E.G. No. 2.

ESTIMATES COMMITTEE

FOURTEENTH REPORT

1954-55

MINISTRY OF PRODUCTION

सत्यमेव जयते

LOK SABHA SECRETARIAT
NEW DELHI
June, 1955

CORRIGENDA

Fourteenth Report of the Estimates Committee on the Ministry of Production.

Title page, top right hand corner: *for* 'E. G. No. 2' *read* 'E. C. No. 2'.

Contents page, Appendix II, opposite line 3: *for* '38-41' *read* '38-42'.

Contents page, Appendix III, line 3: *for* '1-3-1949' *read* '1-3-1953'.

Contents page, Appendix III, opposite line 3: *for* '42-46' *read* '43-47'.

Page 1, para 1, line 1: *insert* ' , ' *after* 'T'.

Page 2, heading: *delete* 'Preliminary Report'.

para 1, line 13: *for* 'relacement' *read* 'replacement'.

Page 3, para 3, sub-para (5), line 4: *for* 'or' *read* 'of'.

Page 4, para 4, line 6: *for* 'Machine' *read* 'Machines'.

para 5, sub-para (c): *delete* ' , ' *after* 'Duty'.

Page 5, Heading of para 7: *for* 'Manufactures' *read* 'Manufacturers'.

Page 7, para 14, line 8: *for* 'proposed' *read* 'propose'.

Page 8, para 19, line 6: *for* 'toll' *read* 'tool'.

Page 9, para 19, line 3: *for* 'it is' *read* 'they are'.

Page 10, para 22, sub-para 2, line 4: *for* 'was' *read* 'were'.

Page 11, para 26, line 5: *for* 'Investas' *read* 'Investa'.

Page 12, para 28, line 9: *insert* ' . ' *after* 'Messrs'.

Page 13, para 35, line 6: *for* 'indentical' *read* 'identical'.

Page 14, para 35, line 4: *for* 'as' *read* 'at'.

para 37, line 3: *for* 'lathes' *read* 'lathe'.

para 39, line 2: *delete* ' . ' *after* 'Tools'.

line 4: *for* 'Kirloskar' *read* 'Kirloskars'.

sub-para (a); line 1: *for* 'H. M. T. E.' *read* 'H. M. T. F.'

Page 15, para 40, sub-para (1), line 7: *for* 'Governments' *read* 'Government's'.

line 10: *for* 'number' *read* 'numbers'.

sub-para (2), line 5: *for* 'is' *read* 'are'.

Page 15, para 40, sub-para (2), line 7: *for* 'number' *read* 'numbers'.

Page 16, para 40, sub-para (4), line 2: *for* 'Kirloskar' *read* 'Kirloskars'.

line 3: *for* 'machine' *read* 'machines'.

line 4: *for* 'Kirloskar' *read* 'Kirloskars'.

line 5: *for* 'High Speed' *read* 'high speed'.

para 43, line 3: *insert* ' , ' *after* 'Administration'.

Foot Note: *delete* 'subject to verification'.

Page 17, para 45, line 5: *for* 'Servey' *read* 'Survey'.

line 14: *insert* ' , ' *after* 'course'.

line 19: *for* 'streamling' *read* 'stream-lining'.

para 46, last line: *for* 'Industry' *read* 'industry'.

Page 18, para 47, line 8: *for* 'on' *read* 'an'.

para 49, first line: *delete* '49'.

Page 19, para 50, line 1, *for* 'private' *read* 'Private'.

line 2: *insert* ' , ' *after* 'Company'.

insert ' , ' *after* 'Ltd'.

para 51, lines 6, 7, 8 and 9: *for* 'lacs' *read* 'lakhs'.

Page 20, para 53, line 3: *delete* 'the' *before* 'Dry Dock'.

para 54, line 4: *for* 'Shipping' *read* 'shipping'.

Page 21, para 57, line 1: *insert* ' , ' *after* 'Rs. 2,28,341'.

line 7: *insert* '58' *before* 'The'.

para 58, line 1: *substitute* '59' *for* '58'.

para 59, last line: *for* '15.7.55' *read* '15.7.54'.

Page 22, para 62, line 17: *delete* '14'.

Page 25, para 70, line 4: *for* 'Branches' *read* 'branches'.

para 71, sub-para (b), line 1: *Add* 'No' *before* 'Students'.

Page 26, para 72, line 6: *delete* 'the' *before* 'practical'.

Page 30, para 84, line 8: *for* 'spcialised' *read* 'specialised'.

Page 31, para 88, line 1-2: *for* 'adop-ed' *read* 'adopted'.

para 90, line 3: *for* 'round' *read* 'around'.

Page 39, Appendix II, S. No. 10, para No. 71, line 8: *for* 'the' *read* 'The'.

line 9: *for* '21. S. L.' *read* 'H. S. L.'.

S. No. 20, para No. 83, line 1: *for* 'She' *read* 'The'.

Page 41, Appendix II, S. No. 22, para No. 87, line 3: *for* 'to' *read* 'in'.

S. No. 23, para No. 89, line 2: *delete* 'namely'.

Page 47, Appendix III, line 3: *for* 'Oerlikons' *read* 'Oerlikon's'.

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MEMBERS OF THE ESTIMATES COMMITTEE, 1954-55*

1. Shri Balvantray Gopaljee Mehta—*Chairman*
2. Shri Kamal Kumar Basu
3. Shrimati B. Khongmen
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SECRETARIAT

Shri M. N. Kaul—*Secretary*

Shri S. L. Shakdher—*Joint Secretary*

Shri V. Subramanian—*Deputy Secretary*

Shri M. Sundar Raj—*Deputy Secretary*

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* Shri H. V. Pataskar & Dr. Syed Mahmud ceased to be Chairman and Member of the Committee respectively with effect from the 7th December, 1954.

** Elected member with effect from 1st December, 1954 *vice* Shri Nityanand Kanungo resigned.

INTRODUCTION

I the Chairman of the Estimates Committee, having been authorised by the Committee to submit the Report on their behalf, present this Fourteenth Report on the Ministry of Production.

2. The Report embodies the conclusions of the Committee on the Hindustan Machine Tools Ltd., and the Hindustan Shipyard Ltd. The Report of the Committee on the Coal Commissioner's Organisation and the Salt Organisation is being submitted separately.

3. The Committee wish to express their thanks to the Officers of the Ministry of Production for placing before them the material and information that they wanted in connection with the examination of the estimates.

I

Preliminary Report

HINDUSTAN MACHINE TOOLS LTD.

Before the outbreak of the last World War, a small number of machine tools, not exceeding 100 per annum, were manufactured in India. They were really copies of out-dated and obsolete machines of the 'carbon tool era'. There was no organised machine tool industry in the country and we depended mainly on imports. In 1940 the Governments of the U.K. and U.S.A., decided to establish a machine tool industry in India. Owing to the war the imports were virtually cut off and this gave a good impetus to the industry. In the post-war period, out of the 16 graded firms, 14 were producing machine tools conforming to Grade I accuracy. It was estimated that about 16,000 machine tools were employed in 21 major factories of Government Essential Services, for which 1600 machines were required annually for relacement. The indigenous industry was not yet in a position to manufacture production type of machine tools and cope with the country's requirements.

2. In 1947, the Government of India set up the Disposals Utilisation Committee to advise them how best to utilise surplus material worth about Rs. 400 crores. In their recommendations, the Committee gave the highest priority to the establishment of the Machine Tool Factory. The Government accepted the recommendation. The late Ministry of Industry and Supply who were then responsible for the project, started exploring the possibilities of establishing a machine tool factory and started working on it in 1948. Firms in two countries were interested, one in Czechoslovakia and the other in Switzerland. Proposals were submitted by the interested firms and after careful consideration, Government accepted the offer of the Swiss firm, Messrs. Oerlikon.

Salient features of the Technical Assistance Agreement with Messrs. Oerlikon

3. A Draft Agreement was entered into by Government with Messrs. Oerlikon on the 28th March, 1949. The salient features of the agreement are as follows:—

(1) Oerlikon will render all technical assistance in the matter of erection of the factory, the training of Indian personnel and direction and supervision of the production of the factory for twenty years.

(2) Oerlikon will give all technical information (including secret processes and manufacturing secrets) knowledge; expert advice and assistance concerning the manufacture of machine tools.

(3) Oerlikon will train in India as well as in their factory in Switzerland Indian personnel so that within a period of ten years there would be sufficient number available to hold not less than 85 per cent of the technical posts in the factory.

(4) Oerlikon will ensure that the production of the factory reaches the same standard as that of their factory in Switzerland and that the cost of the product is comparable to that manufactured in their factory.

(5) As many reparation machine tools as possible will, after repairs, be used for the capital construction of the factory. The factory will also undertake repairs and reconditioning or reparation machine tools for sale.

(6) Oerlikon will take 10 per cent of the shares of the company or special statutory Corporation which will be established for this purpose and will pay this sum either in dollars or in Swiss francs as the Government may desire; Government having the option to buy these shares at the end of twenty years. A return of 5 per cent. in the first five years is to be guaranteed by Government on Messrs. Oerlikon's investment on shares.

(7) Government will assign free of payment five per cent of the shares of the Company in consideration of the transfer of the licence by Oerlikon for the setting up of the factory and the manufacture of machine tools in the factory.

(8) A royalty on a sliding scale—4 to 2 per cent—on actual sales of the products of the factory is payable to Oerlikon over a period of 20 years.

4. The agreement envisaged the manufacture of machine tools in five stages to be completed within a period of six years, as per details given below:—

First Stage

(a) Manufacture of High Speed Lathes	1200	per year
Shaping Machines	600	"
Heavy Duty Drilling Machine	130	"

(b) Central Foundry for Castings.

(c) Ball Bearing Factory.

(d) Gear Cutting Factory.

(e) Apprentice Training School and Workshop.

Second Stage

Milling Machines 1020 per year.

Third Stage

Planning Machine 240 per year.

Fourth Stage

Grinding Machines 600 per year.

Fifth Stage

Preparation of patterns, jigs, tools and fixtures.

Estimates of Cost

5. Messrs. Oerlikon drew up detailed estimates for the first and second stages of the project and, according to these estimates, the cost of the project came to Rs. 30 crores (Rs. 16 crores for the factory proper, including the Apprentice Training School and Rs. 14 crores for residential settlement). Government, however, decided on account of financial stringency to reduce the scope of the project. A revised scheme was thus drawn up towards the end of 1950 comprising the first two stages of the project with a reduced production programme and without the ball bearing factory and the Apprentice Training School. The production programme under this revised scheme, which included the setting up of the central foundry for castings and Gear cutting shop, was as below:—

(a) Manufacture of:	
High Speed Lathes	900 per year.
(b) Milling Machines	460 per year.
(c) Heavy Duty, Drilling Machines.	240 per year.
Total No. of machines	1600 per year.

Details of manufacturing programme

1950-51	Assembly of 150 machine tools.
1951-52	Assembly of 1140 machine tools.
1952-53	Assembly of 570 machine tools.
	Manufacture of 570 machine tools.
	Total : 1140 machine tools
1953-54	Manufacture of 1200 machine tools.
1954-55	Manufacture of 1440 machine tools.
1955-56	Manufacture of 1600 machine tools.

Estimates of the cost of the revised scheme

6. Although the revised scheme made provision for a foundry, it was contemplated that all castings required would, in the beginning, be obtained from local sources and the foundry set up later when the demand rose to the order of 15,000 tons per annum. The cost of the foundry was estimated at Rs. 140 lakhs. The estimated cost of the scheme was Rs. 8.37 crores (Rs. 8·02 crores for the factory proper and Rs. 0·35 crore for the residential settlement). In addition to this capital investment of Rs. 8.37 crores on fixed assests, spread over a period of four years working capital to the extent of about Rs. 1.20 crores was estimated to be required. The capital at charge including capitalisation of initial losses to the extent of about Rs. 0.50 crore and excluding working capital, was estimated at about Rs. 9 crores.

Reactions of Indian Machine Tool Manufactures' Association to the Scheme

7. In 1950, the indigenous Machine Tool Industry, which had earlier welcomed the proposal for the establishment of a State-owned Machine Tool Factory became, it appears, lukewarm as they failed to get a subsidy, as recommended by the Tariff board, due to financial stringency. It would be relevant to quote here the following extracts from the meetings of the representatives of the Indian Machine Tool Manufacturers with the Government representative and the Swiss experts held on 19th September, 1950.

* * * * *

"The representatives of the Industry recognised that Oerlikon were one of the foremost high precision tool manufacturers in the world and that their assistance to private Indian industry would be *most welcome*. * * * * ".

* * * * *

"The representatives of the Industry expressed their satisfaction at the way in which this matter had been settled and express the hope that Government would proceed with their scheme immediately". At the suggestion of the Planning Commission, a meeting was held on the 19th September, 1950 by the then Minister for Industry and Supply at which all parties, including a Member of the Planning Commission, were present. The meeting cleared all the points except the production programme. It was decided to call for Messrs. Oerlikon's experts again, get the existing factories inspected and finally decide the correct production programme. Dr. Gerber and Mr. Feusi of Messrs. Oerlikon inspected Investa and Mysore Kirloskar factories and the entire production programme issue was dis-

cussed in detail at that meeting where complete agreement was reached as regards the types and sizes of machines which the Government factory would produce and those which would be left to private Industry. It was decided that the line of demarcation between the Government factory and the private industry would be that the former will not undertake the manufacture of those types and sizes of machine tools which were already manufactured in India or which were in the process of manufacture, *i.e.* where the patterns etc., were ready. On this basis, it considered that the following types and sizes of machine tools should be left to private enterprise:

(i) High Speed gear head lathes: 7″

(ii) High Speed Shaping Machines: 20″ and 24″

(iii) High Speed Drilling Machines: upto 1½″

(iv) Universal horizontal and vertical Milling Machines.

8. It was agreed that if after meeting the entire demand of the country for 7″ lathes, Kirolskars were ready within 2 years to produce 8½″ lathes, which the H.M.T. Factory intended to produce, Government would consider reducing its production of this size of lathes to enable Kirolskars to produce a reasonable number.

9. This scheme was approved by the Planning Commission in October, 1950 and they also gave it a high priority. The Standing Finance Committee approved the project and the provision of funds on the 26th November, 1950 and later on in December, the Cabinet also gave the sanction.

Delay in the Execution of the Project

10. A statement showing the important events pertaining to the Project, *viz.*, from the 28th March, 1949, when the Heads of Agreement with Messrs. Oerlikon were signed till 1st March, 1953, when the Company was formed, is given as Appendix III. It would be observed therefrom that it took the Government nearly 20 months after the signing of the Heads of Agreement to obtain the sanction of the Standing Finance Committee and the Cabinet to proceed with this project.

Lathes Design Work

11. Designing work started in August, 1951 on a lathe with mechanical drive. After three months' work when the drive had to be designed, Messrs. Oerlikon's Technical Director wanted to incorporate hydraulic drive. At this stage, as there was difference of

opinion with the German engineers engaged for this work, it was decided to investigate if the lathe with hydraulic drive, which was more intricate to manufacture, would be suitable in India. Dr. Schnitger, the Technical Expert of the Oerlikon was sent to India in November, 1951. He went round and on his return reported the inadvisability of making the lathe with hydraulic drive. Work was resumed on a conventional high class lathe with mechanical drive and was completed in June, 1952. At this stage, it was discovered that the design was more suited for a 10½" centre lathe than for the 8½" centre. A decision was then taken that a mechanical lathe, similar to the one already under production with Oerlikon in the D.M.O. series, should be taken in hand with certain improvements. (This is known as H-22 and is now under production at the Hindustan Machine Tools, Ltd.).

12. It would be observed from the above that it took Messrs. Oerlikon nearly 9—12 months to decide the type of manufacture of lathes to be taken up by the factory initially. To quote the Government's own version of this delay as a result of the change of the design, 'time was lost and the lay-out also had to be altered which in turn called for a revision of some of the building plans. There was consequential delay on the construction side as well. There was also some delay in the receipt of jigs, tools, fixtures, special tools and some machines'.

13. The Committee would point out that this constitutes a serious avoidable lapse on the part of Messrs. Oerlikon in fulfilling their part of the agreement. The Committee regret to observe that the Government of India have not so far considered this aspect of the matter and assessed the consequential loss in terms of money to the Hindustan Machine Tools Ltd. This may now be done and the question of recovery of the loss from the firm of Messrs. Oerlikon may be taken up.

14. The Committee view with strong disfavour this lack of foresight and proper planning in not having decided upon the design of the lathe which was very vital for the efficient execution of the agreement. The Committee would, therefore, recommend that Government should immediately take steps to investigate into the causes of delay in the setting up of this factory both on their part and that of the Swiss firm 'Oerlikon' and apprise the Committee of the steps they proposed to take to retrieve the loss arising out of the delay attributable to Messrs. Oerlikon.

Working of the Heads of Agreement with Messrs Oerlikon.

15. The Committee observe that the provisions of this agreement are heavily weighted in favour of the Swiss firm.

16. The Committee note that the Hindustan Machine Tools Ltd. have so far paid a sum of Rs. 20,76,134 to Swiss technicians since the formation of the Company:

Salaries paid in Switzerland		Rs. 5,31,515
Salaries paid in India	...	Rs. 12,18,011
Passage for Swiss employees	...	Rs. 3,26,608
		Rs. 20,76,134

17. When asked to furnish to the Committee, a statement showing the quantity and nature of work done by the Swiss experts, some of whom were stated to have been engaged on production work, the Ministry of Production stated that it was not possible to give the details. They further stated that the work done included (a) work of Swiss experts in Switzerland in doing planning work; (b) their work after coming to India in repairing the Reparation and Surplus machinery which the Hindustan Machine Tools purchased from the Government of India; and (c) erection of the machines imported and training of selected employees.

18. The Committee fail to understand why it should not be possible for the Ministry to supply the Committee with details of the quantity and value of work done by these experts. Under Clause 7(6) of the Agreement, Messrs. Oerlikon have to train Indian workmen, Engineers and other technical personnel in Switzerland and this includes training in designing also. The Committee see no justification for the payment by the Company of such a huge sum of Rs. 5,31,515 towards salaries of certain European technicians on account of their preliminary training with Messrs. Oerlikon and work on production planning done in that country. The Committee feel that the responsibility for planning and training as visualised in the Heads of Agreement devolves on the Oerlikon and no payment on that account should have, therefore, been made by the Company. The Committee, therefore, consider these as irregular payments and desire that legal opinion should be obtained on the question of incidence of these charges, and the final decision arrived at in the matter intimated to the Committee.

19. Further, under Clause 11 of the Heads of Agreement, in consideration of the services to be rendered by Oerlikon and, in particular, under sub-clauses (8) and (9) of clause (7) relating to technical supervision and for making available to the factory technical assistance, Oerlikon are to be paid in the form of royalty, on actual sales of products of the proposed machine toll factory. The Committee desire that the implications of this clause should

also be got clarified and that necessary steps should be taken now to see that payments are made in future only for those items of services for which it is required to be made under the agreement.

Revision of the scheme and Conference between the Government and the Industry on 8-2-52 *Re*: Future plans for Manufacture of Machine Tools

20. During 1951-52, the indigenous machine tool manufacturers again agitated for a revision of Government's scheme owing to the delay in the setting up of the factory. A meeting was called on the 8th February, 1952 in the late Ministry of Works, Production and Supply, presided over by Shri C. C. Desai, Secretary, and attended by the representatives of the Ministries of Commerce and Industry and Finance, and the representatives of the Indian Machine Tools Manufacturers' Association. At that meeting, the indigenous manufacturers stated that if Government decided to stick to their programme of manufacture of large numbers of 8½" lathes, it would result in over-production. Accordingly, it was decided to reduce the production target in the H.M.T. factory of H.S. Lathes from 900 to 400 8½" centre, and to fix 90 10½" and 60 12" lathes per annum. It was reiterated that Government would not compete with private industry, but that the Bangalore factory would be a complementary unit. Government would not produce lathes of 7" and below, but would confine themselves to sizes of 8½" centre and above and the production target of 400 8½" centre lathes by the H.M.T. Factory, would still leave private industry with their legitimate share of 8½" centre lathes. It was also agreed that Government would consult the Association before preparing plans for the second stage of the project.

To sum up, the final scheme of targets of manufacture in the H.M.T. is as follows:—

	per year
"8½" High Speed Lathes	400
10½" High Speed Lathes	90
12" High Speed Lathes	60

Manufacture of two other alternative types of machines will be taken up in lieu, if necessary, later, based on actual market demand.

(The first stage factory will be limited to 6,00,000 man hours per single shift per year.)" The Committee were informed that the factory had since taken up assembling of the imported components of H-22 lathes and that they had opened a series of work

orders for production of lathe components from October, 1954 onwards. Initially, they had opened work orders for batches of 5 lathes; the number per batch was increased to ten lathes in January, 1955 and was to be further increased to 15 lathes in June, 1955 and so on till they reached peak production of 400 lathes by the end of 1957. The Committee desire that this production target should be adhered to and the position should be constantly kept under review.

PRODUCTION BY H.M.T. *VIS-A-VIS* THE PRIVATE SECTOR

21. During his evidence given before the Committee, the Managing Director, Hindustan Machine Tools, stated as below:

" * * * * * *

The machine tools manufactured by us and the machine tools manufactured outside are not the same. It is doubtful that machine tools can be manufactured outside in this country similar to ours."

22. The Committee drew the attention of the Managing Director to the following statement made by Shri S. L. Kirloskar, Director, Mysore Kirloskar Ltd., at the meeting held on the 8th February, 1952 (referred to in para. 20 above):

"(1) that Government had over-estimated the country's requirements of lathes;

(2) that the indigenous industry had started the manufacture of 7½" lathes, and 8½" lathes were actually under initial production, patterns were drawn for 10" lathes and the designs of 12½" lathes was on the boards, and therefore, the Government would be stepping on the toes of the industry if they also undertook the manufacture of these lathes; and.

(3) that Government would be well advised to manufacture other machine tools which were required by the country such as Capstan and Turret lathes, Drilling and Milling Machines, etc., and which the indigenous industry was not in a position to manufacture."

In this connection, the Managing Director stated as below:

" * * * * * *

They (Mysore Kirloskars) were manufacturing 7½" lathes and we took up a large size with their agreement, *viz.*, 8½". They have not produced lathes of 8½" size quite recently. Now there are certain points you will have to take note of. The type of lathes which they make is not the same as ours. It is quite

different. Then, we have given them an undertaking that in case at any time they find that our lathe is to compete with them, we will always take care to reduce our output."

23. As regards price, he stated as below:

" * * * * * *

In price (of 8½" lathe), the present difference is economic. The difference in price is this. Their (Mysore Kirloskar's) lathe cost about Rs. 26,000 or 27,000 and our (H.M.T's) Rs. 32,000. What you get for Rs. 32,000 is certainly better and more efficient."

24. Referring to the type of machines manufactured by the H.M.T. and the private sector, the Managing Director, H.M.T. stated as below:—

" * * * * * *

The type of machine which we are making is different from what is being made by the private sector. It might be possible for them to make the same type of machine later. As I said before, we will consult them in future before we start making new machines, but to leave the work now in the midst means a tremendous loss."

25. When questioned how far the Government's decision taken in 1953 to cut the production programme would affect the economic working of the H.M.T. in the long run, the Managing Director stated as below:

"The number we have in mind is 400. I do not think it will make any difference in cost and we shall be able to sell whatever we manufacture as far as we can see."

26. The Committee had the benefit of hearing the views of Dr. B. D. Kalelkar, Industrial Adviser, Ministry of Commerce and Industry, Shri P. C. Kapoor, Chairman, Railway Workshops Reviewing Committee and the representatives of the private sector such as Mysore Kirloskar, Investas Machine Tools and Cooper Engineering Ltd., about the production potential and rationalisation of machine tools both in the public and private sectors.

27. With a view to have a better appreciation of the various aspects of the problem facing the machine tools industry and the overlapping in production between the two sectors, the Committee would like to quote below the relevant extracts from the evidence, both oral and written, given before them, which in certain aspects runs counter to what had been stated before them by the Managing Director, H.M.T.

28. Referring to the demand of lathes in the country, Dr. Kalelkar stated as below:—

" * * * The private sector at that time (in 1952) was producing only 7½" lathes. In view of the demand (900 or 1200) that we anticipated, though it was a misjudgement perhaps even on the part of the Government—we thought that it was quite in order if the Factory went into production of 8½" lathes. They thought that they and Messrs Kirloskars both would have enough scope in the country. But now we observe that the demand is less."

29. Shri Kapoor of the Railway Board, when asked about the demand of lathes in the country, stated that it would not be much more than *three hundred lathes a year*. When his attention was drawn to the fact that the H.M.T. had contemplated to manufacture as many as 900 lathes a year, he stated as below:

"That appears to be an over-estimate of our requirements."

30. Referring to the economic production of tools by the H.M.T., Shri Kapoor stated as below:—

" * * * * The Machine Tool Factory, * * * * should not be entrusted with more than four or five different types of machine tools. Otherwise manufacture will be uneconomical."

31. Shri Mulla of the Investa Machine Tools also expressed the same view on this point, namely:

" * * * * *

To make a large number of varieties of machine tools in any one unit is almost unheard of and the technical difficulties are so great that no other country has attempted it."

32. As regards the planning of production by the H.M.T., Shri Kapoor stated as below:—

" * * * * * *

To give so many types (of manufacture of machine tools) to one unit is too big a job for one unit to undertake. First of all, designs are different; then manufacturing technique is different. So it is not possible to include within the scope of one unit a wide range of many categories * * * * In my opinion it would be wrong to make a general purpose machine tools factory to include within its scope wide range

of types of machine tools. We should have smaller units each to look after one or two different types. We can then get our staff trained in that particular field and also get technical aid. I am sure, Oerlikon also like others must be dealing with only 3 or 4 types. Beyond that they would not be able to give any great assistance. It is not possible to enter into a technical agreement with one firm and expect them to give technical advice on all types of machine tools."

33. Referring to the manufacture of lathes by the Mysore Kirloskars, Dr. Kalelkar stated as below:

" * * * * They have started manufacturing 12½" lathes also. They are manufacturing 8½" lathes at the rate of, I think, about ten or twelve per month. But now they have begun making 12½" also since last year, and the Railways have placed orders for about 15 or 16 machines from them."

34. As regards the speed of these lathes, Dr. Kalelkar stated:

" * * * * * for general purpose the Kirloskar lathes are quite *useful*. As far as the high speeds are concerned, usually the lathes with smaller centre heights are preferred with high speeds."

" * * * * * *

"The Kirloskars have been producing good quality machine tools for the last five or six years and their men are trained."

35. Shri S. L. Kirloskar, Managing Director, Mysore Kirloskars Ltd., informed the Committee that the price of 8½" lathe manufactured by them was somewhere near Rs. 24,000. He further stated that the lathes they were producing as well as the lathes that the Hindustan Machine Tools were producing were of the same specification. They were indentical in their performance and what the H.M.T. lathe could produce in a particular time, their lathe could also produce in the same amount of time and of the same quality. As regards the revolution per minute he *inter alia* stated as below:

" * * * * * *

There is nothing difficult in producing lathes turning at 2,000 revolutions per minute, but the major portion of the work is done on the lower side of 300 revolutions. 99 per cent of the work comes on that side.

* * * * * *

"For 99 per cent of the cases, ours will be sufficient. In one out of 100 cases this high speed may be necessary. If there is demand, we can also supply lathes running as 2,000 revolutions per minute."

36. As regards the types of lathes now being manufactured by them, Shri Kirloskar informed the Committee:

"We are producing today 7", 8½", 9½", 10", 10½" and 12½" lathes. We are meeting the total demand in this country."

37. As regards the quality of the lathe manufactured by them, Shri Kirloskar stated:

"H.M.T. lathes is no better than the lathe produced by Mysore Kirloskar. The Kirloskar lathe can do every thing that the H.M.T. lathe can do, in the same time and of the same quality. There is no such thing as efficiency of a lathe. The performance of the lathe is judged by the accuracy and time."

Survey of the country's requirements of Machine Tools

38. The Committee regret to observe that no reliable statistics or data of the demand of different variations and sizes of machine tools in the different quality ranges have so far been collected by Government. During his evidence Dr. Kalelkar informed the Committee that the Ministry of Commerce and Industry were engaged in taking a census of all the machine tools in India and that this work was expected to be completed by April, or May, 1955. The Committee have called for a copy of the Report for their study; in the meanwhile they hope that the Government would now be in a position to arrive at a reasonably accurate assessment of the country's future demand for machine tools.

39. In a Memorandum submitted to the Committee by Messrs. Investa Machine Tools. Ltd., and Mysore Kirloskar, Ltd., they have expressed the fear that the H.M.T. would seriously compete with the Mysore Kirloskar. The main reasons given are:—

"(a) The targets of production set up at the H.M.T.E. are abnormally high and are based on wrong estimates of requirements of lathes of the country. Consequently, the production will far exceed the demand.

(b) The demand—present and future—for 8½" size lathes is already covered by the production at Mysore Kirloskars factory and there will be overlapping and duplication as a result of production of same size in the State Factory.

(c) Most of the demand for 8½" size geared-head lathes is from Railways, Defence and other Government Departments and they would obviously draw their requirements from the State (H.M.T.) Factory. So the production of 8½" size lathes in the State (H.M.T.) Factory will put Mysore Kirloskars out of business in this line as the demand from private sector is negligible."

40. The following further points, mentioned in the above Memorandum, need careful consideration by Government:

"(1) The Government of India seem to have realised the danger of over-estimating the demand and have brought down their targets of production and allocated field of operation between the State and Private Sector. This is evident from declarations made by the Government from time to time.

Governments original intention was to manufacture 1200 lathes and they are now planning to produce only 600. In the first stage Government was going to produce 400 number of 8½" size (*vide* Minutes of the Meeting dated the 8th February, 1952, New Delhi).

(2) Even the revised production target of 400 numbers is like previous estimate of requirements, done without correctly assessing the demand. They have decided this figure of 400 knowing full well that Mysore Kirloskars have developed this size and is capable of producing about 150 lathes per annum. Thus the production of 400 number of 8½" size in the State Factory will be redundant and unnecessary.

(3) Considering the extent of demand for this size, it is not possible to absorb this production of 400 lathes. Since the decision has been taken in 1952 there has been a complete ban on imports of this size of lathes. The State Factory during this period has not gone into production and only Mysore Kirloskars are manufacturing these lathes against orders. Under the circumstances, the number of orders received by Mysore Kirloskars can be taken as a reliable index for assessing the demand in the country.

(4) If, however, specific requirements are made known, Mysore Kirloskar are certainly in a position to manufacture machine with these high speeds. Mysore Kirloskar, it may be added, are themselves using the High Speed machines in their factory and they are already used to these machines."

41. The Committee desire that Government should immediately examine all the points referred to it in paragraphs 16 to 31 above and clear up doubts and uncertainties that at present prevail by a clear statement of policy and programme. The Committee would like that a detailed Memorandum is placed before them as early as possible so that the future of the Machine Tools industry both in the public and private sectors is placed on a firm basis. The Committee also desire that Government should aim at the economic working of this unit in the long run in view of the vast disparity in the price of 8½" lathe already manufactured by the private sector and that to be produced by them, as referred to in paras 23 and 35 of this Report.

Foreign Experts

42. Another point to which the Committee would like to draw attention is the employment of 84 foreign technicians by the H.M.T., the total annual emoluments in respect of which come to Rs. 28,00,000. These technicians have been employed on contract basis for 2-3 years. The Committee are not convinced about the need for the employment of such a large number of technicians and feel that there is a necessity of a radical and drastic reduction being made in their number.

Personnel

43. The Committee note that a retired Officer from the Government of India has been appointed by the H.M.T. Ltd., as Chief, Finance and Administration at a salary of Rs. 2,000. In addition there is a Secretary drawing Rs. 600 p.m. The Committee find that the Managing Director has also got one Private Secretary (Rs. 200 p.m.), one Personal Assistant (Rs. 130 p.m.) and one Stenographer (Rs. 124 p.m.). They suggest that the post of the Secretary should be retrenched and the important part of his duties assigned to the Chief of Finance and Administration, the minor ones being entrusted to the Managing Director's Private Secretary.

Plans for Production of Alternative Machines

44. The H.M.T.F. hope to attain their peak production of 400 8½" centre lathes in 1957, *i.e.*, three years after commencement of pro-

*Subject to verification.

duction. Their intention is to have plans for production of alternative machines ready such as 10½" and 12" centre lathes, radial drills, milling machines and other general purpose machine tools, so that, if during the period of three years before they reached peak production, it was found that the demand for 8½" centre lathes was less than the 400 planned per year, they could switch over to the production of one of these alternative machines in consultation with the indigenous industry. This is based on a capacity of 6,00,000 man hours per single shift per annum. The Committee are anxious that our technicians should be associated with the Swiss experts in the designing work right from the beginning as this forms the most important part of the scheme.

Report of the Engineering capacity Survey Committee

45. The attention of the Committee has been drawn to the Report of Mr. J. D. Scaife, Machine Tool Expert, whose services were obtained by the Government of India from U.K. under the Colombo Plan, which has been embodied in the Report of the Engineering Capacity Servey Committee appointed by the Government of India. The Committee regret to point out that the Report of this Committee was not made available to them earlier and they got it only when they were in the closing stages of their work. They note that Mr. Scaife has been very critical about the setting up and working of the Hindustan Machine Tools Ltd., which he has described as "a wholesale purchase of machine tools salesman's 'el Dorado' and the building up of a sound indigenous machine tool making organisation a secondary and minor consideration". The Committee would like to examine, in due course the comments of Government on the various criticisms levelled by Mr. Scaife and the action taken by Government on the recommendations made in the Report of the Panel for the Machine Tools Industry, appended to the above Report, in so far as they relate to the rationalisation and streamling of the requirements of the country in the various types of machine tools and the manufacture thereof both by the private and public sectors.

46. The Committee are very much concerned over the possible overlapping in the manufacture of the various types of lathes etc. both by the private and public sectors. They feel that the H.M.T.F. should work as a complementary unit to the existing factories, and a co-ordinated programme for the production of the various types of machine tools, which are either manufactured by the existing units or are capable of being manufactured by the existing units with some assistance, should be drawn up in consultation with the indigenous Industry. In this connection it is pertinent to

point out what the Estimates Committee in their First Report on the Machine Tools Factory stated. The relevant paragraphs are reproduced below:—

> "82. * * * The representatives of the Ministry of Industry and Supply, who were also asked whether the proposed factory would react adversely on private enterprise in this Industry, stated that at present India was importing machine tools worth eight crores of rupees or so and the private enterprise was not producing enough to meet the entire demands of the country. Therefore, the State factory would not in any way interfere with the existing private industry."

> "83. The Committee were also informed that the capacity of the various Ordnance factories had also been examined and it had been found that they could hardly produce anything of the kind that was expected to be produced in the proposed machine tool factory."

47. Despite the assurances given by the Government to the Committee in 1950, when their First Report was presented, there have been serious defects, as pointed out above, in the working of this project. However, it is still not too late to rectify the previous defects and to put the matter on a sound and firm basis, provided Government acts quickly and takes decisions, drastic in certain respects. With this end in view, the Committee suggest that on early meeting should be arranged between the Government of India and the representatives of the Hindustan Machine Tools Ltd. and the Indian Machine Tool Manufacturer's Association. The representatives of all the Ministries concerned, *viz.*, the Commerce and Industry, Production, Railways, Works, Housing and Supply and Defence etc. should also be invited to this meeting. On the basis of the decision arrived at this meeting, the Hindustan Machine Tools Ltd., should fix their firm production targets in the first and second stages of production.

Preliminary Report

48. The Committee are presenting this preliminary Report only. They desire that the Government should apprise them within a period of 3 months of the action taken on the recommendations made by them in the preceding paras.

49. In the meantime, they reserve their final comments on the various aspects of the working of the Factory.

II

HINDUSTAN SHIPYARD LTD.

INTRODUCTORY

49. The affairs of the Shipyard at Visakhapatnam came up for examination previously by the Estimates Committee in the year 1950-51 also. In para 91 of the Report of the Committee for that year (the First Report), it had been recommended that:

(i) "Government should take over the Visakhapatnam shipyard. The project should be given a high priority in our development schemes.

(ii) Government should enter into a partnership with the Scindias. If there is difficulty in putting through this proposal with the consent of Scindias, Government should bring before the Parliament necessary legislation to give effect to it".

50. Subsequently, on the 21st January, 1952, a private Limited Company known as the Hindustan Shipyard Ltd. was formed for the purpose of taking over the yard. The yard was actually taken over on the 1st March, 1952 at a valuation of Rs. 2.72 crores, which was worked out by an Expert Committee appointed in this behalf by the Government of India. Shares to a total value of Rs. 312.75 lakhs were issued by the Hindustan Shipyard Ltd. of which two-thirds valued at Rs. 208.50 lakhs were taken up by Government and the remaining one-third namely, Rs. 104.25 lakhs, by the Scindias. Government was, however, to pay for the shares allotted to it in five equal annual instalments of Rs. 33,78,000. Working capital was provided by the payment of Rs. 39.60 lakhs by Government and of Rs. 30,000 by the Scindias to the firm.

51. During the course of the years 1952-53 and 1953-54, Government advanced a sum of Rs. 60 lakhs to the Shipyard as Debenture Loan for development programmes. This amount has since been converted into shares capital and added to the shares issued to the President making a total of Rs. 268·50 lakhs. To sum up, Government paid to Hindustan Shipyard Ltd., Rs. 39.60 lacs in 1951-52, Rs. 30 lacs in 1952-53, and Rs. 30 lacs in 1953-54, and to Scindias Rs. 33·40 lacs in 1952-53, Rs. 64·16 lacs in 1953-54, and Rs. 33·78 lacs in 1954-55. A provision of Rs. 83·78 lacs has been made in the Budget Estimates for 1955-56.

52. Further to this, varying sums have been paid for the development of the ship-building industry as follows:—

	1951-52	1952-53	1953-54	1954-55	1955-56 (Budget Estimates)
Development of the Ship Building Industry.	1,82,22,693	47,67,830	Nil	50,00,000	50,00,000

53. Government have also approved the proposals for the construction of a Dry Dock at Visakhapatnam at an estimated cost of Rs. 2.15 crores, for providing the Dry Dock facilities for construction and repair work in the Yard. A sum of Rs. 10 lakhs has been accordingly provided in the Budget Estimates for the year 1955-56 for this purpose.

54. Besides these, Government have been bearing the difference between the actual cost of construction of ships in the Yard and the cost of similar ships in the U.K. which is the price at which these ships were sold by the Hindustan Shipyard to the Shipping concerns. Sums of Rs. 40 lakhs (which includes the special subsidy of Rs. 7 lakhs) and Rs. 60 lakhs have accordingly been provided for the purpose in the Revised and Budget Estimates of the years 1954-55 and 1955-56 respectively.

Agreement with A.C.L.

55. Soon after the formation of the Limited Company, an agreement was entered into in July, 1952 with the French firm of Shipbuilders, "La Societe Annonyme Des Ateliers et Chantiers de la Loire" (the "A.C.L.") for technical aid in the management and operation in the Yard.

The nature of aid to be received is as follows:

(a) Provision of technical advice in regard to the organisation, development and technical management.

(b) Establishing a fully equipped and competent Designing and Estimating office at Visakhapatnam.

(c) Training and guiding the Indian personnel in the Shipyard and in their own Organisations in France so as to fit them for positions of the highest responsibility in each Department of the ship-building yard.

(d) Placing at the disposal of the Hindustan Shipyard Ltd., the purchasing Organisation and skill of the firm.

(e) Helping in obtaining from foreign countries the necessary priorities for the supply of steel, equipment of stores and all other ship-building materials, raw materials, plant and machinery; and

(f) Securing orders for ships from outside India and if necessary, try to bring about the sale of ships built by the Hindustan Shipyard Ltd.

56. The payments to be made to the A.C.L. include a sum calculated at 4 per cent. of the actual turnover by the Company. Besides this, payment has been agreed to be made for the services of a certain number of expert French technicians the total overall payment for whom is not to exceed three lakhs of rupees per year. A total sum of Rs. 3,74,273 has been paid during the three years ending 1954-55 for the services on account of the French Technicians made available by the A.C.L. to the Shipyard.

57. For the years 1952-53, 1953-54 and 1954-55, the amount of commission payable to the A.C.L. at the rate of 4 per cent. turnover

worked out to Rs. 2,28,341 Rs. 4,19,037 and Rs. 7,43,666 respectively. These payments are, however, subject to deduction of Income Tax. The amounts payable are Rs. 1,49,356 for the year 1952-53, Rs. 1,72,041 for the year 1953-54 and Rs. 3,27,678 for the year 1954-55. The figure for 1954-55 is provisional and subject to finalisation by income-tax authorities.

The following statement shows the particulars of the various types of ships built by the Hindustan Shipyard since 1952:—

	D.W.T.	Class	Remarks
Completed Works:			
(1) V.C. 108 s.s. Jagrani .	8,000	Jala type cargo vessel	These ships were in the course of construction when the Shipyard was taken over by HSL and they were completed and delivered during 1952-53***
(2) 111 s.s. Jala-Pratap . .	8,000	Do.	
(3) 112 s.s. Jala-Pushpa .	8,000	Do.	
(4) 114 s.s. Bharat-Ratna	8,000	Do.	High cost due to extra idle labour and consequent overheads.
(5) 115 s.s. Jala-Putra . .	8,000	Do.	
(6) 116 M.v. Jala-Vihar . .	7,000	Maierform type Diesel Cargo vessel	
Work-in-Progress:			
(7) VC. 117 M.v. Jala-Vijaya .	7,000	Do.	
(8) 118 M.v. State of Kutch .	8,000	Do.	
(9) 119 M.v. Jala-Vishnu .	7,000	Do.	
(10) 123 M.v. Vidyut . .	..	Customs Launch for Madras Port Trust.	Completed but awaiting engine trials.
(11) 124 Kort Nozzle Tug .	..	Tug for Calcutta Port Trust.	
(12) 135 India/Andaman-Passenger-cum-cargo vessel.	..	..	
(13) 120 M.v. State of Orissa .	8,000	Maierform Type Diesel Cargo Vessel.	Keel not yet laid.
(14) 121 M.v. Jala-Vikram .	7,000	Do.	

***These ships were built on Government account against an order from them and the Government paid a further subsidy to cover the difference between our cost and sale price.

58. The number of ships for which keels were laid, the number built, the number launched and the number of ships delivered since the 15th July, 1952 by which date the A.C.L. experts arrived at the Shipyard are given below:—

Period	(a) No. of ships for which Keels were laid.	No. of ships under construction during the year.	(b) No. of ships launched.	No. of ships delivered.
15.7.52—14.7.53	2	4	Nil	2
15.7.53—14.7.54	3	5	2	1
15.7.55—14.7.55	1	5	2	2

It is clear from these figures that the progress of deliveries is extremely slow. In the three years of working of the contract, even less than two ships on the average have been delivered while the number under construction are on the average five. It is clear, therefore, that at this rate heavy arrears are bound to develop unless vigorous steps are taken immediately.

Review of the Working of the Agreement

60. The Committee have examined the working of the various terms of the agreement and their conclusions in the matter are contained in the following paragraphs. In general, however, they would state that the agreement has not worked satisfactorily as far as the Shipyard is concerned, and the work in the Shipyard has not progressed according to the expectations. The interests of the Shipyard have suffered severely.

Technical aid in the Construction of Ships

61. Under the terms of agreement, the A.C.L. had deputed two technicians—who were, according to them, well suited for the purpose, to aid the Shipyard in the construction of ships. Based on the advice given by these experts, the Shipyard had entered into commitments with various buyers for the delivery of vessels according to a certain time-schedule, but it appears that the delivery dates were never observed and were altered from time to time. For example, it appears that three ships had been ordered by the Eastern Shipping Corporation Limited, the delivery of which had been originally fixed as first Ship in June 1954, second ship September 1954, and third ship April, 1956. These dates were subsequently changed a number of times, and at present the dates of delivery stand as September, 1956 and February, 1957 respectively.

62. It is clear that the original schedules were drawn up without properly assessing the practical aspects of the work. In this connection, the Committee would quote the following extract from the report submitted to the Board of Directors by the French Technical Director on the 9th December, 1954:

> "Our first schedule was full of rosy expectations, and this rosy picture was first given by Mr. Campbell before our arrival in April, 1952. Mr. Campbell expected to build in 1954 five ships a year and to deliver the last of the seven Maierform vessles in September, 1954. Although we could see that this was a hope, a little difficult of realisation, yet we did not want to look pessimistic before we studied the correct position. Our first schedule was accordingly drawn at 4 ships a year, but it was pointed out to Mr. Gupta, and he agreed that this figure was only a theoretical one."

14. It may be stated in this connection that this first schedule was altered five times subsequently.

63. At any rate the position at present is that the time schedules of delivery have become completely unrealistic, and the ship-owners

who had advanced funds in anticipation of delivery have found their capital locked-up without any return for lengthy periods. The shipowners at first paid instalments as usual to the Shipyard to finance the construction of ships. But when it became apparent that the completion of the ships would take longer than had been estimated originally, the Shipyard reviewed the position and agreed, with Government's approval, to finance the further construction of the vessels on its own, so that for a certain number of ships now on order and under construction, the shipowners do not have to pay any further instalments. The financing charges likely to be incurred by the Shipyard (*i.e.*, the extra expenditure falling on the Shipyard) are expected to be in the order of about Rs. 8 lakhs.

64. The Committee understand, and are glad to note, that the French experts concerned are being replaced by the A.C.L. They consider, however, that the present system of working the Yard by engaging experts to run the whole organisation is not very satisfactory. They feel that the terms of the agreement especially in this regard require review. As regards the possible alternative arrangements, after the termination of the present agreement they would quote the views of one of the representatives of the Hindustan Shipyard Ltd., with which they agree:

> "I do not think there will be any necessity to have technical experts. But we might have to get some sort of technical help or consultation because always new problems do arise. But this kind of technical assistance that somebody should come and take charge of the whole Shipyard and run it for us, that will not be necessary."

65. Accordingly, the Committee desire that attention should be given by the Government even now to the question of the alternate arrangements to be made for the technical advice to be available for the Shipyard at the end of the stipulated period of five years when the agreement with the A.C.L. is due to expire. The Committee were informed in this connection that a senior technical officer had been deputed from the Ministry of Transport to the Shipyard for this purpose and that he is undergoing training. Whatever other steps may be necessary for this purpose should also be planned well in advance, and care should be taken that there is no obstacle to the progress of work in the Yard for want of careful planning.

66. There is one aspect of the matter to which the Committee would draw the immediate attention of Government, and that is the question of recovery of loss sustained by the Yard on account of the failure of the A.C.L. to render satisfactory technical advice as stipulated in their contract, which has resulted in the Shipyard failing to observe their business commitments. Government ought to assess the damages to be recovered from the firm on account of their failure, and this amount should be recovered from the firm early.

Delivery Dates

67. The Committee understand that payment is made to the H.S.L. on the orders for ships placed with them in the following manner:

20 per cent on order;

20 per cent. on placing the order for steel or machinery;

20 per cent. on laying the hull;

20 per cent. on fitting out; and

20 per cent. on delivery.

As already mentioned in the earlier paras in this Report, great delays have occurred in the delivery of ships by the Yard and consequently, payments made by the shipping companies have been locked up with no return whatsoever for fairly long periods in many cases. Instances, in which dates of deliveries had been postponed by over 24 months have already been cited.

68. This position compares most unfavourably with the conditions prevailing in other countries where, the Committee understand, it is very rare for dates of deliveries to be postponed. The actual period of construction in the Hindustan Shipyard is, it is understood, longer than that in the advanced ship-building countries. In some foreign countries, the Committee understand, there is, a penalty clause in the contract for late deliveries. The Committee recommend that the Shipyard should draw up its schedule of delivery dates with due care and, as far as possible, make the period of delivery as short as possible. This is essential if our Yard is to earn a good reputation and attract further customers.

Advice on Organisation and Management

69. From the evidence of the Managing Director of the Hindustan Shipyard Ltd., it appears to the Committee that even in the matter of organising the schedule of work in the Yard, the technical advice given by the A.C.L. experts was not at all satisfactory. It appears that the Managing Director had asked the French expert, time and again, that the scheduling should be so organised and also arrangements made so that if any particular department or section (including the administrative sections which deal with recruitment of labour and purchase of materials) lag behind, the fact came automatically to the notice of the Expert and the Managing Director. Such a system known as the "Red Light System", would give a timely warning about the possibility of further delays.

The Committee would also observe that the H.S.L. should have before long undertaken the compilation of the job lists and collected the basic data in regard to the standard time which a particular job should take as also the material required for that job. The Committee, therefore, emphasise that there must be proper planning and marshalling of all the raw materials, stores and other equipment required by the Shipyard. After having done that, a system should be devised whereby a systematic comparison of the results of actual performance with such estimates is ensured. This would also throw light on the past experience and locate profits or losses on previous work; act as a guide for future transactions and, last but not the least, would provide for the linking of the purchase of stores etc. with their actual utilization on the execution of various jobs undertaken by the Shipyard. The Committee consider that wherever the technical experts were unable to tender satisfactory service in matters like this, Government should consider the

question of alternate methods of getting such advice at the cost of the A.C.L. as a breach of the terms of contract.

Training of Personnel

70. Under clause 2(c) of the agreement, the A.C.L. are required to train and guide the Company's Indian staff so as to fit them for taking over posts of the highest responsibility in the various Branches of working in the Yard. It appears, however, that not much progress has been made in this matter. It was also the original proposal that officers should be sent on deputation abroad for training, but even after the expiry of three years of agreement with the A.C.L. much progress has not been made in this direction. The Committee consider that this cannot be delayed further for any length of time and that the H.S.L. should proceed urgently with the scheme which the shipyard have in hand for selecting a sufficient number of qualified young men and have them trained in all the branches of the work in the Yard as well as abroad. Some of the existing personnel should also be given higher training.

71. The Committee have examined the facilities at present available in the various educational institutions in the country for the training of young men in Naval Architecture, such as are available at present in the Engineering Colleges, the Merchant Navy Training Ship and the Indian Institute of Technology at Kharagpur. The Committee feel that for the facility of practical training, the institutions in which courses of naval architecture form part of study, could more suitably be located near the ship-building yards. The question of transferring one of the existing Engineering Colleges to Visakhapatnam or of setting up a new Institution of this kind near the Yard there with provisions for training in Naval Architecture and Designing, should be considered. This would also enable the services of technical officers of the Yard being available as visiting lecturers in the college. A scheme had been drawn up by the H.S.L. in this connection and was furnished to the Committee during the course of their examination. The scheme carries the following suggestions which ought to be given due consideration by Government and implemented early, if found feasible:

"(a) The course of study in Naval Architecture in the Indian Institute of Technology, Kharagpur, should continue as arranged for the present so far as the present students are concerned.

(b) Students should be admitted in Naval Architecture Departments for the session beginning in July, 1956.

(c) Until facilities could be had for establishing an Engineering College at Visakhapatnam in Mechanical and Electrical Engineering, the first year class in Naval Architecture of the Indian Institute of Technology, Kharagpur, beginning in July 1956 should be started at Visakhapatnam provided the minimum qualification for admission is "Graduation" in Mechanical Engineering. These graduates will have sufficient knowledge of higher mathematics, strength of materials, etc., for studying pure Naval Architecture.

(d) First 3 years' course may be conducted at Visakhapatnam in evening classes by Technical Officers of Hindustan Shipyard and 1 or 2 permanent lecturers from outside, as may be available. This 3 years' course should include ship calculations, stability, ship drawings, theory of ship structure, strength of ships, practical training in ship construction and organisation of shipyard. Practical training may be conducted during the day in the shipyard and theoretical study be carried out in the evening classes.

(e) Next 2 years' course comprising of resistance, propulsion, powering of ships and tank experiments can be completed in I.I.T. Kharagpur.

(f) This combination of first 3 years' course in Vizag and next 2 years' course in Kharagpur may be given a fair trial until sufficient number of Naval Architects are available in India and until the Andhra University authorities make up their mind to finally shift their Engineering College from Kakinada to Visakhapatnam".

Training of Skilled Workers

72. As Visakhapatnam Port is not an industrial town, there is not much floating labour there and skilled workers cannot be obtained at short notice by the Yard. Accordingly, it is necessary to have workmen and supervisors trained in the various skilled trades in the Yard itself. A detailed scheme requires to be drawn up by the Yard authorities both for the practical as well as for some theoretical training of skilled workers, as also for refresher courses, for promotion to supervisory categories.

Efficiency of Labour

73. During the course of the visit of the Sub-Committee of the Estimates Committee to the Shipyard, it was found that there was a considerable amount of wastage of labour due to workmen idling away their time in the shops. Workmen were also noticed to come into shops 15 minutes later and to knock off work about 15 minutes earlier than the scheduled time. It appears that the authorities have not given sufficient thought to this problem as it was found that no records of time wasted etc. were being maintained. It is essential that a system of "Time and Motion study" should be introduced in the Yard, and that all steps should be taken by the authorities to impress upon the workmen the need for putting in full scheduled hours of work.

Idle capacity of machines in the Yard.

74. The Committee understand that there is plenty of idle capacity in almost all the machines in the Yard though no proper record thereof is being kept. They are informed that the question of setting up some side line production to utilise this idle capacity and of developing a Repairs Department in the Shipyard is at present engaging the attention of the authorities. The Committee were also informed that negotiations have been entered into with the Railways

with a view to undertaking the work of assembling wagons of the Railways imported from abroad in a "knock-down" condition. The Committee desire that these negotiations should be completed as early as possible and the work undertaken without delay. If, however, this is not possible the Shipyard must explore other ways and means of utilising the idle capacity of the machines to the full, as in the case of the foundry which, the Committee consider, could very well undertake works for the public at rates usually charged by the private foundries for similar jobs elsewhere.

Payment of wages by results

75. The Committee understand that in most of the ship-building yards in the world, a system of payment of wages by results, such as the bonus system, is in vogue and that consequently there is considerable incentive to increase production by labour. The Committee were informed that the H.S.L. had already approached the I.L.O. for the loan of the services of one or two experts to organise a system of wages by result in the Yard. The Committee desire that this should be introduced as early as possible.

Drawing Office

76. The Committee understand that the Drawing Office of the Hindustan Shipyard works for fewer hours and enjoys more holidays than the Workshop Departments. The Technical Director in his Report dated the 19th February, 1954 to the Board of Directors had pointed out that the number of working hours and holidays for both these categories must be identical. The Committee understand that the hours of working have since been increased but that payments to be made therefor are still under consideration. They desire that early action should be taken in this direction.

Cost Accounting

77. In almost any modern factory cost accounting forms an essential part of the organisation. The Committee were informed that the cost control system in foreign Shipyards consisted of estimating the materials to be used and time to be taken for completing each job and the methods to be adopted to ensure that these standards were maintained. Even in the Shipyard of the A.C.L. in France, a detailed system of cost accounting and cost control existed. The Committee were informed that it was not possible at present for the H.S.L. to introduce a similar cost control system as they had not so far acquired sufficient experience to enable them to fix the standard time required for each job per workman or per group. Figures of the total man-hours spent in the past for the construction of each of the 12 ships were available but separate statistics for particular jobs were not maintained. It was stated that the A.C.L. had supplied certain data but it was difficult to make comparisons as the standards of efficiency and workmanship in the two countries differed and this difference could not also be estimated in exact percentages. The Committee hope that before long it would be possible for the Hindustan Shipyard to introduce the system of "Time and Motion" study in the Yard in order to

tighten up control over construction costs. Meanwhile, the Committee desire that 'time and motion charts' for particular jobs should be drawn up and constant efforts made to increase efficiency and secure economy in cost. The Committee would emphasise that no method of checking up employees or of preventing waste in materials can be carried out without a fully developed cost system which provides a comparison between the limits fixed in respect of labour and materials for each item of work with the actual performance.

Ship-Building Costs

78. The Commitee have examined the comparative cost of building ships in the Visakhapatnam Shipyard and in the U.K. They find that where the estimated cost of building a ship is about Rs. 74,16,840 in our Shipyard, the corresponding cost in the U.K. for a ship of the same tonnage works out to about Rs. 58,85,404. In fact the two ships delivered in 1954 from the Shipyard cost about Rs. 81 lakhs and 78 lakhs (approximately) respectively. The large disparity in prices between construction here and in the U.K. were explained to the Committee as due mainly to the following factors:

(i) *Steel.*—The price of steel available for ship building in the U.K. is less by about Rs. 115 per ton than the steel available for our Shipyard. Moreover the sizes of plates and sections which our Shipyard receives from the Tatas, are such that a higher percentage of the material is wasted as scrap in our country, the figures being about 20% as against 10% in the U.K.

(ii) *Machinery, Stores and Equipment.*—In most of the Shipyards in the U.K., the manufacturers of ship engines are themselves responsible for their installation in the ship, whereas our Shipyard has to incur an extra charge of about 15% to 18% on the cost of the material, by way of packing, forwarding and handling charges freight and insurance of the engines which have to be imported.

(iii) As the number of ships built in the Yard is comparatively small, our over-head charges per ship are very heavy. The Committee were informed, however, that when the Yard produces four ships a year at least, the over-heads would compare well with those of other shipyards.

79. The Committee desire that all possible action should be taken in respect of items (i) and (iii) mentioned above, so that the cost of ship-building in the Yard is placed at competitive rates with those of other countries. In regard to item (i) the possibilities of supplying suitable size of plates to the yard so as to minimise the loss on wastage should be examined. They feel that the reasons enumerated above are not exhaustive of the causes underlying the high cost of building in the Yard. They consider that there is plenty of scope for effecting economy in the quantity of material used by a careful planning of schedules and by a fuller utilization of the capacity of the machines. Increased labour efficiency, strict supervision and careful management are other methods by which a reduction in costs could be ensured.

Payment of Subsidy to the Shipyard by Government

80. As stated elsewhere in this report, the H.S.L. is selling ships to the shipowners at U.K. parity prices and is recovering the difference between those prices and the actual cost of construction from

the Government as subsidy. In order to enable the Shipping Companies to buy ships built at the Yard, Government also advance long term loans to these Companies at varying rates of interest. The position regarding the payment of subsidies to ship-builders in foreign countries has been submitted to the Committee in a note by H.S.L. as follows:

> "A number of foreign Governments give subsidies to ship-building which usually range between 20 and 30 per cent. of cost. So far as we know, no subsidy is given in U.K. or in Germany, but we understand that in U.K. the steel is supplied to the ship-builders at a specially reduced price. In France subsidy is calculated by a very complicated formula but Government's underlying aim is to give to the ship-builders the difference in their costs and the international sale value of the ship in such a way as to secure that the shipbuilders get between 3 to 4 per cent profit on their turn-over."

81. The Committee desire that the whole question of payment of subsidies should be re-examined. It is first of all to be seen whether the cost of production could not be reduced by introduction of cost control schemes and improved labour efficiency and out-turn. If, in spite of this, it is found that a subsidy is still required to be paid, it should be done on a more rational system than that adopted at present, *viz.*, that of basing at merely on the U.K. costs of production.

Steel and Timber

82. It is essential to the efficient working of a Shipyard that steel plates and other steel material required for the building of ships are received in the sequence in which they are required. The Hindustan Shipyard, however, encounters serious difficulties in this matter. In view of these difficulties, Government have permitted the H.S.L. to import steel through the Steel Controller, but even here, the time required is 6 to 8 months. As such delays in the supply of steel affect production programme schedules generally. The Committee desire that Government should take the most urgent steps possible to see that the supply of steel to the Yard is not delayed, and that it is made in the sequence in which, and at the time when, it is required. Suitable stocks should be built up which will help to tide over the delays that occur between demand and supply.

83. As for timber, the Committee are informed that the requirements of the Shipyard were met from the imports from Burma and the U.S.A. (pine) and from the forests in South Kanara, Coorg and the Andamans. As regards indigenous supply, the problem of transportation from the forests, especially those on the West Coast is a serious one. The Madhya Pradesh teak and salwood could have been a satisfactory source, but it appears that reliable contractors have not come forward to work those forests and supply timber according to the special specifications of the Yard. Whatever be the difficulties, however, the Committee feel that the Shipyard ought not to depend on foreign imports for their timber requirements. They understand that it would be possible to obtain teak from Madhya Pradesh and Travancore-Cochin which could replace the Burma teak. As for

Oregon pine, the Committee understand that the *chir* wood of Indian forests would be a satisfactory substitute, if the problems of transportation from the source and of working the forests could be overcome. The Committee were glad to learn that the Indian Forests Research Institute had been approached for a solution of certain technical problems. The Committee would suggest that wherever difficulties are encountered in the matter of exploitation of the forests and the cutting of the wood according to the specifications required etc. commercial bodies and organisations should also be consulted wherever necessary and possible. They are likely to help in solving the difficulties.

Standardisation of Ships

84. Prior to its being taken over by Government, the policy of the Shipyard was to concentrate on the production of one type of vessel only, for which the designs as well as working plans had been obtained from abroad. When the Shipyard was taken over by Government, however, it was decided to adopt the Maierform type of vessels, which required the preparation of separate designs and working plans for each ship. As, however, the requisite number of trained staff was not available for this spcialised job, serious delays have been caused thereby in the Drawing Office and the fabrication branches.

85. Standardisation of the designs have this additional advantage in that it would also lead to considerable savings in expenditure on machine operation etc., and speedier training of skilled workers. Moreover, standardisation would enable the setting up of subsidiary industries for the manufacture of replacement parts more easily, since these latter would also be standardised and could accordingly be stocked in larger quantities. These advantageous aspects of manufacture of standardised ships were referred to by the Chairman of the Board of Directors of the firm in his annual speech as follows:

> "In this connection I might perhaps be allowed to make a suggestion for the consideration of all concerned. The initial cost of ship as well as the price payable by the ship-owners could be considerably reduced by standardisation. Surely it should not be necessary to have more than two or three types of ships for the present coastal trade in India. Similarly, ships for different runs could be standardised after full investigation of the needs of the trades on that run. This would not only mean cheaper ships but quicker deliveries and would save money both for the shipowners and the public exchequer".

86. The Committee understand that no steps have, however, been taken in the direction of manufacturing standard ships. In view of the present position in which deliveries are slow, cost of building is high etc., the Committee consider that the whole question ought to be reexamined and a conference arranged between the representatives of Government, the shipowners and the ship-building industry in general to examine how far it would be advantageous to adopt a policy of manufacturing only standard vessels, at least for some years to come.

Manufacture of Machinery and Spare Parts

87. As regards the machinery required in the construction of Ships, the Committee understand that there are a number of establishments in Western India manufacturing propelling machinery and shipping fittings in a small way. The Committee desire that a survey of these establishments and their capacity should be undertaken with a view to see to what extent those activities could be coordinated with that of the shipbuilding industry in the country.

88. The Committee noticed the difference in the procedure adoped for the manufacture of the various parts of ships in the Hindustan Shipyard as compared with that in other countries. In the U.K., for example, there is a great deal of specialisation in the work of fitting out, of painting, and of installation of machinery etc., which are entrusted to sub-contractors who are themselves experts in the line, the ship-building Yard concentrating on the construction of the hull only. By such a process, efficiency and economy are both achieved. All this is made possible because of the very large number of ships built in the Yards. In our shipyard, however, all the operations are carried out in the Yard itself. This, in the opinion of the Committee, is another reason for the cost of ship-building being in the result higher than elsewhere.

89. The Committee consider that our objective in organisation should also be the same as in the U.K., namely, the setting-up of subsidiary industries for the manufacture of standardised parts of fittings, equipment, etc. around the Yard. The Committee realise that this would require a greater amount of activity in ship-building than what exists in the country at present, but they feel that, unless action is taken to build up such a pattern even from now onwards, it may be found later that when activities do expand, the setting-up of such an industry may be more difficult.

90. The Committee would recommend to the Government that the subsidiary industries referred to by them should, wherever possible, be organised as cottage industries located round Shipyards and the various Ports, where work of construction and major repairs is being undertaken. Initially therefore, a survey has to be undertaken with a view to collect the necessary statistical data of the spare parts and fittings required and the possibilities of setting up such cottage industries in consultation with the private-sector of ship-builders and owners.

91. One of the most important subsidiary industries to which immediate attention is required to be paid is that of the manufacture of engines. In this connection the attention of the Committee was drawn to the problem of the extent to which preference should be given to the use of diesel engines. The question of fuel is an important factor in this consideration, as the introduction of these engines will involve import of oil necessary for their operation. On the other hand, the adoption of Diesel engines could facilitate the speedy mechanisation of the country craft and give a fillip to the building of small vessels for coastal cargo traffic. The whole question requires to be gone into thoroughly in consultation with the shipowners and defence (Naval) authorities. The Committee hope that these matters would receive due attention in the Second Five Year Plan.

Ship Building in India

92. The Committee were given to understand that, under the First Five Year Plan the target for construction in the Shipyard was one lac tons, and that orders for 92,000 tons had already been received. But it appears that the actual construction work is likely to result in a short-fall of about 42,000 tons, as ships aggregating 50,000 tons only are likely to be built before the end of the first Plan period.

93. In the Second Five Year Plan the shipping requirements of the country are expected to be about 10 lakh tons, against a target of 6 lakh tons placed in the First Five Year Plan. With the present capacity of the Visakhapatnam Yard, the total construction work at the end of the Second Plan period would aggregate to approximately 50,000 tons only. Consequently, the remaining 4.5 lakh tons of new constructions,—together with the annual replacements of about 5 or 6 ships—will have to be met by imports during the Second Plan unless there is expansion of facilities in the Yard and new construction Yards are also built.

94. The Committee consider that the situation requires urgent action if any advance is to take place during the second Plan period towards the attainment of self-sufficiency in the matter of construction of ships for our requirements. It should be our objective in Planning, not merely to build the ships required for mercantile purposes on the high seas, and for the coastal traffic, but also the ships required for our Navy. The ultimate Plan should provide for building ships for other countries in South and South-East Asia in competition with other suppliers.

95. All this requires a careful planning and an initial survey of the present capacity. Side by side with this, proposals should be carefully worked out for the training of supervisory personnel, for the building up of adequate facilities for hull construction, for securing continued and regular supply of such material as steel plates etc., for the construction of machinery, and for the settling-up of important marine subsidiary industries, which are so essential for ship-building activities and which normally exist in all the foreign ship-building countries.

96. The Committee consider that plans should be undertaken immediately for the expansion of the capacity of the Visakhapatnam Yard and for the setting up of one or two more Shipyards on the Western Coast. They consider, however, that such big Shipyards could be best utilised in the building of large vessels, and that the construction of the smaller vessels should be left to be done by firms in the private-sector. They were given to understand that there is sufficient capacity for the construction of small vessels of tonnages ranging from 1000 to 4000 tons, by such companies as the Drydock at Mazagon in Bombay, which is provided with all the necessary facilities such as railway sidings, large storage areas quite adjacent to the Drydock, etc. A Memorandum was also received by the Committee from M/s. Shapuria Dock and Steel Company Limited, stating that they have sufficient idle capacity which can be utilised for ship-building purposes. The Company claim to possess the ability and the technique for building large vessels also. The Committee

consider that all these matters should be carefully examined by Government and all possible action taken to utilise to the full, the capacity available for the building of vessels of smaller tonnage.

97. For still smaller vessels, there are, in this country expert craftsmen with long tradition of shipbuilding dating back to centuries. All that is now required is to canalise the expert knowledge and skill of these people.

98. The Government should, therefore, take steps to call a conference of the representatives of the Shipyard and the various Shipbuilding companies to consider the best means of implementing these suggestions.

Development of Intermediate Ports

99. The problem of the development of Ports is linked with questions of ship-building construction and expansion of the Yard capacity etc. The Committee understand that at present the Ports in the country are classified in two categories namely major and minor Ports. The latter, while being larger in number remain the responsibility of the respective State Governments. The Committee consider that for the fuller development of coastal trade and for improvement of facilities available at the minor Ports, the more important of the latter category should be formed into a new category of Intermediate Ports under the control of Central Government and developed by them to the fullest extent possible. The Committee understand that while, the principle of introducing the new category of intermediate Ports had been accepted by the Transport Ministry, adequate plans for developing them with a view to meeting the Transport problem have not been taken in hand yet. The Committee would urge immediate attention being given to this matter.

BALVANTRAY GOPALJEE MEHTA,

Chairman,
Estimates Committee.

NEW DELHI;
The 29th June, 1955.

APPENDIX I

Summary of conclusions/recommendations of the Estimates Committee relating to the Ministry of Production—Hindustan Machine Tools Ltd.

	Reference to Para No. in the Report	Summary of conclusions/recommendations.
1	2	3
1	13	The Committee regret to observe that the Government of India have not so far assessed the consequential loss in terms of money to the Hindustan Machine Tools Ltd. due to delay on the part of Messrs. Oerlikon in the construction side as well as in supply of jigs, tools, fixtures etc. and have not taken steps to demand compensation for the same.
2	14	Government should immediately investigate the causes of delay in the setting up of the Hindustan Machine Tools Ltd., both on their part and that of the Swiss firm and apprize the Committee of the steps proposed to be taken to retrieve the loss arising out of the delay attributable to Messrs. Oerlikon.
3	18	The Committee fail to understand why it should not be possible for the Ministry of Production to supply the Committee with details of the quantum and value of work done by the Swiss experts, and do not see any justification for the payment by the Company of a huge sum of Rs. 5,31,515 towards salaries of certain European technicians on account of their preliminary training with Messrs. Oerlikon and work on production planning done in Switzerland. The responsibility for planning and training, as visualised in the Heads of Agreement, devolves on Messrs. Oerlikons and no payment on that account should have been made by the Company. The Committee consider these payments as irregular and desire that legal opinion should be obtained on the question of incidence of these charges and final decision arrived at in the matter should be intimated to the Committee.
4	19	The implications of clause (7), relating to technical supervision etc., should be got clarified, and necessary steps should be taken to see that payments are made in future only for those items of services for which it is required to be paid for under the Agreement.

2		3
5	41	With a view to place the future of the Machine Tool industry both in the public and Private sector on firm basis, Government should immediately examine (*i*) the question of comparative efficiency and price of the lathes produced by H.M.T.F. with those of the private sector, (*ii*) the demand for lathes in the country and the planning of production of the H.M.T.F., and (*iii*) clear up doubts and uncertainties that at present prevail by a clear statement of policy and programme. Government should aim at the economic working of the Machine Tool Factory in the long run in view of the vast disparity in prices of 8½" lathes manufactured by them and by the private sector.
6	43	The post of Secretary to the Board of Directors of H.M.T.F. should be retrenched and the important part of his duties assigned to the Chief of Finance and Administration, the minor ones being entrusted to the Managing Director's Private Secretary.
7	45	Government should intimate their comments on the various criticisms levelled by Mr. Scaife and the action taken by them on the recommendations made in the Report of the Panel for the Machine Tools Industry appended to the Report of the Engineering Capacity Survey Committee in so far as they relate to the rationalisation and stream-lining of the requirements of the country in various types of machine tools and the manufacture thereof both by the Private and Public Sectors.
8	46	The Hindustan Machine Tools Factory should work as a complementary unit to the existing factories, and a coordinated programme for the production of the various types of machine tools which are either manufactured by the existing units or are capable of being manufactured by the existing units with some assistance should be drawn up in consultation with the indigenous industry.
9	47	With a view to rectifying the serious defects in the working of the Factory, an early meeting should be arranged between the Government of India and the representatives of the Hindustan Machine Tools Ltd. and the representatives of Indian Machine Tools Manufacturers Association. The representatives of all the Ministries concerned *viz.*, Commerce and Industry, Production, Railways, Works, Housing and Supply and Defence etc., should also be invited to this meeting. On the basis of the decisions arrived at this meeting, the Hindustan Machine Tools Ltd. should fix their production targets in the first and second stages of production.

1	2	3
10	48	Government should apprize the Committee within a period of three months of the action taken on the recommendations of the Committee in this report. The final report will be presented thereafter

APPENDIX II

Summary of conclusions/recommendations of the Estimates Committee relating to the Ministry of Production—Hindustan Shipyard Ltd.

S. No.	Reference to Para No. in the report	Summary of conclusions/recommendations
1	2	3
1	59-60	The progress of deliveries of ships has been extremely slow. In the three years of working of the contract with A.C.L. even less than two ships on the average have been delivered while the number under construction on the average is five. Vigorous steps should be taken immediately so that heavy arrears do not develop. In general the agreement with A.C.L. has not worked satisfactorily and the work in the Shipyard has not progressed according to expectations.
2	61	It appears that the commitments with the various buyers for the delivery of vessels according to certain time-schedule were never observed.
3	62	It is clear that the original schedules were drawn up without properly assessing the practical aspects of the work.
4	64	The Committee consider that the present system of working the yard by engaging experts to run the whole organisation is not very satisfactory. Though technical experts may be required to be engaged in an advisory capacity. The terms of the agreement especially in this regard should be reviewed after the termination of the present agreement.
5	65	Government should give attention to the question of alternative arrangements to be made for the technical advice to be available for the Shipyard when the agreement with the A.C.L. expires at the end of the stipulated period of five years. Other steps, besides that of sending a senior technical officer of the Ministry of Transport abroad for training should also be planned well in advance.
6	66	Government should assess the losses sustained by the yard on account of the failure of the A.C.L. to render satisfactory technical advice as stipulated in the contract, and recover the same from the firm early.

1	2	3
7	68	The shipyard should also draw up its schedule of delivery dates with due care and make the period of delivery as short as possible.
8	69	The shipyard should have a proper planning marshalling of all the materials, stores and other equipment required by them. Thereafter a system should be devised whereby a systematic comparison of the results of actual performance with such estimates is ensured.
		The technical advice given by the A.C.L. experts in the matter of organizing the schedules of work in the Yard was unsatisfactory. They failed to organize the 'Red Light System'. In matters like this, Government should consider the question of alternate methods of getting such advice at the cost of A.C.L. as a penalty for breach of the terms of contract.
9	70	Hindustan Shipyard Ltd. should proceed urgently with the scheme which the shipyard have in hand for selecting a sufficient number of qualified young men and have them trained in all the branches of the work in the yard as well as abroad. Some of the existing personnel should also be given higher training.
10	71	For facility of practical training the institutions in which courses of Naval Architecture form part of study could more suitably be located near the Shipyard. The question of transferring one of the existing Engineering Colleges to Visakhapatnam or of setting up of a new Institution of this kind near the yard with provisions for training in Naval Architecture and designing should be considered. the scheme drawn up by the 21. S. L. in this connection should be given due consideration by Government and implemented early, if found feasible.
11	72	A detailed scheme both for the practical as well as for some theoretical training of skilled workers, as also for refresher courses, for promotion to supervisory cadres should be drawn up as skilled labour cannot be obtained by the yard at Visakhapatnam Port at short notice.
12	73	A system of "Time and Motion study" should be introduced in the yard. The need for putting full scheduled hours of work should be impressed upon the workmen.
13	74	Negotiations with the Railways regarding the undertaking of the work of assembling wagons of the Railways imported from abroad in a "Knock-down" condition should be completed early to utilise idle capacity found in

1	2	3
		plenty in almost all the machines in the yard. If this is not possible, other ways of utilising idle capacity should be explored.
4	75	Payment of wages by results should be introduced as early as possible.
15	76	Early action should be taken to settle the question of the hours of working in the Drawing Office which till recently were lower than in the Workshops Department.
16	77	A cost control or cost accounting procedure as obtaining in some foreign countries should be set up at Hindustan Shipyard Ltd. The Committee hope that before long it would be possible for the Hindustan Shipyard to introduce the system of 'Time and Motion' study in the yard in order to tighter up control over construction costs Meanwhile time and motion charts, for particular jobs should be drawn up and constant efforts made to increase efficiency and secure economy in cost.
17	79	To minimise loss of wastages the possibilities of supplying suitable sizes of plates to the yard should also be examined.
		Economy in the quantity of material used by a carefu planning of schedules and by a fuller utilisation of the capacity of the machines, increased labour efficiency strict supervision and carefull management should be aimed so as to reduce costs.
18	81	The question of payment of subsidy should be re-examined with a view to place it, if such payment has to be continued on a more rational basis.
19	82	Government should take urgent steps to see that the supply of steel to the Yard is not delayed, and that steel plates and other steel material are made in the sequence in which and at the time, when they are required. Suitable stocks should be built up to tide over the delay that may occur between demand and supply.
20	83	She Shipyard should not depend on foreign imports for their timber requirements. Teak from Madhya Pradesh and Travancore-Cochin could easily replace Burma teak; *chir* wood of Indian forests would be satisfactory substitute for Oregon pine. Commercial bodies and organizations should also be consulted besides the Indian Forest Research Institute wherever difficulties are encountered in the matter of exploitation of the forests and cutting of the wood according to the required specifications.

1	2	3
21	86	Question of manufacturing standard ships should be re-examined and a conference between the representatives of Government, the Shipowners and the Ship-building Industry in general should be held to examine how far it would be advantageous to adopt a policy of manufacturing only standard vessels at least for some years to come.
22	87	A survey of the establishments in Western India which manufacture propelling machinery and shipping fittings in a small way should be undertaken with a view to see to what extent those activities could be co-ordinated with those of the Ship-building industry in the country.
23	89	The objectives in planning for the yard should include namely the setting up of subsidiary industries for the manufacture of standardised parts of fittings, equipment etc. around the yard.
24	91	Government should see that certain subsidiary industries are organised as cottage industries located in the vicinity of the Shipyard and at the various ports where work of major repairs is being undertaken. Initially, a survey may be made to gather statistical data of the spare parts and fittings required and the possibilities of setting up such cottage industries explored.
25	92	The question of manufacture of engines and of the preference to be given to the use of diesel engines etc. should be gone into in consultation with the ship-owners and Defence (Naval) Authorities. These matters should receive due attention in the Second Five Year Plan.
26	94	The problem of short fall in manufacture of ships should be gone into if self-sufficiency is to be attained in the Second Five-Year Plan. The objective in Planning should not merely be to build the ships required for mercantile purposes on the high seas, and for the coastal traffic, but also the ships required for our Navy. The ultimate Plan should provide for building ships for other countries in South and South East Asia in competition with other suppliers.
27	95	Proposals for the building up of adequate facilities for hull construction for training of supervisory personnel, for securing continued and regular supply of such material as steel plates etc., for the construction of the machinery, and for the setting up of important marine subsidiary indust ries, which are so essential for ship-building activities and which normally exist in all the foreign ship-building countries, should be carefully worked out and implemented early.

1	2	3
28	96	Plans should be undertaken immediately for the expansion of the capacity of the Visakhapatnam Yard and for the setting up of one or two more shipyards on the Western Coast. The construction of smaller vessels should be left to be done by firms in the private sector.
29	97	Government should canalise the expert knowledge and skil of the craftsmen in the country in building smalle vessels.
30	99	For the fuller development of coastal trade and for improvement of facilities at the minor ports, immediate attention should be given to the formation of the more important of the minor Ports a new category of intermediate Ports under the control of Central Government and developed by them to the fullest extent possible.

APPENDIX III

Statement showing different events pertaining to the Machine Tool Project from 28-3-1949 till the formation of the company on 1-3-1953.

Date	Major events
1	2
28-3-1949	Ministry of Industry and Supply sign provisional contract with Oerlikon (Dr. Gerber signing it in New Delhi).
April to August, 1949.	Collection of data pertaining to prospective sites from the Governments of West Bengal, Bihar, Madhya Pradesh and Mysore.
31-7-1949 to 6-8-1949.	Inspection of sites recommended by different Provinces by Mr. R. Waldmann (Oerlikons expert).
18-8-1949.	Mr. Waldmann's return to Zurich after visiting sites and collecting first-hand information for making the final selection of site.
October, 1949	Oerlikon selection of Bangalore site. Their report handed over by Dr. Gerber to Government of India personally during the third week.
Nov-Dec., 1949.	Carrying out survey and preparation of topographical maps of the selected site and forwarding copies to Oerlikons. Investigation of raw material position and forwarding of representative samples to Oerlikons.
Jan-Feb., 1950	Collection of various data required by Oerlikons regarding Machine Tool Production, reparation machinery etc. etc.
March-April, 1950. (6 weeks)	Special Officer (Machine Tool Industry)'s deputation to Oerlikons Factory at Zurich, for attending to : (i) Examination and finalisation of style, design and special features of machine tools to be included in the production programme. (ii) Finalise the exact location of factory site. (iii) Inspection of factories of other Swiss manufacturers with whose help Oerlikons desire to fix the production programme. (iv) Discussion with Oerlikons on data collected pertaining to ancillary industries, *viz.*, ball bearing factory, gear cutting factory and central foundry.

1	2
	(v) Assist Oerlikons in estimating the cost of expenditure under different heads to make necessary budget porvision.
	(vi) The question of training technical personnel.
2-6-1950	Dr. Gerber and party came to Delhi to discuss with Ministry to settle various issues and obtain financial sanction of project.
	As the poject itself was under scrutiny by Planning Commission their talks were inconclusive and Dr. Gerber and the party had to go back.
June-Aug. 1950.	Ministry had to pilot project proposals through Finance and Estimates Committee.
	Opposition of private machine tool industry had to be over come at special meetings held by H. M.
September, 1950.	Dr. Gerber was invited to inspect the leading indigenous machine tool factories in India, in view of their persistent opposition and to ensure that the new factory would be complementary and not competitive to private industry.
	Dr. Gerber arrived and after inspection, Ministry held a conference at Bangalore and the whole matter was once for all settled satisfactorily. Detailed project estimates prepared were vetted by Oerlikons' representatives Dr. Gerber returned on 28-9-1950.
October, 1950	Project approved by Planning Commission. Financial proposals supported by Finance Ministry for placing before Standing Finance Committee.
18-11-1950	Mr. R. Waldmann arrived in Delhi and discussed outstanding issues with Ministry.
	Joint visit to Bangalore by Mr. H. M. Patel, Mr. Wald mann and Special Officer (Machine Tool Industry) to settle land question.
20-11-1950	Standing Finance Committee approved of the Project proposals.
December, 1950.	Cabinet sanction.
6-1-1951	Ministry cabled to Mr. Dhirubhai Desai intimating financial sanction of project and requesting him to send Dr. Gerber immediately with plans, drawings and proposals for ordering plant, machinery, etc.
20-1-1951 to 16-1-1951.	Arrival of Dr. Gerber and party. Various issues discussed. Dr. Gerber sought permission for placing of orders worth 5 million Swiss francs against first list, provision of advance amounting to Rs. 1·3 million and sanction for the appointment of 8 European staff.

1	2
10-1-1951	H.M.'s telegram to High Commissioner of India in London suggesting Director-General, India Store Department, London to contact Oerlikons and plan the purchase of machine tools for Machine Tool Factory, Bangalore, as the market prices were rising.
21-2-1951	Ministry's intimation to High Commissioner of India in London of the Government sanction of 1·3 million Swiss francs towards the purchase of Plant and Machinery required for the Machine Tool Factory.
2-3-1951	Technical and financial data pertaining to the Machine Tool Project furnished to the Planning Commission.
8-3-1951	Outstanding problems pertaining to Machine Tool Project discussed at a meeting in Works, Production and Supply Ministry.
4-5-1951	Oerlikons intimation to the Ministry by cable expressing considerable difficulty experienced in the recruitment of high calibre European Technical personnel and the different market situation in regard to purchase of machinery.
22-5-1951	Tentative drafts of Articles and Memorandum of Association of the proposed company prepared by Special Officer (Machine Tool Industry) forwarded to Oerlikons by the Ministry.
6-7-1951	Tentative draft of the agreement to be concluded between the Government and Oerlikons prepared by Special Officer (Machine Tool (Industry) forwarded by Shri C. C. Desai to Dr. Gerber.
16-8-1951	Under the first five-year plan of the Planning Commission a provision of Rs. 535 lakhs during 1951—53 and Rs. 978 lakhs during 1954—56 has been made for the Machine Tool Factory, Bangalore.
9-9-1951 and 10-9-1951.	Dr. Gerber's arrival and meeting in the Ministry and discussion on various points outstanding, namely, draft articles and memorandum of association, recruitment of Indian and European technical personnel, difficulties in orders for machinery. Final agreement to be concluded with Oerlikons, framing of revised time schedule, conversion of hangars into workshop, residential accommodation for staff, power and water supply requirements, framing of accounting procedure, utilisation of indigenous foundry capacity, training of apprentices for Bangalore factory in Ambernath, budget provisions to be made etc.

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25-9-1951	Ministry's letter to Oerlikons outlining the purchase procedure for Plant and Machinery, advance of funds for the purchase of machinery in Europe and staff for preliminary work for setting up factory.
25-9-1951	The Ministry communicated their decision to associate their representative, special Officer, (Machine Tool Industry) with Oerlikons in Zurich to facilitate early purchase of machinery and to minimise the great difficulties experienced in European markets due to armament programme.
4-10-1951	Lists of Reparation Machine Tools forwarded to Oerlikons for selecting suitable machines for the Bangalore factory to obviate to a certain extent the difficulty experienced in the purchase of machine tools.
November, 1951	Arrangements made by Oerlikons for the inspection and selection of Reparation machine tools by their technical experts, Mr. Jacaud and Dr. Schnitger.
Early Dec., 1951	Arrival of Mr. Waldmann and discussion of various outstanding issues with the Ministry and Joint visit of Mr. Waldmann, Dr. Schnitger and Special Officer (Machine Tool Industry) to Bangalore, Bhadravati and Harihar.
Deputation period.	Special Officer (Machine Tool Industry) on deputation to Zurich to associate with Oerlikons in drawing up specification and purchase of machinery required for Machine Tool Factory, and to scrutinise all payments to the recoupment of the revolving credit placed at the disposal of Oerlikons. Oerlikons requested to Ministry to station Special Officer (Machine Tool Industry) in Zurich throughout the entire period of planning to enable him to have an uninterrupted and thorough knowledge of project work from its very inception.
January, 1952	The design of the prototype lathe hydraulically operated in progress under the direct supervision of the Technical Director of Oerlikons.
	Dr. Gerber flew to India to discuss and settle important issues, namely, formal agreement, formation of the Company, with the Ministry.
15-3-1952	Arrangements made for the commencement of shipment of machine tool to India.
7-4-1952	Arrival of Shri Aftab Rai in Zurich to survey the position and progress of the project.
8-4-1952	Mr. Waldmann left for India to discuss outstanding issues with the Ministry.

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10-4-1952	Special arrangements made to recruit first class technical personnel who were difficult to secure in Europe.
Early May, 1952.	Oerlikons insistence on purchase of all machine tools by negotiation Dispute with Director-General, India Store Department, London, on this issue. Joint meeting held in Zurich with Shri Aftab Rai, Director-General, India Store Department, London, and the Finance Officer, with Messrs. Oerlikons' representative. Due to this dispute the matter was represented to the Ministry who agreed to lists being forwarded to Delhi for obtaining financial concurrence before placing future orders.
May 1952	The design of lathe was altered by the technical experts of Oerlikons from hydraulic-electronomic type to the mechanical type as the latter was best suited to the conditions prevailing in India. After detailed and thorough investigation, it was decided that Oerlikons 8½" DMO lathe should further be improved and adopted for production in the Bangalore factory.
14-6-1952	Oerlikons agreed to the introduction of 8½" centre lathe in the market first and then 10½" centre lathe, specification and photographs under preparation for the Ministry.
7-7-1952	Date in connection with the formation of the Company, namely, Capital, cost, working capital time table, organisation chart etc., completed.
10-9-1952	The design and specification work on special machines to be purchased is in progress.
30-10-1952	Joint visit of Mr. Bossard, Works Manager, of Oerlikons Dr. Schnitger and Special Officer (Machine Tool Industry) arranged every alternate day to inspect Oerlikons Production line to study the sequence of operation and application of control chart.
Early Dec., 1952	Visit of Shri Aftab Rai to U. K., Switzerland and other European countries for collecting data regarding the cost picture of machine tools for comparison with the prices paid by Oerlikons on purchase of Machine Tools for Bangalore Factory.
January, 1953.	Arrival of Mr. Buehrle, Dr. Gerber and party in Delhi in connection with the formation of the Company. Visit to Bangalore and final meeting of Mr. Buehrle and party with H. M., and Secretary to the Government of India, Ministry of Production and the Managing Director in Delhi; finalisation of company formation.
February, 1953 (19-2-1953).	Preliminary meeting of the prospective Directors of the Company to be formed.
27-2-1953	Company registered with the Registrar of Joint Stock Companies in Mysore, Bangalore.
1-3-1953	Company started functioning at site.