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**STANDING COMMITTEE  
ON DEFENCE  
(2007-08)**

**FOURTEENTH LOK SABHA**

**MINISTRY OF DEFENCE**

*[Action Taken by the Government on the Recommendations/Observations  
contained in the 17th Report of the Standing Committee on Defence  
(Fourteenth Lok Sabha) on 'In-depth study and critical review  
of Hindustan Aeronautics Limited (HAL)']*

**TWENTY-SEVENTH REPORT**



**LOK SABHA SECRETARIAT  
NEW DELHI**

*March, 2008/Phalguna, 1929 (Saka)*

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(Fourteenth Lok Sabha) on 'In-depth study and critical review  
of Hindustan Aeronautics Limited (HAL)']*

*Presented to Lok Sabha on 19.3.2008  
Laid in Rajya Sabha on 19.3.2008*



LOK SABHA SECRETARIAT  
NEW DELHI

*March, 2008/Phalguna 1929 (Saka)*

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COMPOSITION OF THE STANDING COMMITTEE  
ON DEFENCE (2007-08)

Shri Balasaheb Vikhe Patil — *Chairman*

MEMBERS

*Lok Sabha*

2. Shri Vijay Bahuguna
3. Shri S. Bangarappa
4. Shri Milind Murli Deora
5. Shri Santosh Gangwar
6. Shri Jigajinagi Ramesh Chandappa
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*Rajya Sabha*

22. Dr. Farooq Abdullah
23. Shri Jai Prakash Aggarwal
24. Shri Abu Asim Azmi
25. Smt. Shobhana Bhartia

(iii)

26. Shri R.K. Dhawan
27. Smt. N.P. Durga
28. Shri S.P.M. Syed Khan
29. Shri K.B. Shanappa
30. Shri Arun Shourie
31. Smt. Viplove Thakur

SECRETARIAT

1. Shri S.K. Sharma — *Additional Secretary*
2. Shri A. Louis Martin — *Joint Secretary*
3. Shri Gopal Singh — *Director*
4. Shri D.R. Shekhar — *Deputy Secretary-II*
5. Smt. Jyochnamayi Sinha — *Under Secretary*
6. Shri Kamal Khurana — *Senior Executive Assistant*

## PREFACE

I, the Chairman of the Standing Committee on Defence (2007-08), having been authorized by the Committee to present the Report on their behalf, present this Twenty-Seventh Report of the Committee on Action Taken by the Government on the recommendations contained in the Seventeenth Report of the Committee (Fourteenth Lok Sabha) on 'In-depth Study and Critical Review of Hindustan Aeronautics Limited (HAL)'.

2. The Seventeenth Report was presented to Lok Sabha and laid in Rajya Sabha on 4.5.2007 and it contained 10 recommendations/observations. The Ministry of Defence have furnished their Action Taken Replies on all the recommendations/observations on 10.8.2007. The Committee took oral evidence of the representatives of the Ministry of Defence to have clarifications on certain issues arising out of the action taken replies on 27.12.2007.

3. The Draft Action Taken Report was considered and adopted by the Committee at their sitting held on 10.3.2008.

4. After adoption of draft Action Taken Report, the Committee took oral evidence of the representatives of the Ministry of Heavy Industries (Department of Public Enterprises) to have some more clarifications on certain issues arising out of action taken replies on 3.3.2008. Minutes of the related sittings are given in Appendix-I to the Report.

5. An analysis of action taken by the Government on recommendations contained in the Seventeenth Report of the Standing Committee on Defence (Fourteenth Lok Sabha) is given in Appendix-II.

N EW D ELHI;  
10 March, 2008  

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20 Phalguna, 1929 (Saka)

BALASAHEB VIKHE PATIL,  
*Chairman,*  
*Standing Committee on Defence.*

## CHAPTER I

### REPORT

The Report of the Standing Committee on Defence deals with action taken by the Government on the recommendations/observations contained in their Seventeenth Report (Fourteenth Lok Sabha) on 'In-depth study and critical review of Hindustan Aeronautics Limited (HAL)' which was presented to Lok Sabha and laid on the Table of Rajya Sabha on 4 May, 2007.

2. The Committee's Seventeenth Report (Fourteenth Lok Sabha) contains 10 observations/recommendations on the following aspects:—

Sl.No.	Para No.	Subject
1.	2.8 & 2.9	Need for Restructuring of HAL
2.	3.4 & 3.5	Industrial base for Engine Design and Development
3.	4.6 & 4.7	Improvement in Salary Structure of HAL
4.	5.9 to 5.12	Checking time and cost overruns of HAL projects
5.	6.4	Need for a comprehensive perspective plan
6.	7.5 & 7.6	Need for strengthening R&D infrastructure of HAL
7.	8.5 & 8.6	Involvement of private sector from the stage of design to final integration
8.	9.5	Navratna Status to HAL
9.	10.4	Market exploration for HAL Products
10	10.5	Concluding Observation/Recommendation



3. Action Taken replies have been received from the Government in respect of all the recommendations/observations contained in the Report. These have been categorized as follows:—

- (i) Recommendations / Observations which have been accepted by Government

Recommendation Sl. No.2 (Para No. 3.5), 3 (Para Nos. 4.6 and 4.7), 4, (Para Nos. 5.9, 5.10, 5.11, 5.12), 5 (Para No. 6.4), 6(Para Nos.7.5 and 7.6), 7(Para Nos.8.5 and 8.6), 8(Para No.9.5) and 9(Para No.10.4)

- (ii) Recommendations / Observations which the Committee do not desire to pursue in view of Government's replies

Recommendation No. 1 (Para No. 2.8), 2 (Para No. 3.4) and 10 (Para No. 10.5)

- (iii) Recommendations / Observations in respect of which replies of Government have not been accepted by the Committee

Recommendation No.1 (Para No. 2.9)

- (iv) Recommendations / Observations in respect of which final replies of Government are still awaited

Sl. No. NIL

**4. The Committee trust that utmost importance will be given to implementation of the recommendations except those which the Committee do not desire to pursue in view of Government's reply. If it is not possible for any reason to implement any of the recommendations in letter and spirit, the matter should be reported to the Committee with reasons for non-implementation. The Committee desire that action taken notes on the recommendations/ observations contained in Chapter-I of the Report be furnished to the Committee within six months of the presentation of the Report.**

5. The Committee will now deal with the action taken by the Government on some of their recommendations.

#### **A. Representation of users in the Board of Directors of HAL**

##### **Recommendation No. 1 (Para No. 2.9)**

6. The Committee had desired that the Board of Directors must have permanent representation from the Armed Forces with one member each from Army, Navy and Air Force so as to provide a

platform to the users to stress their requirements and ensure timely completion of the projects.

7. The Ministry, in their action taken replies have stated:

“The present structure of the Board of Directors is as per the guidelines of Department of Public Enterprises which restricts the Government nominees to two members only. However, one representative each from Army (Master General Ordnance), IAF (Deputy Chief of Air Staff) and Navy (Deputy Chief of Naval Staff) is invited to participate in all the Board meetings of the HAL”.

8. During oral evidence of the representatives of the Ministry of Defence, when asked whether the Ministry of Defence or HAL have ever proposed to modify the guidelines to include one representative each from the three forces in the Board of Directors as permanent member, Secretary, Defence Production stated:

“As far as the number of Directors on the Company is concerned, the Department of Public Enterprises have issued an order and they have taken appropriate competitive authority's approval before doing that. That means they have taken the approval of the Cabinet before doing that. When it comes to us, we have taken it up a number of times with the Ministry and we did not implement this order for a long time. This was put up to the then Hon'ble Raksha Mantri and with his orders, it was decided to implement these decisions in *toto*. So, independent Directors who are very competent in this field were selected and put in place, and only two Government Directors were allowed to work in any public sector undertakings and that is what today we have.

As far as officers of the Armed Forces are concerned, they are also Members of some Boards. In some Boards they are the members, and in some Boards, Joint Secretaries in the Ministry are the Members. But wherever one is not a Member, he has been made a permanent invitee in that Board. That is how we have resolved this matter. No Board has ever taken a decision where voting takes place. It does not happen in our companies. Everything is done by consensus”.

**9. Since Hindustan Aeronautics Limited is a Defence Public Sector Undertaking and Armed Forces are the main users for its products, the Committee had recommended that there should be a representative each from Army, Navy and Air Force in the Board of**

**Directors of HAL.** In response, the Ministry of Defence have stated that since the guidelines of the Department of Public Enterprises have restricted the number of Government directors in the Boards of PSUs to a maximum of two, an arrangement has been made whereby one representative each from Army, Air Force and Navy is invited to participate in all the Board Meetings of the HAL. The Committee hold that this arrangement is not satisfactory to ensure active involvement of the Armed Forces in the decision making body of HAL. The Committee wonder why the representatives of Armed Forces could not be accommodated in the HAL Board as independent directors in their capacity as users of HAL. If the DPE guidelines are in any way restrictive in this respect, the matter should be taken up with the DPE at the highest level for suitable amendment of the guidelines in their application to Defence Public Sector Undertakings which have paramount duty to cater to the strategic needs of the Defence Forces.

#### **B. Rate of Attrition**

##### **Recommendation No.3 (Para Nos. 4.6 & 4.7)**

10. The Committee had noted with serious concern the attrition rate of manpower in HAL. The Committee noted the number of Assistant Engineers/Engineers/Deputy Managers resigning in HAL since 2003 is 756 and the number of officers in the rank of Managers and above is 118; in a single year (2006—up to September) alone the numbers being 314 and 52 respectively. The Committee also noted that the engineers resigning from HAL were mostly from the four disciplines viz . design, production shops, production engineering and quality control. The Committee further noted that most of the engineers resigning were in the Rank of Assistant Engineer, Engineer and Deputy Manager, thus forming the young age group of the engineers. The Engineers leaving HAL were taking up employment in the Aviation Industry, IT Sector, MNCs, Navratna PSUs etc. The experienced engineers of HAL were in great demand in disciplines like design, production, computers, finance, human resource etc. in the job market as the compensation package in these companies was far superior to that in HAL. The Committee took a very serious note of the excessive delay in project schedules of the company. The Committee understood that HAL had submitted proposal for the revision of pay scales of the Executives on the lines of pay scales of NTPC to the Board of Directors. The proposal, after approval from the Board, was pending with the Ministry of Defence for final clearance. The Committee felt that the engineers resigning from HAL were from a few particular disciplines

and form part of a particular age group of the employees. The Committee desired that the Ministry should take immediate steps to offer attractive job package available to them in the job market. They should also be provided on job training to brush up their knowledge. The Committee at the same time also desired that the Ministry should frame a recruitment policy clearly stipulating service conditions that the engineers joining the company must sign a bond of compulsory service in the company for at least 8 to 10 years and in case of breach of the bond, the expenditure incurred on their job specific training would be recovered from them. The Committee further noted that attrition of manpower in HAL was *inter-alia* attributed to Voluntary Retirement, Medical termination and death, the number being 406, 219 and 199 in case of officers and 1225, 970 and 1336 in case of workmen respectively during the last 10 years, which was reflective of the fact that the employees might have been denied basic facilities, necessary for retaining the work force and affecting adversely their health. The Committee were very unhappy to take note of this fact and strongly felt that the Ministry should appoint a Committee to look into this grave situation of attrition and find remedial measures to check it at the earliest.

The Committee further noted that several global players in the aviation field were setting up subsidiaries, joint ventures, etc. in the country which would be offering attractive packages. The Committee felt that this situation would further add to the attrition of talent in HAL. The Committee, therefore strongly recommended that since HAL is an intensive defence research organisation whose delayed project schedules cause a lot of concern to the nation and huge costs to the Armed Forces, the pay structure of all its employees must be adequately modified so as to compete with the packages of the companies which have been attracting its employees over the years. In addition to this, the Company should also offer incentives to its employees comparable to those being offered in private sector companies. While offering incentives/promotional avenues and other facilities to the employees, the Government must take into account their individual performance and contribution to the overall growth of the company. The Committee further recommended that the Government should extend royalty to the engineers for their original R&D works and any product developed thereon.

11. The Ministry in their action taken replies have stated:

“Considering need for retaining talent, HAL formulated a proposal for revision of the pay scales in respect of the Executives of the

Company at par with the pay scales in NTPC with effect from 1-4-2006 and referred the proposal to Ministry of Defence for approval. As the revision of pay scales in PSUs is the subject matter of the Department of Public Enterprises, a proposal was sent to the Department of Public Enterprises for consideration. The Department of Public Enterprises informed that the Government has set-up the Second Pay Revision Committee under the Chairmanship of Shri M.J. Rao, retired Judge of Supreme Court for making recommendations in respect of pay revision for Board level, below Board level officers and non-unionised Supervisors of the Public Sector Enterprises. As per the terms of reference the Committee has to make its recommendations within 18 months *i.e.* by end of May, 2008. HAL was accordingly, advised to send the information in prescribed Questionnaire for transmission to Department of Public Enterprises. Based on the recommendations of the Committee and the directions which would be issued by Government, thereafter, HAL would consider revising the pay structure, allowances and benefits etc. of executives on par with leading PSUs in the country, as well as industry specific requirements, so as to ensure retention of talent in the Company. Therefore, it is felt that there is no need to set up Committee at this moment.

In the meantime, a Sub-Committee of the Board of HAL, including two part-time Official Directors (Representatives of Ministry) was constituted to examine the issue, among others, with a view to arrest attrition of trained manpower in HAL. The Sub-Committee made its recommendations on enhancement of compensation structure of employees of HAL. After deliberations, the Board of HAL approved the recommendations of Sub-Committee and the Company decided to implement the decisions in respect of Executives. The Company was advised that the perquisites and allowances in respect of Executives must be in accordance with the DPE's guidelines.

The scheme will be reviewed after one year of implementation to assess the effect on attrition and retention of the Executives. These revisions are also subject to Presidential directives which will be issued by Department of Public Enterprises for revision of Pay scales and allowances with effect from 1-1-2007 on receipt of the report of the Second Pay Revision Committee. The Company would review the matter on receipt of such directives and changes required would be dovetailed ”.

During oral evidence, the Chairman of Hindustan Aeronautics Limited (HAL) had stated:

“I must mention that there has been a lot of discussion about the compensation packages. HAL is a *navaratna* company. We have taken a number of measures, and you will be glad to know that there are compensation packages in the form of project-linked schemes, performance-related and profit-related. We are giving additional allowances; we are giving conveyance allowance, housing allowance. The result is this. In HAL, I had a wastage of 900 engineers last year. That attrition rate has now fallen by 65 to 70 per cent. People are not leaving any more. I am sending people for training for post-graduate courses, for every possible course that they would like to attend. A lot of motivation is given, with the result that my attrition has come down by 65 to 70 per cent.”

12. When asked, whether Hindustan Aeronautics Limited (HAL) has actually implemented the recommendation of Sub-Committee of its Board of Directors in regard to attrition of manpower, the Ministry of Defence, in a written reply have stated:

#### **Executives**

“The recommendations on (i) grant of Additional Increments in the existing Pay Scales, (ii) revision of rates of certain Allowances, (iii) Performance Related Incentive Scheme, (iv) engagement of Experts as Programme Leaders and (v) payment to Trainees, have been implemented.”

#### **Workmen**

“The recommendations on (i) grant of Additional Increments in the existing Pay Scales and (ii) revision of rates of certain Allowances have been implemented. Revision of Performance Linked Incentive Schemes in respect of Workmen is under finalization for implementation.”

13. In regard to the steps taken to put a check on the ongoing attrition for the R&D activities, the Ministry have stated:

“The Terms of Appointment and Conditions of Service of the employees in general, and R & D Engineers in particular, are being closely monitored from the point of view of attrition. New engineers joining the Company, as Management/Design Trainees are required to sign a bond for 5 years. Those who like to apply for jobs in other PSEs, Govt. Sector etc, have to apply through proper channel. Resignation of Executives is being processed centrally at the corporate office. Exit interviews are being held to ascertain the reason for resignation. At senior level, candidates are

being called and appropriately counselled. Constant dialogue is also established with the executives to appreciate their concerns.”

14. When asked whether the Ministry have made a well documented record of the ongoing research in the projects step-by-step simultaneously so that the research could be carried further in case the engineer or the workmen associated with the project leave the company, the Ministry have stated:

“Normally, Research Programmes are being taken up by PSUs on their own. In HAL, design and development projects are elementised into different activities and a group of designers is assigned to each activity. In case an engineer or a workman leaves the Company, his task is assigned to another employee by redeployment / induction.”

15. Pertaining to on-the-job training to the scientists, the Ministry in their written replies have stated:—

“Jr. Scientists and Technical Experts in the Junior and middle levels of Management are given on-the-job training. Fresh engineering graduates inducted in the Company as Management/Design Trainees are imparted structured training of one year, including at IITs/Advanced Training Institute (ATI), Chennai, Airforce Technical College (AFTC), Bangalore and other such Institutes, besides at the HAL Management Academy, Bangalore. The training also includes a structured on-the-job phase in the Divisions of the Company. Requisite training inputs to the Engineers & Managers, based on requirements as reflected in Performance Appraisal Reports, are given from time to time. The training is imparted both within the country and abroad, as needed. The Committee’s recommendation is thus implemented.”

**16. The Committee are happy to note that the attrition rate of Scientist and engineers has reportedly fallen by 65% to 70% in HAL, consequent on initiating measures such as grant of additional increments, performance related incentives and revised rates of certain allowances. The Committee feel that with upward revision of pay scales that may be recommended by the Second Pay Revision Committee, the attrition rate will hopefully decline further. The Ministry of Defence have not given any response to the Committee’s recommendation that the Government should extend royalty to the engineers for their original R&D works and for any products developed thereon. The Committee further informed that Acceleratory Promotions and Royalty are not the subject of the Department of Public Enterprises. These are the concern of the concerned Ministry. Therefore, the Committee would await the Ministry’s response in this regard.**

### **C. Need for a comprehensive perspective plan**

#### **Recommendation Para No. 6.4**

17. The Committee have noted the efforts made by HAL towards modernisation and self-reliance of Indian Air Force. The Committee have also examined the indigenisation content in the major projects during the last 5 years. In some cases, this content has remained static and in some cases it has increased only by 2 to 3 per cent in 5 years time. The previous track record of HAL in terms of various delayed projects also strengthens the fact that there is no concrete planning of HAL for design and development of aircraft, engine etc. The continuous unfulfilled requirements of the Armed Forces for the aircraft, helicopters etc. also corroborates that the same had not been duly addressed by the Company over the last several years. The Committee took a very serious view of it. The Committee also felt that only those projects need to be carried forward which met requirements of the Armed Forces. The projects which have been showing inordinate delays and cost overruns should be reviewed to see whether further investments in such projects were worthwhile. The Ministry should chalk out a well-considered R&D plan and focus only on result-oriented R&D activities. The Committee felt that since upgradation and modernisation was a continuous process, HAL should prepare a time-bound programme for completion of upgradation and modernisation of infrastructure in the various units of HAL and that programme should have the approval by the Board of Directors.

18. The Ministry in their action taken reply have stated:

#### **Indigenisation**

“In licence production projects, the indigenisation effort usually commences after absorption of the offered technology and stabilisation of production. Indigenisation of items is taken up to meet the requirement of the repair and overhauls. Indigenisation is taken up based on design feasibility and economic viability to increase the self reliance and to obviate export restrictions or obsolescence.”

#### **Design and Development**

“HAL was not entrusted with any major new design and development project of fighter aircraft after the HF-24 (Marut). Initiating an indigenous design and development of an aircraft or a helicopter requires large amount of funds. It is not feasible for HAL to initiate a major project without the firming up of specification and requirement by the domestic customer and funding by the Customer/Government. During early 2000s, HAL had proposed the development of an Indigenous Advanced Jet



Trainer (IAJT) to cater to the requirement beyond the 66 Hawk aircraft and a Basic Turbo-prop Trainer aircraft to replace the HPT-32. Confirmation of requirement and the Staff requirements for these aircraft is not yet issued by the IAF. HAL has proposed the co-development of Medium Lift Helicopter with an international helicopter manufacturer to meet the requirement of a 10 Ton helicopter by all the three Services.

The current major development programmes are the Intermediate Jet Trainer(IJT) and Light Combat Helicopter(LCH) for IAF. These will enter production stage in 2008 and 2010 respectively. There are no cost overruns in any of the major projects currently being progressed at HAL.”

#### **Upgradation and Modernisation**

“This is a continuous process at HAL and is planned to meet the changing needs of the projects being undertaken. A five year modernisation plan for the period 2006-07 to 2011-12 has been drawn up by all the divisions of HAL with an estimated investment of Rs.640 Cr. Approval of the Board of Directors is taken for incurring the expenditure on capital investments as per the Delegation of Powers.”

**19. The Committee had recommended that a time bound programme should be prepared for completion of upgradation and modernisation of HAL units. In response, it has been stated that a five year modernisation plan for the period 2006-07 to 2011-12 has been drawn up by all the divisions of HAL with an estimated investment of Rs. 640 crores. The Committee would like to be apprised of the details of the plan and progress made in implementation of the plan during 2006-07 and 2007-08.**

#### **D. Market Exploration for Hindustan Aeronautics Limited products**

##### **Recommendation Para No. 10.4**

20. The Committee noted the export market of HAL products is confined to only small developing countries viz. Nepal, Thailand, Malaysia etc. and the monetary value of actual export over the past few years had been insignificant and had shown declining trend after the year 2003-04. The Committee also noted that a few work packages related to forgings, drawings etc. are being exported to some developed countries also which reflected that there was no serious export business of HAL outside the country. The Committee therefore strongly felt that there was no substantive efforts on the part of the Company to explore the export market of its products. The Committee noted that even though certain measures have been taken by the Ministry for the improvement of export business on the fronts of pricing, skill

upgradation, diversification, outsourcing etc., the outcome had been insignificant. The Committee therefore, desired that the Ministry should take necessary step to implement these measures so as to produce good export results. HAL should pursue with Ministry of Civil Aviation to sign agreements with other countries to obtain international certification for its products. The Government should also provide grants/subsidy packages to HAL to help them increase the exports. The most important requirement on the part of HAL is to maintain its delivery schedule and cost to face the stiff competition in international market. The Committee would also like to suggest that HAL should encourage development of private sector industries by offering them technologies etc. to reduce their costs as also to enable them to take advantage of off set clause under various international arms deals.

21. The Ministry in their action taken statement stated that:

“Presently, HAL’s major thrust is on marketing of ALH. HAL is pursuing with various prospective domestic as well as foreign customers for supply of ALH because of its versatility & wide spectrum of operational capability. Apart from supply of 2 Dhruvs to Nepal, HAL has leased one helicopter to Israel for use by Israeli MOD.

Capabilities of Dhruv have also been demonstrated in IDEF-07 (Turkey) in May’07, Farnborough Air Show 2006, Paris Air Show in June’03/June’05, Asian Aerospace 2004 in Singapore which had drawn major attention and created keen interest among various civil and military operators.

ALH-Dhruv being the major focus for exports, HAL has taken initiative for co-validation of Type Certification of the helicopter by international agencies. The following are the details:

- (a) Chile : After detailed interactions, submission of technical documents & carrying out flight tests on Dhruv, compliance with the requirements specified by the aviation regulation applicable in Chile was confirmed. The Type Certificate of Dhruv has been co-validated by Directorate General of Civil Aviation (DGCA), Chile. Towards this, the certificate has been issued to HAL recently. This is an important milestone towards the promotion of ALH in Chile.
- (b) Initiatives have been taken for EASA (European Aviation Safety Agreement) & FAA (Federal Aviation Administration) certification for Dhruv helicopter. HAL team visited EASA and made the presentation indicating HAL’s willingness to progress the case. Subsequent to this, EASA team visited HAL and reviewed the design & quality system.

- (c) HAL has also taken initiative for co-validation of Dhruv certification by Israel & Malaysia. Bilateral Safety Agency Agreement (BASA) has been concluded with Israel recently. The Civil Aviation Authority in Malaysia has been reviewing the technical documents submitted by HAL in this regard.

More than 1300 private industries are participating in HAL's outsourcing programme. HAL has been extending technical support to private industries to upgrade their quality system. To capitalise on the offset opportunities and global aerospace demand by leveraging the strengths of partners, discussions are in progress with reputed private industries for strategic alliances on Engineering & Design services for structures and engines."

22. When enquired whether HAL has any plans to diversify its products for export market, the Ministry in their reply stated:

"Presently, HAL's major thrust is on marketing of ALH. HAL is pursuing with various prospective domestic as well as foreign customers for supply of ALH, because of its versatility & wide spectrum of operational capability. Two nos. of Dhruv helicopters have been supplied to Nepal. Dhruv flight demonstrations were conducted in Chile in June/July 2004 by a combined team of HAL & IAF wherein wide range of applications of Dhruv were demonstrated over land and sea including high altitude operations.

Capabilities of Dhruv have also been demonstrated in IDEF-07 (Turkey) in May 07, Farnborough Air Show 2006, Paris Air Show in June 03/June 05/June 07, Asian Aerospace 2004 in Singapore which had drawn major attention and created keen interest among various civil and military operators.

HAL has initiated the process for international certification of Dhruv. This includes Dhruv Type Certification revalidation by local Civil Aviation Authorities in Israel & Malaysia. The co-validation certificate of Dhruv has been received from Chile in April 2007.

Assistance of Indian Missions abroad is being taken to promote HAL. Government of India is also supporting these efforts in its bilateral talks with various countries.

HAL is participating in the global tenders for supply of ALHs."

23. When enquired, whether HAL has pursued with the Ministry of Civil Aviation to sign agreements with other countries to obtain international certification for its products, the Ministry in their written reply have stated:

"HAL is pursuing the case with Ministry of Civil Aviation for early conclusion of Bilateral Aviation Safety Agreement (BASA) with USA, France & Malaysia for promoting ALH in the region.

Exports, being identified as key thrust area, HAL has taken initiative for certification of its products by international agencies. The following are the details:

- (a) Chile: After detailed interactions, submission of technical documents & carrying out flight tests on Dhruv, compliance with the requirements specified by the aviation regulation applicable in Chile was confirmed. The Type Certificate of Dhruv has been co-validated by Directorate General of Civil Aviation (DGCA), Chile. Towards this, the certificate has been issued to HAL in April 07. This is an important milestone towards the promotion of ALH in Chile.
- (b) Initiatives have been taken for EASA (European Aviation Safety Agreement) & FAA (Federal Aviation Administration) certification for Dhruv helicopter. HAL team visited EASA and made the presentation indicating HAL's willingness to progress the case. Subsequent to this, EASA team visited HAL and reviewed the design & quality system. Discussions have also been initiated for EASA certification for structural components.
- (c) HAL has also taken initiative for co-validation of Dhruv certification by Israel & Malaysia. Bilateral Safety Agency Agreement (BASA) has been concluded with Israel recently. The Civil Aviation Authority in Malaysia has been reviewing the technical documents submitted by HAL in this regard."

24. When asked whether HAL has approached the Ministry of Defence for grants/subsidy package to enhance its export potential, the Ministry of Defence in their written reply have stated:

"In order to increase exports, assistance of MOD has been taken wherever needed."

**25. The Committee observe that HAL's major thrust is on exporting Advanced Light Helicopter (ALH). HAL is reportedly pursuing with the Ministry of Civil Aviation for early conclusion of Bilateral Aviation Safety Agreement with USA, France and Malaysia for promoting ALH in the region. The Committee urge the Ministry of Civil Aviation to take action in this regard expeditiously and the Committee be informed of the outcome.**

## **CHAPTER II**

### **RECOMMENDATIONS/OBSERVATIONS WHICH HAVE BEEN ACCEPTED BY THE GOVERNMENT**

#### **Recommendation No. 2**

3.5 The Committee feel that achieving self-sufficiency in engine development is an imperative need and for that a robust industrial base for engine design needs to be created so as to overcome the dependence on foreign supplier and address the requirements of the Armed Forces. The Committee also desire that HAL should explore the possibility of entering into the joint venture/collaboration with indigenous private companies/foreign companies which have proven competence and capability in design and development of Aircraft engines so that indigenous engines are available to power the aircraft built by HAL. The Committee would like to be apprised of the progress made by the HAL in this regard.

#### **Reply of the Government**

As recommended by the Committee there is a need to develop a robust industrial base for engine design and production. A formal working arrangement between HAL and GTRE could be established to synergise the design capabilities of GTRE and production & maintenance capabilities of HAL.

As per DRDO, the Action Taken through the proposed joint venture for Kaveri intended to establish a strong design and development base. There is currently no market for a smaller engine since HAL has already contracted for the IJT. However, HAL's view is that the complete development of a smaller engine than Kaveri could be initiated with Government funding for mastering the engine design and development technology base in the country. Subsequently, transition to design and development of larger engines could be made easily with the design and technology base developed.

Further, to meet the aircraft requirements, HAL has been manufacturing engines under license utilizing its full capacity. During the process of manufacture and overhaul of these engines, HAL has built up sufficient knowledge of the performance of the engines and their systems.

**Recommendation No. 3****Improvement in Salary Structure of HAL**

4.6 The Committee note with serious concern the attrition of manpower in HAL. The Committee note the number of Assistant Engineers/Engineers/Deputy Managers resigning in HAL since 2003 is 756 and the number of officers in the rank of Managers and above is 118; in a single year (2006–up to September) alone the numbers being 314 and 52 respectively. The Committee also note that the engineers resigning from HAL are mostly from the four disciplines viz. design, production shops, production engineering and quality control. The Committee further note that most of the engineers resigning are in the rank of Assistant Engineer, Engineer and Deputy Manager, thus forming the young age group of the engineers. The Engineers leaving HAL are taking up employment in the Aviation Industry, IT Sector, MNCs, Navratna PSUs etc. The experienced engineers of HAL are in great demand in disciplines like design, production, computers, finance, human resource etc. in the job market as the compensation package in these companies is far superior to that in HAL. The Committee take a very serious note of the excessive delay in project schedules of the company. The Committee understand that HAL had submitted proposal for the revision of pay scales of the Executives on the lines of Pay Scales of NTPC to the Board of Directors. The proposal, after approval from the Board, is pending with the Ministry of Defence for final clearance. The Committee feel that the engineers resigning from HAL are from a few particular disciplines and form part of a particular age group of the employees. The Committee desire that the Ministry should take immediate steps to offer attractive job package available to them in the job market. They should also be provided on- job training to brush up their knowledge. The Committee at the same time also desire that the Ministry should frame a recruitment policy clearly stipulating service conditions that the engineers joining the company must sign a bond of compulsory service in the company for at least 8 to 10 years and in case of breach of the bond, the expenditure incurred on their job specific training would be recovered from them. The Committee further note that attrition of manpower in HAL is *inter alia* attributed to Voluntary Retirement, Medical termination and death, the number being 406,219 and 199 in case of officers and 1225, 970 and 1336 in case of workmen respectively during the last 10 years, which is reflective of the fact that the employees may have been denied basic facilities, necessary for retaining the work force and affecting adversely their health. The Committee are very unhappy to take note of this fact and strongly

feel that the Ministry should appoint a Committee to look into this grave situation of attrition and find remedial measures to check it at the earliest.

4.7 The Committee further note that several global players in the aviation field are setting up subsidiaries, joint ventures, etc. in the country which would be offering attractive packages. The Committee feel that this situation will further add to the attrition of talent in HAL. The Committee, therefore strongly recommend that since HAL is an intensive defence research organisation whose delayed project schedules cause a lot of concern to the nation and huge costs to the Armed Forces, the pay structure of all its employees must be adequately modified so as to compete with the packages of the companies which have been attracting its employees over the years. In addition to this, the Company should also offer incentives to its employees comparable to the one being offered in private sector companies. While offering incentives/promotional avenues and other facilities to the employees, the Government must take into account their individual performance and contribution to the overall growth of the company. The Committee further recommend that the Government should extend royalty to the engineers for their original R&D works and any product developed thereon.

#### **Reply of the Government**

Considering need for retaining talent, HAL formulated a proposal for revision of the pay scales in respect of the Executives of the Company at par with the pay scales in NTPC with effect from 1-4-2006 and referred the proposal to Ministry of Defence for approval. As the revision of Pay Scales in PSUs is the subject matter of the Department of Public Enterprises, a proposal was sent to the Department of Public Enterprises for consideration. The Department of Public Enterprises informed that the Govt. has set-up the Second Pay Revision Committee under the Chairmanship of Shri M. J. Rao, retired Judge of Supreme Court for making recommendations in respect of Pay revision for Board level, below Board level officers and non-unionised Supervisors of the Public Sector Enterprises. HAL was accordingly, advised to send the information in prescribed Questionnaire for transmission to Department of Public Enterprises. Based on the recommendations of the Committee and the directions which would be issued by Govt., thereafter, HAL would consider revising the Pay Structure, allowances and benefits etc. of Executives on par with leading PSUs in the country, as well as , industry specific requirements, so as to ensure retention of talent in the Company. Therefore, it is felt that there is no need to set up Committee at this moment.

In the meantime, a Sub-Committee of the Board of HAL, including two part-time Official Directors (Representatives of Ministry) was constituted to examine the issue, among others, with a view to arrest attrition of trained manpower in HAL. The Sub-Committee made its recommendations on enhancement of compensation structure of employees of HAL. After deliberations, the Board of HAL approved the recommendations of Sub-Committee and the Company decided to implement the decisions in respect of Executives. The Company was advised that the perquisites and allowances in respect of Executives must be in accordance with the DPE's guidelines.

The scheme will be reviewed after one year of implementation to assess the effect on attrition and retention of the Executives. These revisions are also subject to Presidential directives which will be issued by Department of Public Enterprises for revision of Pay Scales and allowances with effect from 1-1-2007 on receipt of the report of the Second Pay Revision Committee. The Company would review the matter on receipt of such directives and changes required would be dovetailed.

#### **Recommendation No. 4**

##### **Checking time and cost overruns of HAL projects**

5.9 The Committee are concerned to note time and cost overruns in a large number of projects undertaken by HAL so far. In some of the cases like LCA, very small achievement appears to have been made even after 15 years of efforts like LCA. The Committee also note that, in some cases, delays have occurred due to changes in scope of work. The Committee feel that due to time overrun, the user is tempted to ask for latest changes in the product as the project had not been completed in time. The Committee have examined various important projects in the following paras:

##### **IJT**

#### **Recommendation**

5.10 The Committee note that the sanction for the development of Intermediate Jet Trainer (IJT) was accorded in July 1999 at a cost of Rs. 180 crore, which was revised in April 2005 to a cost of Rs. 467 crore. The Committee are unhappy to note that the development flight test of IJT are still being undertaken on Larzac engines from Snecma, France and the production series is planned to be fitted with higher powered AL-55I engine from Russia. The Committee feel that



despite the passage of a long period since the project was sanctioned, HAL has not successfully developed the engine of the Aircraft and unfortunately it has taken HAL more than 7 years to complete the outer airframe of IJT. The Committee feel that much remains to be done so far as the development of IJT project is concerned. The Committee, therefore, recommend that HAL should concentrate on the development of the indigenous engine for IJT instead of depending on French and Russian Companies. The timeframe fixed in 2005 be strictly adhered to.

### **Reply of the Government**

The sanction was accorded in 1999 for the development of Intermediate Jet Trainer. The total design and manufacture of first prototype was completed in 44 months. The first prototype flew in Mar. 2003 followed by the second in Mar. 2004. These prototypes were fitted with Larzac engines which were readily available in the market.

During the development phase, it was considered necessary to fit a more powerful engine to integrate additional systems on the aircraft and to cater to future growth potential. Since no suitable engine was available in the world market, the development of the engine was contracted with the NPO-Saturn of Russia after a competitive bidding. The sanction for the IJT project was accordingly revised in Apr. 2005 to include development of a new engine AL-55I in Russia. Though AL-55I engine is developed in Russia, it will be manufactured by HAL under licence from raw materials to meet the IJT requirements. Repair & Overhaul facilities also will be established in HAL to offer life cycle maintenance support to the customers without depending on the foreign countries.

Flight evaluation of IJT is progressing and the general performance of the aircraft is meeting the design specifications. The certification of the aircraft will be completed in time to meet the induction of aircraft as planned from 2008 onwards commencing with the Limited Series Production aircraft.

### **LCA**

#### **Recommendation**

5.11 The Committee further note that the Light Combat Aircraft (LCA) project was conceived way back in 1987 and Full Scale Engineering Development (FSED)—Phase 1 started in 1991. The Committee are constrained to note that even after 15 years of its

initiation, the project of Kaveri engine which is being developed indigenously and expected to power LCA has also no indication of its completion. The Committee are dismayed to note that only structure of the LCA has so far been completed. The Committee take a very serious note of it and strongly recommend that the Ministry should strictly fix deadline for the completion of the two projects. If the deadlines are not met, HAL should enter into joint venture/ collaboration with private firms and R&D organisations which have attained capability to design and develop such engine. The Ministry should also ensure closer participation of Air Force in these projects.

### **Reply of the Government**

It may be mentioned that LCA is a sophisticated 4th Generation aircraft, development of which has been taken up in the country for the first time. Design, Development and certification of such aircraft is a long process even with experienced aircraft design houses. Considerable progress has been made in the setting up of the infrastructure and imbibing the knowledge in spite of external constraints such as sanctions from the US development partners. However, the experience gained in this program will be of immense use in future programs.

Development project of LCA is assigned to ADA and the engine development to GTRE. DRDO has noted that the joint development and manufacture proposed for Kaveri will be comprised of management and execution team comprising HAL, GTRE and an international partner and is a major step in the direction indicated by the action taken report. Future organisational structure will be derived from this effort. Various high level user driven Committees closely monitor the LCA Programme. Dy. Chief of Air Staff jointly reviews with DRDO and HAL on a monthly basis and the Chief of Air Staff on quarterly basis. The participation of Indian Air Force in the development and flight testing efforts is also there right from the beginning of the programme. In the recent past, an Air Force Team has been positioned at ADA for ensuring early induction of LCA of the Air Force.

### **Other projects**

#### **Recommendation**

5.12 The Committee further note the slow pace of progress of the projects *viz* . Advance Light Helicopter (Dhruv) Weapon System Integration to be powered with Shakti Engine being developed in joint venture with M/s Turbomeca, France, Jaguar upgrade, Sea Harrier

upgrade and Light Combat Helicopter. The Committee feel concerned about these projects as HAL has not been able to meet deadlines in any project and therefore desire that HAL should not solely depend on DRDO but also intensify its R&D efforts in order to achieve comprehensive skills in design and development of engine. For the purpose, it can use its young and talented engineers by providing them optimal scientific environment and encouragement so that in near future we may not have to depend on foreign companies for any strategic crucial technology. The Ministry should also make all out efforts for the timely completion of pending/delayed projects.

### **Reply of the Government**

The weapon system integration on ALH was dependent on the selection of weapons and systems by the Army, IAF and Navy. After selection, orders have been placed for Turret gun, Air-to-Air Missile and Rocket systems only in 2006. Anti-tank Guided Missile (ATGM) is yet to be selected by the Army and IAF. As envisaged in the project proposal, integration of weapon Systems will be completed within 3 years from selection. Weapon system Integration on ALH is expected to be completed by 2009. Shakti engines for powering ALH is being jointly developed with Turbomeca, France. Flight-worthy engines received from Turbomeca have been integrated on ALH and are undergoing ground tests. The flight tests are expected to commence in July, 07.

Development of Jaguar Navwass Upgrade has been completed with Final Operation Clearance (FOC) being accorded for Twin Seater aircraft in Sep. 2006 and for Strike aircraft in Apr 2007. The project was scheduled to be completed in Dec. 2003. The time overrun was caused due to unreasonable cost hike demanded for the development of Mission Computer by Smiths Aerospace, UK to whom the development activity was contracted. Subsequently, the Mission Computer was developed indigenously by DARE and HAL. This has built up the capability to design, manufacture and integrate Mission Computers on an aviation platform indigenously.

The contract for the Sea Harrier upgrade programme was concluded in March, 2005. There has been a delay of around 4 to 5 months in carrying out the first flight on upgraded prototype aircraft due to late receipt of items from vendors and accessibility problems encountered on aircraft for carrying out flight test instrumentation. This delay could be recovered in the retro-modification of the fleet.

The sanction for the Light Combat Helicopter was accorded in Oct. 2006 and the Initial Operation Clearance is to be achieved by Oct. 2010. All the design activities are progressing satisfactorily and no delay is anticipated in completing the project.

HAL has the requisite design capabilities in the design of airframe, helicopters, upgrades, integration and flight testing. Achieving complete design capabilities in all the spheres of aviation like airframe, engine, accessories and avionics is a mammoth task. Companies world-wide have not resorted to this approach and the leading companies like Airbus, British Aerospace, McDonnell Douglas concentrate on system design and integration work whereas the design of engines, accessories and avionics are outsourced.

### **Recommendation No. 5**

#### **Need for a comprehensive perspective plan**

6.4 The Committee have noted the efforts made by HAL towards modernisation and self-reliance of Indian Air Force. The Committee have also examined the indigenisation content in the major projects during the last 5 years. In some cases, this content has remained static and in some cases it has increased only by 2 to 3 percent in 5 years time. The previous track record of HAL in terms of various delayed projects also strengthens the fact that there is no concrete planning of HAL for design and development of aircraft, engine etc. The continuous unfulfilled requirements of the Armed Forces for the aircraft, helicopters etc. also corroborates that the same has not been duly addressed by the company over the last several years. The Committee take a very serious view of it. The Committee also feel that only those projects need to be carried forward which meet requirements of the Armed Forces. The projects which have been showing inordinate delays and cost overruns should be reviewed to see whether further investments in such projects are worthwhile. The Ministry should chalk out a well-considered R&D plan and focus only on result-oriented R&D activities. The Committee feel that since upgradation and modernisation is a continuous process, HAL should prepare a time-bound programme for completion of upgradation and modernisation of infrastructure in the various units of HAL and that programme should have the approval by the Board of Directors.

### **Reply of the Government**

#### **Indigenisation**

In licence production projects, the indigenisation effort usually commences after absorption of the offered technology and stabilisation of production. Indigenisation of items is taken up to meet the requirement of the repair and overhauls. Indigenisation is taken up based on design feasibility and economic viability to increase the self reliance and to obviate export restrictions or obsolescence.

### **Design and Development**

HAL was not entrusted with any major new design and development project of fighter aircraft after the HF-24 (Marut). Initiating an indigenous design and development of an aircraft or a helicopter requires large amount of funds. It is not feasible for HAL to initiate a major project without the firming up of specification and requirement by the domestic customer and funding by the Customer/Government. During early 2000s, HAL had proposed the development of an Indigenous Advanced Jet Trainer (IAJT) to cater to the requirement beyond the 66 Hawk aircraft and a Basic Turbo-prop Trainer aircraft to replace the HPT-32. Confirmation of requirement and the staff requirements for these aircraft is not yet issued by the IAF. HAL has proposed the co-development of Medium Lift Helicopter with an international helicopter manufacturer to meet the requirement of a 10 Ton helicopter by all the three Services.

The current major development programmes are the Intermediate Jet Trainer(IJT) and Light Combat Helicopter(LCH) for IAF. These will enter production stage in 2008 and 2010 respectively. There are no cost overruns in any of the major projects currently being progressed at HAL.

### **Upgradation and Modernisation**

This is a continuous process at HAL and is planned to meet the changing needs of the projects being undertaken. A five year modernisation plan for the period 2006-07 to 2011-12 has been drawn up by all the Divisions of HAL with an estimated investment of Rs. 640 Cr. Approval of the Board of Directors is taken for incurring the expenditure on capital investments as per the Delegation of Powers.

### **Recommendation No. 6**

#### **Need for strengthening R&D infrastructure in HAL**

7.5 The Committee note that for strengthening R&D infrastructure in HAL, the Ministry has also taken up technological upgradation programme by which new technologies are being inducted under ToT and indigenous development of the projects being emphasized. There are efforts for continuous augmentation/Upgradation facilities on the part of Ministry through Annual Capital Budget. The Committee, however, feel that despite all these efforts several projects of HAL are running behind schedule and thus causing cost overrun. The Committee

therefore, desire that well concerted efforts need to be taken by the Ministry for the development of strong base of in-house design and development by intensifying R&D activities of the company with full fledged involvement of DPSUs, DRDO and private companies so that their scientific and technological expertise/capacity could be gainfully utilised to achieve the goal of self-reliance in Defence Production.

### **Reply of the Government**

HAL has set up 9 R&D centres which undertake design and development activities related to aircraft, helicopter, accessories and avionics. HAL is strengthening these R&D centres by modernising their facilities and induction of designers. Schemes are put in place to attract and retain the designers. HAL has been collaborating with DRDO and other research labs and the private industry in its R&D efforts. For instance the items that have been developed recently through such collaborations:

- Mission computer for Jaguar with Defence Avionics Research Establishment (DARE)
- Radar Processing computers for SU-30MKI with DARE
- Engine fuel control system for Kaveri engine with GTRE
- Sonar/Sonics for ALH-WSI programme with NPOL
- Canopy severance system for IJT with ADRDE
- Pilot parachutes of MiG-21 and MiG-27 aircraft with ADRDE

HAL is making all efforts to progress the R&D programmes expeditiously. There are time overruns due to the technical issues, improvements sought during development stages and dependence on some foreign vendors. However, there has been no cost overrun unless the scope of the programme itself is changed.

### **Recommendation**

7.6 The Committee further desire that the Ministry should fix R&D targets and strive to achieve the same. Efforts must be taken to make the coordination of the Company with DRDO and other agencies stronger in all its R&D activities. The Committee take note of the delayed projects of IJT and LCA whose flight evaluation trials are still going on and final operational clearance is still awaited and therefore strongly feel that the company should take steps to limit the number of such trials and achieve final operational clearance for induction in the combat strength of the Armed Forces. The Committee also feel that proper care should also be taken to ensure ample staff strength

for the R&D activities so that the projects are not delayed. For the purpose, the Ministry should also make strategy to attract the best talent available in the Market and thus the best job package should be offered to them so as to check the ongoing attrition of manpower. The Ministry should also frame guidelines under which the engineers cannot leave the company until completion of the project midway. The Committee further desire that the Ministry should make a well documented record of the ongoing research in the project step by step simultaneously so that the research could be carried further in case the engineer or workman associated with the project leave the company due to reasons whatsoever. The Ministry must make out a time bound programme for completion of the projects. The Ministry should also take efforts to ensure proper coordination with private sector in various projects of HAL.

### **Reply of the Government**

Development of an aircraft or helicopter involves proving of the systems both on ground and in air. As per the design requirements, several tests are required to prove the aircraft systems beyond any doubts that the machine is safe in all respects for use. The requirement is more stringent in the case of aviation products as no design deficiency will be tolerated in the actual operational environment. To overcome unavoidable delays, HAL resorts to recovery plans such as carrying out multiple test points during flight tests increasing the frequency of flight tests and build of additional prototype/Limited Series Production aircrafts/helicopters to join the evaluation.

There is a well defined documentation procedure for design and production activities. Despite documentations, there are limitations to the transfer of intrinsic knowledge from a person to others. To attract and retain the talent, HAL has introduced certain packages to increase the emoluments.

A comprehensive sub-contracting procedure has been compiled at HAL for outsourcing/long term business agreements with private sector. Sub-contracting is resorted to both in design and production activities after the existing in-house capacity is fully exploited in the Company.

### **Recommendation No. 7**

#### **Involvement of private sector form the stage of design to final integration**

8.5 The Committee note the efforts being made by HAL for involving private companies in design and development of systems &

sub-systems. The Committee, however, feel that the efforts are not at the required pace which can make some meaningful contribution. The Committee feel that the role of private sector in research and design activities should be recognised and they should be involved right from conceptualisation (design & development) of the project to final integration of the sub-systems. It will boost up the level of domestic R&D base and thus gradually minimize the country's dependence on foreign supplier. Besides, HAL should share the available technology with private companies to strengthen the defence R&D base in the country, so as to contribute in the development of the company as a strategic business unit of the country.

### **Reply of the Government**

HAL has been encouraging participation of private industry in design and development of various modules and systems. Some of the design packages outsourced to private industries during 2006-2007 include:

- Fuselage and cockpit design for LCH
- Design and fabrication of Wind Tunnel model and Radar Cross Section model for LCH
- Development of Integrated Standby Instrument System for ALH
- Central Warning Panel for ALH

Earlier, the complete design, fabrication and qualification testing of Oil Cooling System for the Shakti engine were outsourced to a private enterprise.

In addition to the above major items, many design and development projects for the indigenisation program on different projects are being outsourced to private industries by HAL. Outsourcing design packages in all new projects depending on the capabilities established in the private sector would be continued.

### **Recommendation**

8.6 The Committee note the benefits of implementation of offset clause under Defence Procurement Policy, 2006 and the strategy prepared by the HAL to utilise the opportunities out of it. The Committee, therefore, desire that to take benefit of offset clause, HAL should take immediate steps to develop alliance with the private companies so as to facilitate the ongoing research and design projects of the company. The Ministry should also make efforts to make



available the technology brought to the company under ToT to the private sector companies which have proven track record of high technological capability as well as financial capacity and which can set up production lines of aircraft, helicopter and other avionics and accessories in their joint venture-ship. At the same time, accountability for timely completion or delays in the project should also be fixed on the firms involved in the joint venture, etc. The Committee further desire that while undertaking projects in alliance with other Government agencies/organisations under offset clause, the existing systems of nomination should be abolished and decision in this matter should be merit-based.

### **Reply of the Government**

HAL is exploring strategic alliances for cooperation in engineering and design services with IT related companies. These alliances, forged with the domain knowledge of HAL and IT expertise of private industries, will offer cost effective solutions to international companies in meeting their offset obligations.

It is desirable to have a nodal agency in India for the transfer of technology from the licensor. In major aircraft licence production, HAL is the organisation which can play the part of nodal agency to monitor the ToT. HAL could in turn transfer the technology to suitable private industries based on capabilities and long term commitment to fulfil the licence manufacture obligations. The nodal agency could be from private sector also, once requisite capability to deliver complete integrated aircraft/helicopter is built up and demonstrated by them in India. Then the selection could be based on tendering process in which HAL and other DPSUs will compete with private sector.

In respect of offset there is no system for nominating an organisation for liquidation of offsets under DPP 2006. As per the DPP 2006, "offset obligations shall be discharged directly by any combination of the following methods:

- (a) Direct purchase of, or executing export orders for, defence products and components manufactured by, or services provided by, Indian defence industries, *i.e.*, Defence Public Sector Undertakings, the Ordnance Factory Board, and any private defence industry manufacturing these products or components under an industrial licence granted for such manufacture. For the purpose of defence offset, "services" will mean maintenance, overhaul, upgradation, life extension, engineering, design, testing, defence related software or quality assurance services.

- (b) Direct foreign investment in Indian defence industries for industrial infrastructure for services, co-development, joint ventures and co-production of defence products .
- (c) Direct foreign investment in Indian organisations engaged in research in defence R & D as certified by Defence Offset Facilitation Agency (DOFA)”

The vendor is at liberty to choose his offset partner.

#### **Recommendation No. 8**

##### **Navratna Status to HAL**

9.5 The Committee note that HAL's performance has been consistent over the past few years and has thus achieved excellent rating for the same. The Committee also note that if HAL is accorded Navratna Status, the Board of Directors of HAL would be empowered to exercise enhanced powers viz. as against Rs. 500 crore for the Miniratna, there will be no Monetary ceiling for the Board to approve capital expenditure on new projects, modernisation, equity investment to establish financial joint ventures and wholly-owned subsidiaries in India and abroad; authorization to raise debt from domestic capital, market and borrow from the international market; powers for merger and acquisition; and delegation of powers relating to HRD. The Committee note the immense benefit of Navratna Status and therefore feel that the matter of according Navratna Status of HAL must be taken up at the highest level so as to provide flexibility in working of HAL enabling it to take immediate decisions and build up its image in the domestic as well as international market in the aviation industry.

#### **Reply of the Government**

With the recommendation of the Committee, the request of HAL to be upgraded as a Navratna Company has been considered favourably by the Government and Navratna Status has been accorded to the Company in 2007. The investiture ceremony to grant “Navratna” status to HAL was held on 22 June, 2007.

#### **Recommendation No. 9**

##### **Market Exploration for HAL products**

10.4 The Committee note the export market of HAL products is confined to only small developing countries viz. Nepal, Thailand, Malaysia, etc. and the monetary value of actual export over the past few years has been insignificant and has shown declining trend after the year 2003-04. The Committee also note that a few work packages related to forgings, drawings etc. are being exported to some developed

countries also which reflects that there is no serious export business of HAL outside the country. The Committee therefore strongly feel that there is no substantive efforts on the part of the company to explore the export market of its products. The Committee note that even though certain measures have been taken by the Ministry for the improvement of export business on the fronts of pricing, skill upgradation, diversification, outsourcing, etc., the outcome has been insignificant. The Committee therefore, desire that the Ministry should take necessary step to implement these measures so as to produce good export results. HAL should pursue with Ministry of Civil Aviation to sign agreements with other countries to obtain international certification for its products. The Government should also provide grants/subsidy packages to HAL to help them increase the exports. The most important requirement on the part of HAL is to maintain its delivery schedule and cost to face the stiff competition in international market. The Committee would also like to suggest that HAL should encourage development of private sector industries by offering them technologies etc. to reduce their costs as also to enable them to take advantage of off set clause under various international arms deals.

#### **Reply of the Government**

Presently, HAL's major thrust is on marketing of ALH. HAL is pursuing with various prospective domestic as well as foreign customers for supply of ALH because of its versatility & wide spectrum of operational capability. Apart from supply of 2 Dhruvs to Nepal, HAL has leased one helicopter to Israel for use by Israeli MOD.

Capabilities of Dhruv have also been demonstrated in IDEF-07 (Turkey) in May'07, Farnborough Air Show 2006, Paris Air Show in June'03/ June'05, Asian Aerospace 2004 in Singapore which had drawn major attention and created keen interest among various civil and military operators.

ALH-Dhruv being the major focus for exports, HAL has taken initiative for co-validation of Type Certification of the helicopter by international agencies. The following are the details:

- (a) Chile : After detailed interactions, submission of technical documents & carrying out flight tests on Dhruv, compliance with the requirements specified by the aviation regulation applicable in Chile was confirmed. The Type Certificate of Dhruv has been co-validated by Directorate General of Civil Aviation (DGCA), Chile. Towards this, the certificate has been issued to HAL recently. This is an important milestone towards the promotion of ALH in Chile.

- (b) Initiatives have been taken for EASA (European Aviation Safety Agreement) and FAA (Federal Aviation Administration) certification for Dhruv helicopter. HAL team visited EASA and made the presentation indicating HAL's willingness to progress the case. Subsequent to this, EASA team visited HAL and reviewed the design and quality system.
- (c) HAL has also taken initiative for co-validation of Dhruv certification by Israel and Malaysia. Bilateral safety Agency Agreement (BASA) has been concluded with Israel recently. The Civil Aviation Authority in Malaysia has been reviewing the technical documents submitted by HAL in this regard.

More than 1300 Private Industries are participating in HAL's outsourcing Programme. HAL has been extending technical support to private industries to upgrade their quality system. To capitalise on the offset opportunities and global aerospace demand by leveraging the strengths of partners, discussions are in progress with reputed private industries for strategic alliances on Engineering and Design services for structures and engines.

### **CHAPTER III**

#### **RECOMMENDATIONS/OBSERVATIONS WHICH THE COMMITTEE DO NOT DESIRE TO PURSUE IN VIEW OF GOVERNMENTS REPLIES**

##### **Recommendation No. 1**

##### **Need for restructuring of HAL**

2.8 The Committee note that the Board of Directors of HAL comprises a Chairman, 7 whole-time Directors, 2 part-time official Directors and 6 part-time non-official Directors. The Corporate Organisation is headed by the Chairman. Apart from the Managing Directors/Director heading the four Complexes *i.e.* Bangalore Complex, MiG Complex, Accessories Complex and Design Complex responsible for the production and R&D, 3 functional Directors are responsible for Corporate Planning and Marketing, Finance, Personnel & Administration respectively at the Corporate level. The Committee feel that there is a need to decentralize the powers presently vested with the Board of Directors so as to provide sufficient functional and financial autonomy to the four complexes of HAL in order to enhance their decision making powers. Each unit be headed by an independent official who would be answerable to the Board in regard to the projects being undertaken. The four complexes of HAL thus should be recognised as separate and independent entities with freedom to have joint venture/collaboration with private companies and research organisations of the country and take immediate decisions. The Committee also feel that an expert/independent Committee should be appointed at the earliest to go into the whole issue of this re-structuring so that the company emerges as an independent corporate body in Brahmos Model, separate from DRDO with DRDO's role just as a facilitator in HAL's projects. This re-structuring will give complete leadership to HAL in aeronautics research, design and development.

##### **Reply of the Government**

The present organisation structure of HAL was decided on the concept of accountability of each complex for its end product. Managing Directors/Directors of the Complexes are delegated with necessary administrative and financial powers to take necessary decisions for their operations. All of them are the members of the Board of Directors

of HAL. They put up their proposals for joint ventures, collaborations with private companies and research organisations where HAL Board's approval is required. Administratively all the full-time directors report to the Chairman of the Company.

In the present set up, HAL has the flexibility to earmark the projects to its different Production Divisions. For instance, productionisation of IJT is proposed at Kanpur Division to utilize the infrastructure available there. This would release the capacity at Bangalore Division to produce AJT (Hawk) and LCA. Similarly, to enhance the ALH production capacity in Bangalore, overhaul of Cheetah/Chetak helicopters is being shifted to Barrackpore. Such flexibility will be lost if the Company is converted into different groups. Considering the world-wide trend of mergers and collaborative arrangements in aerospace industry, it is proposed that the present organizational set up is maintained.

HAL operates as an independent Corporate body governed by its Board of Directors. It is autonomous in all its activities and seeks MoD clearance only in case of major project approvals. Except for the Government guidelines for PSUs, there is no interference from the MoD. HAL is independent of DRDO and has no structural linkages with DRDO in its organisation.

In view of the comments furnished above, Ministry is of the view that no independent Committee is needed to be appointed for re-structuring of HAL. Moreover, HAL had already been granted Navratna status.

## **Recommendation No. 2**

### **Industrial base for engine design and development**

3.4 The Committee note that the Ministry have admitted during oral evidence that the country does not have an industrial base for engine design and also that it takes 15 to 20 years for a Chief designer to take up the development of an engine, which is reflective of very slow state of affair of R&D activities in the country. The Committee also note the roadmap for engine development in the country *i.e.* counting the indigenous development activities with national funding as also joining hand with international design houses as co-development partners. The Committee strongly feels that the aircraft industry in the country till date has not made much progress in engine design and development so far. The Committee further find it contradictory to note that the capacity utilisation of the company in engines development is near to 100 percent over the past few years which

shows that the utilisation of the capacity is related to only those engines which are being built under Transfer of Technology (ToT) from abroad. The Committee feel that even after spending about 20 years and a lot of money much needs to be done for designing an engine. The Committee desire that the matter should be examined and immediate correcting steps be taken.

### **Reply of the Government**

Gas Turbine Research Establishment (GTRE) was founded in 1965 to take up the design and development of aero-engine. Government has sanctioned the project to develop Kaveri engine for LCA to GTRE. While the engine is developed and prototypes are undergoing test bed evaluation, it is seen that there are certain shortfalls in its performance. GTRE is making efforts to resolve the issues through technical consultancy with an experienced foreign engine design house. Subsequent to the formation of GTRE, engine design in HAL was restricted to design and development of small engines for PTA, sub-systems of engine, engine starters and engine test beds. All these programmes have been successfully completed and implemented.

However, to meet the aircraft requirements, HAL has been manufacturing engines under licence utilising its full capacity. During the process of manufacture and overhaul of these engines, HAL has built up sufficient knowledge of the performance of the engines and their systems.

DRDO has noted that the joint development and manufacture proposed for Kaveri will be comprised of management and execution team comprising HAL, GTRE and an International partner and is a major step in the direction indicated by the Action Taken Report. Future organizational structure will be derived from this effort.

### **Concluding Observations**

#### **Recommendation No. 10**

The Committee have made an in-depth study of the functioning of HAL from various standpoints and have thus made recommendations under various chapters for effecting improvement in overall working of HAL. The Committee conclude that HAL plays a vital role for the national security of the country and therefore its functioning should be so organized and re-structured as to make it an autonomous R&D body on the lines of ISRO and Brahmos and it

should be totally independent from DRDO. DRDO however, can facilitate the working of HAL in various projects but at the same time it should refrain from being a controlling authority of HAL projects. The Committee also feel that despite the passing of a very long period from its inception, HAL has not been able to develop leadership in aeronautic defence research projects which may be perhaps due to bureaucratic control of the Ministry of Defence. The Committee therefore strongly desire that HAL should be allowed to work in a more flexible, independent and open atmosphere so that there is a need for least governance and regulation. The Committee further wish that HAL should be allowed to function on corporate lines in order to enable it to raise finances from internal and external markets so as to give fillip to R&D activities and produce high-end technologies for the Armed Forces. In addition, the Ministry should also ensure that Members from the corporate world/professional organizations may invariably be appointed on the Board of Directors of HAL.

#### **Reply of the Government**

The present Corporate structure of HAL is functioning effectively. For the time being, Government does not feel grant of an Autonomous status to HAL. HAL has been granted Navratna status, which has given wide ranging financial powers to Chairman & the Board. HAL has full authority to raise finances from market based on sound commercial consideration. As regards the constitution of the Board of Directors of HAL, it is already being represented by the members from the Corporate world/professional organizations. HAL is already independent from DRDO. However, there is functional synergy between HAL & DRDO, as in case of prototype development and subsequent series production of ALH.



## **CHAPTER IV**

### **RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH REPLIES OF THE GOVERNMENT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE**

#### **Recommendation No. 1**

2.9 The Committee further note that HAL is managed by a professional Board of Directors, selected from diverse areas of specialisation such as industry, finance technocrats etc. The Committee desire that the Board of Directors must have permanent representation from the Armed Forces also with one member each from Army, Navy and Air Force so as to provide a platform to the users to stress their requirements and ensure timely completion of the projects.

#### **Reply of the Government**

The present structure of the Board of Directors is as per the guidelines of Department of Public Enterprises which restricts the Government nominees to two members only. However, one representative each from Army (Master General Ordnance), IAF (Deputy Chief of Air Staff) and Navy (Deputy Chief of Naval Staff) is invited to participate in all the Board meetings of the HAL.

**CHAPTER V**

RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH  
FINAL REPLIES OF THE GOVERNMENT ARE STILL AWAITED

—Nil—

NEW DELHI;  
10 March, 2008  

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20 Phalgun, 1929 (Saka)

BALASAHEB VIKHE PATIL,  
Chairman,  
Standing Committee on Defence.

## APPENDIX I

### MINUTES OF THE EIGHTEENTH SITTING OF THE STANDING COMMITTEE ON DEFENCE (2007-2008)

The Committee sat on Monday, the 3rd March, 2008 from 1500 to 1535 hrs. in Committee Room 'C', Parliament House Annexe, New Delhi.

#### PRESENT

Shri Balasaheb Vikhe Patil — *Chairman*

#### MEMBERS

#### *Lok Sabha*

2. Shri Vijay Bahuguna
3. Shri S. Bangarappa
4. Shri Santosh Gangwar
5. Shri Ramesh C. Jigajinagi
6. Shri C. Kuppusami
7. Dr. K.S. Manoj
8. Shri Manavendra Singh

#### *Rajya Sabha*

9. Shri K.B. Shanappa

#### SECRETARIAT

1. Shri S.K. Sharma — *Additional Secretary*
2. Shri A. Louis Martin — *Joint Secretary*
3. Shri Gopal Singh — *Director*
4. Shri D.R. Shekhar — *Deputy Secretary-II*
5. Smt. J.M. Sinha — *Under Secretary*

#### **Representatives of the Ministry of Heavy Industries and Public Enterprises (Department of Public Enterprises)**

1. Shri K.D. Tripathi — *Joint Secretary*
2. Shri G. Ramachandran — *Director*
3. Shri P.J. Michael — *Under Secretary*

2. At the outset, the Chairman welcomed the representatives of the Ministry of Heavy Industries and Public Enterprises (Department of Public Enterprises) to the sitting of the Committee for oral evidence in connection with the Action Taken replies furnished by the Ministry of Defence on the recommendations/observations of the Committee contained in their and Eighteenth Reports on Seventeenth 'In-Depth Study and Critical Review of Hindustan Aeronautics Limited (HAL)' and 'In Depth Study and Critical Review of Bharat Electronics Limited (BEL)' respectively. Then, the Chairman drew their attention to Direction 58 of Directions by the Speaker, Lok Sabha.

3. A representative of the Department of Public Enterprises briefed the Committee regarding the guidelines governing on the composition of Board of Directors of Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL), matters of Second Pay Revision Committee appointed by Department of Public Enterprises to recommend the pay scales for Public Enterprises.

4. With regard to composition of Board of Directors of Defence Public Sector Undertakings, representative of Department of Public Enterprises stated that since the guidelines governing the structure of Board of Directors had the approval of Cabinet Committee on Economic Affairs (CCEA), any decision can be considered only if there is any specific proposal in this regard from the Ministry of Defence.

5. The Committee were also informed that the issues regarding acceleratory promotions and extending royalty to R&D scientist engineers do not come under the purview of the Department of Public Enterprises or the Second Pay Revision Committee.

6. A verbatim record of the proceedings has been kept.

*The Committee then adjourned.*

MINUTES OF THE TWENTIETH SITTING OF THE STANDING  
COMMITTEE ON DEFENCE (2007-2008)

The Committee sat on Monday, the 10th March, 2008 from 1500 hrs. to 1545 hrs. in Committee Room 'C', Parliament House Annexe, New Delhi.

PRESENT

Shri Balasaheb Vikhe Patil — *Chairman*

MEMBERS

*Lok Sabha*

2. Shri Vijay Bahuguna
3. Shri Milind Murli Deora
4. Shri Jigajinagi Ramesh Chandappa
5. Shri C. Kuppusami
6. Dr. K.S. Manoj
7. Shri Asaduddin Owaisi
8. Shri Shrinivas Patil
9. Shri Arjun Charan Sethi
10. Shri Anil Shukla Warsi

*Rajya Sabha*

11. Smt. N.P. Durga
12. Shri K.B. Shanappa
13. Smt. Viplove Thakur

SECRETARIAT

1. Shri A. Louis Martin — *Joint Secretary*
2. Shri Gopal Singh — *Director*
3. Shri D.R. Shekhar — *Deputy Secretary-II*
4. Smt. J.M. Sinha — *Under Secretary*

2. The Committee considered the following Action Taken Reports and adopted the same with some additions/modifications, as suggested by the members:

- (i) Draft Action Taken Report on the recommendations/ observations contained in the Fourteenth Report on 'Defence Research and Development Organisation (DRDO)'; and
- (ii) Draft Action Taken Report on the recommendations/ observations contained in the Seventeenth Report on 'In-Depth Study and Critical Review of Hindustan Aeronautics Limited (HAL)'.

3. The Committee then authorized the Chairman to finalize the above-mentioned reports and present the same to the Parliament.

*The Committee then adjourned.*

## APPENDIX II

ANALYSIS OF THE ACTION TAKEN BY THE GOVERNMENT  
ON THE RECOMMENDATIONS/OBSERVATIONS CONTAINED  
IN THE 17TH REPORT OF THE STANDING COMMITTEE ON  
DEFENCE (FOURTEENTH LOK SABHA) ON "IN-DEPTH  
STUDY AND CRITICAL REVIEW OF HINDUSTAN  
AERONAUTICS LIMITED (HAL)"

	Total	Percentage of Total
(i) Total number of recommendations	18	
(ii) Recommendations/Observations which have been accepted by Government (Para Nos. 3.5, 4.6, 4.7, 5.9, 5.10, 5.11, 5.12, 6.4, 7.5, 7.6, 8.5, 8.6, 9.5, 10.4)	14	78%
(iii) Recommendations/Observations which the Committee do not desire to pursue in view of Government's replies (Para Nos. 2.8, 3.4, 10.5)	3	17%
(iv) Recommendations/Observations in respect of which replies of Government have not been accepted by the Committee (Para No. 2.9)	1	5%
(v) Recommendations/Observations in respect of which final replies of Government are still awaited Sl. No. NIL		