7	22	(*i*) There is evidence that if decision to set up steel plants had been taken in time, they would have cost 40 to 50 per cent less. (*ii*) The requirements of steel were not assessed properly in the initial stages with the result that much valuable time was lost in preparing project reports and in revising them while the world prices of plants were rising and finished steel was being imported at the sacrifice of much needed foreign exchange. (*iii*) Three different methods were followed in negotiating with German manufacturers, Russian Government and the British Consortium. It is not clear why the method of appointing a large Expert Committee to study the Russian offer, which yielded good results, was not followed in the case of other two negotiations. Indeed it is regrettable that the latter two had undesirable features
8	26	The Committee feel that it would have been desirable to entrust the Bhilai and Durgapur projects to the Company from the beginning since the machinery

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		of Government departments is not generally suited to undertake such projects departmentally even in the initial stages when in fact the bulk of the negotiations are carried out and agreements entered into.
9	27	The Committee suggest that the minimum number required for the Board of Directors might be raised suitably and wide fluctuations in the total number avoided as far as possible.
10	30	(*i*) The Committee feel that the Government would do well to define in broad terms the qualifications of the Chairmen and Members of the Boards of Directors of Industrial Undertakings in the public sector in the country, as is the practice in U.K
		(*ii*) Keeping in view the tasks to be performed and the requirements therefor, the members of the Board of Directors might be drawn from a wider sphere than at present and that more technical experts and experienced men from public life and from various non-official sources be appointed to the Board, though care would have to be taken that no one with a direct interest in the same industry in the private sector is appointed.
		(*iii*) The terms of service of the Directors might be so framed as to attract capable men.
11	31	The Committee suggest that Government might consider whether it is feasible in the case of HSPL and other nationalised undertakings to adopt the principle suggested by the Advisory Committee of the National Coal Board of U.K. that the non-official directors on the Board should have the right of access to the Minister if they wish to draw his attention to any matter of importance affecting the industry.
12	32	The Committee feel that more full-time Directors should be appointed on the analogy of the Railway Board and that, to the extent possible, continuity among the full-time Members should be ensured
13	33	The Committee recommend that, for better administration and co-ordination, each full-time director should be entrusted with the responsibility of certain Departments of the Company, *e.g.*, Engineering,

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		Staff Matters, Coal Washeries, Raw Materials, etc. The need for such Directors and their functions might change when production in all the plants commences, *e.g.*, it might be necessary to have such departments as Production, Marketing and Purchase, Industrial Relations, Staff, Finance, Research, etc. Therefore, the position and the functions of full-time Directors might be reviewed from time to time.
14	34	The Committee welcome the proposal of Government to expand the present Board of Directors and to appoint more Directors from non-official sources and suggest that, in making new appointments, the recommendations made in the preceding paragraphs might be kept in view.
15	38	The Committee recommend that the association of the Secretariat officials on the Board of Directors of the Hindustan Steel (Private) Limited might be terminated as early as possible.
16	39	So long as the present system of Secretariat officials being members of the Board of Directors continues, the Committee suggest that there should be some arrangement in the Government for examination of matters, which come up from the Company for their consideration and approval, by officers different from and independently of those who are on the Board so as to facilitate objective and independent examination of these matters and thereby fulfil the purpose for which they are required to be referred to Government.
17	40	The Committee recommend that the circumstances in which the Government might intervene in the affairs of the Company should be clearly specified and that, except in such circumstances, the responsibilities of the company with regard to the Projects should be specific and unambiguous.
18	42	The Committee consider it strange that the Board of Directors should set up a Committee with an indefinite membership and with such wide powers. They also find it strange that the administration of the Rs. 560 crore steel projects rests largely with two to four officials or erstwhile officials of the Government who have had no previous experience of steel industry, or of any industry for that matter.

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19	43	The Committee feel that it might be advisable for the Board to have a larger number of Committees for different purposes with different but specific membership instead of one multi-purpose Committee.
20	43	In the new Committees, the non-official Directors might be given an active part to play by making them chairmen of some of the Committees. By this arrangement all the members of the Board would be associated with the work of the Board in one way or the other so that they might bring to bear on the subjects they deal with greater experience and, therefore, better judgment.
21	44	The Committee recommend that the existing practice of circulating to the Board the decisions of its Committee should continue and that in addition such decisions should also be reviewed at subsequent sittings of the Board to enable the latter to give suitable guidance, wherever necessary, to the Committee in their future course of action.
22	45	The Committee do not appreciate the location of the head office of H.S.(P) Ltd. at Delhi. They feel that its location near about the area of operations would enable the Hindustan Steel (P) Ltd. to function independently on business lines instead of looking to Government for advice and guidance in all matters.
23	47	(*i*) The Committee consider that the selection to such responsible posts as General Managers of Steel Projects should be made not merely from among civil servants but from a wider sphere. The main consideration in this regard should be that the General Managers should be able to exercise the powers devolving on them without fear or favour and they should not look to headquarters for guidance or orders on routine matters. They should be able to deal with the Members of the Board of Directors or the Minister at near-equal level and maintain the autonomy of the local management subject to the general policies of the Company and the Government. In addition, it would be desirable for the General Managers to have some industrial back-ground particularly of the industry which they have to deal with. (*ii*) The Committee would also suggest that there should also be continuity in the posts of General Managers.

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24	49	The Committee suggest that there might be a local Board of Management for each project which could function independently on all local matters. It might consist of the General Manager and all the heads of Departments of the project. The central co-ordination for all the Projects might continue to be provided by the Board of Directors of the Hindustan Steel (P) Ltd. which might deal mainly with policy questions, matters of common interest, provision of Finance, observance of the Company Law requirements etc.
25	50	While undertaking a reorganisation, the organisation of the Gas Council and the Area Gas Boards in U.K. or alternatively of the National Coal Board of U.K. might also be examined with a view to seeing to what extent it could serve as a model for the set-up of the H.S. (P) Ltd.
26	52	The Committee consider the arrangement under which Consultants are also suppliers of equipment as not satisfactory since there is a possibility that the advice given by the Consultants might not be objective. In this connection they consider it significant that the cost of the Rourkela Project has increased very much since the Consultants first prepared the estimates.
27	53	The Committee note that financial collaboration with M/S Krupp & Demag was dispensed with since it turned out that German investment under the agreement would amount to borrowing at nearly 12% interest. The Committee are surprised to find that the agreement was defective in this respect and feel that these matters should have been examined more carefully even at the initial stage of negotiations.
28	56	(*i*) The agreement with M/S Krupp & Demag does not specifically either include or exclude services with regard to civil engineering work and, to that extent, the agreement is apparently open to different interpretations. The Committee, therefore, suggest that the matter might be got re-examined by business and legal experts even at this stage and in case there is a possibility of securing a reduction in the fees payable to the technical consultants on this account, it might be explored. (*ii*) In future the duties of consultants should be clearly laid down in the agreements.

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29	57	It is not clear to the Committee why the terms of the contract with M/S Krupp & Demag have been assumed to be limited to furnishing general plans. The Committee feel that this matter also needs to be enquired into from the legal and commercial angles.
30	61	The Committee suggest that the need and justification for the post of Technical Adviser might be reviewed and, if it is considered necessary to continue the post, the practicability of appointing an Indian to the post, when the term of the present incumbent expires, might be considered.
31	68	The Committee doubt whether the reduction of £200,000 in the fees of £1,600,000 payble to the Consultants (International Construction Co.) on account of the Durgapur contract being given as a package deal was quite commensurate with the reduction in their duties.
32	71	The Committee feel that the appointment of Consultants for general advice would have been understandable had they been appointed at a sufficiently early stage so that the necessity of appointing separate Consultants, for each project could have been avoided. Considering, however, that they were appointed after separate Consultants for each Project had already been appointed, the Committee feel that the utility of the General Consultants would be limited.
33	72	The Committee do not understand why there should be a foreign Consultant to advise on the work of other foreign consultants—an arrangement which could, perhaps, be appreciated if there was not technical know-how within the country. However, they feel that the agreements with foreign consultants might invariably provide for a second opinion being obtained from indigenous consultants who, with their knowledge of the local conditions, might be in a position to make better contribution.
34	73	The Committee recommend that the duties of the consultants might be broadly defined as far as practicable in terms of specific problems which might arise in the course of the development of the industry or execution of the projects and a procedure established to refer all such problems to the International Construction Company as and when they arise.

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35	75	The Committee feel that a comparison of fees for consultancy at the three Projects by an Expert Technical Committee is necessary with a view to laying down the broad principles on which the fees of Consultants should be determined in future.
36	79	The Committee understand that the team of 24 men which visited Germany did not submit any Report either to the Hindustan Steel (P) Ltd. or to the Government on the training received by them, difficulties encountered etc. The Committee feel that it should be obligatory on all such study teams sent abroad for training to submit a detailed report to the Company and the Government since they would serve as a permanent record.
37	80	The Committee are surprised that valuable opportunities available under the Bhilai agreement are not being fully utilized for getting the maximum number of Indians trained. They suggest that suitable men among those available should be selected and got trained as early as possible.
38	81	The Committee suggest that the desirability of forming groups of persons of varied experience, in greater number and of attaching them to the consultants at Bhilai should be considered expeditiously.
39	82	The Committee are of the opinion that care should have been taken when entering into the Durgapur agreement to provide for the association of Indians in designing work.
40	83	The Committee feel that an important aspect of the projects, *viz.*, the association of Indians in the planning and designing work, has not been given the attention it deserved. They would suggest that, even at this stage, attempts might be made to associate Indians with the consultants in greater measure.
41	86-87	The Committee consider it unfortunate that Government have not so far found it possible to utilise for the Steel plants as well as for the ancillaries such as ore mine, limestone quarries, etc., the services of Indian Consultancy Organisation which, according to the representatives of Government, was the only one existing in the country. They would urge that Government should take steps right from now to

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		utilise indigenous talent to the extent possible even for the plants which are coming up so that with the experience gained, it might independently assist in the work relating to future expansion.
42	88	The Committee would suggest that Government might expedite the consideration of the question of developing their own desigining organisation which might gradually undertake all detailed planning and designing work for the expansion of the existing steel projects as well as for setting up the new ones. In this connection, they feel that it would be desirable for the organisation' so set up to be independent of the body responsible for the execution of the Projects.
43	89	The Committee consider that a fuller examination of the contracts for civil engineering work of the blast furnaces and rolling mills at Rourkela as well as other contracts entered into by the Hindustan Steel (Private) Limited by a Committee of Experts is called for.
44	96	The Committee cannot help concluding that the decision to import foreign workers for work in the blast furnaces at Rourkela was an ill-considered decision and that the expenditure incurred on that account was avoidable.
45	98	The Committee feel that the antecedents of the contractors (M/S Uttam Singh Duggal & Co.) should have been verified from the Chandigarh Project Authorities where they had worked previously, before placing such a large contract (civil engineering works for the blast furnaces) with them.
46	103	The Committee wonder whether it was right to give large financial assistance to the contractors (Hochtief Gammon) when quite a number of other contractors engaged on civil engineering work have been working without such assistance.
47	104	The Committee feel that, since a separate firm of Consultants (CECW) had been appointed exclusively for the civil engineering work of the rolling mills (and steel melting plant) at Rourkela at an enormous cost, it should have been possible for the H.S. (P) Ltd. and the Government to utilise their services in such a way as to remove the grounds which justified such a contract (Hochtief Gammon).
48	107	It appears to the Committee that as a result of the provisions of the Hochtief Gammon Contract, considerable avoidable expenditure would be incurred adding to the cost of the Project.

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49	108	The performance of the contractor for the civil engineering work of the rolling mills at Rourkela is to be supervised by the C.E.C.W. and the Chief Engineer (Plant). In view of the fact that a partner of the contracting firm was also a partner of the Consortium of the Consultants till recently, the Committee feel that the Chief Engineer (Plant) should assume responsibility in providing effective and objective supervision of the work of the contractor.
50	110	(*i*) The Committee feel that payment of advances to the contractors is contrary to the principle of open tender contracts and the grant of advances had vitiated the terms of tender on which the contracts were placed. (*ii*) The Committee suggest that if in some cases advances have to be given there should at least be some uniformity in the terms of the advances granted.
51	112	The rise in the estimated cost of the Rourkela plant due to shifting of sites for the various units is about Rs. 2·62 crores. The Committee feel that the matter requires thorough enquiry with a view to fixation of responsibility as to why the site had to be shifted and what was the extra expenditure which was incurred due to the shifting of the site, apart from the extra cost involved in the increased rock excavation work.
52	113	The Committee observe that the value of contracts has gone up by nearly 3 times in many cases. They feel that such a large revision of the contract value vitiates the terms on which tenders are called and contracts placed and that the necessity for such changes could have arisen only because the data on which tenders were called was not complete. The Committee consider this regrettable since it is an essential pre-requisite that before a work is undertaken full data relating thereto should be worked out.
53	114	The delay in placing the contracts for civil engineering works at Rourkela is stated to have been due to the non-receipt of detailed plans. These delays have contributed to the delay in the time schedule of the Rourkela Project. The Committee feel that the question of levying an appropriate penalty on those who were responsible for the delay should be considered.

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54	115	Since the contract with I.S.C.O.N. for the Durgapur Project offers less scope for the Project authorities to obtain the technical know-how in various matters, the Committee feel that it is not in the interest of the country to enter into such package deals.
55	116	The Committee feel that the limit of escalation (15%) that was agreed to in the contract with ISCON for the Durgapur Project was rather high.
56	118	The Committee would suggest that the appropriateness of the charges on account of technical services to ISCON should be examined by the Expert Committee referred to in para 75.
57	119	The Committee feel that the statements made to them, that there was really no dearth of civil engineers in the country but that certain procedures and pratices adopted by Government, particularly of entering into negotiation with contractors even after inviting open tenders, had kept out good and reputable firms, are serious and consider that they should be carefully inquired into by Government with a view to taking suitable and timely remedial measures. They also suggest that a Committee of Technicians drawn from various interests might be set up to survey the extent of civil engineering capacity available in the country with a view to its maximum utilization.
58	125	Considering that the Bhilai Plant is expected to be completed within four years, the Committee feel that it might have been possible with better coordination, to complete the other projects also within the same period. The delays, especially at Rourkela, have been regrettable.
59	126	The Committee feel that all these delays have partly contributed to the high costs of the projects. They would therefore urge the Government and HSPL to take energetic action to ensure that the completion of the projects is not delayed beyond the target dates now fixed.
60	128	The Committee hope that the anticipated benefits of the L.D. process would be realised but feel that this is a matter which needs further examination at expert level.
61	133	The Committee suggest that Government might have it examined whether there is any alternative use for the coke oven gases and whether it would be economical to put them to such use.

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62	134	The Committee suggest that the economic aspect of the selection and production of by-products at the various plants might be got examined with particular reference to the difference in the estimated cost of the by-product plants as also their estimated working cost in the three projects.
63	136	The Committee would suggest that the feasibility of putting the slag which might not be found suitable for cement making to alternative use, *e.g.*, construction of roads, etc. might be examined.
64	137	The Committee suggest that the qustion of setting up a marketing organisation for the HSPL should be examined at an early date.
65	139	The decision to peg the capital of Hindustan Steel (P) Ltd. to Rs. 300 crores and to treat the balance of the expenditure on the steel plants as a loan from Government to the H.S.P.L. while helping to keep down the prices of steel products somewhat artificially might not be in accordance with commercial practice. The Committee would, therefore, suggest that the entire procedure should be examined carefully before a final decision is taken.
66	144	The Committee suggest that a comprehensive statement showing the estimates of all the items of expenditure connected with the three steel projects should be prepared and presented to Parliament at an early date.
67	145	The Committee feel that it is necessary for proper comparison of the estimates and the actual costs of the three projects that the estimates should be analysed on a uniform basis. They are aware that although the capacity expressed in terms of crude steel is about the same in the three plants, *viz.*, one million tons, the plants differ considerably otherwise, but they feel that an analysis could broadly speaking be prepared on a comparable basis after making allowance for such differences. In this connection reference is also invited to para 215 of the Seventh Report of the P.A.C. (2nd Lok Sabha).
68	146	The Committee feel that in view of the expansion of the iron and steel plants in the private sector in the country, it would facilitate an assessment of the cost of the public sector projects if the expenditure incurred on the former especially on similar and comparable units could be ascertained and included in the analysis of costs suggested in para 145.

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69	149	The Committee would suggest that the estimates of the projects might be re-assessed and the difference explained properly.
70	150	The Committee consider it strange that the estimates of expenditure on inland transport should have been omitted by the consultants from the original estimates. They also find it difficult to appreciate why additions and alterations of the order of about Rs. 11 crores should have been found necessary soon after the project report was submitted.
71	151	The Committee do not feel convinced by the reasons adduced for under-estimation in the Rourkela Project Report to the extent of Rs. 14 crores and suggest that the matter might be pursued with the consultants.
72	154	The Committee wonder how items of the value of about Rs. 15 crores, came to be excluded from the Bhilai Project report. They would suggest that the cost of the six other items which were excluded from the original estimates might also be worked out and indicated.
73	155	(*i*) The Committee doubt whether the conditions that the increase from the initial estimates for plant and machinery to be imported from U. K. would not be more than 5 per cent. has been fulfilled. They would suggest that this matter might be examined and the scope for reducing the cost of the Durgapur project in that direction explored. (*ii*) They would also like to be assured that there is no likelihood of large variations in the estimates on account of Indian cost.
74	156	The Committee consider it regrettable that the consultants who have been appointed at an estimated cost of about Rs. 10 crores for giving the plans and estimates of the projects did not give firm and accurate estimates of cost of the respective projects and that the Government did not ensure their timely submission for their own information as well as that of Parliament.
75	157	The Committee urge that Government should before approaching Parliament for approval of a project prepare and indicate realistic and firm estimates of all financial requirements which might not vary much except for unforeseen changes in general economic conditions.

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76	158	The Committee would urge greater attention to be given to the preparation and scrutiny of financial reviews.
77	159—60	The Committee feel that it is necessary that Parliament should be given full information about the plans, programmes and estimates of the undertakings every year along with the budget documents and in advance of the annual reports which are generally presented long after the year is over. In this connection, they would invite a reference to the recommendation contained in para 25 of thier 20th Report (2nd Lok Sabha).
78	161	The Committee would suggest that the ratio of likely production to investment in the three plants should be worked out and published at an early date.
79	164	It appears that Government have not given sufficient thought to the question of cost of production in the new steel plants.
80	166	The Committee are of opinion that in future it should be ensured, before a new industrial or commercial venture is embarked upon in the public sector, that it fulfils all the conditions which would have to be fulfilled had it been undertaken in the private sector and that the proposals therefor should be subjected to the same degree of critical scrutiny from various aspects as is applied to the proposals of a private undertaking.
81	167	Time and again, in their reports, the Committee have emphasized the need for a well-trained and well-staffed cost-accounting organisation in industrial undertakings to serve as an efficient tool of financial and managerial control. They reiterate that early steps be taken to establish such organisation in the three plants on healthy and efficient lines so that an efficient costing machinery might be available from the time the production starts. They would also suggest that a study of costing organisations in the steel plants in the private sector should be made with a view to evolving an efficient and up-to-date system of costing for these projects. Further a close touch with the latest developments in this field in other advanced countries (*e.g.*, U.K., U.S.A., U.S.S.R. etc.) might also be kept.

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82	168	The Committee suggest that Government should reconsider the question of reorganising the existing institute of Costs and Works Accountants to enable it to fulfil the tasks expected of it and also of decentralising its activities.
83	173	The Committee understand that the question of repayment of Government loans given to I.I.S.C.O. and T.I.S.C.O. and the interest payable thereon have been referred to the Tariff Commission and hope that an early decision will be taken with regard to these matters.
84	180	The Committee suggest that the question of organising the M.I.S.W. in the form of a corporation or a Company might be settled by the Central and Mysore Governments by negotiation and that a speedy agreed solution be found to the problem so as to expedite its expansion programme.
85	185	(*i*) The Committee suggest that an expert survey of the steel requirements of the various engineering industries in the country, both in the public and private sectors, on the basis of existing capacity and that likely to be installed in the near future should be conducted. (*ii*) The Committee further recommend that if the survey were to indicate that the capacity of the engineering industries would not be adequate to absorb all the steel that would be produced, Government should take suitable steps to augment the capacity of those industries as well as to instal additional capacity after taking into account the increasing requirements of the country in this respect.
86	186	The Committee suggest that if after taking into account all the above requirements there is still some surplus of steel left, Government should take suitable steps for finding an export market for it. In this connection they would suggest that Government might consider, at the appropriate time, whether reduction in excise duty on steel for export would result in better export market.
87	191	The Committee have no doubt that the requirements of steel in the rapidly developing economy of the country would be continually rising and that arrangements would have to be made to meet the demand.

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		They would, however, suggest that the exact extent of the future expansion and the mode of it should be carefully planned with reference to the best estimate of the requirements of steel in future years determined as suggested in para 185.
88	193	(*i*) The Committee suggest that in order to facilitate dispersal of the industry, the Government should under take an intensive survey of all the areas where the raw materials required for the industry might be available. (*ii*) They would also suggest that Government should examine the feasibility of using alternative fuel such as lignite where coal is not available.
89	194	The Committee woulds uggest that the feasibility of establishing, on a planned basis in different regions, smaller units, producing, may be one or two types of products only, should be actively considered.
90	198	The Committee suggest that in the interest of the decentralisation of the iron and steel industry Government might consider within the framework of the Industrial Policy Resolution, the desirability of granting more licenses to the private sector for small plants for production of pig iron as well as similar other items.
91	199	The Committee feel that the maximum capacity of the pig iron plants to be licensed by Government, which is at present fixed at 15,000 tons, might be determined independently in each case, taking into consideration all the economic aspects which would have a bearing on it.
92	200	The Committee suggest that while granting licences for pig iron plants, Government might also take steps to explore and develop export markets for pig iron. In this connection , the Committee feel that if in the agreements which are entered into for export of iron ore a condition could be added that a portion thereof would be in the form of pig iron it might help the industry, provide more employment and also improve the foreign exchange earnings.
93	203	The Committee feel that the feasibility of entrusting the production of stainless and other special steels to the Mysore Iron and Steel Works instead of setting up another plant for the purpose should be considered.

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94	204	The Committee suggest that Government might also consider the question regarding the grant of licenses for the setting up of small scale furnaces for the manufacture of special steels, from the angle of decentralisation of the steel industry.
95	205	The Committee suggest that avenues for setting up medium and small scale industries should be fully explored in consultation with the Planning Commission. Further adequate provision for such industries should be made in the layout of the plants as well as of the townships.
96	206	The Committee recommend that Government might set up a Joint Advisory Council for the iron and steel industry exclusively, consisting of representatives of all the interests, namely, the Hindustan Steel (P) Ltd., Government of Mysore, producers in the private sector, producers of raw materials, the Railways, the Ministry of Transport and Communications, engineering industry, the Iron and Steel Controller, the D.G.S & D., etc. and some men from public life to represent the consumer interest. Anyone of them might be appointed Chairman. The Council might to the extent possible comprise of experts who have distinguished themselves in their respective fields. The function of the Council might be to advise on the production programme, distribution, transport arrangements, scientific research on steel technology, development of Indian know-how and training therefor and such other problems. The Committee recommend that early action be taken in the matter.
97	211	The Committee suggest that the feasibility of lifting the iron ore manually from Taldih mines till their mechanisation and of simultaneously expediting the construction of the Railway line from Dumaro to Bondamunda be urgently considered.
98	214	The Committee feel that the difficulties now experienced in regard to the construction of Rajahara mines for Bhilai plant, could have been foreseen and it might have been possible to get this work completed in time.
99	217	The contract for the supply of plant and machinery for the Dugda washery has not been finalised so far. In this case also, the Committee feel that the programme for the completion of essential ancillaries should have been planned sufficiently early.

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100	218	The Committee feel that the condition that the plants would be worked only with coal of particular specifications is likely to provide a loophole for the suppliers from honouring their guarantees and might well have been avoided.
101	219	The Committee find that no decision has yet been taken for the supply of special quality limestone required for the steel melting shop at Rourkela and hope that an early decision will be taken in the matter.
102	223	The Committee would urge that steps should be taken to ensure that the proposed Government plant for the manufacture of refractories and the schemes which have been licensed are completed as early as possible
103	225	The Committee would suggest that the investigations for locating and exploiting the resources of raw materials like sulphur, zinc etc. in the country should be expedited.
104	227	The Committee hope that Hindustan Steel (P) Ltd., would take all necessary steps to ensure that the water supply arrangements are ready in time for the commissioning of the Rourkela plant.
105	229	The Committee would suggest an agency like the State Trading Corporation might undertake to purchase all the scrap at such prices as might attract maximum collection and distribute it on such lines as Government might direct. In addition, the Government of India with the assistance of the State Governments, Municipal Corporations and other local bodies might institute a concerted drive for the collection of all available scrap in the country. In this connection they would suggest that the measures adopted in certain foreign countries like Germany, Russia, China etc. might be usefully studied and adopted to the extent possible.
106	230 (Footnote)	Since the estimates of cost of the Power Plant at Rourkela have gone up by about Rs. 2 crores, it is desirable that this matter is also examined in detail by the Technical Committee suggested in para 75.
107	233	(i) The Committee cannot but feel surprised that the need for the special requirements of transport of by-products was apparantly realised only after they took up the matter with the Ministry in February, 1958. They would suggest that action to finalise the requirements of wagons etc. might be expedited.

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		(*ii*) They would also urge that the additional transport requirements of the MISW might be assessed and early action taken to meet it.
108	234	The Committee would suggest that with a view to relieving pressure on the South-Eastern Railway the possibility of developing minor ports and/or inland waterways to handle at least a part of the iron and steel traffic might be explored.
109	236	The Committee feel that the difficulties which arose at Vizagapatnam port could have been anticipated and unloading facilities augmented in time so as to avoid the bottleneck in the clearance of the cargo which resulted in heavy demurrage charges especially since it was subsequently found possible to affect improvements at vizag and augment the cranage. In this connection, they would also refer to the recommendation contained in para 213 of the 7th Report of the PAC (Second Lok Sabha).
110	237	The Committee feel that the traffic hold-up at Rourkela could have been avoided with proper planning and liaison with the suppliers.
111	240	The Committee would suggest that arrangements for the export of iron ore should not be made on a long-term basis so that the country might get on opportunity to review the policy of exporting this basic raw material.
112	242	The Committee feel as in the case of export of iron ore that if instead of manganese ore, ferro-manganese, capacity for which is being increased, could be exported, it would not only help in preventing large exports of valuable manganese ore but also provide employment to a large number of people in the country in the ferro-manganese manufacturing industry and earn more foreign exchange for the country. The Committee, therefore, recommend that the feasibility of restricting the export of manganese ore and of increasing that of ferro-manganase should be explored.
113	245	The Committee suggest that the requirements of staff in the Ministry of Steel, Mines and Fuel (Department of Iron and Steel) be reviewed:
114	247	The Committee feel that it would be desirable in the interest of efficiency and effecting co-ordination if

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		instead of three Secretaries each looking after a separate plant, one Secretary only is entrusted with the overall charge of co-ordinating the work in the three plants. He might, however, be assisted by Deputies, if necessary.
115	249	The Committee suggest that a systematic job analysis might be conducted in the Headquarters Office of the HSPL for determining the strength of the various categories of personnel so that uniform criteria are adopted for providing staff to the various officers, keeping in view the practice followed in the Secretariat of the Government of India and the various undertakings in the public sector.
116	252	The Committee suggest that in the project offices also job analysis might be carried out and staff strength determined on a scientific basis. They feel, that for this purpose, it might be desirable to entrust the work to a Central Team which might visit each of the plants and finalise its recommendations in consultation with the General Managers.
117	256	The Committee would reiterate the recommendation contained in para 75 of the 39th Report (First Lok Sabha) in which they had suggested that a separate Public Service Commission with slightly different and more flexible rules and procedures might be set up for the purpose of recruitment to posts in the Undertakings in the Public Sector. Meanwhile the Committee would suggest that the existing Selection Committees should be broad based to include prominent non-officials and technical experts from outside so as to create greater confidence in the objectivity of the selections.
118	257	(*i*) In regard to the recruitment of foreign trained Indians, the Committee would suggest that some uniform standards regarding academic qualifications, types of training received, experience, etc. should be laid down for purposes of pay-fixation and given wide publicity. (*ii*) They would also suggest that the HSPL should draw on the pool, which the Man-power Sub-Committee of the Cabinet is reported to have decided to maintain for their requirements of foreign trained personnel as far as possible.
119	260	The Committee are surprised to find that in spite of the acceptance by Government of the recommendation contained in para 24(*i*) and (*ii*) of their 16th Report

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		(1st Lok Sahba) that unskilled and semi-skilled labour should be recruited mainly from among the local people, the position has not improved in actual practice. They would, therefore, urge that effective steps should be taken for the implementation of these recommendations.
120	264	The Committee feel that it would be desirable for the trainees to possess adequate technical experience as also some experience of the job that they are expected to perform on return, before they are sent for training.
121	265	The Committee suggest that the suggestions (i) that the number of engineers sent or proposed to be sent out for training was too large, and (ii) that instead of foreign training, foreign-instructors could be imported to give training to others in India, might be carefully considered by Government.
122	266	The Committee attach great importance to the need for setting up training centres at the respective projects for providing training to various categories of personnel required for manning the projects. They hope that the Training Institutes recommended by the Technical Personnel Training Committee would be set up and arrangements for training made therein as early as possible.
123	268	(*i*) The Committee would suggest that the feasibility of detailing foreign trained Indians for practical training in one of the existing steel plants in the country for acquiring technical experience and skill in the job in which they were to be ultimately employed, till the time they are required for their particular jobs in the plants concerned, might be considered. (*ii*) Further, they would suggest that the desirability of rephasing the training programme according to the operation schedule of the various Units of the three plants might be considered so that the trainees return in time to take up their respective posts.
124	271	The Committee would suggest that the number of foreign experts should be kept to the minimum and that efforts should be made to obtain the maximum results from them by a well-planned replacement by Indian counterparts. For this purpose, it might perhaps, be advantageous if the Indians are put in-charge of the Sections as far as possible while the

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		foreign technicians are entrusted mainly with the job of guiding them. The Committee feel that in this way Indians might be able to acquire the requisite experience in much shorter time and might also be able to gain necessary confidence which is so necessary for these posts.
125	273	The Committee would suggest that the feasibility of introducing the scheme of participation of labour with management in the new Steel Projects might be considered as early as possible.
126	274	The Committee feel that the layout of the townships should also provide for their eventual expansion when ancillary industries grow around the steel plants.
127	276	The Committee feel that the cost of the Townships is rather high. Further they do not appreciate why the estimated cost of the townships should vary so largely They, therefore, suggest that this matter as well as the question of high costs of Townships as compared to Chittaranjan and Sindri Townships should be examined further.
128	277	The Committee feel that construction of plants etc. should have higher priority than construction of houses and that all houses shold not be built even before the projects start.
129	279	The Committee cannot help feeling that there has been some lack of co-ordination between the suppliers of plant and the project authorities and hope that every effort will be made to rectify this.
130	280	The Committee recommend that Government might conduct a survey of the existing capacity so that equipment which could be produced in India might not be imported from abroad and also that where possible suitable capacity might be provided for future requirements. Similar remarks would apply in regard to the requirements of plant and machinery for the steel plants to be erected in future.
131	281	The Committee feel that from the point of view of economy of maintenance and replacement of parts etc. of the existing plants as well as for the setting up of new units, standardisation of various components required for the steel plants is very important. They would, therefore, suggest that in view of the proposal to set up the Heavy Machinery Plant at Ranchi, the question of standardisation of the various components might be actively examined in consultation with the Indian Standards Institution.

1	2	3
132	283	The Committee hope that the State Governments will expedite the payments of compensation for the land acquired so that the displaced persons might rehabilitate themselves quickly.
133	285	The Committee suggest that there should be maximum uniformity in the rehabilitation arrangements at the three projects. They feel that even though the responsibility for rehabilitation of displaced persons rests primarily with the State Governments, the project authorities might also lend full support and help them in providing decent means of livelihood.
134	286	The Committee suggest that provision should be made for allotment of some land to men not connected with the steel plants directly, to set up business and/or to settle down. Further, the Committee suggest that the possibility of acquiring more land or otherwise regulating land transactions and building constructions in the neighbourhood may be considered.
135	287	The Committee would suggest that the desirability of setting up well-equipped and organised research establishments in the steel plants or elsewhere might be considered.

APPENDIX XXVI

Analysis of Recommendations contained in the Report and the estimated economy likely to result from their implementation

I. *Classification of Recommendations*

A. Recommendations for improving the Organisation and working:

(S. Nos. 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 37, 38, 49, 58, 64, 65, 66, 67, 68, 69, 76, 78, 79, 84, 87, 95, 96, 97, 98, 99, 101, 102, 103, 104, 105, 106, 109, 110, 118, 120 121, 122, 123, 124, 126, 129 and 135.)

B. Recommendations for future guidance while examining Project Reports, entering into Agreements/Contracts etc.:

(S. Nos. 1, 2, 3, 4, 5, 6, 7, 26, 27, 28, 29, 31, 32, 33, 34, 35, 39, 40, 41 43, 45, 46, 47, 48, 50, 52, 53, 54, 55, 56, 70, 71, 72, 74 and 100.)

C. Recommendations for effecting economy which includes sugg estion for increasing production:

(S. Nos. 30, 59, 61, 62, 63, 73, 113, 114, 115, 116, 127 and 128.)

D. Miscellaneous:

(S. Nos. 36, 42, 44, 51, 57, 60, 75, 77, 80, 81, 82, 83, 85, 86, 88, 89 90, 91, 92, 93, 94, 107, 108, 111, 112, 117, 119, 125, 130, 131, 132, 133 and 134.)

II. *Analysis of the recommendations directed towards economy.*

S. No.	No. as per summary of recom-mendations	Particulars
1	2	3
1	30	For reviewing the need and justification for the post of Tech. Adviser at Rourkela.
2	59	For ensuring that the completion of the Projects is not delayed beyond the target dates.
3	61	For economical use of the coke oven gases.
4	62	For examination of the economic aspect of the selection and production of by-products.
5	63	For putting the slag to alternative use.
6	73	For reducing the f.o.b. cost of plant and machinery for Durgapur Project.
7	113	For reviewing the requirements of staff of the Ministry of S., M. & Fuel (Deptt. of Iron & Steel).

1	2	3
8	114	For abolition of two posts of Secretaries in the Head Office of the HSPL.
9	115	For determining the strength of various categories of posts in the Head Office of the HSPL and adopting uniform criteria for providing staff to the various categories of officers.
10	116	For job analysis in the Project Offices.
11	127	For examination of the cost of the Townships.

III. *Monetary value of Economy*

It is not possible to calculate the monetary value of the economies which might be effected as a result of implementation of the recommendations cited above.

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33. The Loyal Book Depot, Chhipi Tank, Meerut.
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39. E. M. Gopalkrishna Kone, (Shri Gopal Mahal) North Chitrai Street, Madura.
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41. Modern Book House, 286, Jawahar Ganj, Jabalpur.
42. M. C. Sarkar & Sons (P) Ltd., 14, Bankim Chatterji Street, Calcutta -12.
43. People's Book House, B-2-829/1, Nizam Shahi Road, Hyderabad Dn.
44. W. Newman & Co. Ltd., 3. Old Court House Street, Calcutta.
45. Thackar Spink & Co. (1938) Private Ltd., 3, Esplanade East, Calcutta-1.
46. Hindustan Diary Publishers, Market Street, Secunderabad.
47. Laxmi Narain Agarwal, Hospital Road, Agra.
48. Law Book Co., Sardar Patel Marg., Allahabad.
49. D. B. Taraporevala & Sons Co. Private Ltd., 210, Dr. Naoroji Road, Bombay-1.
50. Chanderkant Chiman Lal Vora, Gandhi Road, Ahmedabad.
51. S. Krishnaswamy & Co., P.O. Teppakulam, Tiruchirapalli-1.
52. Hyderabad Book Depot, Abid Road (Gun Foundry) Hyderabad.
53. M. Gulab Singh & Sons (P) Ltd., Press Area, Mathura Road, New Delhi.
54. C. V. Venkitachala Iyer, Near Railway Station, Chalakudi.
55. The Chindambaram Provision Stores, Chindambaram.
56. K. M. Agarwal & Sons, Railway Book Stall, Udaipur (Rajasthan).
57. The Swadesamitran Ltd., Mount Road, Madras-2.
58. The Imperial Publishing Co., 3, Faiz Bazar, Daryagani, Delhi-6.
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64. The Triveni Publishers, Masulipatnam.
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69. Makkala Pustaka Press, Balamandira, Gandhinagar, Bangalore-9.
70. Gandhi Samriti Trust, Bhavnagar.

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APPENDIX XXII

(*Vide* Para 228)

Statement showing Arisings, Consumption and Export of Scrap

(Figures in long tons)

Year	Arisings			Import		Consumptions		Exports	
	Industrial	Rerollable	Melting	Industrial and Rerollable	Melting	Industrial and Rerollable	Melting	Melting	Value (in lakhs of rupees)
1952 . .	70,400	61,470	7,50,000	943	Nil.	1,32,000	3,61,000	3,29,604	528
1953 . .	86,700	54,000	8,00,000	767	Nil.	1,41,000	3,71,800	3,92,506	628
1954 . .	85,500	50,200	6,00,000	807	Nil.	1,36,000	4,37,800	1,26,977	193
1955 . .	77,600	36,600	6,00,000	6,190	Nil.	1,20,000	4,38,800	1,51,047	203
1956 . .	71,600	24,000	6,50,000	23,282	Nil.	1,18,000	4,78,800	1,75,707	370