



Management Discussion & Analysis Report

1. Industry scenario

1.1 Global Scenario

1.1.1 According to Deloitte’s “2018 Global Aerospace and Defence (A&D) Sector Outlook”, the global aerospace and defence industry is expected to strengthen in 2018 with Deloitte forecasting industry revenues to grow by about 4.1 percent. The industry closed the 2017 year with 2.1 percent revenue growth. Commercial aircraft sector revenues are expected to grow 4.8 percent, as production levels are likely to be robust. The Defence sector revenues are likely to record 3.6 percent growth as the US defence budget returns to growth after experiencing multi-year declines. India is likely to be the third largest aviation market by 2025. The country is forecast to have a demand for a record 2100 new aircraft in the next two decades, worth 290 Billion USD, with majority being single-aisle planes.

1.1.2 In the defence sector recovery in global gross domestic product (GDP) growth, heightened global security threats, recovery in US defence budget as well as higher defence spending from other regional powers such as India, China and Japan are likely to derive the global defence sector revenue growth in 2018 and beyond. As global tensions rise, defence spending growth is likely to continue over the next five years. Deloitte estimates global defence spending to grow at Compounded Annual Growth Rate (CAGR) of about 3.0 percent over the 2017-22 period crossing 2 Trillion USD by 2022. It is critical for the A&D companies to invest in new and advanced technologies. This will help the industry to be in the forefront of manufacturing, enhancing productivity and efficiency.

1.1.3 In defence sector US remained the largest defence spending nation, accounting for 36 percent of the total global spend of 1682 Billion USD in 2016. China, Russia, Saudi Arabia and France are other nations having defence spending more than India. In terms of percentage of GDP, Oman leads all nations spending 16.5 percent of GDP on military expenditure. International demand for defence and military products is increasing in the Middle East, Eastern Europe, North Korea and the East and South China Seas.

1.2 The Indian Scenario

1.2.1 India’s defence sector has experienced robust growth over the recent past with India’s defence budget for 2017-18 reaching 57.4 Billion USD. This has been led by country’s focus on recapitalising and strengthening its military to counter any potential threat, as well as efforts to upgrade existing assets. Over the past two years, the Government has taken multiple initiatives to attract foreign investment in A&D industry, including increased international engagement, a revamped Foreign Direct Investment (FDI) policy and a new defence procurement procedure with amendments in offset regulations.

1.2.2 In May 2017, the Indian Government announced a ‘Strategic Partnership Model’ for defence manufacturing, under which Indian firms will be allowed to enter into strategic partnership with non-Indian OEMs in key defence sub-sectors such as fighter aircraft, submarines, helicopters and armoured fighting vehicles. The Strategic Partnership Model aims to enhance India’s self-reliance index in defence procurement, including technology transfer.

1.2.3 Moreover, Indian Defence Market continues to be one of the most attractive markets in the world and offers significant opportunities for defence manufacturing firms. Currently, India employs the third largest Armed Forces in the world and sources around 60 percent of its defence requirements through imports.

1.2.4 The Union budget allocation in 2018-19 for Defence Budget (excluding miscellaneous and defence pension) is ₹2,79,305 Cr (43.4 Billion USD) with an increase of 7.7 percent over the previous year allocation of ₹2,59,262 Cr (BE). However, growth declines to 6 percent in comparison to revised estimate (RE) for the previous Financial Year. It is important to note that upward revision is entirely due to increase in revenue expenditure, with the capital expenditure remaining exactly the same. This defence expenditure allocation has come down to 1.49% of GDP from allocation of 1.54% of GDP in previous year and it is also the lowest percentage allocation since 2000-01. This allocation for revenue expenditure and capital expenditure has grown by 7.2 % and 8.6 % respectively over the previous year allocations.

Defence Budget Allocation for 2017-18 and 2018-19 (₹ in Crs)

Year	Revenue Expenditure	Capital Expenditure	Total
2016-17 (RE)	168,635	79,370	248,005
2017-18 (RE)	176,516	86,488	263,004
2018-19 (BE)	185,323	93,982	279,305

1.2.5 The two key budget announcement directly concerning the defence industry are: an industry friendly defence production policy 2018 and two defence industrial corridors. In addition, the announcement extending the reduced corporate tax of 25 percent to all companies with a turnover of up to 250 Cr is likely to benefit a large number of Micro, Small and Medium Enterprises (MSME) in the private sector, that are engaged in defence production.

1.2.6 Lower allocation towards Defence Expenditure for the year 2018-19 in terms of percentage of GDP and marginal increase in capital expenditure are expected to have a negative impact on the new acquisition and modernisation plan of the Armed Forces and will continue to pose challenges to manufacturing companies like HAL. However, Indian Aerospace and Defence market is expected to continue the trend of growth in line with the emerging markets worldwide due to the economic growth of the nation and increased demands from the Armed Forces.

2. Organisation Structure

Presently, HAL has 20 Production / Overhaul Divisions and 11 Research and Development Centres, co-located with the Production Divisions, across the country. These Divisions are organised into five Complexes:

- Bangalore Complex: Production and ROH of Fixed Wing Aircraft/ Engines (Indian and Western origin)
- MiG Complex: Production and ROH of Fixed Wing Aircraft / Engines (Russian origin)
- Helicopter Complex: Production and ROH of Helicopters (Indian and Western origin)
- Accessories Complex: Production and ROH of Accessories and Avionics for both Fixed Wing and Rotary Wing Platforms (Indian, Russian and Western origin)
- Design Complex: Design and Development of Fixed Wing and Rotary Wing Aircraft, Unmanned Aerial Vehicles (UAV), Aero-engines, Avionics and Accessories.

The first four business verticals are headed by Chief Executive Officers (CEOs) and managed as independent profit centres. The R&D centres under Design Complex report to Director (Engineering and R&D) from the view point of integrated functioning for design support and development of future products of the Company.

3. Products and Services

The Company has a comprehensive Design and Development set up and vast experience in design and manufacture of a diversified range of aircraft and its systems. Out of 31 types of aircraft/helicopters in the product portfolio of the Company so far, 17 are of indigenous design. The Company's current product portfolio includes Su-30 MKI, LCA, Dornier, ALH, Cheetal, Chetak and related engines and accessories. The Company is also providing repair and overhaul services for various aircraft and helicopters including related engines and accessories, being operated by the customer. The Company has identified additional key Product and Technology as thrust areas such as Aero-engines, UAVs and Civil Aviation which are being pursued earnestly.

4. SWOT Analysis

It helps in analysing internal strengths and weaknesses of the Firm as well as to identify potential opportunities and threats in the external environment of the organisation. The SWOT analysis of the Company is as follows:

Strengths

- Leadership Position in the Indian Aeronautical industry and in Asia.
- Long credible history of Research & Design, Manufacturing and Maintenance Repair and Overhaul (MRO) services.

- Established track record in offering Product Life Cycle support extending to periods beyond four decades.
- Strong Design & Development capabilities.
- Availability of skilled manpower with adequate expertise in aerospace domain.
- Best-in-class infrastructure
- Consistent performance, stable revenues and potential to initiate new projects
- Thrust on R&D initiatives and partnerships with leading technical institutes

Weaknesses

- Dependence on Indian Defence Customers.
- Dependence of Annual Defence Budget allocation for taking up new modernisation projects (Lower allocation towards defence expenditure in terms of percentage of GDP will have negative impact on new acquisition).
- Dependency on foreign suppliers for critical technologies and raw materials.
- Obsolescence issues due to ageing of Customer Fleet.

Opportunities

- Growing Civil Aviation market in India.
- Surge in modernisation of Indian Defence Services.
- Special emphasis on manufacturing sector by the Government.
- Export markets for Light helicopters, Dornier aircraft and MRO of defence aircraft & helicopters.
- Single window solution provider status, being OEM of major platforms.
- In view of renewed thrust to MSME sector, opportunity to become lead integrator
- Growth potential through acquisitions & partnerships on a global scale.
- Leadership opportunity in boosting Indian aerospace ecosystem.
- Government's thrust on public-private partnerships
- Diversification of products and services
- Government's efforts in increasing indigenous defence manufacturing

Threats

- Changing preference of defence customers by moving away from single source to multiple sources.
- Strategic Partnership Model by GoI is exclusively for private industry.



5. Our strategies

We intend to pursue the following principle strategies to exploit our competitive strengths and grow our business:

- Expand our operations through partnerships and collaborations.
- Diversify through expansion in new growth areas.
- Diversify further into civil aircraft for both manufacturing and servicing opportunities.
- Develop in-house capabilities to design and develop specialised products including aero-engines.
- Leverage advantage of life-time support.
- Develop Human capital.
- Enhancing customer satisfaction.
- Optimising operations towards becoming a lead integrator of aircraft platforms.

6. Product-wise performance

The Ministry of Corporate Affairs vide Notification No 1/2/2014-CL-V dated 23rd February, 2018 has exempted Companies engaged in Defence Production to the extent of application of Ind AS 108 on “Operating Segment”. Disclosure in this regard has been made at Clause No.37 of Note No. 49 to the Accounts.

7. Outlook

India has the third largest military in the world and is the sixth largest spender on defence. India is also one of the largest importers of conventional defence equipment and spends approximately 30% of its total defence budget on capital acquisitions. 60% of Indian’s defence-related requirements are currently met through imports.

Over the years, the Government of India has pushed various reforms for Indian Aerospace and Defence Industry and Civil Aviation Industry to create a conducive environment for industries to achieve progressive growth. In recent years, several global aerospace and defence companies have partnered with the local Indian Companies to expand their manufacturing base in India and to take advantage of the continued focus of Government of India on “Make in India” initiative. Under the ‘Make in India’ initiative, the Government is focusing on increasing indigenous defence manufacturing with the aim of becoming self-reliant. The opening up of the defence sector for private sector participation is helping foreign OEMs to enter into strategic partnerships with Indian companies and leverage opportunities in the domestic as well as global markets.

Considering the changing economic and business environment, HAL has formulated strategies aligned to the

government’s initiatives and support the development of Indian Aerospace and Defence Manufacturing Industry. Few Major initiatives taken by Company are given below:

- Current projects in hand consists of Design and Development of LCA MK 1A, Light Combat Helicopter, Light Utility Helicopter, 25 KN Turbofan Engine (HTFE-25), 1200 KW Turbo shaft Engine (HTSE-1200), Mini UAV (8 kg class).
- Thrust on Design and Development to encourage indigenization of components, accessories and systems required for manufacture as well as repair and overhaul of Aircraft, Engines and associated Systems.
- Focused Vendor Development efforts to encourage greater public private partnerships in which HAL would be playing a lead role in developing a sound manufacturing vendor base in the country.
- To encourage the private sector including MSMEs and start-ups to increase the level of participation in defence:
 - The Company has incorporated favourable policy measures in its Purchase Manual in line with the initiatives of Government of India.
 - The Company has enhanced outsourcing of design and development activities and manufacturing activities.
 - The Company has also provided opportunities to the private industry for indigenization under Make in India.
- Considering the Government of India’s UDAN (Ude Desh ka Aam Nagrik) initiative under Regional Connectivity Scheme (RCS), HAL has manufactured two Civil Dornier Do-228. These aircraft are ready for use by suitable agency(ies).

8. Measures to tackle Challenges

The measures taken by HAL to address the challenges, concerns and risks are as follows:

Technology Development / Acquisition

- The Company’s focus on R & D has resulted in major successful programmes viz. Light Combat Helicopter (LCH), Light Utility Helicopter (LUH), Light Combat Aircraft (LCA), Basic Trainer Aircraft (HTT-40), Hawk-I, Jaguar Darin III Upgrade, Mirage 2000 Upgrade, 8kg Mini UAV, 25 kN Hindustan Turbo Fan Engine (HTFE-25) and 1200kW Hindustan Turbo Shaft Engine (HTSE-1200). Further, the Company has plans to take up Su-30 MKI Upgrade and Jaguar Re-engining shortly.
- The Company has established chairs at IITs and IISc to benefit from the technological developments and their application in our R & D programs



Diversify through expansion of product portfolio in new growth areas

- Considering the growth of domestic as well as international defence and civil aviation market, there are significant growth opportunities available for the Company in near future. The Company has initiated the indigenous design and development of Indian Multi Role Helicopter (IMRH), a 12- ton medium category helicopter to make the helicopter product portfolio comprehensive alongwith the existing 3 ton and 5 ton categories.
- The Company continues to focus on expanding its presence in global civil segment. To enter in this segment with the target market of Latin America and South-East Asia for civil variant of Advanced Light Helicopter (ALH) Dhruv, the Company has progressed towards obtaining the regulatory approvals i.e. European civil certification from the European Aviation Safety Agency ("EASA") for ALH Dhruv.
- The Company envisages a huge potential for passenger transport aircraft in its product portfolio in the 19-seater, short haul aircraft segment, as the medium of entry into civil segment as part of RCS-UDAN scheme of GOI. In 2017-18, the Company has manufactured two Do-228 civil variant aircraft, which are DGCA certified.

Strategic Partnerships or Collaborations

- The range of products of the Company requires a wide array of technologies and capabilities. The rapid pace of technological development in the aeronautical industry, specialized expertise required in different areas of product life cycle, which makes it difficult to extend our portfolio organically. Therefore, in addition to organic growth through our R&D efforts, focus is on alliances to gain access to new technologies.
- HAL's newly formed JV with Russian Helicopters and JSC Rosoboronexport, Russia, has business potential for production of around 200 nos. of Ka-226T helicopters.

Customer Orientation

- To improve and provide Customer Delight, Customer Service Workshops are being conducted for enhanced awareness and training on products and services to Customers and Customer service personnel.
- MRO Hub at Mamun for phase-I activities of ALH for Indian Army catering Northern and Western sectors has been operationalized. MRO Hub has not only helped in enhancing level of on-site repairs but also improved Fleet serviceability.
- Senior executives of the Company visit Customer operational areas as well as Customer Head Quarters to dovetail the product support for enhancing the effectiveness of Customer Services.

- In-house Corporate online monitoring of Customer assets and spares supply have been introduced to track the progress and delivery schedule. This will increase the availability of floats and spares with Customer, which in turn improves the fleet serviceability.

9. Internal Financial Control

The Company has set up proper and adequate Internal Financial Controls in respect of Financial Statements. The Systems Audit, which is carried out by Internal team of Officials with Finance as well as technical background. This is in addition to internal Audit by the practicing firms of Chartered Accountants. The Manuals pertaining to various functions/activities such as Purchase, Outsourcing, Stores, Accounts, Systems Audit etc., have been updated and implemented. No instance of material weakness in the operations has been observed. The necessary disclosures have been made in Note to Accounts.

The statutory auditors are also required to issue the independent auditor's report vide Clause (i) of Sub-section 3 of Section 143 of the Companies Act, 2013. The report issued thereupon has been attached along with the standalone and consolidated financial statements respectively.

10. Discussion and Analysis on financial performance with respect to operational performance:

(₹ in Lakhs)

SL No	Particulars	Year Ended 31 st March, 2018	Year Ended 31 st March, 2017
1	Turnover	18,28,386	17,60,379
2	Revenue from Operations (Net)	18,51,925	17,95,020
3	Value of Production	17,55,315	17,10,273
4	Gross Margin	4,27,498	4,27,341
5	Profit Before Tax	3,32,284	3,58,258
6	Tax Expense	1,25,243	96,695
7	Profit After Tax	2,07,041	2,61,563
8	R&D Expenditure	1,61,186	1,28,373
9	Net Worth*	12,03,338	12,53,663
10	Book Value Per Share	360	347
11	Earning Per Share	58.50	72.35
12	Dividend Per Share	32.17	22.13
13	Debt Equity Ratio	0.07:1	0.08:1

*Post Buyback of 2,71,12,500 equity shares @ ₹339.88 per share amounting to ₹92,150 Lakhs excluding tax of ₹20,636 Lakhs.

- Turnover registered a growth of 4% from ₹17,60,379 lakhs in 2016-17 to ₹18,28,386 lakhs in 2017-18.
- Value of production has increased from ₹17,10,273 lakhs in 2016-17 to ₹17,55,315 lakhs in 2017-18, increase of 3%.
- Turnover per employee has increased from ₹60 lakhs in 2016-17 to ₹63 lakhs in 2017-18.



- Book value per share has increased from ₹347 in 2016-17 to ₹360 in 2017-18.
- Net Worth post buyback has decreased from ₹12,53,663 lakhs in 2016-17 to ₹12,03,338 lakhs in 2017-18. 2,71,12,500 equity shares bought back for ₹92,150 lakhs (excluding buyback tax of ₹20,636 Lakhs) during 2017-18.
- Dividend Per share increase from ₹22.13 in 2016-17 to ₹32.17 in 2017-18.

11. Human Resource Development

i) Leadership Development Programme for Senior Management Level:

The Leadership Development Programme was introduced in HAL during 2013-14 and 90 Senior Officers in Grades VII & VIII having excellent track record have undergone the Programme. In furtherance to the initiative, one more batch consisting of 31 Officers was nominated for the Programme during year 2017-18. This program has modules in HAL Management Academy; IIM Ahmedabad; and an international exposure.

ii) HAL Reward Scheme

A Reward Scheme for Exemplary Performance in respect of Executives was notified in the Company on 15/06/2017, with the intention to recognize and encourage exemplary performance of Executives based on innovation, exceptional productivity etc, which would contribute to attainment of the short term and long terms Organizational Goals.

iii) Succession Planning Policy for Posts in Grade- IX (General Manager or equivalent) & above:

Succession Planning plays a pivotal role in developing a Leadership Pipeline, which would ensure continuous

and timely supply of high Performance individuals who occupy critical Leadership Roles. In order to streamline the process of identifying suitable candidates to take over Leadership Positions, a documented Policy on Succession Planning for Posts in Grade-IX and above was notified in the Company on 16/11/2017.

12. Manpower

Total Employees as on 31.03.2018	Officers	Workmen		
		Direct	Indirect	Total
29035	8799	12698	7538	20236

13. Environment Protection and Conservation:

The Company has been planting saplings every year. The Division-wise details of saplings planted during the years 2017-18 and 2016-17 are as indicated below:

SL No	Name of the Division / Complex	Total number of Saplings planted during	
		2017-18	2016-17
1	Bangalore	2,282	4,570
2	Koraput	50,540	41,715
3	Nashik	7,250	6,223
4	Korwa	1,125	11,150
5	Lucknow	1,420	1,789
6	Barrackpore	19,760	10,254
7	TAD, Kanpur	600	800
8	Hyderabad	7,000	10,044
	Total	89,977	86,545