

**PUBLIC ACCOUNTS COMMITTEE**  
**(1968-69)**

**THIRTY-EIGHTH REPORT**

[Action taken by Government on the recommendations of the Public Accounts Committee contained in their 70th Report (Third Lok Sabha) on Paragraph 10 of Audit Report (Defence Services) 1966—Manufacture of Engines]



**LOK SABHA SECRETARIAT**  
**NEW DELHI**

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(1968-69)

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\*Declared elected on the 19th August, 1968 vice Shri M. M. Dharia resigned from the Committee.

## INTRODUCTION

I, the Chairman of the Public Accounts Committee as authorised by the Committee, do present on their behalf this 38th Report on Action Taken by Government on the recommendations of the Public Accounts Committee contained in their 70th Report (Third Lok Sabha) on Para 10 of Audit Report (Defence Services) 1966—Manufacture of Engines.

2. On 12th June, 1968, an "Action Taken" Sub-Committee was appointed to scrutinise the replies received from Government in pursuance of the recommendations made by the Committee in their earlier Reports. The Sub-Committee was constituted with the following Members:

- |                                      |                  |
|--------------------------------------|------------------|
| 1. Shri D. K. Kunte, <i>Convener</i> | } <i>Members</i> |
| 2. Shri C. K. Bhattacharyya          |                  |
| 3. Shri K. K. Nayar                  |                  |
| 4. Shri Narendra Kumar Salve         |                  |
| 5. Shrimati Tarkeshwari Sinha        |                  |
| 6. Shri N. R. M. Swamy               |                  |

3. The draft Report was considered and adopted by the Sub-Committee at their sitting held on 7th November, 1968 and finally adopted by the Public Accounts Committee on 25th November, 1968.

4. For facility of reference the main conclusions/recommendations of the Committee have been printed in thick type in the body of the Report. A statement showing the summary of the main conclusions/recommendations of the Committee is appended to the Report (Appendix).

5. The Committee place on record their appreciation of the assistance rendered to them in this matter by the Comptroller and Auditor General of India.

NEW DELHI;

November 26, 1968.

M. R. MASANI,

*Chairman,*

*Public Accounts Committee.*

Agrahayana 5, 1890 (S).

## CHAPTER I

### REPORT

This Report of the Committee deals with Action Taken by Government on the recommendations contained in their 70th Report (Third Lok Sabha) on paragraph 10 of Audit Report (Defence Services), 1966—Manufacture of Engines, which was presented to the House on 28th March, 1967.

1.2. The Action Taken notes/statements on the recommendations of the Committee contained in this Report have been categorised under the following heads:—

- (i) Recommendations/observations that have been accepted by Government:  
S. Nos. 1, 3 and 15.
- (ii) Recommendations/observations which the Committee do not desire to pursue in view of the replies of Government:  
S. Nos. 2, 4 to 14, 16 to 23.

1.3. In their 70th Report (Third Lok Sabha), the Committee had dealt in detail with certain unsatisfactory features of a project undertaken by the Hindustan Aeronautics Ltd., Bangalore Division for the manufacture of an aircraft. The findings of the Committee briefly were:

- (i) The cost of a project for development of a supersonic aircraft HF.24 undertaken in HAL was not initially estimated correctly and was revised from Rs. 110 lakhs in 1956 to Rs. 556 lakhs in 1965.
- (ii) The development of the airframe for the aircraft was undertaken in 1956 and a private foreign company, which was developing an engine in the normal course of their business, was expected to supply the power-plant. That company was not, however, contractually bound to develop the engine for Government's requirements, with the result that when they abandoned work on the engine in 1959, Government was left without a power-plant.
- (iii) A collaboration agreement was subsequently concluded in 1961-62 with another foreign Government for the manufacture of engine. The tested capacity of the engine (1.4 Mach) was below the requirements (2 Mach) and no



guarantee was provided in the agreement for the engine being developed to the required specifications.

- (iv) Ultimately the agreement was foreclosed by Government in 1964, when the engine failed to attain the requisite power. The total expenditure incurred by Government was Rs. 237.76 lakhs.

1.4. In paragraphs 1.98 & 1.99, the Committee had made the following observations:—

“1.98: The Committee feel that the fact that the agreement of July, 1962 did not envisage further development of engine to meet the Indian requirements, was mainly responsible for the major portion of the expenditure of Rs. 237.76 lakhs on this unsuccessful venture. The Committee cannot but express a sense of disappointment at the infructuous expenditure of Rs. 237.76 lakhs incurred on this unsuccessful venture as also the time lost in making the right selection of the engine for the equipment. The Committee also feel that if due care had been taken at different stages, at least a major portion of this expenditure on the costly venture could have been avoided.”

“1.99: The Committee are constrained to note that apart from the loss of money involved in this unsuccessful venture, this resulted in abnormal delay in providing a vital equipment essential for the defence of the country. The Committee are not convinced that this situation was irremediable.”

In their reply the Ministry of Defence have stated:

“The conclusions of the Committee have been noted. Action was taken to cancel the agreement as soon as it was confirmed by the collaborator that the engine could not be developed to Mach 2 performance. A decision on cancellation of the agreement could be taken only when the final result of the tests were available. The selection of a fully developed engine in full production was made primarily due to the urgency of the requirement for the defence of the country. The comparative economics were also given due consideration.”

“The field of choice before the Government was very limited when the agreement was signed. There was a reasonable hope of the . . . . . engine coming upto our requirements. There was no other developed engine in sight which could

be considered at that time. Our internal resources of know-how were extremely limited. Therefore, there could be absolutely no hope of indigenous development of power plant in the foreseeable future. The Government could not, therefore, ignore a proposal which appeared to be more promising due to the great urgency of the requirement."

1.5. The Committee note that the Committee on Public Undertakings have since comprehensively examined this project. In their 8th Report (Fourth Lok Sabha), on the working of the Hindustan Aeronautics Ltd. (Bangalore Division) that Committee have made the following observations in paragraph 86 (Fourth Lok Sabha):

"It (HAL) had not fully realised the complexities of production of this aircraft and made optimistic estimates. HAL's production planning organisation needed to be changed. The needful was being done but it would still take four or five years to fulfil their demands for Mark I. The Committee hope and trust that the efforts of HAL in developing the aircraft will be successful."

1.6. The Committee on Public Undertakings have also made the following general observations in paragraphs 307 and 308 of their Report:

"The aircraft industry in India is in its infancy at present. It, therefore, suffers from the disadvantages that can accrue to an industry of this kind in a developing country, i.e., on the one hand, it suffers from lack of technical know-how, designing capabilities and manufacture of tools. . . . The Committee appreciate the difficulties faced by HAL in setting up an efficient aircraft industry in India. . . . The Committee hope that HAL would be able to overcome the initial disadvantages from which it suffers at present and emerge as an efficient and capable aircraft manufacturing undertaking for meeting the needs not only of India but of this region."

17. In view of the fact that Committee on Public Undertakings have examined comprehensively the matters relating to manufacture of aircraft by Hindustan Aeronautics Ltd., the Committee do not wish to pursue these matters. The Committee would however, like to sound a note of caution against the over-optimistic manner in which this project was conceived and hope that the Ministry

would be more realistic in planning such projects in future. The Committee would also like to emphasise the necessity for developing a sound indigenous base for manufacture of aero-engine so that the country may achieve self-reliance in this sector in course of time.

## CHAPTER II

### RECOMMENDATIONS/OBSERVATIONS THAT HAVE BEEN ACCEPTED BY GOVERNMENT

MINISTRY OF DEFENCE

(DEPARTMENT OF DEFENCE PRODUCTION)

#### *Recommendation*

The Committee consider it most unfortunate that such an unrealistic estimate of the project was drawn up. The estimate of this project went up from Rs. 110 lakhs in 1956 to Rs. 556 lakhs in 1965. The Committee are not convinced of the reasons advanced by the Ministry for not assessing properly the estimates of the expenditure at the initial stage and for its frequent upward revisions. The Committee are surprised to note the plea of lack of experience given by the witness as one of the primary causes for these upward revisions. The Committee cannot understand why such a complicated project was taken up without the necessary help of competent technicians to assess the job requirements and financial implications thoroughly. The Committee feel that the initial estimates prepared in 1956 were based on inadequate data and insufficient understanding of the details of this complicated project.

[Sl. No. 1 (Para 1.14) of Appendix III to Seventieth Report of the Public Accounts Committee (Third Lok Sabha)—1966-67].

#### *Action taken*

As explained to the Public Accounts Committee, this project was undertaken with the help of a team of German experts, headed by Dr. .... The first estimate of the cost of the project viz., Rs. 109 lakhs was prepared with the help of this team. After the experience of the last 10 years, it is seen that this German Team also underestimated considerably the volume of work involved in completing the project and suggested, initially, an unrealistic estimate.

2. DADS has seen.

[F. No. 58(2)/67/D(HAL-I) dt. 8th Sept., 1967].

#### *Recommendation*

The Committee desire that in future projects where the revised estimate exceeds the original estimate beyond a prescribed percent-

age/amount, the work should normally be proceeded with after obtaining the prior approval of the authority which sanctioned it initially. The Committee would also emphasise the necessity of preparing initial estimates more realistically and scientifically so that their upward revision at a later stage is avoided as far as possible. They would also like that suitable instructions should be issued in this regard to all the Ministries.

[S. No. 3 of Appendix III, Para No. of Report—1.16.—70th Report  
(3rd Lok Sabha)]

*Action taken*

A copy of the above recommendation has been forwarded on 6th October, 1967 to all the public sector undertakings under the Ministry of Defence for information and compliance in future.

2. DADS has seen.

[Ministry of Defence O.M. No. 11(3)/67/D (Budget Dated 7-2-1968)].

As desired by the Committee necessary instructions have been issued to all Ministries/Departments *vide* Ministry of Finance O.M. No. F. 12(15)-E (Coord)/67, dated the 8th May, 1968, (copy enclosed).

[Ministry of Finance (Expdr. Deptt.) O.M. No. F. 12(15)-E (Coord) 67, dated 20-6-1968].

No. F. 12(15)-E (Coord) 67

GOVERNMENT OF INDIA

MINISTRY OF FINANCE

(DEPARTMENT OF EXPENDITURE)

*New Delhi, dated 8th May, 1968.*

*OFFICE MEMORANDUM*

*SUBJECT:—70th Report of the Public Accounts Committee (3rd Lok Sabha)—Recommendation No. 3 (para 1.16) Procedure for getting the approval of revised estimates of projects.*

The Public Accounts Committee, commenting on a case wherein the estimate for a project was initially not prepared on a realistic basis and had, therefore, to be revised substantially more than once, have observed in para 1.16 of their 70th Report (3rd Lok Sabha) as follows:—

“The Committee desire that in future projects where the revised estimate exceeds the original estimate beyond a prescribed percentage|amount, the work should normally be proceeded with after obtaining the prior

approval of the authority which sanctioned it initially. The Committee would also emphasise the necessity of preparing initial estimates more realistically and scientifically so that their upward revision at a later stage is avoided as far as possible. They would also like that suitable instructions should be issued in this regard to all the Ministries."

2. In cases where the revised estimates of Schemes exceed the original estimates, the Administrative Ministries have, in accordance with item 7 of Appendix I to this Ministry's O.M. No. F. 10(4)-E (Coord) 62. dated 1-6-1962, powers to sanction such excesses upto 10 per cent or Rs. 1 crore, whichever is less, if they are satisfied about the special circumstances justifying the excess, subject to the condition that no substantial alteration in the scope of the Scheme, as originally accepted by Ministry of Finance, is involved. In cases where it is expected that the revised estimates will exceed the original estimates beyond the above limit, prior approval of the authority which sanctioned the scheme initially should be taken at the earliest opportunity and the work should, as far as possible, not be proceeded with until such approval is obtained.

3. In so far as Public Enterprises are concerned, the existing instructions provide that the Enterprises can proceed with the execution of projects once the detailed Project Reports and the detailed cost estimates have been approved by the Government and any further reference to Government is required to be made in cases of variation of more than 10% for any particular component in the approved estimate. [Vide Ministry of Commerce and Industry O.M. No. Pr. C. 7(3) 61, dated 30-11-1961 & O.M. No. Pr. C. 7(1) 61 dated 16-5-1962.]

The Ministries/Departments have also been requested to advise the Public Undertakings under their administrative control to ensure that the instructions contained in the O.M. dated 16-5-1962 regarding taking Government approval in cases of excesses in estimates by more than 10% for any particular component are strictly adhered to vide Bureau of Public Enterprises O.M. No. 9(1)-F/67 dated 22-9-67. This O.M. also lays down that the F.A. & C.A.O. of the Undertaking would be particularly responsible to bring to the notice of the Chief Executive all variations in the estimates, which require the approval of the competent authorities, thereafter it will be the responsibility of the Chief Executive. There should not, therefore, be occasions where the timely approval of the competent authorities is not taken, in cases where the variations in estimates are not covered by the delegated powers.

4. The Ministry of Commerce etc. are requested to ensure that the above requirements are duly complied with and also that the estimates for Projects|Schemes are prepared on a realistic and scientific basis so that their upward revision at a later stage is avoided as far as possible.

Sd|-N. N. K. Nair,

*Deputy Secretary to the Govt. of India.*

To

All Ministries|Departments of Govt. of India.

No. F. 12(15)—E(Coord)|67

Copy forwarded for information to:—

- (i) All Financial Advisers in the Deptt. of Expenditure;
- (ii) Defence Division (Budget);
- (iii) C. & A.G.;
- (iv) A.G.C.R.;
- (v) E. II(A) Branch;
- (vi) E. A. Department (Budget Division);
- (vii) Lok Sabha Secretariat (P.A.C. Branch);
- (viii) Bureau of Public Enterprises.

Sd|-N. N. K. Nair,

*Deputy Secretary to the Govt. of India.*

*Recommendation*

The Committee also regret to note that the life of this engine in between the overhauls was not calculated so as to work out the economics of this engine vis-a-vis the engine of the private company, which was to be obtained earlier from the foreign private company. The Committee feel that this should have been done before concluding the agreement as shorter life in between overhauls would have meant larger number of engines to meet the same requirements and this would have increased ultimately the price of engine.

[S. No. 15, para 1.77 of 70th Report of P.A.C. (Third Lok Sabha)]

*Action taken*

It is agreed that there was an omission to work out the economics of the purchase of the engine taking into consideration the time between overhauls. The time between overhauls would determine the number of engines which should be kept in reserve. The reason why detailed calculations were not made was that the price of the engine was very much lower than the price of the engine offered by the private company. The unit price of engine was 45,000 dollars in June, 1962. The quotation given by the private company for the ..... engine in 1959 was £ 50,000 (140,000 dollars).

[No. 13 (7)|67-D (HAL-II) dated 8-11-1967]

### CHAPTER III

## RECOMMENDATIONS|OBSERVATIONS WHICH THE COM- MITTEE DO NOT DESIRE TO PURSUE IN VIEW OF THE REPLIES OF GOVERNMENT

MINISTRY OF DEFENCE

(DEPARTMENT OF DEFENCE PRODUCTION)

#### *Recommendation*

The Committee also feel that the Defence Committee of the Cabinet should have been apprised of this increase in the cost of this project and their approval of the revised estimate should have been obtained in 1961 when the estimates rose from Rs. 110 lakhs to Rs. 450 lakhs and should not have waited till 1963. For this long delay the Committee have been given no explanation.

[Sl. No. 2 (Para 1.15) of 70th Report of the Public Accounts Com-  
mittee (Third Lok Sabha)].

#### *Action taken*

In November 1961, the Defence Ministry directed that the revised estimate of cost of this project should, first, be considered in the Defence Minister's Committee (Air) and submitted to the DCC only after consideration at the meeting of the DMC(Air). A number of clarifications were obtained from HAL and a revised paper was prepared for consideration by the DMC(Air) in August 1962. The Defence Minister desired to discuss with the Chairman and the Managing Director of HAL, but due to their being on deputation out of the country, the discussions could not be arranged before October 1962. After the Emergency, the matter was considered again, and with the approval of the D.M., the proposals were submitted to the Emergency Committee of the Cabinet in May 1963 without a preliminary consideration by the Defence Minister's Committee (Air), and they were approved by the Emergency Committee of the Cabinet at their meeting held on 17-6-63.

2. DADS has seen.

[F. No. 58(2)|67|D(HAL-I) dt. 8th Sept., 1967].



*Recommendation*

The Committee are surprised to note that the development of a project involving more than a crore of rupees, even in the first estimate, was undertaken without ensuring that the power plant (engine) required for the frame would be available. The development of the frame was started in 1956 and schedule for completion of the project by 1961-62 was drawn up on an assumption that there was a reasonable prospect of getting the engine from a private foreign company. This private foreign company was under no contractual obligation to develop this particular engine for use by the Government owned company in India. The private foreign company was to supply this engine in case they developed it in the normal course of their business. This private foreign company gave up the development of this particular engine in 1959 and formally withdrew their offer in April, 1961, and the Indian company was left without the much needed power plant for the frame. This resulted in a considerable delay in the execution of this project. The Committee consider it rather amazing that such a complex and costly project was taken up without binding in any way the private foreign company for the supply of the required engine. This, the Committee feel, introduced an element of uncertainty in this project from the very beginning.

[Sl. No. 4, (Para 1.25) of Appendix III to 70th Report of the Public Accounts Committee (Third Lok Sabha)—1966-67].

*Action taken*

The Ministry's submissions were made to the Public Accounts Committee during the consideration of the Audit Paragraph. There is no additional information which could be added to the explanations already given.

D.A.D.S. has seen.

[F. No. 58 (2) | 67 | D (HAL-I) dt. 8th Sept., 1967].

*Recommendation*

The Committee regret to note that the Indian team was not able to assess properly the modifications required in the engine nor were they able to estimate the Indian technicians' capabilities to carry out those modifications.

[S. No. 5, para 1.39 of 70th Report of P.A.C. (Third Lok Sabha)].

It is also strange to note that it was only the foreign experts who realised that if the engine was modified or touched in any way, a

whole series of tests would have to be carried out because the safety of the engine as well as the person who handled it was involved. The Committee feel that this was a basic point which should have occurred to our experts even in the beginning. Further, it was again left to the foreign experts to point out that the nature of modifications in the engine was such that the same could not be carried out in India and the same would have to be done in the foreign country.

[S. No. 6, para 1.40 of 70th Report of P.A.C. (Third Lok Sabha)].

The under-estimation of modifications in the engine and over-estimation of capabilities of the Indian technicians led to an infructuous expenditure on the pay etc. of the foreign experts and the Indian engineers deployed on the job.

[S. No. 7, para 1.41 of 70th Report of P.A.C. (Third Lok Sabha)].

The Committee also feel that since the modifications of the engines were to be undertaken on an experimental basis it would have been a wise course to purchase initially one or two engines instead of six in one lot. This would have reduced the quantum of infructuous expenditure.

[S. No. 8, para 1.42 of 70th Report of P.A.C. (Third Lok Sabha)].

The Committee are not convinced of the reasons given by the Ministry for not providing for a guarantee in the July, 1962 agreement as the engine for the development of which the agreement was entered into, had been tested to a speed which was much below (about 30 per cent) the desired performance. In the absence of any written guarantee for the engine to achieve the required performance, the foreign authorities were not bound in any contractual obligation to achieve the desired result. The Committee also note that at an earlier stage the Defence Committee of the Cabinet had specifically desired in connection with an agreement for the development of an engine with a foreign private company (a) suitable financial indemnity should be sought from the foreign private company in case the engine was not successfully developed; (b) or alternatively the foreign private company should be persuaded to agree to make the development a joint financial venture. In view of the above decision of the Defence Committee of the Cabinet taken in September, 1960 in the earlier case, the Committee regret to note that the same was not kept in view and were dropped without reference to the Cabinet Committee while entering into this agreement in July, 1962 with the foreign authorities of another country. The Committee feel that any deviation from the conditions laid down by the Cabinet Committee should have been done only with the prior appro-

val of that Committee. In view of the fact that the tested performance of the engine was about 30 per cent below the desired performance and that the foreign authorities were not prepared to give a written guarantee for the required performance it was all the more necessary to insist upon such a guarantee in the agreement at this stage. It is also surprising to note that before entering into this agreement with the foreign authorities the case was not put up to the Defence Committee of the Cabinet and it was only in February, 1964 when the agreement was cancelled that the case was brought to the notice of the Emergency Committee of the Cabinet. The Committee do not find any justification for by-passing the Cabinet Committee. They are unable to understand the circumstances under which the Cabinet Committee on Defence was by-passed in this case.

[S. No. 9, para 1.56 of 70th Report of P.A.C. (Third Lok Sabha)].

What surprises the Committee most is the fact that because of these two conditions laid down by the Cabinet Committee the earlier contract was terminated, a good deal of time was lost and then these two important conditions were dropped without any reference to the Cabinet Committee while dealing with the later contract with another foreign authority.

[S. No. 10, para 1.57 of 70th Report of P.A.C. (Third Lok Sabha)].

The Committee feel that the omission of the provision of the guarantee in the agreement of July, 1962 should have been specifically brought to the notice of the Cabinet Committee before concluding the agreement. If that was not possible an earliest opportunity thereafter should have been availed of to apprise the Cabinet Committee of the agreement and its provisions. The Committee regret to note that firstly the agreement was not brought before the Defence Cabinet Committee before it was concluded in July, 1962 and secondly, the earliest opportunity was not availed of to place the agreement before the Cabinet Committee.

[S. No. 11, para 1.58 of 70th Report of PAC. (Third Lok Sabha)].

It is also surprising to note that though it was envisaged that this engine could be developed to the required power, yet no provision was made in the agreement or its further development, nor was this task undertaken by the Indian authorities. The Committee also feel that conclusion of the agreement when the foreign authority declin-

ed to give a guarantee for the required performance was one of the main factors responsible for the infructuous expenditure in this case.

[S. No. 12, para 1.59 of 70th Report of P.A.C. (Third Lok Sabha)].

The Committee further feel that obtaining verbal approval of the Prime Minister for such an important project, as was done in this case, was also not a healthy procedure to follow. Before seeking Prime Minister's approval for such an important project, it is essential that full facts of the case should be placed before him in the shape of a detailed note. The Committee regret to note that this was not done in this case.

[S. No. 13, para 1.60 of 70th Report of P.A.C. (Third Lok Sabha)].

The Committee regret to note that a huge payment of 3.111 million dollars was agreed to be made and in fact a payment of Rs. 149.33 lakhs was actually made for the modifications and tests which were primarily meant for the installation of the engine in the frame rather than in any way increasing its performance. It is all the more surprising to note that this payment was agreed to in spite of the fact that the foreign authorities had not given any written assurance that they would develop the engine to the Indian requirements. Even after modifications, the performance of the engine in question was to be the same as before i.e. about 30 per cent below the Indian requirements.

[S. No. 14, para 1.76 of 70th Report of P.A.C. (Third Lok Sabha)].

The Committee cannot help observing that in the face of the fact that the foreign authorities were not prepared to give any guarantee to develop the engine to the required higher speed, the assessment of the Indian technical authorities that the engine would be able to perform to the desired higher speed was over-optimistic and lacked justifiable or scientific basis. In the opinion of the Committee, this was a hasty step involving unreasonable and heavy financial risk.

[S. No. 16, para 1.78 of 70th Report of P.A.C. (Third Lok Sabha)].

Another disquieting feature of this case is that between the date of signing the contract i.e. 6th July, 1962 and September, 1963, no effort was made by anybody to develop the capability of this engine to achieve the required performance. In September, 1963 the foreign authorities were requested specifically to undertake the development of the .....(engine) upto .....(the required performance) The Committee feel that a clause regarding continuous development

**of the engine should have been included in the agreement, as in the absence of the same the agreement itself was not satisfactory and did not meet the Indian requirements. The Committee also feel that it would have been prudent if an agreement for the manufacture of engines had been entered into, only after a successful trial of the modified engines duly filled in the frame.**

[S. No. 17, para 1.79 of 70th Report of P.A.C. (Third Lok Sabha)].

**The Committee cannot understand why such a huge amount was agreed to be paid for the mere modification of the engine which did not have the required power. The Committee are also unable to appreciate the provisions in the agreements in regard to the payment terms, which were not related to the actual execution of the work. The Committee feel that in the absence of any assurance to develop the engine to the specified Indian requirements the agreement was concluded for the supply of an engine which did not meet the requirement of the country.**

[S. No. 18, para 1.87 of 70th Report of P.A.C. (Third Lok Sabha)].

**The Committee feel that it was rather an unfortunate decision of the Government to continue the agreement and ask the foreign authorities to undertake further development of the engine, after a specific recommendation of the "Review Committee" to suspend the agreement and its clear statement that the engine did not meet Indian requirements. When the Review Committee had based its recommendations on the evidence tendered before it by those who were connected with the development of the project, there was all the more reason not to disregard the Committee's recommendation. The Committee also feel that it should have been taken up with the foreign authorities earlier than September, 1963, especially when the Review Committee had given its report in April, 1963.**

[S. No. 19, para 1.95 of 70th Report of P.A.C. (Third Lok Sabha)].

**As the Government thought that it was not proper to negotiate with another manufacturer when one agreement was in existence, the Committee feel that the best course would have been to foreclose the agreement, immediately on receipt of Report. Report of the Reviewing Committee as the earlier efforts to develop the engine has been frustrated and the Review Committee has stated clearly that the engine did not meet the Indian requirements. Such a step, perhaps would have saved the exchequer some of the money invested in this unsuccessful project.**

[S. No. 20, para 1.96 of 70th Report of P.A.C. (Third Lok Sabha)].

*Action taken*

Sl. Nos. 5, 6, 7, 12, and 16.

The aeronautical industry in India is in early stages of development. The knowhow regarding engine technology in India was very modest. The modifications were assessed on the advice of the best experts available, in the country.

Sl. No. 8

The need for the purchase of 6..... engines was established as follows:

(1) For check up in the test bed and subsequently to be modified	_____	1
(2) For modification proposed to be made to suit the installation of HF-24 on the basis of test bed examination.	_____	1
(3) Engines required on 2 HF-24 prototypes.	_____	4
		-----
		6
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The assessment of our experts was that the modifications to the engines to enable its installation in the HF-24 aircraft were relatively minor and could be undertaken in India. On the basis of this assessment, the purchase of 6 engines was made because it would have enabled the modifications to be made quickly and installed in two HF-24 prototypes. Two prototypes are the minimum number required for the development of the HF-24 with the engines. The assessment of our experts about the nature of the modifications proved to be wrong. In retrospect it might appear that it would have been wiser to purchase initially one or two engines, but at that time, having regard to the advice of the experts, the decision was justified.

Sl. Nos. 9, 10, 11 and 13.

It was proposed that a guarantee for the further development of the engine should be written into the agreement. The collaborator stated that the engine has been certified by the State Aviation Authorities for a speed of Mach. 1.4 and their State regulations did not allow incorporation of guarantees higher than Mach. 1.4; but they expressed the view during discussions that the engine was capable of performance higher than 1.4 mach. The 1962 Agree-

ment provided for necessary tests in the high altitude chamber and their communication to us the results of these tests at the time the modified engines were made available. But they indicated firmly their inability to undertake the development of the engine to Mach. 2 performance, in case the results indicated a performance of less than Mech. 2. This was because they had no requirement for the modified engine and its production was expected to cease during 1962. These were explained to the PAC. It is noted that the PAC were not convinced by the explanation given by the Department of Defence Production.

The Defence Committee of the Cabinet had desired in connection with an agreement for the development of an engine with a foreign private company that:

- (a) suitable financial indemnity should be sought from the foreign private company in case the engine was not successfully developed;
- (b) or alternatively the foreign private company should be persuaded to agree to make the development a joint venture.

These conditions were appropriate in the case of an engine still to be developed and they cannot apply to a contract relating to a fully developed engine. The collaborator gave the guarantee that the performance of the engine after the modifications would be the same as before the modifications. The question of asking for a suitable financial indemnity from the collaborator or asking them to make the development a joint venture did not arise, because a full guarantee was given by them for the performance of the engine after the modifications. The proposal was made to the collaborator as explained in the note against J.42 that he should agree to the further development of the engine and they were unable to agree to this proposal. Based on the assessment of our technical experts that the engine would be able to perform to the desired higher speed, the agreement was concluded.

As the conditions imposed by the Defence Committee of the Cabinet in respect of an agreement for the development of an engine with a foreign private company had no application to the agreement relating to this engine, which was a fully developed engine, there was no need to obtain the prior approval of the Committee of the Cabinet before the agreement was concluded. In accordance with the normal rules of business the agreement was concluded by the Defence Ministry.

During the evidence, it was explained to the Committee that the delegation sent to negotiate the agreement was already abroad and a decision had to be taken urgently. It was not possible, within the time available, to seek the approval of the Defence Committee of the Cabinet. In the circumstances, the approval of the Prime Minister was taken by the Defence Ministry before the authority was given to the delegation to conclude the agreement, which did not provide for a guarantee that the engine would have a Mech. 2 performance.

Also, the assessment of the Indian technical authorities at the time the agreement was concluded was that there was a promise that the engine would attain a performance of Mech. 2. This assessment turned out to be wrong and this has also been commented on by the Committee in Para 1.78 of the Report.

As the approval of the Prime Minister had been taken and the agreement had been concluded, a report to the Cabinet Committee could only have been for information. In the meanwhile, the emergency intervened and soon thereafter, a comprehensive examination of the power plant for the HF-24 aircraft was undertaken by the Tata Committee and the recommendations of the Tata Committee were placed before the Emergency Committee of the Cabinet with the recommendations of the Defence Ministry.

*Item Nos. 14 and 18*

The payment of 3.111 million dollars was in connection with the modifications of the engine to suit the requirements of the Government of India for the following work to be undertaken.

- (i) Modification of the engine according to the requirements specified in the Agreement.
- (ii) Production of the necessary number of engines for the tests.
- (iii) Tests of the modified engines on the bench and of the performance of the engines and components in high altitude test laboratories.

The collaborator confirmed during the discussion that the sum of 3.111million dollars stipulated in the Agreement represented the



actual cost incurred by them in carrying out these obligations. When the agreement was cancelled the collaborator informed that expenditure incurred in the modification of engine and their tests in the high altitude test laboratories was in fact 600,000 dollars in excess of 3.111 million dollars which they did not claim. In 1963 the collaborator had intimated that after modification the engine could develop power upto 1.7 mech. The modification were to be cleared only after the engines are proved on the test bed, whether the speed of Mech. 2 could be realised when installed in the aircraft also depend on the airframe development. However, before results of the modifications were available the agreement cancelled. It is correct that the modifications and test primarily related to the installation of the engine in the airframe and not meant to increase the performance of the engine. The position of mounting of certain accessories engine had to be changed and once they were to be changed, entire schedule of tests had to be repeated to ensure the reliability of the performance of the engine. The collaborator explained at the time he undertook modifications that the schedule of tests was a comprehensive one and was as expensive as for a new engine. In this background the amount of 3.111 million dollars stipulated was not considered excessive. It may be stated for comparison that the estimate of cost given by ..... to continue the development of the .....engines was £4.55 million (or 12.74 million dollars).

Sl. No. 17

It has already been explained in the note against 1.56, 1.57 and 1.58 that the collaborator did not agree to the proposal that he should undertake the further development of the engine to reach Mech. 2 performance. The development of the engine in India to reach Mech. 2 performance was not undertaken because it was beyond our technical resources. It has been suggested that it would have been prudent if the agreement for the manufacture of the engine had been entered into only after a successful trial of the modified engines duly fitted in the airframe. The agreement concluded on the 6th July 1962 covered the grant of a licence for the manufacture of the engines in India. The best schedule for the preparation and transfer of technical documentation given by the collaborator and incorporated in the agreement was 2 years from July 1962. If the licence agreement had been concluded only after assessing the performance of the engine, after the modifications, a delay of two

years would have resulted. Secondly the collaborator clearly stated that the production of the engines would cease in 1962. Therefore, any supply of the modified engines to HAL would have to come from manufacture in India. In this context it was felt that as soon as possible the technical documentations should be received and steps taken without delay for the manufacture of the engine in India. As the licence agreement came to be cancelled ultimately, it might, in retrospect, appear prudent if the agreement for the manufacture of the engines had been deferred, but given the facts and the urgency in June, 1962 the decision to conclude the licence agreement was justified.

Sl. Nos. 19 and 20

The Tata Committee recommended: "The Committee noted that at present, there is no fully developed engine in the world which can power the HF-24 aircraft to realise its full Mach. capability. The Government of India have entered into an agreement for the manufacture under licence of an .....engine after it is modified to suit the HF-24 airframes. Having regard to certain limitations, the ..... engine suffers, from and the possibility offered by the ....., if fully developed to enable HF-24 airframe to achieve its full ultimate potential, the Committee recommended that negotiations should be immediately initiated with the ..... Government and through them with the ..... Ltd., for the development of the ..... with full reheat". "The Committee also recommends that this Agreement should not be cancelled, but should be kept in suspense as this would provide valuable insurance against any contingency of the ..... development programme not coming up to expectation."

It would thus be seen that the Tata Committee recommended that this engine should be available as an insurance against any contingency of the .....development programme not coming upto the expectation. To enable this to happen, necessarily the trials of the modifications on the engine had to continue and be completed. In fact, in February, 1964 when the cancellation of the ..... agreement was proposed to the collaborator, he confirmed that the tests had been completed. It would not, therefore, be correct to say that the recommendation of the Tata Committee was disregarded. It may also be stated that as the bulk of the work on the modification had been completed by September, 1963 any intimation to the Collaborator at this stage might not have saved any significant expenditure to us. Further, the final decision on the agreement had to

await an intimation from the collaborator about the maximum performance of the ..... engine.

[No. 13 (7) /67-D (HAL-II) dated 8th November, 1967].

#### *Recommendations*

Six engines were purchased from another country in August, 1961, whose tested capacity was much below the Indian requirements, for carrying out modifications and fitting the same in the Indian frame. The Indian team over-assessed their capabilities and under estimated the modifications needed in the engine/airframe to meet their requirements.

[S. No. 21, para 1.97(4) of 70th Report of P.A.C. (Third Lok Sabha)].

#### *Action taken*

It is a statement of fact.

#### *Recommendations*

In spite of the fact that the tested capacity of the engine was about 30 per cent below the Indian requirements and also the foreign experts had already intimated in February 1962 that they saw no possibility of re-fixing the engine in the way suggested by the Indian experts, an agreement was entered into in July 1962, with the foreign authorities for the modifications of engines and later their manufacture in India.

[S. No. 21, para 1.97(5) of 70th Report of P.A.C. (Third (Lok Sabha)].

#### *Action taken*

The fact that the proven capacity of the engine was about 30 per cent below our requirements was known when the final decision was taken. The collaborator had expressed doubts about the installation of the engine in the existing airframe without considerable modifications. This was a vital development and its implications were thoroughly gone into before taking the final decision. The view of the technical experts associated with the design and development of the airframe was that the engine could be modified to suit its installation in the existing airframe without impairing performance.

#### *Recommendation*

In September 1960, the Cabinet Committee before whom the case for development of an engine for its equipment in collaboration with

**the foreign private company was put up prescribed the following conditions:**

- (a) A suitable financial indemnity should be sought from the foreign private company in case the engine was not satisfactorily developed;**
- (b) or alternatively the foreign private company should be persuaded to agree to make the development a joint financial venture.**

**The above two conditions were not kept in view where an agreement was entered into in July, 1962 with the authorities of another foreign country.**

[S. No. 21, para 197(6) of 70th Report of P.A.C. (Third Lok Sabha)].

*Action taken*

**(a) and (b).** The collaborator made it clear that they could not guarantee better performance of the engine than Mach. 1.4 after the modifications. They could not, therefore, be asked to give financial indemnity, nor is such indemnity normally obtained from another Government. The question of making the development a joint venture also could not arise in these circumstances. Based on the assessment of our technical experts that the engine would be able to perform to higher speed, the agreement was concluded.

*Recommendation*

**The agreement of July, 1962 did not provide a guarantee or any clause for the development of the engine to the Indian requirements.**

[S. No. 21, para 1.97(7) of 70th Report of P.A.C. (Third Lok Sabha)].

*Action taken*

It was proposed to the collaborator that a guarantee for the further development of the engine should be written into the agreement. The collaborator stated that the engine had been certified by the State Aviation Authorities for a speed of Mach. 1.4 and their State regulations did not allow incorporation of guarantees higher than Mach. 1.4; but they expressed the view during discussions that the engine was capable of performance higher than 1.4 Mach. The 1962 Agreement provided for necessary tests in the high altitude chamber and their communication to us the results of these tests at the time the modified engines were made available. But they indicated firmly their inability to undertake the development of the engine to

Mach. 2 performance, in case the results indicated a performance of less than Mach 2. This was because they had no requirement for the modified engine and its production was expected to cease during 1962.

#### *Recommendations*

In July 1962, when the agreement was entered into with the foreign authorities in this case, only verbal approval of the Prime Minister was taken by the Minister of Defence and the case was put up to the Emergency Committee of the Cabinet only in February, 1964, when it was decided to fore-close the agreement. It was not put up immediately after July, 1962, either for information or for the approval of the Defence Committee of the Cabinet.

[S. No. 21, para 197(8) of 70th Report of P.A.C. (Third Lok Sabha)].

#### *Action taken*

During the evidence, it was explained to the Committee that the delegation sent to negotiate the agreement was abroad and a decision had to be taken urgently. It was not possible, within the time available to seek the approval of the Defence Committee of the Cabinet. In the circumstances, the approval of the Prime Minister was taken by the Defence Ministry before authority was given to the delegation to conclude the agreement, which did not provide for a guarantee that the engine would have a Mach. 2 performance.

#### *Recommendations*

A Review Committee appointed by the Government examined this engine as a power-plant for the frame and suggested in April, 1963 that the agreement with the foreign manufacturers should be suspended. This was not done immediately. The foreign authorities were asked in September, 1963 to further develop this engine to meet the Indian requirements. A reply was received in December, 1963 that it was not possible to develop the engine to the Indian requirements. It was only in February 1964, that a decision was taken to fore-close the agreement.

[S. No. 21, para 1.97(8) of 70th Report of P.A.C. (Third Lok Sabha)]

#### *Action taken*

The Tata Committee recommended: "The Committee noted that at present, there is no fully developed engine in the world which can power the HF-24 aircraft to realise its full Mach. capability. The Government of India have entered into an agreement for the

manufacture, under licence, of an ..... engine after it is modified to suit the HF-24 airframes. Having regard to certain limitations, the ..... engine suffers, from and the possibility offered by the ..... if fully developed, to enable HF-24 airframe to achieve its full ultimate potential, the Committee recommended that negotiations should be immediately initiated with the ..... Government and through them with the ..... Limited for the development of the ..... with full reheat." The Committee also recommends that this Agreement should not be cancelled but should be kept in suspense as this would provide valuable insurance against any contingency of the ..... development programme not coming up to expectation."

It would be seen that the Tata Committee had recommended that this engine should be available as an insurance in case the ..... development programme failed to come up to expectation. The ..... engine would have been a suitable power plant for the HF-24 aircraft only after the modifications which were necessary to enable its installation in the FH-24 aircraft had been successfully completed. The object of the recommendation of the Tata Committee would have been defeated if the modification programme at ..... had been suspended. As has already been explained, after further consideration, the agreement was foreclosed in February 1964.

#### *Recommendation*

The Committee feel that the fact that the agreement of July 1962, did not envisage further development of engine to meet the Indian requirements, was mainly responsible for the major portion of the expenditure of Rs. 237.76 lakhs on this unsuccessful venture. The Committee cannot but express a sense of disappointment at the infructuous expenditure of Rs. 237.76 lakhs incurred on this unsuccessful venture as also the time lost in making the right selection of the engine for the equipment. The Committee also feel that if due care had been taken at different stages at least a major portion of this expenditure on the costly venture could have been avoided.

[S. No. 22, para 1.98 of 70th Report of P.A.C. (Third Lok Sabha)]

#### *Action taken*

The conclusions of the Committee have been noted. Action was taken to cancel the agreement as soon as it was confirmed by the collaborator that the engine could not be developed to Mach. 2 performance. A decision on cancellation of the agreement could be

taken only when the final result of the tests were available. The selection of a fully developed engine in full production was made primarily due to the urgency of the requirement for the defence of the country. The comparative economics were also given due consideration.

### *Recommendations*

The Committee are constrained to note that apart from the loss of money involved in this unsuccessful venture, this resulted in abnormal delay in providing a vital equipment essential for the defence of the country. The Committee are not convinced that this situation was irremediable.

[S. No. 23, para 1.99 of 70th Report of P.A.C. (Third Lok Sabha)]

### *Action taken*

The field of choice before the Government was very limited when the agreement was signed. There was a reasonable hope of the ..... engine coming upto our requirements. There was no other developed engine in sight which could be considered at that time. Our internal resources of know-how were extremely limited. Therefore, there could be absolutely no hope of indigenous development of power plant in the foreseeable future. The Government could not, therefore, ignore a proposal which appeared to be more promising due to the great urgency of the requirement.

D.A.D.S. has seen.

[No. 13(7)|67|D (HAL-II) dated 27-9-68]

M. R. MASANI,

*Chairman,*

*Public Accounts Committee.*

NEW DELHI;

November 26, 1968.

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Agrahayana 5, 1890 (Saka).

## APPENDIX

### *Summary of the main conclusions/recommendations*

S. No.	Para No.	Ministry concerned	Conclusions/recommendations.
I.	I-7	Defence	In view of the fact that Committee on Public Undertakings have examined comprehensively the matters relating to manufacture of aircraft by Hindustan Aeronautics Ltd., the Committee do not wish to pursue these matters. The Committee would however, like to sound a note of caution against the over-optimistic manner in which this project was conceived and hope that the Ministry would be more realistic in planning such projects in future. The Committee would also like to emphasise the necessity for developing a sound indigenous base for manufacture of aero-engine so that the country may achieve self-reliance in this sector in course of time.



Sl. No.	Name of Agent	Agency No.	Sl. No.	Name of Agent	Agency No.
DELHI— <i>contd.</i>					
21.	Sat Narain & Sons, 3141 Mohd. Ali Bazar, Mori Gate, Delhi.	2	30.	People's Publishing House, Rani Jhansi Road, New Delhi	76
22.	Atma Ram & Sons, Kashmir Gate, Delhi-6	3	31.	The United Book Agency, 48, Amrit Kaur Market, Pahar Ganj, New Delhi.	33
23.	J. M. Jaina & Brothers, Mori Gate, Delhi.	11	32.	Hind Book House, 82, Janpath, New Delhi.	95
24.	The Central News Agency, 23/90, Connaught Place, New Delhi	11	33.	Bookwell, 4 Sant Narayankari Colony, Kingsway Camp, Delhi-9	96
25.	The English Book Store, 7-L, Connaught Circus, New Delhi.	21	MANIPUR		
26.	Lakshmi Book Store, 42 Municipal Market, Janpath, New Delhi	42	34.	Shri N. Chaoba Singh, News Agent, Ramlal Paul High School Annex, Imphal.	77
27.	Bahree Brothers, 188, Lajpatrai Market, Delhi-6.	27	AGENTS IN FOREIGN COUNTRIES		
28.	Jayana Book Depot, Chapparwala Kuan, Karol Bagh, New Delhi.	28	35.	The Secretary, Establishment Department, The High Commission of India, India House, Aldwych, LONDON, W.C.-2	
29.	Oxford Book & Stationery Company, Scindia House, Connaught Place, New Delhi-1	11			

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