REPORT

OF

WORKING GROUP

ON

DEFENCE

EQUIPMENT

INDEX

1. OVERVIEW

1.1 DEFENCE SPENDING

India's defence spending in the 11th Plan period (2007-12) has grown at a CAGR of 13%. (**Source: Annual Defence Services Estimates Reports**)

Defence Equipment Production in India is primarily aimed at meeting internal demand. India's total defence spending in the 11th Plan Period (2007-12) has grown at a CAGR of 13% (Table I). Growth in procurement of defence equipment (both capital and revenue) in 2010-11 was about 13% over 2009-10 and 20% in 2009-10 over 2008-09. Imports in defence equipment procurement have averaged 30% of total procurement in last 3 years.

Table - I

(Values in Rs./ Crores)

Head	2007-08 (Actual)	2008-09 (Actual)	2009-10 (Actual)	2010-2011 (Revised Estimates)	2011-12 (Budget Estimates)
Revenue Expenditure#	54218.61	73304.80	90668.72	90748.43	95216.68
Capital Expenditure	37461.67	40918.48	51112.36	60833.26	69198.81
Revenue & Capital Expenditure	91680.28	114223.28	141781.08	151581.69	164415.49

#- The revenue expenditure figures include pay & allowances, transportation, revenue civil works in addition to the revenue purchase of Stores & Equipment.

1.2 DPSUs and OFB

The turnover of the Defence Public Sector Units (DPSU) and Ordnance Factory Board (OFB) was Rs. 38,622 crores (USD 8.46 billion) in 2010-11 and it has been growing at a CAGR of 13% since 2007-08.

(Source: Annual Report 2010-11, Ministry of Defence)

The Defence PSUs and Ordnance Factories provide direct employment to around 2 lakh employees, besides providing large-scale indirect employment through ancillaries and Small and

Medium Enterprises (SMEs), to which they outsource their various requirements. The figures on outsourcing by the DPSUs and OFs for the last three years are given in Table 3.

Table - III

(Values in Rs./ Crores)

Year	PSUs/Govt Agencies	SSI Sector	Non-SSI Sector	Total	Annual Turnover	%age
2008-09	1566	2082	3726	7375	27633	27
2009-10	1600	2571	4088	8259	34615	24
2010-11	2869	1937	5009	9815	38622	25

1.3 PRIVATE SECTOR

In May 2001 Government decided to open Defence industry for Indian private sector participation up to 100% with FDI permissible up to 26%- both subject to licensing. After the opening up of the Defence Industry Sector for private participation, 178 Letters of Intent/ Industrial Licenses have been issued so far in the private sector for the manufacture of wide range of Defence items. Thirty licensed companies in the private sector have so far commenced commercial production. The private sector's share in defence production is expected to significantly rise in the future.

1.4 FDI IN DEFENCE SECTOR

At present, there is a cap of 26% on FDI in the defence sector. Proposals involving FDI in defence sector are approved by FIPB. The basic aim of permitting FDI up to 26% in defence sector is to facilitate technology transfer through formation of joint ventures. Although, as a general rule, FDI up to 26% is permissible in the defence sector subject to prior approval of FIPB, in case it brings in critical technologies, proposals involving higher FDI up to 49% can also be considered by the Government on a case to case basis. So far, 23 joint venture companies have been set up for manufacture of defence equipment, including both public sector and private sector.

1.5 DEFENCE EXPORTS

As per the existing policy guidelines of DGFT (Directorate General of Foreign Trade), "No Objection Certificate" from the Department of Defence Production (DDP), Ministry of Defence is required for export of military stores, except in respect of goods which are freely exportable.

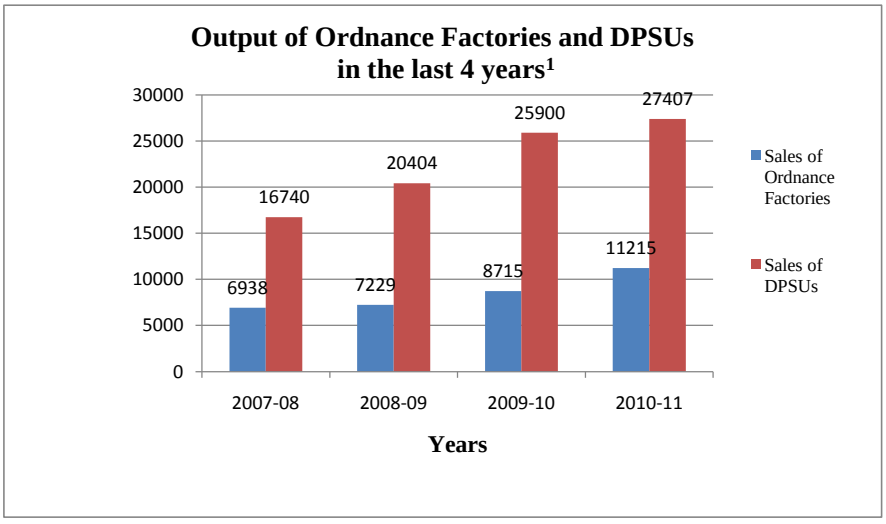
Defence equipment exports in last three years were to the tune of Rs. 408 crores (2008-09); Rs. 146 crores (2009-10) and Rs. 268 crores (2010-11), which on an average, constitutes about 35% of the export turnover of Defence PSUs and OFB.

1.6 LAND SYSTEMS

Land Systems account for roughly one-third of combined output of OFB & DPSUs. OFB is the biggest contributor in Land Systems, at Rs. 11215 crores and the other contributors are Bharat Dynamics Ltd (BDL) and Bharat Earth Movers Ltd (BEML). OFB and the DPSUs involved in Land Systems production have shown a healthy CAGR of 12.35% during the 11th plan.

FIGURE - I

(Values in Rs./Crores)

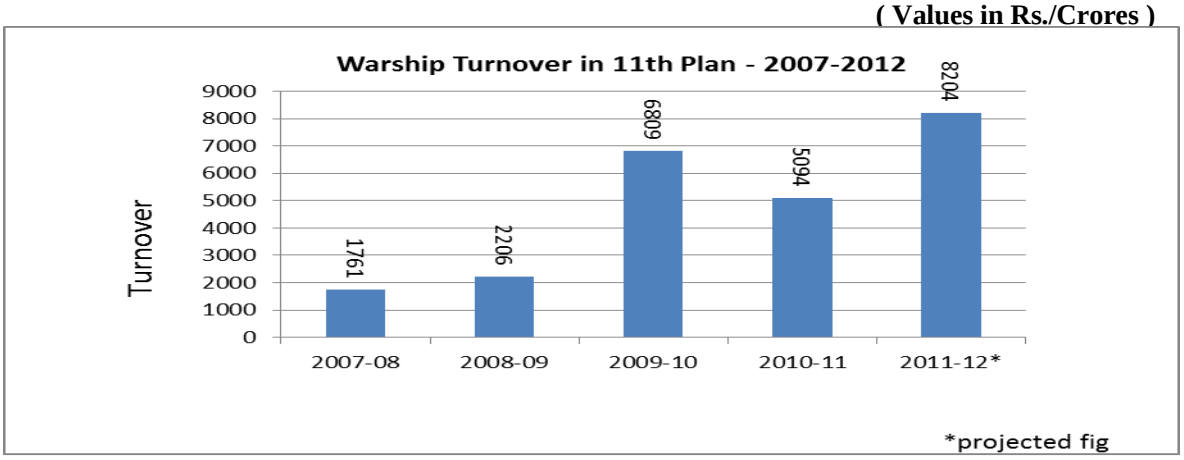


1.7 SHIPYARDS

The defence shipyards have been undergoing major transformation. Turnover of the Defence Shipyards which was only Rs.1761 crores in the year 2007-08 is set to grow to Rs.8204 crores by the end of the plan period. Defence Shipyards started their modernization programme during 11th Plan period.

FIGURE - II

(Values in Rs./Crores)

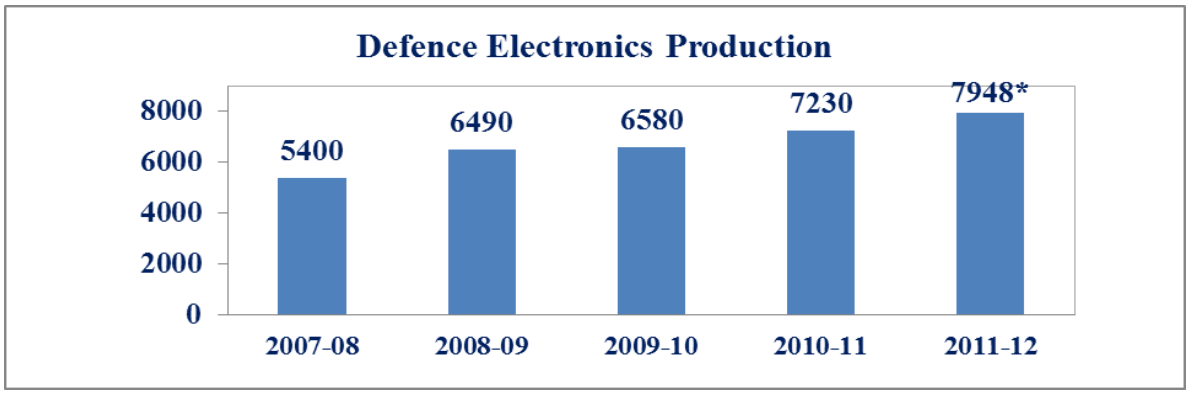


1.8 ELECTRONICS SYSTEMS

Electronics forms an important part of almost all defence systems and the Indian defence electronics industry has shown an uptrend during the 11th plan period. It is projected to grow from Rs. 5400 crores in the year 2007-08 to Rs. 7948 crores in 2011-12.

FIGURE – III

(Values in Rs./Crores)



Source: Department of Information Technology Annual Reports

OPPORTUNITIES

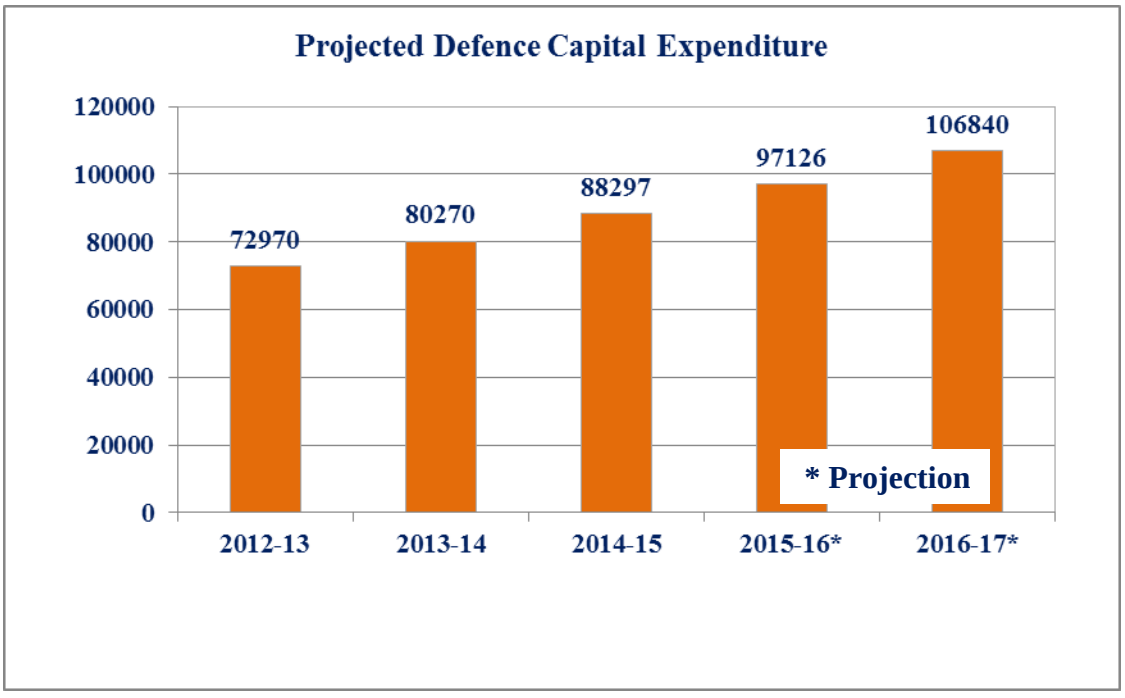
2.1 GROWTH POTENTIALDURING THE TWELFTH PLAN

In view of the overall need to modernize its defence capabilities, India's armed forces are expected to increase their purchases of new equipment and technology during the 12th Plan and thereafter.

As per the 13th Finance Commission Report the Defence Capital Budget is set to grow at a CAGR of 10% per annum during 2010 - 2015. Presuming the same rate of growth for the balance plan period, the total Defence Capital budget allocation during the 12th Plan is likely to be Rs. 4,45,500 Crores. The capital acquisitions budget ranges between of 75% to 85% of the total capital expenditure and is likely to be around Rs. 3,56,400 Crores.

FIGURE – IV

(Values in Rs./Crores)



Source: Indian Thirteenth Finance Commission Report, Dec 2009

Provisions have been incorporated in Defence Procurement Procedures (DPP) to encourage participation of Indian industries in Defence Production. The 'Make' procedure has been formulated to ensure design, research, development and production of indigenous defence equipment through optimal utilization of the potential of Indian industry. The introduction of a

new category of acquisition 'Buy & Make (Indian)' in Defence Procurement Procedure-2011 will enable Indian industries to acquire technology foreign OEMs and manufacture the product in India.

Offsets apply to all Capital acquisitions valued at Rs. 300 crores or more since July 2005. Offset Credit Banking has been made operational to facilitate discharge of offset obligations. The scope of offset policy guidelines has been expanded, in DPP-2011, to include civil aero-space, internal security and training. These policy interventions will provide a wider range of offset opportunities to vendors and enhance indigenous manufacturing capability.

Since the introduction of offsets, contracts worth about Rs. 1400 crores have been concluded so far. [Source: MoD] Thus, there are now tremendous opportunities available which will spur the growth of the indigenous defence industry, including the private sector, in the next plan period.

2.2 LAND SYSTEMS

During the 11th Plan the average capital expenditure in Land Systems was 21% of the total capital expenditure. Major investments are planned in BDL and OFB in the 12th plan. Assuming the capital expenditure in Land Systems being maintained at the same proportion of 21% of the overall capital expenditure in defence budget, the volume of the same is expected to be Rs. 93554 crores in the 12th plan.

Streamlining of India's defence procurement policy offers a unique opportunity for Indian companies to provide services for the armed forces. Indian Army's acquisition plan in next 10 to 15 years includes the following:

- Ultra light howitzers
- Towed and wheeled 155mm guns
- Self-propelled tracked and wheeled guns 155 mm Artillery Guns
- Mounted gun systems and Air Defence Guns
- III Gen Anti-tank guided missiles
- Surface to air missiles with different ranges
- Futuristic Infantry Combat Vehicle
- Smart Ammunition

- Artillery rockets
- Assault rifles and Close Quarter Battle Carbine
- Battle field surveillance radars and Weapon Locating Radars
- Night vision equipments

The critical technologies to be acquired in land systems are:-

- Battlefield transparency or intelligence, surveillance and reconnaissance technologies
- Command, control, communication and computer technologies (C4I technologies)
- Precision strike technologies for destruction of targets beyond visual range
- Robotic military vehicles/tactical unmanned vehicles
- Advanced materials
- Future Main Battle Tanks
- Directed energy weapons

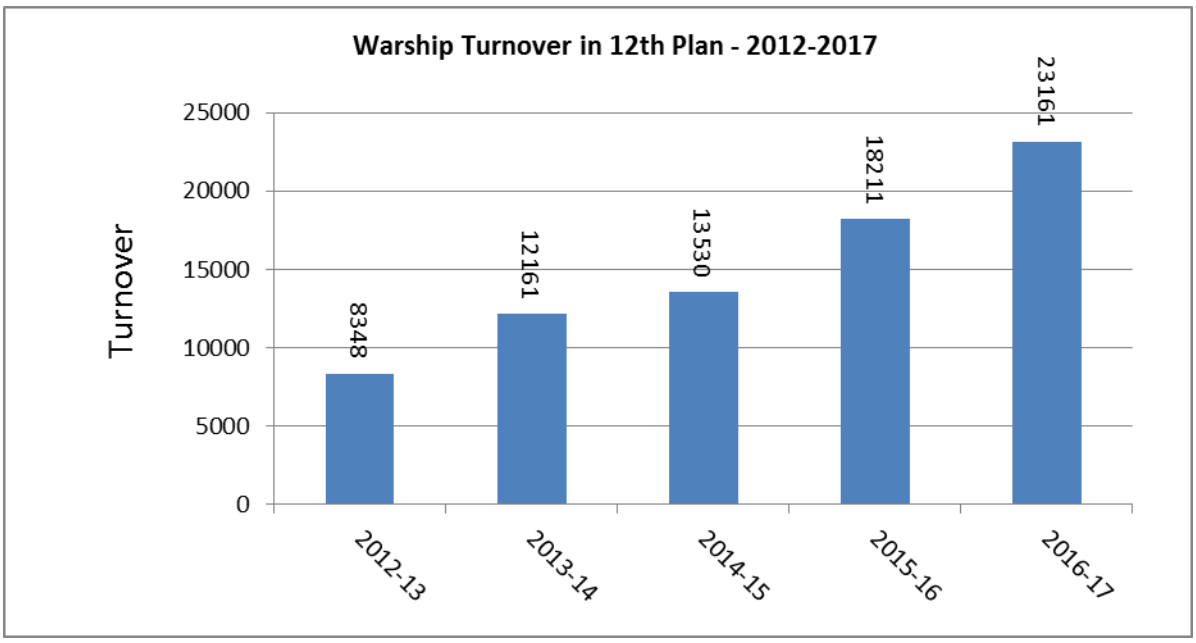
2.3 NAVAL SYSTEMS

To keep its long term maritime interest in focus, Indian Navy has embarked upon an acquisition programme to enhance its capacities substantially for both surface and sub-surface combatants. This is to consolidate its position in the Indian Ocean and beyond in alignment with its redefined strategic interests in structured manner. The long term perspective programme is to acquire indigenous capability in design, development and construction of ships and submarines.

As per Indian Navy's vision, it expects to become a well equipped maritime force which will include Aircraft carriers and various types of combatants including submarines. In alignment with MCPP (Maritime Capability Perspective Plan), currently there are 48 vessels are on order, out of which 43 are placed in Indian Shipyards. Apart from indigenous development, 3 warships are being built along with refitting and refurbishment of Aircraft Carrier at Russian shipyards. In addition, Indian Coast Guard has also undertaken a massive plan to upgrade its capabilities to protect India's coast line in a more effective manner.

FIGURE – V

(Values in Rs./Crores)



2.4 ELECTRONICS SYSTEMS

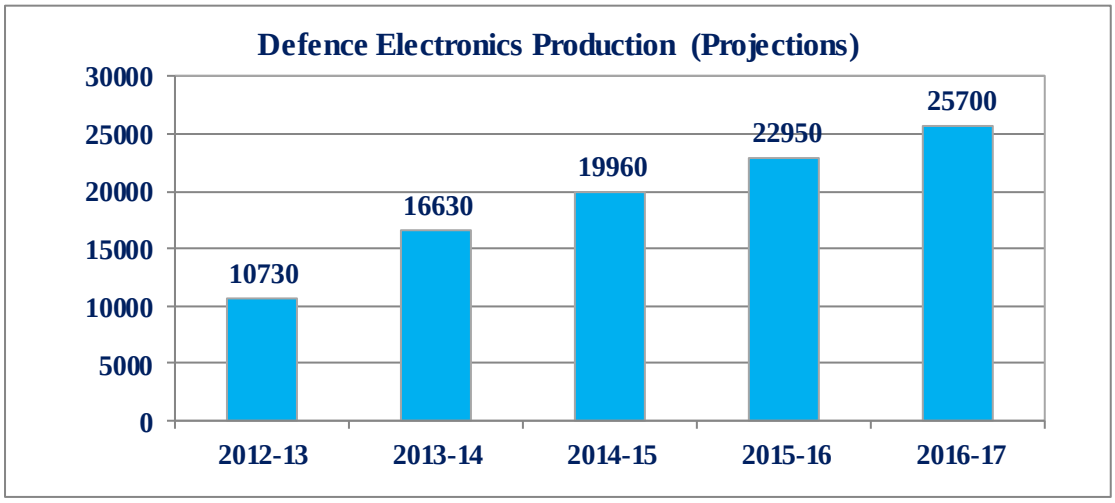
The Defence Electronics sector is likely to see a high growth during the 12th Plan period. While the Navy and IAF are likely to contribute about 15% each, the bulk of the demand (about 70%) will come from the Army. Network Centric Systems, Radars, Communication Systems, Electronic Warfare and Electro Optic equipment will be in demand.

The major products and systems planned for induction by Indian MoD during 12th plan are - Battlefield Management Systems, Future Infantry Soldier as a System, Long Range Surveillance Radars, Weapon Locating Radars, Mountain Radars, Tactical Communication Systems, Software Defined Radios, EW Systems for different terrains, Unmanned Aerial Vehicles and Aerostats, Electronic Warfare Suites for Fighter Aircrafts, Long Range Electro Optical Surveil-

lance Systems, Thermal Imager based Sights for Tanks & Weapons, Image Intensifier based Passive Night Vision Devices and Weapon & Missile Systems.

FIGURE - VI

(Values in Rs./Crores)



Source: Market Estimates

3. CHALLENGES

3.1 **Restricted technologies:** Restricted access to defence technology, particularly in areas of electronics & communication, missiles and smart ammunition; which is closely guarded by firms and nations. The lack of access to critical technologies, many of which are of dual use, delays the projects.

3.2 **High R & D cost:** Prohibitive cost of R&D for development of cutting edge technologies which is further accentuated by the lack of synergy between the institutions working in this area.

3.3 **Low R&D expenditure:** Indian industry's emphasis on R&D has been rather low with most companies spending only about 2% of their sales revenue on R&D.

3.4 **Monopsonic defence market:** The Defence industry being monopsonic in nature, companies find it difficult to commit adequate funds for R&D in the absence of guaranteed business at the end of the development cycle.

3.5 **Shipyard Infrastructure and facilities:** Infrastructure available in the Defence PSU shipyards is inadequate to cater the futuristic warships and adhere to timelines of force level requirements.

The defence shipyards viz. Goa Shipyards (GSL), Mazagon Dockyard Limited (MDL) and Garden Reach Shipbuilders & Engineers Limited (GRSE) have, therefore, embarked upon a comprehensive modernization programme. Further, after the transfer of Hindustan Shipyard Limited (HSL) from the Ministry of Shipping to the Ministry of Defence, plans have been initiated for revival of the shipyard for utilizing the existing resources with requisite modernization for building the conventional warships as well as vessels for the Navy. Considerable facilities have also been created in the private sector to bridge the gap.

3.6 **Low volumes of high technology equipment:** Low volumes of high technology equipment are unattractive to qualified vendors. Absence of consortium approach between the designer, manufacturer and the vendor.

4. RECOMMENDATIONS

4.1 **R&D activity support:** The Government should support R&D activity, especially of MSMEs, by providing assistance for conducting R&D. Ministry of MSME is launching a scheme to support R&D efforts. Defence MSMEs should be encouraged to participate.

4.2 **Defence Electronics:** To synergize the R&D talent available in private and public sectors as well as in the academia, a Centre of Excellence for Defence Electronics should be created on a PPP model aimed at generation of indigenous IPRs. The proposed Centre of Excellence for Defence Electronics could be set up with majority of investment from the private sector based on the model followed in the telecom sector.

4.3 **Industry – Academia co-operation:** In order to promote Industry – Academia co-operation, and introduce schemes to bring educational institutions and the industry together to facilitate innovation and product development.

4.4 **Strengthening of certification organizations:** The health of the industry has a direct co-relation to the quality and robustness of the certification organizations. These organizations need to be strengthened by upgrading their facilities and skill levels.

4.5 **PPP model**: As most of the work in this sector has been done by Government organisations, the PPP model by forming JVs should be encouraged in order to fully exploit the knowledge base coupled with entrepreneurship of the private sector. This will result in the expansion of defence industrial base in the country and help make the Indian defence sector highly competitive and efficient.

4.6 **Vendor development:** DPSUs should continuously develop vendor base to ensure continuous availability of equipment for timely completion of projects. DPSUs and defence shipyards should increase the outsourcing of assemblies, sub assemblies and components, thereby building the capacity of the industry.

4.7 **Sector Skill Council**: To fill the skill gaps, a defence Sector Skill Council could be setup in collaboration with the National Skill Development Council (NSDC).

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