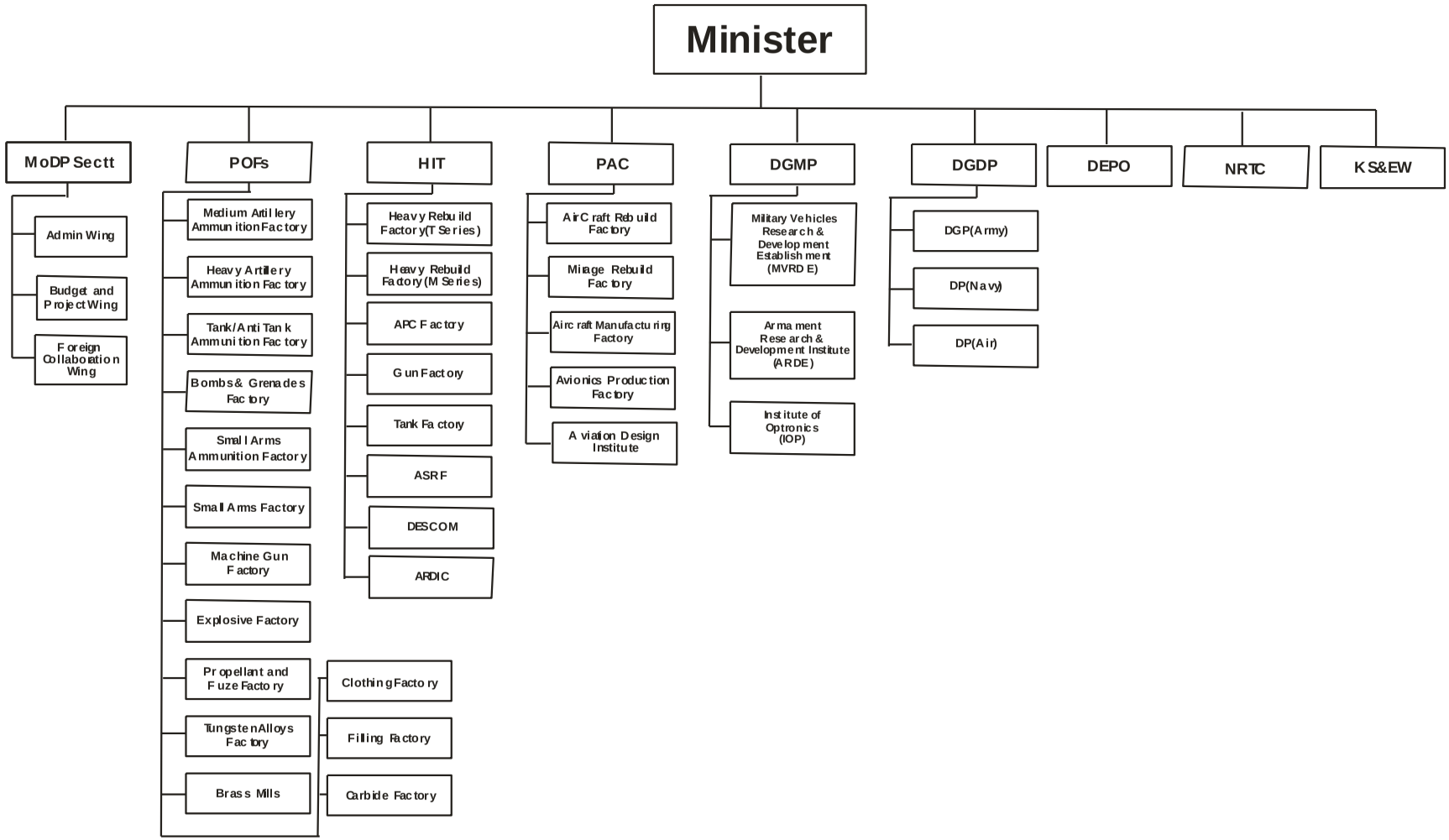
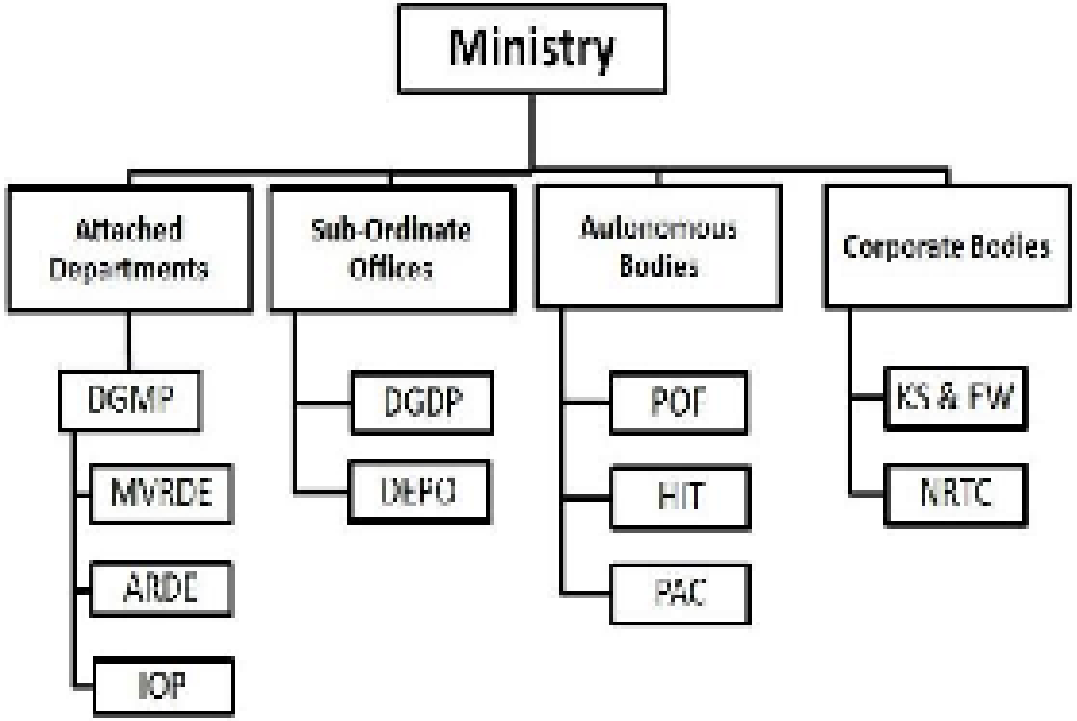
PART – II

ATTACHED DEPARTMENTS, AUTONOMOUS BODIES AND CORPORATIONS OF MODP

MINISTRY AND ITS ORGANIZATIONS



MINISTRY AND ITS ORGANIZATIONS



Directorate General Munitions Production

(DGMP)

DIRECTORATE GENERAL MUNITIONS PRODUCTION

The importance of self-reliance through indigenization cannot be over emphasized. Phenomenon of total indigenization is a function of numerable factors and considerations outside the control of developing countries like Pakistan. In 1965, the embargo placed on Pakistan made the government realize that there was a necessity of achieving self-reliance in production of essential defence hardware items. This led to the establishment of Directorate General Munitions Production and Procurement (DGMP&P) in 1967. It was bifurcated in 1970 into Directorate General Defence Purchase and Directorate General Munitions Production (DGDP & DGMP). The former catering to defence procurement and the later for indigenous production of def equipment through Transfer of Technology (ToT), co-production and joint ventures keeping in view the local potential to absorb the requisite know how. DGMP is organized on a tri-services basis (Army, Navy and Air force) and has three Directorates dealing with Army, Navy and PAF projects respectively.

Mandate of DGMP

Mandate of DGMP includes:

a. To maximize indigenous production of defence stores in public and private sector with the ultimate aim of attaining self-sufficiency;
b. To assist Ministry of Defence Production in formulating plans for giving a defence bias to future industrial planning;
c. Acquisition of technology rights of mfr and enter into collaboration arrangements whenever sizeable import of an item is made; and

d. Utilization of available research facilities within the country to maximize indigenous defence capability.

Functions of DGMP

Functions of DGMP include:

a. Close and constant liaison with the Services Headquarters and DGDP to identify requirements for indigenous production of defence stores and equipment;

b. Development of prototype(s) of major end items and their subsequent production in local industries;

c. International collaboration in joint development and production of defence stores;

d. Carrying out periodic survey of industries, their registration and profiling, to assess the potential available and to publish/publicize survey reports for information of all concerned;

e. Provide Secretariat Service to Defence Production R&D Board and Inter Services Armament and Explosives Committee;

f. Issuance of NOC for import of Defence stores, which cannot be indigenously developed or are at a stage of indigenous development;

g. Recommend modification of Defence Procurement procedures where necessary, to support indigenous production; and

h. Administer funds allocated for development of defence equipment.

Major Activities

Major activities and projects signed by DGMP during 2016-17 are at Annex-A.

RESEARCH AND DEVELOPMENT ESTABLISHMENTS (R&DEs) OF DGMP

Military Vehicles Research And Development Establishment (MVRDE)

MVRDE is a multi-disciplinary organization capable of conducting research and development pertaining of military vehicles, engineering equipments and defence related mechanical system(s). MVRDE focuses on furnishing feasibility, design and technical details that present a solution to customer's stipulated problem or challenge. A large spectrum of equipment has been developed indigenously. Major activities like projects signed by MVRDE during 2016-17 and projects completed during 2016-17 are at Annex-B.

As such activities undertaken include Tracked and Wheeled Vehicles, Training, Ground Support and Bridging Equipments as well as Simulators

Major Activities

Projects likely to be completed during (2017-18) of MVRDE are:

a. Rapid Infantry Bridge (RIB)
b. APU for Tk Al-Zarrar
c. Shifting/mtg of Scissor Type AVLB on Tank Al-Khalid
d. APU for Tk T-80 UD
e. Fabrication of Water Bowzer 4500 Lits
f. Boat Bridge Erection 19 Ft with Cradle
g. Mule Mounted Saddle
h. Fab of Avn Fuel Bowzer
i. Mob Wksp Ancy on 5 Ton Trk
j. Light Rec Veh
k. Up Gradation of Launching Assy CL-30
l. Hydraulic Launching Assy CL-60
m. Sml for Styre Sniper Rifle
n. ATGM / BSWS Universal Sml
o. Lower Carriage for 37 MM Twin Barrel Gun
p. Mobile Communication Van

Armament Research and Development Establishment (ARDE)

ARDE was established in 1974 for development of weapons and ammunition through R&D and innovative designing to meet essential requirements of three services.

Major Activities

Major activities are:

a. User trials of All Weather Electronic Anti Lifting Device were carried out at MCE Risalpur Cantt in April 2017. Performance of the devices found satisfactory.

b. Development and trials of Explosive mesh of Detonating Cord.

c. Modified Auxiliary Dispensing Unit (ADU) of Dispensing Unit for Explosive Grid Sys has been developed with the assistance of a local firm.

d. “In house” trial of indigenously developed EOD Suit.

e. Conduct of trials/ test fire of Sub Caliber Device for 125mm Tank Gun.

f. 08 x prototypes of Mini Electronic Exploder were developed. In house testing was carried out. Trials were successful. Further water proofing test as per MIL-STD-810G is being carried out.

g. Indigenous development of following items:-

a) All Weather Mechanical Antilifting device for Mine A/Tk
b) Explosive Grid (E-Grid) System.
c) EOD Suit with cooling arrangement for disposal Standard Munition.
d) Round 125 mm FSDS/T Prac (Qty - 500)
e) 125 mm APFSDS/T (DU) Naiza
f) Sub Caliber Device (SCD) for 125 mm Tank Gun
g) Rubber components and metallic components for different weapon system to be used by Pak Navy.

Following projects have been signed by ARDE during 2016-17:-

a. Ballistic Shield
b. Bomb Proof Blanket
c. Fire Proof Blanket
d. Outer Tactical Vest for Inceptor Body Armour
e. Executive Bullet Proof Brief Case Shield
f. Bomb Containment Bag
g. EOD Shoes
h. Metallic Components Missile

Institute of Optronics (IOP)

Institute of Optronics was established in 1984 to undertake R&D work in the field of Optronics and to assemble and produce night vision devices to meet the requirements

of the three services. IOP is an Electro Optics Institute providing services in various commercial, academic and research fields.

Major Activities

Major achievements include:

a. IOP is engaged in provision of Night Vision Equipment (NVE) to Law Enforcement Agencies (LEAs) as a pilot project. IOP has secured various orders/contracts from LEAs for supply of Night Vision Equipment.

b. Successful completion of NS-685C Project and achieved production 7943 out of 8100 and saved (US$ 13833Mn).

c. Potting / de-potting of IITs as a pilot project for 505 EBW (approx) thus saved US$ 1200000 (Rs 12 Mn)

d. Successful potting / encapsulation of 5x 25mm IITs for 505 EBW as pilot project.

e. Handling of tri-services project of repair & maintenance of NVE equipment approximate worth Rs 15 Mn.

f. Testing of IITs/NVE assys of various agencies.

g. Carried out R&D on selected projects.

h. Successful conduct of TI & Red Dot demonstration / Trials ex Belarus & Turkey.

i. Prime Ministers Youth Internship Program recently designed for un-employed youth of country to get modern skills & exposure in professional environment. Stipend @ Rs. 12000 per month for 12 months is being paid to the youths. 64 x youths have joined the IOP and were placed in various departments for training.

j. IOP is a public sector organization dealing with the state of the art of Optronics technology. IOP makes an endeavor to enhance industry-academia liaison, particularly and train scholars from local universities such as NUST, FAST, UET, Bahria, APCOM, HITECH etc. 59 x students of these institutions completed summer internship program.

k. IOP generally organize training programs for young officers courses (Electrical & Mechanical) for College of E&ME students. On Job Training

programs for Junior Non-Commissioned officers, Optronics Technician (OT) courses and Night Vision Equipment (NVE) training courses of repair/maintenance for JCO/Soldiers. IOP conducted visit/training of 195 x students.

l. IOP has made efforts through Ministry of Defence Production (MoDP) for joint production, joint sales & joint marketing of T.I Systems with various countries.

Projects completed by IOP during 2016-17 are as under:-

a. Night Vision Binocular (GP/NVB-5A)

b. Single Tube Night Vision Goggle (AN/PVS-7D)

c. Night Vision Binocular (GP/NVB-5A)

d. Weapon Sight (AN/PVS-4A)

e. NVG Sheeba equivalent to (AN/PVS-7D)

f. Night Vision Binocular (GP/NVB-4A)

g. In the year 2016-17, 1107 local/ commercial orders worth nearly Rs. 685 million were concluded

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New Initiatives

2. Following are the targets of DGMP & its R&DEs for next year 2017-18:-

Dte MP (Army)

a. Development of PMA Branded Suit Case and Travelling Bags

Dte MP(Navy)

a. Construction of 4 x Melgim Class Corvettes

b. Indigenous design and construction of 01 Midget Submarine

Dte MP (Air)

a. Qty-24 development projects of different weapons and Radar systems are under approval / signing process and contracts will be finalized in FY 2017-18.

MVRDE

a. Shifting / Mtg of Scissor Type AVLB on Tk Al-Khalid

b. Fab of Tender Fire Crash (TFC)
c. Avn Fuel Bowzer 7000-9000 Liters
d. Ammo Containers
e. Mobile Workshop Diesel Lab
f. Light Proj with 10 KVA Gen Set
g. Avn Towing Tractor
h. Rotary Screw Type Air Compressor
i. Ind Dev of K-Loader of Loading / off loading of missiles sys
j. Armament Lifter
k. 10 Ton Fork Lifter
l. Crane 15 Ton
m. 10 Ton Fork Lifter Heavy
n. Ind Dev of Excavator
o. Crane heavy 40 Ton capacity
p. Avn Refueller Veh Mtd 1000-1200 liters
q. Mobile Repair Van
r. Aircraft Refueller 20,000 Liters
s. Mobile Tel Communication Van

ARDE

a. Indigenous Dev of Down Jacket High Altitude
b. Indigenous Dev of Down Trousers High Altitude
c. Indigenous Dev of Thermal Vest High Altitude
d. Indigenous Dev of Thermal Drawers High Altitude
e. Indigenous Dev of Boot Cold Weather
f. Indigenous Dev of Oxygen Cylinder
g. Manufacturing of RPG-7 Rocket Launcher (Qty-250)
h. Indigenous Dev of Multi Grenade Launcher (MGL) 40 mm

IOP

a. Establishment of basic and advanced level TI Lab for undertaking project of assembly of TI Sights in future.
b. IOP has formulated a comprehensive plan to modernize its facilities in three key areas to include technical Upgradation, meet the general equipment shortages & infrastructure improvements.

c. R&D on following projects are being pursued:-

(1) TI Surveillance Camera
(2) TI DNVP
(3) Upgrading of Mini monocular (Mum)
(4) TI Monocular

d. Supply of 600 x Monocular Gen-III ex USA to PAF

e. ISO-9001 Certification is under process is being anxiously pursued.

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Directorate General Defence Purchase (DGDP)

DIRECTORATE GENERAL DEFENCE PURCHASE

ADP (ARMY) WASHINGTON

Pak Army AH-1Z Roll Out Ceremony and Program Management Review:-

a. Roll Out Ceremony for Pak Army AH-1Z Program against LOA PK-P-SBO was held on 14 Aug, 2017 at Bell Helicopter Textron Facility, Amarillo, Texas. Pakistan Army officers delegation was headed by Maj Gen Nasir Dilawar Shah, GOC Aviation Command whereas Director Military Operations, GHQ Brigadier Muhammad Nadeem Ashraf alongwith 3x officers also attended the ceremony.

b. Followed by AH-1Z Roll out Ceremony, Programme Management Review (PMR) for said case in order to finalize the training and financial aspects were discussed so that timely availability of said helicopters should be ensured.

ADP (NAVY/AIR) WASHINGTON

Coast Guard's Transfer Two Former Cutter to Pakistan:-

a. The US Coast Guard transferred the former Cutters Key Biscayne and Grand Isle to Pakistan Maritime Security Agency (PMSA) in a ceremony at Coast Guard in Curtis Bay. Maryland, USA on 07 Dec, 2017. Coast Guard Capt Robert Bevins Commanding Officer of the Assett Project Office, and Group Captain Raashid Siddique Qurishi Attache Defence Procurement (Navy/Air) at the Embassy of the Islamic Republic of Pakistan. Pakistan is the second nation to receive 110 Foot Patrol Boats through US Coast Guard as EDA and all Scope of Work (SoW) is funded through FMF for refurbishment Spares, Technical Assistance, Training and Transportation till Karachi, Pakistan.

b. The former Cutters Key Biscayne and Grand Isle are the third and fourth 110-Foot Patrol Boats transferred to a foreign partner nation. According to Military letter of Offer and Acceptance (LOA) PK-P-SCC between both countries, the coast guard has provided $ 8.4 M of new equipment, Technical and Training Services prior to transportation via commercial heavy lift Cargo Ship from Baltimore Maryland to Karachi, Pakistan in Spring, 2017.

ADP BEIJING

SPECIFIC EVENTS, VISITS AND DELEGATION DETAILS

a. CLS Visit from 15 Aug 2016 to 22 Aug 2016.
b. 13th Joint Committee Meeting from 23 Sep 2016 to 30 Sep 2016.
c. Biennial lnsp of ADP Beijing Office from 16 Oct 2016 to 21 Oct 2016.
d. COAS Visit.
e. Organization of Defence Day Function at Pakistan House.
f. Organization of dinner for the PM Delegation on OBOR Forum.
g. Estimation/survey of security/surveillance system of embassy and Pakistan house compound followed by Implementation of the new system.

Financial year 2016-17, like the previous fiscal year, was an eventful one from procurement point of view. In depth analysis of entire procurement activities has been undertaken and a substantial improvement has been observed in all aspects of procurement. Improvement in output is attributed to well-coordinated efforts and standarised functions structured by all agencies and organizations. During the preceding financial year procurement to the tune of Rs. 301,158.371 Mn has been made for the Armed Forces.

Procurement Activities

Under the mandate of “SADA Package” and “Services Budgets”, 8 contracts were concluded by DGDP. Similarly, against “Development Package”, DGP(Army) concluded 148 contracts. Most of the procurement activities centered on procurement against “Services Budgets” and as such DGP(Army), DP (Navy) and DP(Air) concluded 1556 contracts.

DPs abroad, functioning under the mandate of Ministry of Defence Producton, also catered for “cross mandated” contracts and as such ADP Offices in Washington, London, Paris and Beijing concluded 218 contracts.

The coordinated and structured procurement undertaken by the Ministry through DGDP and its allied offices resulted in aggregate savings of Rs. 8833 million under the “Development Packages” and Rs. 9391 million against “Services Budget”.

Contracts Concluded

The detail of contracts concluded during the financial year 2016 -17 are as under:-

SUMMARY OF CONTRACTS
CONCLUDED DURING FINANCIAL YEAR 2016-17

a. Against Development Packages:

Organization	No of Contracts Concluded		Value of Concluded Contracts	
	FE	LC	FE ($ in Mn)	LC (Rs in Mn)
DGDP	04	-	805.637	-
DGP (Army)	08	140	85.878	6,157.149
Total	**12**	**140**	**891.515**	**6,157.149**

AGAINST SERVICE BUDGET

Organization	No of Contracts Concluded		Value of Concluded Contracts	
	FE	LC	FE	LC (Rs in Mn)
DGDP	04	-	$ 373.670 Mn	-
DGP (Army)	55	458	$ 437.215 Mn	40,401.775
DP (Navy)	92	368	$ 36.753 Mn	6,433.072
DP (Air)	213	370	$ 389.682 Mn	18,643.661
ADP (Washington)	83	-	$ 3.755 Mn	-
ADP (London)	140		$ 0.045 Mn £ 5.489 Mn € 0.409 Mn	-
ADP (Paris)	66	-	$ 0.621 Mn € 18.949 Mn	-
ADP (Beijing)	26	-	$ 5.531 Mn	-
Total	**679**	**1196**	**$ 1,247.272 Mn £ 5.489 Mn € 19.358 Mn**	**65,478.508**

Outstanding Contracts

Details of outstanding contracts during the period 2016 -17 are as under:-

DETAILS OF OUTSTANDING CONTRACTS

Org	Total Outstanding Contract	Cases Added During the LFY	Cases Settled During LFY	Outstanding Amount
DGDP	-	-	-	-
DGP (Army)	432	111	76	Rs. 15,468.035 Mn
DP (Navy)	30	104	112	Rs. 377.587 Mn $ 0.828 Mn
DP (Air)	455	237	147	Rs. 58,266.200 Mn
ADP (Beijing)	09	15	12	Rs. 1,468.376 Mn
Total:	**926**	**467**	**347**	**Rs, 75,580.198 Mn $ 0.828 Mn**

Recovery of Risk & Expense Money

Risk & Expense cases alongwith recovery made during financial year 2016-17 included a collective sum of Rs. 0.690 million against 1215 contracts under the umbrella of DGDP.

REGISTRATION OF FIRMS

Registration activities of the last financial year included registration of 91 new firms, renewal of 95 registered firms and additional indexation of 34 firms.

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Defence Export Promotion Organization

(DEPO)

DEFENCE EXPORT PROMOTION ORGANIZATION (DEPO)

Defence Export Promotion Organization (DEPO) under MoDP provides a platform for facilitation, promotion and coordination of defence exports to public and private sectors. Accordingly, DEPO organizes International Defence Exhibition and Seminar (IDEAS) at Expo Centre, Karachi. On one hand IDEAS provides a perfect interactive forum for the defence forces to assess the products and technologies fulfill their requirements, on the other hand, it also offers an ideal opportunity to the local defence manufacturers for entering into collaboration and joint ventures with other prospective international partners. It is the biggest defence exhibition of international stature being held in Pakistan biennially. DEPO also organizes seminars and establish Pakistan Pavilion in foreign exhibitions.

Vision.

As a national platform, provide support to defence manufacturing, service sector and the export chain through “Promotion, Facilitation & Coordination” for sustained growth of defence exports.

Mission.

To Facilitate, Coordinate & Promote Export of defence related quality products Since 2000, IDEAS has matured and is recognized as one of the leading international defence exhibitions in the world. The traditional all out support of all the organizations of the Government of Pakistan is instrumental in making IDEAS a success story. Projection of positive image of Pakistan is also important objective of IDEAS and the conduct of IDEAS-2016 facilitated to project positive image of Pakistan. The successful conduct of IDEAS can be gauged from the statistics since 2000.

IDEAS-2016 Pakistan, 22 – 25 November 2016.

IDEAS is the flagship event of DEPO and is conducted biennially since 2000. IDEAS 2016 9th edition of IDEAS, was successfully conducted and was widely covered in national / internal media. Defence industry of Pakistan, both Public and Private was able to engage with the international defence manufacturing companies. During IDEAS-2016, 294 companies from 36 countries and 133 Pakistani companies participated. Growth of IDEAS is reflected as under:-

- **Exhibitors**

	IDEAS	Domestic	Foreign	Total
(1)	2000	25	40	65
(2)	2002	60	52	112
(3)	2004	73	90	163
(4)	2006	73	148	221
(5)	2008	94	162	256
(6)	2010	Cancelled		
(7)	2012	74	135	209
(8)	2014	82	256	338
(9)	2016	133	294	427

- **Foreign Delegations**.

88 delegations from 40 countries participated in IDEAS-2016. The increase in foreign delegations since 2000 in IDEAS is shown below:-

Ser	IDEAS	Foreign Delegations	Remarks
(1)	2000	42	
(2)	2002	40	
(3)	2004	43	
(4)	2006	63	
(5)	2008	73	
(6)	2010	Cancelled	
(7)	2012	80	
(8)	2014	85	
(9)	2016	88	Approx 225 delegates

- **Local Delegations**.

Local delegates from various offices including Services Headquarters HQs, Federal Ministries and various other departments of federal as well as provincial stature were invited for the IDEAS 2016.

- **Space Booking**.

Space booking by companies from the year 2000 has gradually increased in IDEAS which is shown below:-

Ser	IDEAS	Space booked (sqm)
(1)	2000	4301
(2)	2002	4400
(3)	2004	4920
(4)	2006	7164
(5)	2008	9419
(6)	2010	Cancelled
(7)	2012	10122
(8)	2014	10256
(9)	2016	11844

- **MoUs**.

Following fifteen MoUs were signed during the exhibition:

Ser	Org	Name of Firm / Organization with whom MoU is Signed
(1)	PAC	Under secretary for Defence Industry SSM, Turkey
(2)	POF	M/s Lachaussee Belgium
(3)	MoD	Regulations (Terms of Reference for implementation of the MoU on Military Cooperation
(4)	MoD	MoU in the field of Military Cooperation between Pakistan and Niger
(5)	PAC	Establishment of TV3-117 Engine Overhaul facility at MRF (Between PAC Kamra and CEO Tavani Group)
(6)	PAC	Upgradation of Test bed for multi engines (Between PAC Kamra and CEO, X-Tech USA)
(7)	POF	M/s Czechoslcvak Group, A.S Czech Republic
(8)	POF	Ms/ Polska Grupa Zbrojeniowa S.A (PGZ) Co, Poland
(9)	HIT	M/s UKRSPECEXPORT, Ukraine
(10)	POF	MoDI, Azerbaijan
(11)	POF	M/s Ceska Zbrojovka a.s Co, Czech Republic
(12)	PAC	M/s TELEC Electronics & Machinery (Pvt) Ltd

(13)	PAC	M/s STI (Pvt) Ltd
(14)	PAC	M/s TELEC Electronics & Machinery (Pvt) Ltd
(15)	PAC	M/S LA Tele, France and PAC Kamra for Development of Electrical interconnection systems for underwater, surface, air and space vehicles

Digital Ambiance.

First time ever in the IDEAS, digital ambiance was created throughout the venue incorporating:-

(1) Live Streaming over the Video Walls (SMDs)

(2) 10+ SMD screens

(3) Interactive Kiosks

(4) Digital Standees

Participation in International Defence Exhibitions.

DEPO receives various invitations for foreign exhibitions and selective approach is adopted for participation due to financial constraints. Pakistan Pavilion is established by DEPO with the view to achieve following objectives:-

a. Promote Pakistani defence products in foreign defence exhibitions.

b. Facilitate participation of Public & Private Sector.

c. Encourage private sector defence industry.

d. Marketing of IDEAS.

Pakistan Pavilion

A short snapshot of last few participations by DEPO are elaborated as following:-

- **DIMDEX-2016**.

DEMDIX-2016 was held in Doha, Qatar from 29 to 31 Mar 2016. Pakistan Pavilion was established with a total space of 72 Sqm. DEPO along with 2x DPEs (POF & KS&EW) attended the subject exhibition. Detail of booked space shown against each:-

Ser	DPE	Space in Sqm
(1)	POF	50
(2)	KS&EW	36
Total Space		**86**

- **DSA-2016**.

Defence Services Asia (DSA) is held biennially and is one of the world's largest, fully integrated, tri-service exhibition in the region, catering for Land / Sea / Air Systems and Equipment. DSA-2016 was organized from 18-21 April, 2016 in Kuala Lumpur, Malaysia and following DPEs participated under Pakistan Pavilion with booked space shown against each:-

Ser	DPE	Space (Sqm)
(1)	PAC	72
(2)	POF	90
(3)	HIT	72
(4)	NRTC	54
(5)	Metasco Pvt Ltd	06
(6)	Embroidory Export Pvt Ltd	06
Total Space		**300**

- **Eurostory-2016**.

Eurosatory was organized from 13 - 17 June, 2016 at Paris, France. The Exhibition was organized by Commissariat General du Salon (COGES), which is an autonomous organization. Eurosatory is held biennially and is one of the world's largest, fully integrated, land, air defence and security exhibition in the region. Detail of Pakistani companies participated under Pakistan Pavilion is as under:-

Ser	Name of DPE	Space Booked (Sqm)

(1)	POF	90
(2)	NRTC	36
(3)	PAC	Trade visitor
(4)	DEPO	09
Total Space		**135**

- **Army International Military – Technical Forum -2016**.

Second Army International Military – Technical Forum held from 6-11 Sep 16 at Kubinka, Patriot Expo Centre, Moscow Region, Russia. 4x halls having a indoor space of 28000 Sqm had recently been completed prior one week of commencement of this exhibition. The out-door space having a area of 100,000 Sqm also recently been completed where tanks and heavy equipments of Artillery were being showcased for the visiting delegations as well as trader visitors.

- **AAD-2016**.

Africa Aerospace and Defence (AAD)-2016 was organized from 14-18 Sept 2016 at Waterkloof Air Base, City of Tshwane, Republic of South Africa. 275 defence and industrial specialized companies participated from different countries. Officially 41 VIP Delegates participated from 27 countries in AAD-2016. Total 12 National Pavilions from Belgium, Brazil, China, Germany, India, Italy, Pakistan, Romania, Russia, Turkey, UK and USA were established. Detail of Pakistani companies participated under Pakistan Pavilion is as under:-

Ser	**Name of DPE**	**Space Booked (Sqm)**
(1)	POF	100
(2)	NRTC	32
(3)	PAC (in)	100
(4)	PAC (out)	100
(5)	DEPO + BXSS	20
Total Space		**352**

- **IDEX-2017**.

IDEX-2017 was held in Abu Dhabi from 19 to 23 Feb 2017 at the National Exhibition Centre as 13th edition. It featured 4th edition of Naval Defence and Maritime Security Exhibition (NAVDEX). The show was organized by Abu Dhabi National Exhibitions Company (ADNEC) through Tawazun (Main Sponsor), in coordination with the UAE Armed Forces. A large number of defence related companies representing 55 countries participated in IDEX–2017, which included forty one country pavilions. As claimed by the management 80 plus official delegations attended the Exhibition. UAE Armed Forces handled foreign delegations. Detail of Pakistani companies participated under Pakistan Pavilion is as under:-

Ser	Name of DPE	Space Booked (Sqm)
(1)	HIT	75
(2)	POF	100
(3)	NRTC	50
(4)	National Sys	30
(5)	DEPO + BXSS	15
(6)	Shibli Electronics	30
Total Space		**300**

- **IDEF-2017**.

IDEF-2017 was held in Turkey from 9 to 12 May 2017. Detail of Pakistani companies participated under Pakistan Pavilion is as under:-

Ser	Name of DPE	Space Booked (Sqm)
(1)	HIT	50
(2)	POF	100
(3)	PAC	125
(4)	NRTC	36
(5)	GIDS	60
(6)	Askari Shoes	09
(7)	Service Industry	09

(8)	DEPO	15
Total Space		**404**

Foreign Exhibition – Future Plans

- **Summary**.

In future, Pakistan Pavilion will be established in following foreign exhibitions to showcase the defence products of DPEs to enhance our defence exports:-

(1)	Army Russia-2017	-	22 – 27 Aug 2017
(2)	Russia Arms Expo-2017	-	06 – 09 Sep 2017
(3)	DSEI-2017	-	12 – 15 Sep 2017
(4)	BIDEC-2017	-	16 – 18 Oct 2017
(5)	DSE-2017	-	06 – 09 Nov 2017
(6)	Dubai Air Show	-	12 – 16 Nov 2017

Seminar 2017.

DEPO organized a successful seminar as Public-Private Partnership in Defence Production and Export Challenges on 2 – 3 December 2015. Planning for another Seminar is in progress and it is likely to be held in November / December 2017 at Islamabad.

Formulation of National Defence Industry Policy

a. Over the years, defence forces of Pakistan have remained the main customers and drivers for development of the defence production domain. Consequently, DP sector has largely remained focused on fulfilling domestic requirements of our Armed Forces/LEAs as well as limited demand of the civil sector. In order to make it dynamic, progressive and expanding, special focus is required to make the Defence Production Establishments (DPEs) more export-oriented. Over the years the capacity

of DPEs has progressively increased. This surplus potential can be utilized to gain a foothold in the international arms trade market.

b. Pakistan needs a strategic plan that must include indigenous development of latest technologies, capacity building of already available production lines, industry-academia collaboration, and higher investments not only in infrastructure but also in growth of intellectual base through knowledge and skill enhancement programs. This requires a holistic government policy covering the academic institutions that provide Post-Graduate studies in latest technologies required by DPEs.

c. DEPO is developing guidelines for formulation of National Defence Industry policy which shall be issued by the Ministry of Defence Production. The policy envisages major changes in organizational structural and functions of major public organizations, Government rules and regulations, related legislations, facilitation measures for development of private sector defence industry, etc.

Engagement with Private Sector Defence Industry

a. In the spirit of Public Private Partnership in Defence Production and Export, DEPO team visited various Chambers of Commerce and industry in 2016. The purpose was to share the broad range of business opportunities for private sector especially in defence production and to explore collaboration avenues with DEPO / Ministry of Defence Production (MoDP). The participation of private sectors defence manufacturers and Chambers of Commerce in International Defence Exhibition and Seminar (IDEAS 2016) has enhanced manifold due to close cooperation between DEPO and Chambers of Commerce. It has been experienced during visit to chambers of commerce that interaction with executive committee helps to share the plans.

DEPO Display Centre.

DEPO Display Centre was established in 2015 and was inaugurated by Federal Minister of Defence Production Rana Tanveer Hussain on 6 Oct 2015. 32 x Companies have established their stalls in DEPO display centre which is frequently visited by foreign

as well as local delegations. 29 x Foreign / Local Delegations have visited the DEPO Display Centre till June 2017

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Pakistan

Ordnance Factories Wah

(POFs)

PAKISTAN ORDNANCE FACTORIES BOARD WAH

Established in1951, Pakistan Ordnance Factories (POF) is a major defence industrial Complex of Pakistan. POF has grown into an expansive set up of 14 mainstream factories and various commercial subsidiaries, involved in production of conventional and automatic weapons, ammunition and explosives. Subsidiary units of POF includes Wah Noble, Wah Industries Limited, Hi-Tech Plastics, Brass Mills and Attock Chemicals. Besides various industrial and commercial ventures POF is a huge welfare organization involved in the well-being of its employees. The industrial setup and commercial units are run by POF Board, whose main function is to manage and administer the affairs of factories and meet the needs of the defence forces of Pakistan. The Factories include:

- Medium Artillery Ammunition
- Heavy Artillery Ammunition
- Tank/Anti Tank Ammunition
- Bombs & Grenades
- Small Arms Ammunition
- Small Arms
- Machine Gun
- Explosives
- Propellant and Fuze
- Tungsten Alloys
- Brass Mills
- Clothing
- Filling

- Carbide

Change of Command in POF

Lt Gen Umar Farooq Durrani, HI(M) took over the charge as Chairman POF Board on 5th April'2017. In a ceremony held at POF Auditorium Lt Gen Omar Mahmood Hayat, HI(M) handed over the charge of Chairman POF to Lt Gen Umar Farooq Durrani, HI(M) by presenting him POF Flag.

- **Range of Products**

  A total of 73 products are developed and produced by POF which include:-

- **Weapons**
  - Rifle G3A3/G3P4 (7.62 mm x 51 Calibre)
  - Machine Gun MG3 (7.62 mm x 51 Calibre)
  - Sub Machine Gun MP5A2/P3 (9 mm x 19 Calibre)
  - SMG PK & PK1 (9x19mm Calibre)
  - 12.7mm AA Anti Aircraft Gun
  - POF Eye
  - SMG PK (7.62X51mm)
  - Designated Marks Man Rifle (DMR) (7.62x51mm)
  - Pistol POF 4/5
  - Pistol PK – 9

- **Small Arms Ammunition**

  - 7.62 mm x 51 Carton Packed
  - 7.62 mm x 51 Link Belted
  - 7.62 mm Blank
  - 9 mm x 19 (1Z & 2Z)
  - 7.62 mm x 39mm-SMG
  - 7.62 mm x 39mm-SMG Blank
  - 7.62x51mm HMG
  - 7.62x54mm (Ball & Tracer)
  - .308 WIN 150/165/175 Grain

- **Artillery Ammunition**

  - 25 Pdr HE & Blank
  - 105 mm (HOW), HE Smoke and Blank
  - 122 mm HE HOW and 122 mm D30 Ammo
  - 122 mm HOW Training
  - 130mm HE Gun Ammo RC & FC
  - 155 mm HOW HE M107
  - 155mm HOW Training

- **Mortar Bombs**

  - 60 mm HE & Smoke WP, Illu, Signal (Red & Green)
  - 60mm Mor Inert
  - 81 mm HE & Smoke WP, Illu
  - 81mm Mort Inert
  - 120 mm HE & Smoke WP
  - 120mm Mor Inert

- **Aircraft Bombs, Aircraft & Anti Aircraft Munitions**

  - 500 Lbs – Mk 82 Aircraft Bomb
  - 6 Kg Practice Bombs
  - 25 Lbs Practice Bombs
  - 23 mm Ball & HEI
  - 30mm HEI, API, Ball
  - 37 mm Anti Aircraft
  - 12.7 mm x 108 API & APIT

- **Tank & Anti Tank Ammunition**

  - 125 mm APFSDS
  - 125 mm HE TK
  - 105 mm APFSDS
  - 105 mm HE
  - 106mm RR Training Rds

- **Rockets**

  - Rocket Propelled Grenade 40 mm HEAT (RPG-7P)
  - 73 mm Recoilless at Grenade (SPG-9P) HEAT
  - 73mm SPG-9 HE

- **Grenades, Pyrotechniques & Mines**

  - Hand Grenade Arges 84
  - Grenade Target Indication, White, Red, Yellow, Green Orange, Blue
  - Grenade Hand/Discharger WP P3 Mk-1
  - Remote Control Fragmentation Device
  - Flare Trip Wire

- **Military Explosives & Propellants**
  - Black Powder
  - TNT, RDX, Compo B, Tetryl, Nitroguanidine, PETN
  - Single, Double and Triple Base Propellants
  - Ignition Charges

- **Commercial Explosives (Wah Nobel)**
  - Emulsion Explosives, Dynamites
  - Powder Explosives
  - Blasting Accessories, Safety Fuze Cords
  - Detonating Cords
  - Detonators (Plain & Electrical)
  - Leher Ignition System

- **Commercial Products**
  - Brass items i.e Rods, Pipes, Plates, Sheets & Extrusions
  - Gilding Metal Clad Steel Strips
  - Tungsten Carbide Tool Tips, Nibs & dies
  - Chemicals (Polymers)

- **Sporting Ammo** 12 Bore Cartridges (4,6,8,7 Skeet, 9 Trap, BB, SG, LG and 4,6 & Super)

- **Garments**
  1) Personal Load Carrying Equipment (PLCE)
  2) Camouflage Combat Dress (CCD) & Stitching Uniforms of LEAs/CAF
  3) Bullet Proof Jackets
  4) Mosquito Nets
  5) Industrial working dress
  6) Gowns etc

- **Induction of New Plant and Machinery**

POF Management is striving hard to replace old machinery and up-grade it according to available resources. Different plant and machinery have been installed in the following factories:-

- **Arms and Ammunition Factory**

CNC turning machines for Fuze production and CNC Chucking Machines for shell production have been installed in AA factory which resulted in:-

a) Reduction in rejection percentage

b) Production capacity enhanced for mortars and fuzes.

- **Small Arms Ammunition Factory**

Refurbishment of Small Arms Ammunition Plants to enhance capacity and reduce the rejection percentage & improvement in quality.

- **Explosives Factory**

State of the art plant and Machines have been installed in Explosives Factory which resulted in:-

a. Entire need of POF for sulphuric acid is now being met indigenously.
b. Enhanced production, reducing maintenance cost and consumption of solvents.
c. Improved quality of products.
d. More safe operations.

- **POF Gadwal**

Some state of the art plants and machines have been added in the inventory of POF Gadwal which resulted in improvement of quality of ammo, enhancement of production capacity, reducing the rejection percentage. Indigenous manufacturing capabilities of sub-assemblies have been created.

HR & OD Dte

HR & OD Dte has taken several initiatives with regard to re-structuring of the organization as well as for the employees of POF. Detail is appended below:-

a.	Recruitment & Selection Policy
b.	Training & Development Policy
c.	Performance Management & Increment Policy
d.	POF Leave Policy
e.	Career progression issues resolved for 40 staff/worker cadres.
f.	Organograms revised for: • POF Board • Chairman POF Board Secretariat • MPC/ DICR Secretariat • HR & OD Deptt. • Secretary POF Board • CFO Directorate • Exports Department • Admin Department • Health, Safety & Environment Department • Supply Chain Management Department • PMT Labs • R & D Department
g.	Following policies are under process for consideration by POF Board: i) Compensation & Benefits ii) Rewards & Recognition iii) Travel Expense and Re-imbursement iv) Leave Fare Assistance v) Succession Planning

Financial Highlights

a. **Normal Budget (From GoP)**

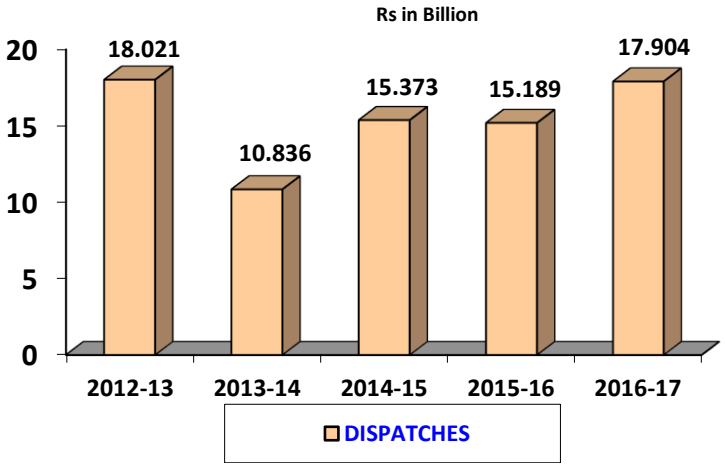
In 2016-17, against Budget Estimate (B.E) of Rs 42,379.423 Million, annual Budget of Rs. 27,173.948 M was allocated. Since these funds were insufficient to meet the budgetary requirements, therefore, the gap was filled through funds generated from its own sources amounting to Rs. 7,199.869 M.

b. Besides, POF is allowed to retain its export earnings and receipts from commercial sales to meet expenditures in connection with production and promotion of items meant for exports and commercial sales. At present a balance of **Rs. 8,978.586** M in Special Deposit Fund (SDF) and Rs**.**

7,483.174 M of commercial sales, Revenue, Debt & Remittance (RD&R) are available to meet various requirements. Trend of last 05 years of funds is as under:-

Production Targets

Armed Forces of Pakistan set the Production Targets of **Rs.19,879 Mn** for the year 2016-17. Dispatches were made to the tune of **Rs. 17,904 Mn.** Below is the data of last five years:-



Dispatch value of local sales against LEAs/CAFs is **Rs. 3230 Mn.**

Wah Brass Mills (Private) Limited (WBM)

Brass products are used in production process of Arms & Ammunition and range of equipments in use of Pakistan Army. POF Brass Mill was unable to meet the requirements of brass products, therefore, an expansion plan was made and WBM was registered with Security and Exchange Commission of Pakistan (SECP) in 2012 with enhanced capacity from 7000 to 24000 M.Ton per annum. The salient features of the WBM are:-

Description	Before up-gradation	After up-gradation
Capacity	7,000 M.T /Annum	24,000 M.T / Annum
Coil Specifications	Strips/Coils 300 KG (Max)	1.5 M.T to 2.5 M.T
Products	Brass, Copper, Gilding metal and GMCS Strips in open tolerances and Brass Discs	Brass, Copper, Gilding metal and GMCS Strips in close tolerances and Brass Discs
Commercial Framework	Public sector unit relying entirely on GoP funding	Separate legal entity commercially oriented with financial autonomy, market driven commercial operations

In the 2016-17, Wah Brass Mills embarked on its commercial operations (August 1st, 2016 was announced as COD) and got de-linked with POF. It started to operate as a private entity bearing all expenses of operation, hitherto being borne by GoP.

Statistics reflecting its business profile are tabulated as under:-

(Rs. In Million)

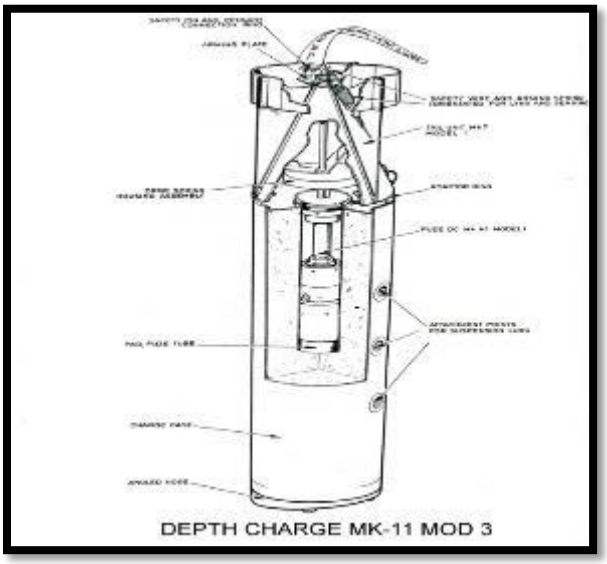
Activity	Volume
Sales	560.000
Domestic Sales	66.000
Exports	431.000
Taxes Deposited	54.000

Research & Development

For the purpose of increasing scope and potential of Defence Production, Research & Development is considered as a backbone of any industry. During 2016-2017, following achievements were made:-

- **Development of Depth Charge MK-11 MOD-3**

  The Depth Charge Mk.11 Mod 3 is an air launched, anti-submarine weapon, detonates at an optimum depth of twenty meters, making it very effective at discouraging or disabling intruder submarines on the surface, in the act of diving or submerged at shallow depths. POF has successfully developed ammunition and qualified in static trials i.e. functional testing of fuze, leakage testing of subassemblies and ammo balancing. The project was assigned to POF by Chief of Naval Staff which is now at dynamic sea trial phase.

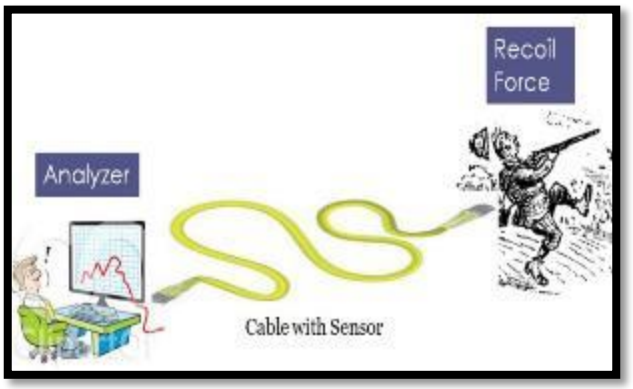


DEPTH CHARGE MK-11 MOD 3

- **Electronic Time Super Quick Fuze (ETSQ)**

  Electronic time fuze is used for controlling and initiating the explosion of artillery round of caliber 105-203 mm. The fuze comprises a highly stable and accurate timing circuit, chemical battery, explosive train, safety and arming device and a

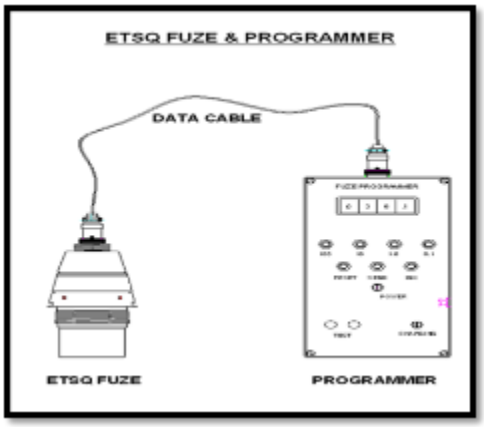
time setter (programmer) by setting time to detonate between 0.10 second to 99.9 second with 0.1 second resolution. The timer counts high frequency pulses and on expiry of preset delay, generates a pulse which is used to discharge the energy of charged capacitor through a detonator thus initiating explosion. It can be broadly categorized as a time delay electronic circuit or specifically microcontroller based programmable time delay unit.



- **Recoil Force Measurement System**

Recoil Force Measurement System is designed to calculate Recoil thrust of gun at shoulder end of firer/ operator. Less Recoil Force is an essential parameter for qualification of weapons.

This system can do comparative analysis of different guns in terms of Recoil thrust. Database is designed to maintain record which could be further used in reports generation. System is time efficient, robust, and independent.



- **POF Services Group:**

Services Group is responsible for provision of following centralized services:

a. Generation and Distribution of Electricity
b. Generation and Distribution of Steam
c. Telecommunication, Instrument & Electronics Services

d. Transport Services

e. Fire Fighting Services

f. Reconditioning Services

g. Fabrication & Water Supply

h. To keep the machinery in operation by timely repair /maintenance.

Performance of Services Group during 2015-16 is appended below:-

Energy Conversation

Following steps were taken for Energy Conservation:-

i) Minimized utilization of Electric Power during WAPDA peak hours by energy management.

ii) Space heating was controlled

iii) Tuning of boilers was carried out periodically to run at optimum efficiency.

iv) Operation of 2 boilers on Wooden Scrap/Saw Dust during winter season.

Saving Achieved By Self Electric Generation (2016-17)

Total Electric Generation (KWH)	=	73,730,450
Average WAPDA Rate (Rs)	=	14.46
Average POF Rate (Rs)	=	13.75
Difference	=	0.71
Saving w.r.t WAPDA Rate (Rs)	=	73,730,450 x 0.71
	=	52,348,620 or **Rs 52.348 M**

Telecommunication Services

i) **Completed Jobs - 2016-17**

- Establishment of Dark Fiber Link from Main Telephone Exchange Wah to POF Gadwal Telephone Exchange.
- Establishment of Dark Fiber Link from Main Telephone Exchange Wah to Telephone Complaint Post Lala Rukh.
- Rehabilitation of copper cable network from POF Gadwal Telephone Exchange to E-Company and CMD Gadwal.
- Laying of secondary cable network from CMD Gate to all CMD DPs.
- Laying of primary copper telephone network from store Gate to Ordnance Housing (950 meters) alongwith installation of 600 pairs cabinet near Weapons Gate.

Maintenance Electrical

Under-mentioned Jobs/operations carried out at Maint-Electrical Shop:-

Re-Winding/Overhauling:

- 03 x Hydraulic Pump motors- B-31/MAA
- 03 X Motor Generator Sets 250 KVA - B-31/MAA
- 3 Phase Induction motor 100 KW - C-14/MAA
- CW Pump Motor 200 KW - Power House
- Slipring Induction rotor 230 KW - Explosive Fy
- Transformer 150 KVA - B-31/MAA
- 3 x Electric Motors 300 HP - ED/A-34
- Transformer 750 KVA ED/A-34
- Electric Motor 224 KW - ED/A-34

Major Projects

- Replacement of lightning Network at APR Sonmiani
- Procurement of solid state induction furnace -MG Fy.
- Provision of Power supply to new compressor at D-26
- Installation of Parameter Wall Security lights at POFIT
- Electric connection to 04 x newly installed ACs at MIS
- Provision of Electric connection in case-II and Annealing Shop D-02 (SAA Fy)

- Electrification of Depth Charge Lab & R&D
- Replacement of existing thin cable (Telephone Cable) with proper cable at Fire Range Hassanabdal
- Procurement, Installation & Commissioning of 03 new Lifts for C-04/BOB
- Manufacturing / Erection of 15 x new earth pits in Engg. Factory
- Provision of Electric Power supply to new Tube will near Golf Club
- Installation of Automatic changeover at C-04 building
- Provision of 3-Phase power supply to new X-Ray Machine at B-10.

Safety & Fire Fighting Activities

- Safety lectures on different topics were arranged every month at FF Lecture Hall.
- Mock Exercise attended : 11
- Fire Coverage at events : 38
- VVIP coverage at Helipad : 07
- Fire Services provided during the year 2016-17

  Minor - 55

  Major - 127

  Total - 182

- Arranged training on First Aid Fire Fighting, Fire Prevention and Disaster Management to POF Employees

- Main Fire Station	:	635
- Wood Working Fire Station	:	717
- Explosive Fire Station	:	327
- Filling Fire Station	:	478
- Clothing Fire Station	:	508
Total	:	2665

Reconditioning Services

Following machines were refurbished/manufactured during 2016-17:

- BA Press - SAA Factory (Qty:01)
- Lead Core Machine - SAA Factory (Qty:01)
- Final Draw Press - SAA Factory (Qty.01)
- HTR Machine - SAA Factory (Qty.01)
- Pocketing Press - Sanjwal Factory (Qty.01)
- Heading Press - Sanjwal Factory (Qty:01)

- Hydro Machine - POF Hospital (Qty:01)
- Plain Milling Machine - PMTL (Qty.01)

Exports

POF made drastic progress in its international business. A major restructuring took place in exports department and it was organized on regional and specialization basis. A sales/marketing professional was hired from market and with the focused approach of management and support of POF's production unit, the organization was able to quadruple its yearly exports orders. During the year 2016-17 the volume of exports remained at reasonable level. The breakdown of exports is as under:-

a. Total Value of Contracts = US $ 67.77 Million

b. Despatches Made = US $ 31.16 Million

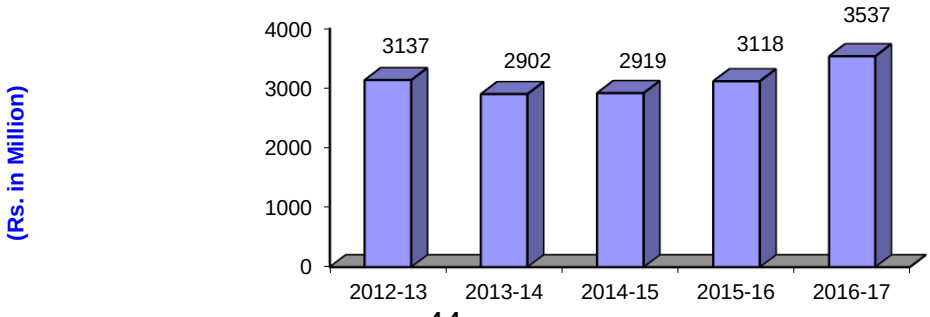
c. Orders under Production = US $ 36.61 Million

During current FY, POF participated in seven international defence exhibitions i.e. Land Forces Expo Australia (as trade visitor), AAD South Africa, ADEX Azerbaijan, IDEAS Karachi, Shot Show USA (as trade visitor), IDEX Abu Dhabi & IDEF Turkey wherein POF displayed its complete range of products. These promotional activities remained very meaningful, which will bring handsome business in the days to come. IDEAS-2016 platform was very effectively used where new products like Light Sniper Rifle, HMG PK-16, ETSQ Fuze were introduced.

POF's participation remained fruitful in establishing new contacts, revival of existing ones which ultimately yielded into number of new inquiries/confirmed orde

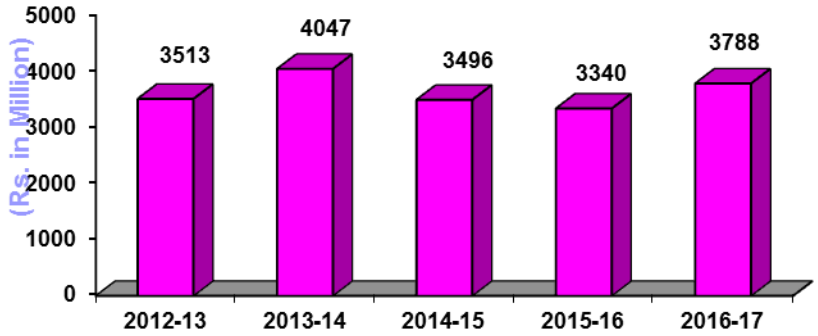
Commercial Production

M/s Wah Industries Ltd., (WIL)'s performance during the financial year 2016-17 remained upto the mark & we have created a new landmark in the history of WIL by achieving highest ever sales figure. Comparisons of the sales are as under:-

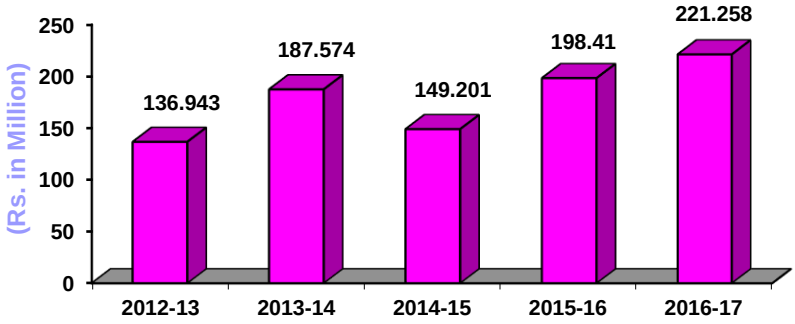


M/s Wah Nobel (Pvt) Ltd. Wah Nobel is a Pvt Limited Company in which Wah Industries Limited (WIL) hold majority share 51.75%, while SAAB of Sweden and Almisehal of Saudi Arabia are other shareholders with 27.23% and 21.02% shares respectively. The sales during FY 2016-17 were Rs. **2,312.549 M.** The sales increased by **30.83%** vis-a-vis previous FY 2015-16 (increase Rs. 545 Million).

M/s Wah Nobel Chemicals Ltd. Wah Nobel Chemicals is a public limited Company. Wah Nobel (Pvt) Limited has 55.23% shares, while the remaining 44.77% shares are held by various institutions and General Public. The sales during FY 2016-17 were Rs. **1,475.76 M.** The sales increased by **5.86 %** vis-a-vis previous FY 2015-16. **Their gross sales (WNPL & WNCL) during FY 2016-17 were Rs. 3,788 M.**



M/S HI-Tech Plastics (Pvt) Ltd. ***Manufactures various packaging, Containers, Carriers for Ammo and plastic parts of ammos. It has injection, blow moulding and extrusion facility. Sales during year 2016-17 is higher as compared to the previous years. The details are as under:-***



Quality Assurance

Implementation Of Commercially Off The Shelf (COTS) Concept In POF

POF is procuring a wide range of equipment, machinery and materials from within country as well as abroad. These products are procured through an elaborated procedure of evaluation, tests, procurement and inspection. The procurement process is very refined, but some time due to non availability of requisite technical specifications the vetting of indents cannot be carried out by vetting section of QA Dte. Non availability of technical specifications alongwith testing method hinders the inspection process which may ultimately results in to inspection of material based on approved samples. Inspection in such cases is always ambiguous as the market is flooded with large variety of items ranging in different brackets of prices. To overcome these factors a concept of COTS has been introduced. ***Procurement through COTS is limited to only those indirect materials whose technical specifications are not available or cannot be formulated by user Factory / Groups.*** The COTS consists of those stores / items which are readily available in market and are as per requirements of user. These items are procured from a firm / OEM of repute with credible quality standard and market due to which the store may be accepted on firm warranty / guaranty, by reducing the procurement as well as inspection procedure. The system duly approved by the Chairman POF Board has been introduced and is in vogue in POFs.

Production Targets

QA team accomplished the production targets meant for LEAs CAFs / Export by inspecting variety of Arms / Ammos & allied stores. Similarly ISI also completed the assigned target for SCM groups and ISI factories by inspecting all sort of store within the stipulated time frame.

Training Programs:

S.No	Training Program	No. of beneficiaries
i)	**In House Training for POF Officers at POFIT** The courses are being run for the continual Development of POF Officer and staff in the field of Personality development, technical development and Socio civic development	947
ii)	**In Service short courses(POF Candidate)**	79

	POFIT has been mandated for running various training for technical development of POF employees. POF Employees from various factories attend these courses in Mechanical, Electrical, CNC, Electronics and chemical fields.	
iii)	**<u>Artisans Training</u>** POFIT has been conducting 18xmonths Artisans training program to equip them with the skill needed to serve in POFs. This trainings being conducted under Apprenticeship Ordinance 1962.	318
iv)	**<u>DAE Students</u>** Three years Diploma of Associate Engineer (DAE) courses are being conducted in affiliation with Punjab Board of Technical Education, Lahore in the following 07 Technologies as a regular Evening Program: • Mechanical Technology • Electrical Technology • Chemical Technology • Electronic Technology • Civil Technology • Biomedical Technology	1200

Enhancing the life of Machines

During the financial year 2016-17, 08 No. of machines were refurbished/reconditioned by POF using its own indigenous resources without outsourcing from market vendors. The total expenditure incurred on the reconditioning/refurbishment was Rs 4.0 Million in respect of 08 machines. The new machines were procured POF had to bear a total expense of Rs 235 million. Hence, POF made a remarkable savig of Rs 231 million in the F.Y 2016-2017 enhancing the life of machines to another 10-15 years.

Welfare Activities

POF undertakes a number of Welfare measures for its employees and spend huge amounts in addition to their normal entitlement of pension, Group Insurance Benevolent Fund & P.M Assistance Package. In 2016-17 following activities were carried out:-

Nomenclature	No of beneficiaries	Total Amount 2016-17 (Rs. in Million)
Wards Marriage Grant	415	10.42
Merit Scholarships	668	4.59
Death Grants (Self and Family Members)	80	0.88
Payment to Shuhadas	79	1.26
Charity Meal	29,063	1.01
Tricycle / Motorcycle	07	0.267
Financial Aid on Medical Treatment	11	0.804
Wheel Chair	05	0.034
Honorarium	Employees of All Factories & Allied Deptt.	565.929
Awarded 75% fee concession to POF employees sons/daughters of POF employees through Wah Engineering College	34	1.42
Awarded 75% fee concession to POF employees sons/daughters of POF employees through COMSATS	81	2.239
Paid House Building Advances	86	24.644
Paid Car Advances	12	3.197
Paid Motor Cycle Advances	46	2.240
Paid Bicycle Advances	14	0.110

Medical Cover

POFs Hospital was established in 1962 with an initial capacity of 103 beds. Hospital capacity increased 200, 400 and 500 beds in 1963, 1969 and 1987 respectively. Existing bed strength is 676 due to

introduction of new departments over successive years. It is now a modern tertiary care hospital providing teaching facilities to Wah Medical College. The hospital is recognized for house job and postgraduate training (FCPS) in various disciplines. The hospital is responsible to provide healthcare facilities to serving/retired POF's employees & families/parents of the employees, army personnel posted to POFs (including their families/parents) and employees of Allied Departments (CMA, IDA etc). The hospital also extends diagnostic and treatment facilities to general public residing in the area on nominal payment. POF Hospital workload statistics for the year **2016-17** is as follows:

Sports

Golf Ground

POF Wah having a rich culture of sports is known as hub of sports activities due to outstanding infrastructure available for almost all sports events. POF Sports has produced a number of players who represented Pakistan at International level in the past. This sports trend brought good name for POF at National level. It is pertinent to mention here that some international sports events such as SAF Games, International Squash, Tennis, Kabaddi and Volleyball were held at Sports facilities of POF, which speaks about the confidence of various National Sports Organizations in POF Sports Board Management's skill and expertise.

Presently POF Wah has become the leading department of the country by organizing International/National tournaments which definitely contributed to promote the soft image and good name of our country amongst the regional countries. In fact, POF seems the only organization in Pakistan making energetic efforts to attract youth in all sports, for which POF Sports Board has organized International/National & local sports events:

a. **Local Tournaments**

1) POF 48th Inter Factory/Group Competitions 2016.
2) 3rd POF Sports Board Floodlit Tape Ball Cricket Tournament 2017.
3) POF Sports Board Bodybuilding Competition 2017

4) POF Sports Board Wah Inter Club Basketball Tournament 2017
5) POF Sports Board Wah Open Badminton Tournament 2017
6) POF Sports Board Wah Inter Club Football Tournament 2017

b. **National/International Events**

1) Chairman POF Board National Ranking Tennis Tournament 2016.
2) Chairman POF Board National Men's Squash Tournament 2017.
3) POF Volleyball Team participated in National Jr.Men's Volleyball Championship 2017 (Peshawar)

The facilities available with POF SCB are being utilized to engage the youth in Volleyball, Basketball, Hockey, Athletics, Football, Squash, Tennis, Cricket, Table Tennis, Badminton, Cycling, Swimming, Health & Fitness Centre with provisioning of free coaching and sports gear.

Welfare Trust

POF Welfare Trust administratively and financially manages the affairs of its 13 x operational projects and 4 x autonomous projects as under:-

Operational Projects

- Welfare Transport Service
- Izzat Ali Shah (Female) Hosp
- Welfare Filling Station
- Welfare Computer Centre
- Welfare Club-ll (Marriage Hall
- POF Welfare Pharmacy
- POF Montessori School
- Wah Poly Technique College
- IAS(F) Hospital Medical Store
- Welfare Industrial Home
- Welfare Charity Fund
- Welfare Shops
- CNG Station (GASCO 2000)

Autonomous Projects

- University of Wah
- Wah Medical College
- Wah Engineering College

- Mashal Degree College
- Constituent College of UoW

To make the Welfare Trust a vibrant, credible and financially independent organization, the objectives and mission was re-analyzed in year 2010 under the guidance and patronage of Chairman POF Board. To fulfil above mission, the team geared up to formulate & explore new welfare opportunities & existing profit earning projects financially viable to support non-welfare or charity projects.

Major achievements / gained in various projects are highlighted as under:-

a. **Izzat Ali Shah (F) Hospital:**

The existing setup of Izzat Ali Shah (F) Hospital was insufficient to cater increasing turnover of patients. Thus with the patronage of Chairman POF Board, a new block in the hospital has been added with state of the art facilities costing Rs 55 Mn for the welfare of poor residents

b. **Welfare Transport Service:**

New transport fleet i.e. 19 x Hiace & Suzuki vans have been added, 15 x off road buses to bring the fleet operational have also been made road-worthy to provide instant commute services. 03 x large Hino buses valuing Rs. 24.00 M and 03 x Toyota Hiaces valuing Rs. 6.50 M are included in the fleet. Average 12,000 x passengers travel on daily basis in WTS vehicles.

c. **Welfare Filling Station:**

One car service station and two shops have also been added at Welfare Filling Station to provide easy access and quality products as welfare measure to increase the business and to meet increasingdemand of the residents of Wah Garrison.

d. **Welfare Club-II (Marriage Hall):**

Construction of additional kitchen, car parking and renovation & improvement of halls has been carried out to improve the outlook and provide better facilities for the welfare of POF / retired employees.

e. **POF Welfare Pharmacy:**

The Pharmacy has been extended in space and upgraded in view of the POF Hospital and general public requirements with total cost of Rs 1.800 Million. Further, computer systems, inventory management software, sales-force & stock of medicines have also been increased with further investment of Rs 10.00 Million. Internal security system has also been installed to cater for unforeseen and better management.

f. **POF Montessori School:**

The latest instructional media i.e. Oxford syllabus has been introduced. Resultantly, strength of the students has been increased from 265 to 425 students. To accommodate increasing strength 02 x additional class rooms have also been constructed worth Rs. 27.000 Million.

g. **Welfare Computer Centre:**

A computer lab consisting 25 x computers has been added in WCC from its own funds. Further, ten new courses have also been introduced thus providing welfare to the POF & retired employees & their wards through concessional fee charges.

h. **Financial Aid to Serving / Retired Employees:**

Following is the summary of welfare / financial assistance provided to the POF serving / retired employees and their wards during FY 2016-17:-

Sr #	**Organization**	**Wel / Fin Assistance**
a)	POF WT	Rs 29.000 Million
b)	Wah Med College	Rs 15.560 Million
c)	University of Wah	Rs 05.367 Million

i. **Welfare Industrial Home**

The Project re-engineered in January 2013 to manufacture & provide stitched items at subsidized rates as a welfare measure to general public. Needy / poor women have also been employed to make them as earning hand for their family members. Besides, wards of POF employees have also been supplied uniform items at various institutions on concessional rates.

j. **Wah Polytechnic College**

The College is imparting technical education in different fields to the wards of POF serving / retired employees at discounted fees. Three years diploma in Mechanical, Electrical & Tele-communication field is running successfully. Short courses in refrigeration & air conditioning, plumbing & sanitary fittings and electrical subjects are also being offered on comparatively low fee charges. Recently, new Lab/Workshop has been added with the state of the art mechanical facilities for students. Moreover, the Punjab Technical Board was allocated additional 50 x seats in Mechanical discipline to impact technical education.

POF Central Library

POF Central Library was established in 1984, which is a great source of education and research for POF employees as well as general public of Wah Cantt and vicinity to make the best utilization for normal study and research work etc. This library has over 50,000 books on various subjects. During the Year 2016-17, 964 books have been purchased on the demand of Readers.

Visits to POF

- President of the Republic of Senegal H.E. Mr. Macky Sall alongwith an official delegation visited POF on 7th September 2016. During the briefing, Chairman POF Board briefed the delegation that POF can meet the requirement of all types of conventional arms and ammunition of Senegal. The delegation showed keen interest in the manufacturing process of arms and ammunition in POF and lauded the high quality of POF products.

- H.E. Dr. Khalid Mohamed Al Attiyah, Minister of Defence Affairs, Qatar, alongwith an official delegation visited POF on 26th October'2016. Ambassador of Qatar based at Islamabad was also accompanied with the delegation. Minister of Defence Qatar while endorsing remarks in the Visitors' Book mentioned "**I am happy to see what POF can do to make our world safe**".

- Prime Minister of Pakistan Muhammad Nawaz Sharif visited POF on 6th February'2017 for inauguration of Wah Brass Mill. Now the production capacity of Wah Brass Mill has been enhanced from 7000 metric ton to 24000 Metric Ton per annum. Prime Minister appreciated the efforts of POF administration for establishing a huge capacity Brass Mill which will not only meet the requirement of POF but will also meet the requirement of local market in terms of brass. Prime Minister of Pakistan announced a relief package for the POF employees on this occasion, which include 02 advance Increments, 25% Special POF Allowance & a Housing Scheme.

By endorsing the remarks in Visitors' Book, Prime Minister mentioned "I am immensely pleased to visit POF and it is our premier military hardware manufacturing industry which has earned Pakistan's Small Arms and ammunition of great repute, both home & abroad for quality accuracy and durability. I am much impressed to observe the efficiency, dedication and professionalism with which the organization is being managed & run".

- Rana Tanveer Hussain Federal Minister for Defence Production innaugurated Solar Power Plant at POF Sanjwal on 28th March'2017. Its general capacity is 5.04 MW & it is the largest captive solar plant in any industrial unit in Pakistan. The power generated by this plant will be utilized for POF Sanjwal Factory which will cater for as much as 50% requirement of POF Sanjwal during working hours of the factory. The surplus power generation will be injected in the national grid on the basis of Net-Metering after working hours of POF Sanjwal & on holidays.

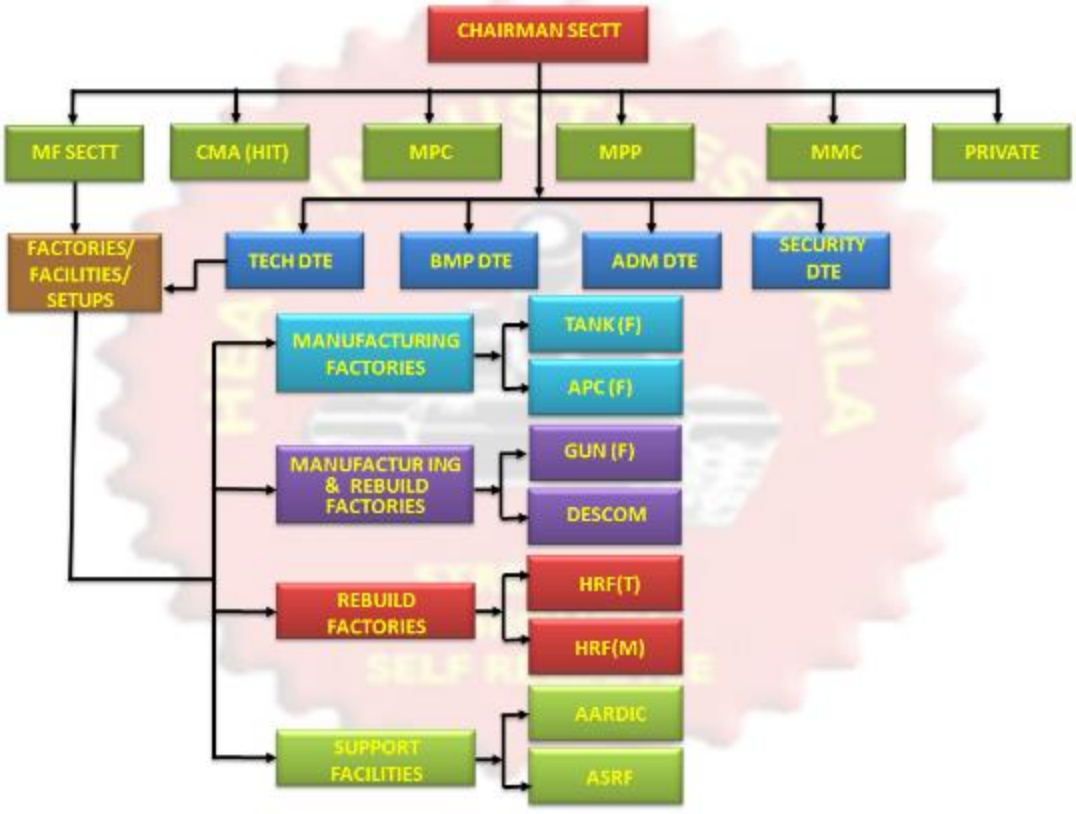
- Members of National Assembly Standing Committee on Defence Production headed by its Chairman, Khawaja Sohail Mansoor, visited POF on 29th March'2017. Members of National Assembly Standing Committee on Defence Production witnessed newly developed weapons by POF and praised the expertise of POF engineers and workforce

Heavy Industries Taxila

(HIT)

HEAVY INDUSTRIES BOARD TAXILA

ORGANOGRAM:



DEFENCE ACHIEVEMENTS

HIT, by the grace of Almighty Allah achieved the assigned tasks to a large extent and also assisted Army in R&D for development of Tank Al Khalid-2 and upgradation of Al Zarrar tank. In addition, surplus capacity where available was utilized for commercial activities which included manufacturing of international standard Security Vehicles and equipment for LEAs of Pakistan. Following are the major events/ activities during the year 2016-17:-

a. **Rebuild of Tank T-80UD.** Chief of Army Staff Qamar Javed Bajwa visited HIT in 2017. During the visit Army Chief inaugurated newly built T-80UD & Al Khalid rebuild facility (Shop-1A) and formally initiated the commencement of T-80UD Pilot rebuild programme. During pilot rebuild programme 5 tanks will be rebuilt in 2018-19. Subsequently series rebuild of 315 tanks·T-BOUD will be carried out after allocation of funds.

b. **Rebuild and Up-gradation of Tank T-8511AP.** Rebuild and up-gradation of 268 x tanks T-8511AP was planned in two phases of 108 and 160 tanks each. Phase-1 started in 2015 and rebuild / up-gradation of 108 tanks have been successfully completed and 60 tanks have been handed over to Army.

c. **Launching of Mohafiz IV/ Interceptor 4 x 4.** HIT is manufacturing Security Vehicle Mohafiz I and II for LEAs of Pakistan for the last 15 years. HIT in partnership with its JV partner Blitzkrieg Defence Solution has recently developed an advanced Security Vehicle **Interceptor.** The vehicle was also showcased by HIT in Bahrain International Defence Exhibition & Conference (BIDEC) at Bahrain in October 2017.

The production progress during financial year 2016-2017 is as under :-

Rebuild / Upgradation Projects		**Quantity**
• Upgradation of Tank T-85IIAP	-	74
• Tank Engines	-	104
• Rebuild of APCs (M113 Al/A2/P) / EDA Stock	-	182
• APCs Engines	-	2
• Rebuild/Upgrad 125 mm tk gun T-85IIAP	-	28
• Modification of Mor Carr into Tp Carr APCs ex Jordan	-	39

- **Manufacturing Projects**
  - Tank Al-Khalid-1 - 16
  - 125 mm Tank Gun Barrels - 22
  - 125 mm Tank Guns - 17

- **Tank Sustenance by HIT to Field Formation of Army**. Repair work carried out by SRTs (Site Repair Teams) on required basis in Army field units is as under:-
  - Tank T-80UD 45
  - Tank T-85IIAP 70
  - Tank Al-Khalid 74
  - Tank Al-Zarrar 56
  - Tank T-59 5
  - ARV 10
- Components / sub-assemblies repaired on deposit Repair Work Order (DRPWs)

INDIGENIZATION

All HIT projects are subjected to time based deletion plan through indigenization. This includes manufacture of in-house items and development of parts and components through downstream industry. The achievements for year 2016-17 are as under:-

Ser	Products	No of Varieties of Parts Manufactured	
		In house Manufacturing	Through downstream Industries
a.	Tank Al-Khalid	108	07
b.	Tank Al Zarrar	53	01
c.	Tank T-85IIAP/ T-85UP	518	11
d.	Tank T-80UD/6TD-1	43	10

e.	APC Saad / APC M113	04	03
f.	ARV W653/653A	01	-
g.	125 MM Tank Gun	09	1
h.	Security Vehicle Mohafiz	01	-
i.	580 / 730 HP tank engines	02	06
	Total	**739**	**39**

COMMERCIAL ACTIVITIES

HIT is pursuing commercial activities utilizing its surplus capacity for manufacturing of marketable products for export and domestic sales under HIT board Act. Some of the commercial products manufactured Dev in year 2016-17 are as under:-

Ser	Products	Factory	Quantity
a.	Armoured Security Vehicle 'Mohafiz'	APCF	22
b.	Armoured Security Vehicle 'Protector'	"	16
c.	Discreet Armouring of Vehicle	TMF	03
d.	Bullet Proof Jackets (BPJ)	DESCOM	9975
e.	Bullet Proof Vests	"	2236
f.	Bullet Proof Helmets	"	341
g.	Repair of APC M113	APCF	15

Commercial Products

- **Security Vehicles**

Mohafiz - II. The main features are as under:-

(a) Platform - Land Rover Defender (122 HP).

(b) Torque - 360 NM.

(c) Manufactured with Ballistic steel or Aluminum - steel combination with rotating turret.

(d) Protection level - B6

(e) Seating capacity - 8

(f) Firing ports - 6

(g) Run flat tyres.

(h) Additional features include Jammer for GSM.

Mohafiz-II

Armourd Security Vehicle "Protector". The main features are:-

(a) Engine type - (200 HP), at 3400 rpm

(b) Drive System - Full time 4-wheel drive (4x4)

(c) Brake System - Hydraulic power assisted brakes

(d) Seating Capacity - 8 (2 +6)

(e) Suspension - Heavy duty (Upgrade)

(f) Body Protection - Provide protection to meet N.I.J. Standard Level IV

(g) Doors - 3 (2 front, 1 rear)

Armourd Security Vehicle "Dragoon". The main features are:-

(a) Driver Night Vision periscope - 45^0

(b) Fire Suppression System – Semi automatic

(c) Protection Level - B-7

(d) Engine - Caterpillar Engine (300 HP)/ Detroit Diese 6V53T, 224 kw at 2800 RPM (300 HP)

(e) Suspension System - Solid Axle System

(f) Brake System - Hydro pneumatic

(g) Transmission - Caterpillar/Alison PF MT 653

(h) Crew Capacity - 11 including Driver

(i) Doors - 2 (1 x side & 1 x rear)

Discrete Armoured Vehicles. The main features are:-

a) Protection B5 / B6 / B6 + level.

(b) Blast protection upto DM51 standard and above.

(c) Bullet proof front, rear and door glasses.

(d) Improved brake system.

(e) Improved suspension system.

(f) Run flat tyres.

Bullet Proof Jacket (Hifazat). The main features are:-

(1) Weight - 6 Kg

(2) Size - Available in all sizes

(3) Colour - As per user requirement

(4) Protection - NIJ level III & IV

(5) Protected area - Front and back, collars shoulder

(6) Material - Fire retardant, floatable, chemically inert

- **Armoured Guard Post (Bunker)**. The main features are:-

(1) Pentagonal shaped Armoured Guard Post (Bunker).

(2) Provide immunity against 9mm, 38 Bore, 7.62mm NATO BALL and AP round (B-6 & B-7 level) at 10 m distance.

(3) Ballistic Protection B-6 & B-7 level.

(4) Full protection against hand grenade.

(5) 9 x view windows with bullet proof glass all around.

(6) Seating capacity of 2 x seats without turret and 1 x seat with turret for 1 man bunker, whereas for 2 men bunker 4 x seats without turret and 2 x seats with turret.

(7) Firer can fire in both sitting and standing positions.

Benefits of Commercial Activities. HIT has significantly contributed in government treasury through exports and domestic sale of APCs, security equipment / vehicles and discrete armouring of vehicle. Salient are as under:-

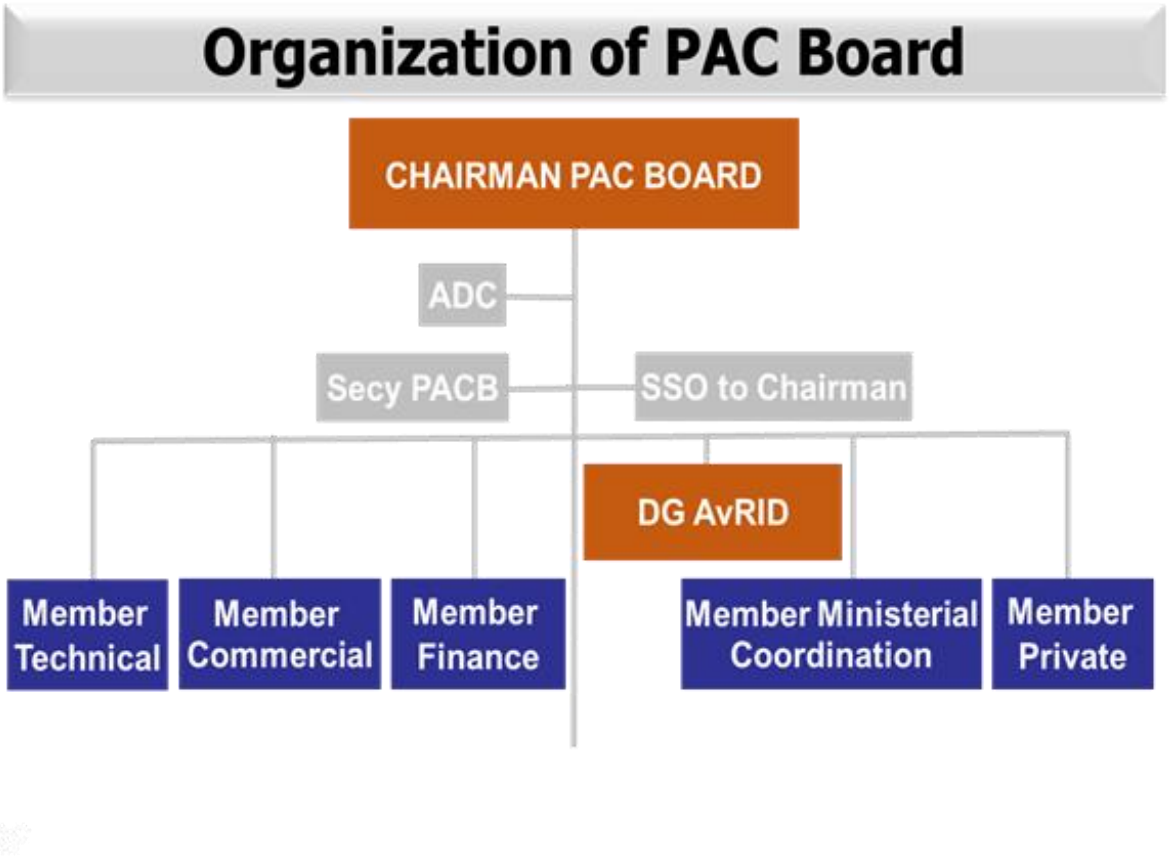
a. Total sales in FY 2016/17. :Rs. 1636.602 Mn

b. Profit earned for Government. :Rs. 163.66 Mn

c. Proportionate cost remitted to Government as per rules. :Rs. 39.15 Mn

Pakistan Aeronautical Complex Kamra (PAC)

PAKISTAN AERONAUTICAL COMPLEX KAMRA



Pakistan Aeronautical Complex (PAC) was established in 1972. The idea was conceived to develop indigenous facility for overhauling Chinese origin fighter aircraft. Realizing the benefits, it was soon ascertained that a huge amount of National exchequer could be saved if such facility could also be established for other weapon systems like the newly inducted PAF Mirages. The conceived idea leads to the formation of Mirage Rebuild Factory. In order to meet the requirements of Light military trainer aircraft for Pakistan Armed Forces, another facility named Aircraft Manufacturing Factory was established in 1975. Manufacturing of Super Mushshak aircraft for Pakistan Armed Forces as well as the international customers was undertaken by this factory. Subsequently a facility for in-country overhaul of ground based radars and airborne avionics was also established, which has gradually transformed into a modern avionics design development and manufacturing facility. Pakistan Aeronautical Complex, while continuing its role as Maintenance Repair Overhaul (MRO) organization for technical operational support of PAF, took a giant leap forward towards manufacturing of

JF-17 fighter aircraft. At present, PAC Kamra consists of a wide complex comprising four factories, and an Aviation Design Institute (AvDI) namely:

- Aircraft Rebuild Factory (ARF)
- Mirage Rebuild Factory (MRF)
- Aircraft Manufacturing Factory (AMF)
- Avionics Production Factory (APF)
- Aviation Research Indigenization and Development Center (AvRID Center)

Aircraft Rebuild Factory (ARF)

ARF was established in 1972. DuringFY 2016-17, ARF successfully completed the General Overhaul (GOH) of assigned aircraft along with the associated tasks to ensure extended and sustained support for PAF operations. Numerous important tasks were accomplished during the specified span of time.

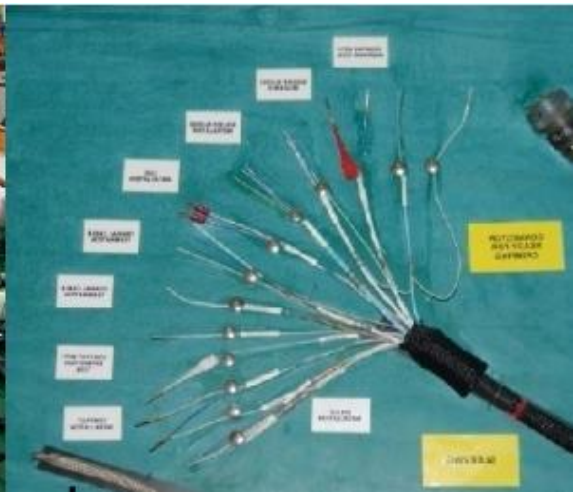
- **Indigenization / Development Projects.**

A significant number of indigenization / developmental tasks were accomplished at ARF. Tasks being carried out at ARF during specified span includes:-

(a) 800 Ltr / 1000 Ltrs Drop Tanks manufacturing for JF-17 aircraft

(b) Ground Support Equipment for JF-17 aircraft

(c) Fabrication of harnesses, pips & dies for different aircraft & parts



(d) Tooling for JF-17 A/C engine

(e) Hardware / fast moving parts for GOH of F-7P / F-7PG

(f) XB-3 items for JF-17 aircraft

(g) IREK & PMR projects mechanical kits

Specialist Facilities

(a) Overhauling of Chinese aircraft including F-7P, F-7PG, K-8 & Y-12 is being accomplished.

(b) Existing facilities have been upgraded to establish the MRO setup of K-8P aircraft.

(c) Facilities are being establishment for MRO of JF-17 aircraft, its components and small parts.

(d) Up-gradation of “Center of Excellence” for manufacturing of Canopy Windshield of all fighter aircraft is in progress.

(e) Fighter aircraft Drop Tanks are being Manufactured.

(f) Aircraft Modifications have been carried out for various weapons.

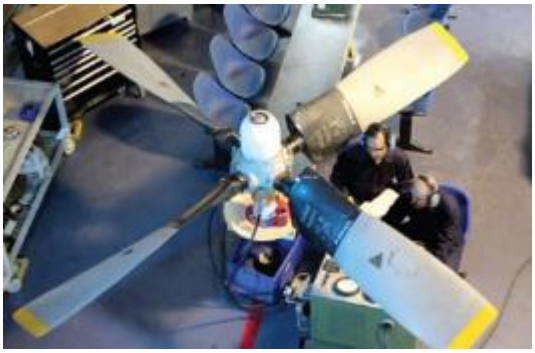
(g) Rewiring of aircraft and Cobra Helicopters is being done.

(h) Modification of Pylons for Mirage Pressurization Refueling (MPR) is being accomplished.

(j) Boeing aircraft parts are being manufactured.

(k) Calibrations of PMEs / PMIs & Non Destructive testing of Materials is being done.

(l) C-130 aircraft propellers & QECs are being overhauled.



(m) Fighter aircraft AMEs are being refurbished.

- **Mirage Rebuild Factory (MRF)**

MRF was established in 1974 to support the Mirage Fleet of PAF. During the year 2016 – 17 overall production of the Factory was well beyond its established capacity.

- **Indigenization / Development Projects.**

The aircraft group of MRF carries out overhauling of Mirage III and V aircraft and their components. Engine overhaul group of MRF undertakes overhaul of following engines:-

(a) ATAR 09C of Mirage aircraft

(b) F-100 of F-16 aircraft

(c) T-56 of C-130 aircraft

(d) J-69 of T-37 aircraft

(e) TFE-731 of K-8 aircraft

(f) Trail repair of UPAZ

- **Specialist Facilities.**

(a) Specialist Welding

(b) Plasma Spray

(c) CNC Pipe Bending

(d) Aircraft structural repair capability

(e) Aerospace caoting and livery facility

F-100 Engine overhaul facility for F-16 Aircraft

T-56 Engine overhaul facility for C-130 Aircraft

ATAR 09C Engine overhaul facility for Mirage Aircraft

J-69 and TFE 731 Engines Overhauling

Aircraft Manufacturing Factory (AMF)

AMF was established in 1975. This Factory is manufacturing JF-17, Mushshak and Super Mushshak aircraft in addition to producing few sub-assemblies for K-8 Jet Trainer aircraft and Unmanned Aerial Vehicles. Super Mushshak is an ideal aircraft for elementary flight screening and primary flying training.

The following achievements were made by AMF during the period under review:-

- **JF-17 Co-Production Projects.**

JF-17 airframe co-production project produced 16 Block-II aircraft for second consecutive year in 2016, which represents designed production capacity of project. In order to fulfill operational requirements, AMF has incorporated three different configurations of Block-II aircraft in the production process and successfully resolved all related technical challenges.

Production activities are progressing in all work-areas of AMF as per the master production schedule of Block-II aircraft. All efforts are being made to plan, organize and monitor production work in the most efficient manner so as to achieve the Block-II aircraft production target. Concurrently, production work for the first 3rd party order of JF-17 aircraft was also accomplished and assemblies were dispatched to China as per the committed delivery dates.

- **Super Mushshak Sales & Delivery.**

In June, 2016, PAC signed a deal for sale of 08 SMK trainer aircraft to Qatar Armed Forces. As per the contract, personnel (Officers, JCOs / Airmen / Civilian) have been deployed at Al-Zaeem Air Academy Doha, Qatar for the operational, maintenance training and services for duration of 05 years.

- **Repair & Spare Support.**

In addition to co-production of new aircraft; AMF is fully utilizing established facilities and acquired capabilities for modification and life cycle support to PAF. Such projects include modification work and flight trials of air-to-air refueling capable JF-17 aircraft, manufacturing of baffles for an AWC Project, Mirage aircraft pins, Rainbow Fitting of C-130 aircraft, manufacturing of complex parts required to complete ISR mod on C-130 aircraft, x-ray inspection to throttle cables, manufacturing of GHE / GSE for squadron and I-level setup, and on-site repair / rectification support at base level.

- **Specialist Facilities**

a) State-of-the-art CNC machining

b) Sheet metal forming

c) CNC Pipe Bending

d) Composite Parts Manufacturing

e) Heat and Surface treatment

f) Shot Peening & surface Enhancement

g) Special Inspections (Physical, Chemical & NDT)

h) CAD / CAM & Reverse Engineering

- **Avionics Production Factory (APF)**

APF was established in 1986 as “Kamra Avionics and Radar Factory” (KARF), which was subsequently renamed as Avionics Production Factory in 2011. APF initially undertook overhauling of ground based radars and co-production of selected Avionics systems and later on ventured into design, development and manufacturing of different Avionics systems. The co-production of avionics systems used in JF-17 aircraft is done at this factory. This factory also has a unique / coveted capability of weapons integration which enables it to integrate modern standoff weapons on aircraft.

- **Major Achievements in Year 2016-17.**

S No	Type of Production	Achieved
1	Co-production of JF-17 Aircraft	**16**
2	Production of SMK Aircraft	**12**
3	On-site Recovery of Aircraft	**34**
4	Aircraft Repair at AMF	**10**
5	Major Repair of Assemblies	**40**
6	Spare support to PAF & Army	**3716**
7	Spare support to RSAF & RAFO	**1389**
8	Overhaul of Ground Defence Radars	**05**
9	Life cycle maintenance support of Airborne Avionics of various aircraft	**4736**
10	Co-production / Design & Development of Avionics systems	**325**
11	PME Calibration / Testing	**2736**
12	Mirage A/C (Mini GV)	**04**

13	A/C Components	**17675**
14	Delta GV	**10**
15	Major GV	**01**
16	MPR Modification	**03**
17	10 KVA Alternator Modification	**02**
18	JF-17 & MIsc A/C Painting	**21**
19	Wing Refurbishment / Recovery	**06**
20	On site Teams Dispatch to PAF Bases	**11**
21	MRF Components	**11183**
22	PAF Components (MRS)	**5642**
23	JF-17 Components	**850**
24	ATAR Engine (GOH/LOH)	**80**
25	ATAR Engine Accessories	**7471**
26	ATAR Junction Section	**29**
27	F-100 Engine Modules	**33**
28	F-100 Engine Accessories	**1233**
29	T-56 Engine	**16**
30	T-56 Engine Modules	**11**
31	T-56 Engine Acys	**838**
32	J-69 Engine	**02**
33	J-69 Engine Parts	**324**

34	TFE 731 Engine	**09**
35	TFE 731 Loose Parts	**13**

- **Aviation Research Indigenization and Development Center (AvRID)**

In order to realize the potential of Aerospace research along with development of several other high tech sectors, an Aviation Research, Indigenization and Development Center has been established at PAC for creating a sustainable R&D ecosystem that will enable Pakistani aviation industry to provide indigenous solutions to PAF, sister services and civil aviation as well as Create synergy through effective linkage and collaboration among Government, Industry and Academia.

- **Certifications**

All PAC factories are ISO 9001 : 2000 and Aerospace Standard 9100 Revision 'C' certified. PAC has also been awarded Boeing quality management system status. Additionally, its precision measuring equipment labs are accredited for ISO 17025 standards and heat treatment and surface enhancements are accredited by NADCAP PRI USA. PAC is qualified on European / Italian quality standards.

Acquisition of Civil Aviation Certification by PAC has given a further boost to sale of Super Mushshak by making it viable and acceptable option to many more customers including Flying Clubs, both in local and international market.

➢ Commercial Activities

Over the years PAC Kamra has grown into an international aviation standard industry. It has state-of-the-art equipment, machinery and expertise which are as competent as any aviation industry in the world.

Due to the standards and certifications that PAC has acquired, commercialization in the following areas is being offered by PAC:-

(a) Aircraft Sales

- JF-17 aircraft
- Mushshak & Super Mushshak
- K-8 aircraft

(b) Aircraft MRO for Mirage & selected Chinese Origin aircraft

(c) MRO of selected aircraft engines

(d) Life Cycle Support & Maintenance for Air Defence systems including radars

(e) Printed Circuit Board (PCB) stuffing

(f) Aircraft Painting

(g) Precision Measuring Equipment (PME) calibration

(h) Environmental Stress Screening (ESS)

(j) Generic Engineering design & manufacturing

As a result of special efforts in Super Mushshak aircraft marketing at international level, contract for sale of 10 Super Mushshak aircraft to Nigerian Air Force and 08 Super Mushshak aircraft to Qatar Armed Forces with 05 years support have been finalized during 2016-17 year. Furthermore, sale of 52 Super Mushshak aircraft to Turkish Air Force is likely to be finalized. The recent deal further strengthens PAC's status as a world class aviation industry also producing the supersonic JF-17 Thunder.

PAC is devoted to provide the highest quality services primarily to PAF and its sister organizations, and extend these services commercially to friendly countries. In this context, PAC has earned a considerable amount of foreign exchange and is continuing to extend its services on commercial footings. Saudi Arabia, UAE, Qatar, Turkey, Oman, Sri Lanka, USA and many others are some big names of countries included in the customers list of PAC.

National Radio Telecommunication Corporation (NRTC)

NATIONAL RADIO TELECOMMUNICATION CORPORATION

National Radio and Telecomm Corporation (NRTC) is a vibrant R&D organization, engaged in design, development and manufacture of telecommunication equipment in Pakistan. NRTC is the pioneer in Telecommunication Equipment and leader in the field of communication in Pakistan for the last five decades. NRTC is producing high quality products for Defense services, Law Enforcement Agencies, Paramilitary Forces and other civil / military Organizations since 1965-66.

By virtue of long experience in the field of telecommunication, NRTC has attained excellent technical back-up knowledge and support with a modern infrastructure and standard expertise required to produce telecommunication equipment to the entire satisfaction of the users. NRTC is ISO 9001-2008, ISO 14001:2008, ISO 18001-18002, IPC and MIL STD 810 certified as well. List of products manufacture by NRTC are at Annex-C.

LOCATION:

It is situated in T&T Complex Haripur (KPK) Pakistan, which is 80 Km North West of Islamabad.

QUALITY POLICY:

- **Our Prime Objective**

  To design, manufacture provide and install high quality and cost effective telecommunication products and services as per customers' requirements/ specifications and to their entire satisfaction

- **Our Aim**

  Commitment to quality , reliability, durability and continuous improvement of our products, services , processes and systems to be responsive to customers' expectations

- **Our Pride**

  Timely supply and provision of full time support on products maintenance and services

- **Our Priority**

  Strive to 100% customer retention and satisfaction by meeting their requirements first time and every time

- **Our Employees**

  Our goal is to constantly enhancing not only our products but also the quality of life and work of our valued employees through updating their skills /capabilities and providing healthy and safe environment

Board of Directors

• Chairman	Secretary Defence Production
• Vice Chairman	Additional Secretary, MoDP
• Vice Chairman (Tech)	Signals Officer-in-Chief
• Members	Managing Director, NRTC
	Rep Ministry of Finance
	Rep Ministry of Information Technology
	JS (Budget), Ministry of Def Production
	DMP (Army)
	Rep General Headquarters
• Company Secretary	Deputy Managing Director, NRTC

TECHNICAL PERFORMANCE / CAPABILITIES

NRTC has the following technical facilities/capabilities for the Manufacture, Assembly, Testing and Measuring of following equipment/tasks:-

- HF and VHF Military Version Radios.
- VHF and UHF Commercial Mobile Radios.
- VHF and UHF Single/Dual/Multi Channel Extend Radios.
- Military Version Switches/EPABXs 16 lines, 20 lines, 40 lines and 96 lines.
- Commercial Version Switches/EPABXs 50 lines to 1024 lines.
- Digital Field Telephone and Ruggedized Auto Field Telephone.
- Linear, Regulated Power Supplies.
- Printed Circuit Boards for all type of Telecommunication equipment.
- VHF/UHF Antennae for Military/Commercial Radios including Extend Radios.
- Environmental Test facilities as per MIL-STD-810E
- Mechanical and Surface treatment workshops
- PCB stuffing upto 16-layers
- Digital Investigation Suit

NRTC has the State- of-the-Art electrical /manufacturing machines equipment and has huge potential to manufacture various telecommunication equipment.

Automatic Inventory

Inventory Control and automatic management of components is essential and critical for any electronic manufacturing setup. Setup for storage with control environment for sensitive devices and integrated devices is a big challenge. In order to make sure that devices are stored in correct position and environment and easy to track, automatic storage system is essential for any advance electronic manufacturing setup. NRTC has state of the art inventory control system.

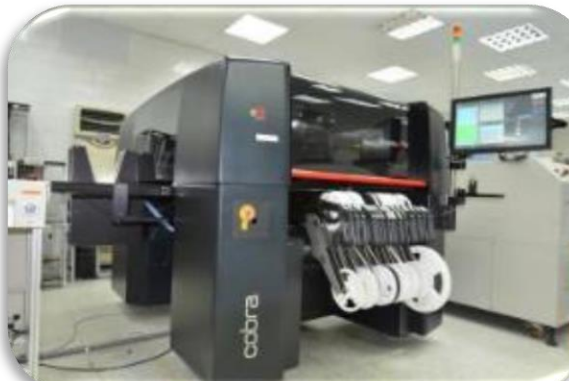
Power House

Power house equipped with 1.2 MW of generating capacity has been established to meet the power requirement of the factory during load sheding

Manufacturing of mechanical parts

NRTC has State-of-the-Art mechanical/manufacturing facility, that includes CNC machines of different categories including CNC turning, wirecut , 3 axis turning, nibbling and punching machines

Electronic manufacturing floors



SMT line

NRTC has established State-of-the-Art PCB stuffing and manufacturing facility of international standard, to meet the future requirements of NRTC products

Reflow Oven

Wave soldering plant

PCB Cleaning

PCB cleaning is important element in manufacturing of electronic assembly. It cleans the PCBs with de-ionized water to have fault free PCBs. M/s NRTC has recently established state of the art PCB cleaning facility

Envoirnmental test Facility

This facility is required to test the equipment operational conditions in environment ie, temperature test +70 -40°C, sand & dust conditions, salt spray test, water immersion test, vibration & bounce test, drop test etc.

Qualification of equipment in these test means equipment complies Military standard enforced for acceptance of the equipment. NRTC has the state of the art environment test facility

Automatic test and alignment facility

NRTC has state of the art automatic testing facility with General purpose test equipment along with special interface customized as per user requirement to test specific equipment.

MAJOR PROJECTS 2006-2017

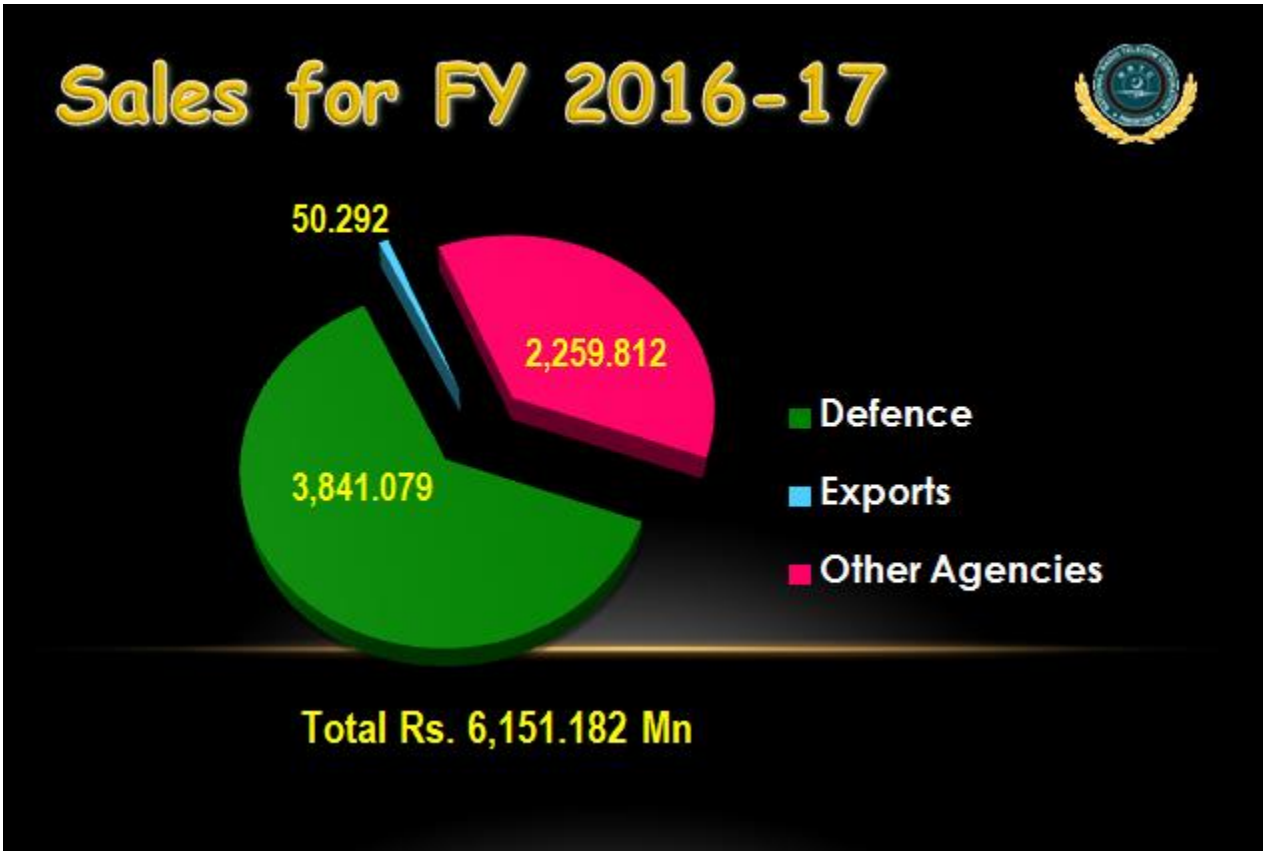
Following are major projects for the last nine years:-

- Local Manufacturing of VHF Frequency Hopping Radios (9600 Series)
- Up-graded PRC-77 Radios
- Automag 4+12 lines
- Digital Electronic Field Telephone Exchange PFX-6416
- Digital Electronic Field Telephone Exchange PFX-3208
- Field Auto Telephone Exchange PFX-1604
- Electronic Field Telephone (EFT-101) with and without Keypad Dialer
- Ruggedized Auto Field Telephone (RAFT-786)
- Cross-Connection Cabinets
- Power Supplies
- Walkie Talkies
- Dual Battery Charger
- Antenna RC-292
- Land Mobile Radios (SK-2 System)

- Software Defined Radios (SDR)
- Solar Solutions
- RCIED Jammers
- Home Land Security System
- COMMNET, Communication & Networking
- Intelligence Equipment – Digital Investigation Suite
- Security and Surveillance System

FINANCIAL PERFORMANCE

Financial Performance / Sales turnover of NRTC is as under:-



REVENUE & TAX DETAIL FROM 2008 TO 2017

(Rs in Million)

Sr #	Year	Revenue	GST	Income Tax	Total (B+C)
1	2007-2008	1,032.8655	1.552	60.943	**62.49.5**
2	2008-2009	694.840	4.336	27.701	***32.037***
3	2009-2010	560.370	0.005	32.187	**32.192**
4	2010-2011	964.962	0.0004	20.333	**20.333**
5	2011-2012	1,720.125	23.558	48.401	**71.959**
6	2012-2013	4,558.826	136.539	55.960	**192.498**
7	2013-2014	6,083.574	458.027	100.345	**558.371**
8	2014-2015	6,668.104	382.246	177.123	**559.369**
9	2015-2016	6,669.423	453.668	415.671	**869.339**
10	2016-2017	5,778.309	865.742	428.087	**1,293.830**

Karachi Shipyard and Engineering Works (KS&EW)

KARACHI SHIPYARD & ENGINEERING WORKS LIMITED

INTRODUCTION

Karachi Shipyard & Engineering Works Limited (KSEW) was established in mid-fifties as a project of Pakistan Industrial Development Corporation (PIDC) and incorporated as a public limited company in 1957. KS&EW is entirely owned by Government of Pakistan/Pakistan Navy and working as an autonomous commercial organization under Ministry of Defence Production. It is managed by a Board of Directors with Managing Director as the Chief Executive.

KS&EW is situated at West Wharf Karachi and spread over an area of 71 acres. It has a large shipbuilding hall, two block fabrication areas, three shipbuilding berths, two dry docks, a well-equipped machine shop and a large grit blasting and painting facility with modern machinery for paint application under controlled environment as per international standards. A Ship Lift and Transfer System with a lifting capacity of 7781 tons and 13 in number parking stations is being installed.

VISION

To make Pakistan a leading shipbuilding country of the region in line with its true potential and ideal location, thus contributing towards our economic development and poverty alleviation.

MISSION

KSEW is committed to deliver quality products built to agreed specifications on scheduled dates and at competitive prices.

MAIN FUNCTIONS

- **PAKISTAN NAVY'S REQUIREMENT:**

  As per Government's mandate KSEW caters for Pakistan Navy's requirements. Additionally, KSEW undertakes commercial activities mainly shipbuilding, Ship repair and General Engineering.

- **SHIPBUILDING:**

- **Commercial Activities**

  KSEW is equipped to build all types of Marine crafts, cargo vessels, containerships, oil tanker, bulk carrier, Harbor tugs, Pilot boats, Hopper barges and Dredgers up to 22000 TDW etc.

- **Defence Related Activities**

  KSEW has the capability of indigenous construction of Naval vessels such as Fast attack craft, Patrol boats, Gun boats, Missile craft, Submarine, Frigate and Fleet Tanker etc.

- **Infrastructure**

  To carry out the shipbuilding activities, KS&EW has three shipbuilding berths with following sizes and capabilities.

Berth No.	Size	Max TDW
1	169 x 23 M	15000
2	118 x 23 M	6000
3	213 x 31 M	26000

It has well equipped machine shop and has a large grit blasting and painting facility with modern machinery for paint application under controlled environment as per international standard. KS&EW has undergone extensive

up-gradation during 2008-09. This has enhanced its capacity to compete with international contender shipbuilding industry.

ACHIEVEMENTS / PROGRESS DURING THE YEAR 2016-2017:

Sr. No	Project	Date
1.	Launching of 17000 T Fleet Tanker for Pakistan Navy	19-08-2016
2.	Steel Cutting of 1500 Tons Maritime Patrol Vessel for Pakistan Maritime Security Agency	24-08-2016
3.	Launching of Fast Attack Craft (Missile)# 3 for Pakistan Navy	17-09-2016
4.	Keel Laying of 600 Tons Maritime Patrol Vessel for Pakistan Maritime Security Agency	17-09-2016
5.	Steel Cutting of Multi Purpose Barge - 2 for Pakistan Navy	19-12-2016
6.	Steel Cutting of Fast Attack Craft (Missile) 4 for Pakistan Navy	29-12-2016
7.	Steel Cutting of 2 x 32 Tons Bollard Pull Tugs for Pakistan Navy	29-12-2016
8.	Keel Laying of Fast Attack Craft (Missile) 4 for Pakistan Navy	30-03-2017

ORDERS COMPLETED DURING 2016-2017

- **15 X Boats Bridge Erection for Pakistan Army**

The construction of boats has been completed as per schedule and delivered to the client.

Boats Bridge Erection during test and trials

- **Landing Craft Mechanized (LCM) for Pak Navy**

2 x LCMs were completed and delivered to Pakistan Navy as per schedule. LCM No. 1 was delivered on 26 Mar 16 and LCM No. 2 was delivered to client on 15 April 16

- These LCMs are suitable for following operations:-

- To transport heavy, bulky stores within harbor premises

- To transport vehicles and ammunition

- To transport personnel within harbor premises

➢ **<u>Fendering Arrangement for South Pier at JNB ORMARA</u>**

The work has satisfactorily been completed as per contractual timeline.

<u>01 x Azmat Class Fast Attack Craft Missile for Pak (Navy) – FAC(M) – 3</u>

The vessel was commissioned / handed over to Pakistan Navy on 28 Jul 2017

28 Jul 2017 : Admiral Muhammad Zakaullah, NI(M), Chief of the Naval Staff (Chief Guest) being briefed on the newly constructed Fast Attack Craft (Missile)

NEW ORDERS RECEIVED DURING 2016-2017

- **01 x Multipurpose Barge for PN**

  - Multi-purpose barge is suitable for following operations

  - To collect compensated water from submarine fuel tanks and remove fuel contents to avoid pollution in harbor.

  - Diesel storage and supply.

  - Barge s to be completed within a period of 10 months time from contract effective date which is 01 Jul 16.

- **02 x 32 TBP Tugs for PN**

  - Tugs are suitable for the operations related to berthing / un-berthing, towing maneuvering etc of ships, docks and other vessels.

- Both tugs are to be completed within a period of 19 months and 22 months respectively from contract effective date.

Construction of 1 No. survey vessel for PN.

The contract for the construction of 01 x Survey Vessel was awarded 29 May 17. Steel cutting will be done on 30 Dec 17. It is expected to be delivered on 30 Jun 20.

- **Construction of 01 Offshore Patrol Vessel for PN**.

The contract for the construction of 01 x Survey Vessel was awarded 29 May 17. Steel cutting will be done on 30 Dec 17. It is expected to be delivered on 30 Jun 20.

- **Construction of 2 in No. FRP Boat for Pakistan Customs**.

The contract for the construction of 02 x FRP Boat for Pakistan Customs was awarded on 7 Jun 17. It is expected to be delivered within 10 x months after signing of the contract.

- **4 x New Generation Submarines**

MoDP/PN has awarded contract for construction of 4 x AIP Submarines to Karachi Shipyard. M/s China Shipbuilding and Offshore Company will provide TDP, KoM and Technical Assistance for these Submarines under ToT

arrangement. Extensive upgradation of yard and training will be imparted to KS&EW personnel. Steel cutting of first submarine will be held on 26 Oct 2020.

PROGRESS OF ONGOING ORDERS

- **01 x Fleet Tanker for Pak (Navy)**

  - Hull work completed outfitting work is in progress
  - Vessel launched on 19 Aug 16, 02 months ahead of contractual timeline
  - Expected delivery of vessel is Dec 17.

- **01 x FAST ATTACK CRAFT FAC (M) NO. 4**

  Contract for 01 x Fast Attack Craft (Missile) for PN signed on 13 Jun 14. Indigenous design work in MTC is in progress. Material is in procurement process. Delivery date of craft is 01 Jul 18.

- **CONSTRUCTION OF 01 x 600 TONS MPV AND 01 x 1500 TONS MPV FOR PAKISTAN MARITIME SECURITY AGENCY (PMSA)**

  - Steel cutting of 600 tons MPV and block fabrication is in progress. Keel laying was held on 17 Sep 16.
  - Steel cutting of 1500 tons MPV started on 24 Aug 16. Work is in progress.

Maritime Patrol Vessel for PMSA

PROJECTS IN PIPE LINE

- 62 x Marine Assault Boats (MABs).
- 2 x 400 m^3 Diesel Barges for PN.
- 01 x Floating Dock for Sri Lanka Navy
- 01 x Hydrographic Survey Vessel for NIO.

SHIP REPAIRS

Karachi Shipyard & Engineering Works (KS&EW) offers a comprehensive range of services, from Dry docking for scheduled maintenance or damage repair right upto extensive refit to various clients. It has so far repaired over 5000 vessels, which include National as well as foreign flag carriers. Pakistan Navy, Pakistan Maritime Agency, KPT & PQA are regular customers.

Reputation of KS&EW is based on delivering short lead time for repairs, high quality work and minimal vessel downtime. With its highly skilled teams and years of experience it is able to repair any kind of Ship and undertake diversified repair jobs. Highly trained employees, in combination with experienced and reliable project management teams, are able to perform planned maintenance work onboard vessels, the scope of which is established in line with customer requirements. Projects are planned to take place within fixed time scheduled to the highest quality standards and according to the budget.

Modern and well-planned facilities are available in KS&EW for undertaking Above-Water as well as Under-Water repairs of Ships. The ancillary facilities include Shore Electric Supply, Compressed Air, Oxygen, Acetylene and Natural gases in pipelines and cylinders as well as Fresh and Sea water supply lines for ballast & firefighting. Well-equipped Machine Shop is in attendance besides other workshops readily available for supporting Ship repairs of all kinds.

- **DRY DOCKS**

Dry Dock	*Length*	*Width*	*Crane Facility*	*Capacity*
1	***186 m***	***27 m***	***30 Tons*** ***15 Tons***	***26,000 TDW***
2	***170 m***	***24 m***	***15 Tons*** ***10 Tons***	***18,000 TDW***

For Above-Water repairs, quay walls of 500 meter on the northern side and 165 meter on the southern side are available. Above-Water repairs for vessel of any size and dead weight can be undertaken not only at KSEW premises but also in Karachi harbor and even at the outer anchorage. KSEW carried out emergency

repairs on a 250,000 TDW vessel at outer anchorage, as the vessel, because of the size, could not enter Karachi Harbor. Similarly any alternation / conversion on hull / super structure can be undertaken. For boilers, insulation, lagging, flooring & brick work can be carried out at the yard.

QUALITY OF WORKMANSHIP

KSEW is integrated management system certified (i.e ISO 9001:2008, ISO 14001 :2004 and OHSAS 18001:2007) and maintains comprehensive policies and procedures designed to ensure high quality results.

SHIP REPAIR DIVISION CAPABILITIES

Ship repair division is capable to undertake following ship repair works as per international marine standards:

- Overhauling & repair of all types of engines, generators, hydraulic equipment, ship auxiliaries, pumps, valves, compressors, etc.
- Shafting work which includes repairing of rudders, propellers, VSP system,bow thruster system and Z drive system etc.
- Installation, servicing & repairing all type of piping system.
- Installation & repairing of AC & refrigeration system.
- Grit (Abrasive) blasting hydro blasting
- Airless & conventional spray painting.
- Ship hull & deck repair.

- Construction of tanks, stairs foundation & trunkings.
- Repair / renewal of ships fenders.
- Installation of Zinc Anodes.

SHIP REPAIR WORKS

KSEW ship repair is comprised of man-power that is primarily engaged in operation and maintenance facilities with access to dry docking infrastructure & fabrication equipment suitable for the ship repairs, conversion & alteration, the production of components, and specialized services. Repair of ships of Pak NAVY, PMSA, GPA and PQA were successfully repaired up to their entire satisfaction;-

S.No:	Name of Vessel	Client
1	TSHD ABUL	KPT
2	MT SHEHZORE	KPT
3	DT MAZDOOR	KPT
4	PN FD-I	PN
5	PNS KHAIBER	PN
6	SHB BHITSHAH	KPT
7	ZHONG GUO SHUI DIAN B-04	CHINA
8	PNS TARIQ	PN
9	PNS SHAMSHEER	PN
10	PNS RAHNAWARD	PN
11	ZHONG GUO SHUI DIAN B-03	CHINA
12	DWB SAQQA	KPT
13	PNS TIPU	PN
14	PNS ASLAT	PN
15	ENGRO POLYMER & CHEMICAL (BIN QASIM)	ON SITE JOB

REPAIRING OF FOREIGN VESSELS

KSEW has successfully repaired a number of foreign vessels of various countries during last 6 years are listed below:

1. FAIR JULY (UAE)
2. HANGJUN 1007 Peoples Republic of China
3. HANGJUN 1006 Peoples Republic of China
4. MV ZARA Panama
5. MV NYZDAN Korea
6. MT AYFERKA Turkey
7. MV MUSTAFA BAY Turkey
8. MV CAPTAIN MARKUS Turkey
9. ZHONG GUO SHUI DIAN Peoples Republic of China
10. LST BILQUIS Yemen
11. TUG SMIT LOIRE Holland
12. CHINESE DREDGER J06 Peoples Republic of China
13. KARINA DANICA Holland
14. CHINESE DREDGER J05 Peoples Republic of China
15. MV SHARIEF VERVE UAE
16. MV BATANG ANAI Peoples Republic of China
17. ANCHOR BOAT Peoples Republic of China
18. MV SHRIEF PILOT UAE
19. DONG HAIJUN 7001 Peoples Republic of China
20. CSD J09 Peoples Republic of China
21. DONG HAIJUN 7001 Peoples Republic of China
22. LAMNALCO ADEN Singapore
23. ANCHOR BOAT Peoples Republic of China

General Engineering Division

General Engineering Division of KSEW has made significant contribution in industrialization process in Pakistan. Although KS&EW is mainly designed for shipbuilding, however, its role in support of industry and developmental engineering is prominent with long testimonials of service to local industry.

The General Engineering Division (GED) undertakes construction of Package Type Fire-tube Boilers of upto 600 HP - 250 PSI, Water Tube Boilers upto 80 tons/ hour, Pressure

Vessels, LPG Tanks, Heat Exchangers, Storage Tanks of all kinds, Gates for Dams, Barrages, Conveyors and Elevators for Chemical, Petroleum and Cement Industries, complete Sugar Plants ranging from 2000 – 5000 TCD capacity, Sugar Mill Machinery, all types of EOH Cranes, Steel Structures and Wind Mill Towers, Flood Light Towers for cricket and hockey stadiums Caravans, Overhead Steel Bridges and Sewage Treatment Plants etc.

GED has been mobilized during recent years and re-established its links with the local industry. In this regard, supply of Sugar Mill components to Bandhi Sugar Mills, refurbishment of Jinnah International Airport's Passenger Boarding Bridge and construction and installation of 10 x Electric overhead cranes for Pakistan Railway's Locomotive shop at Lahore are the recent examples. A new Foundry has also been established in 2014, now fully operational and catering the needs of local sugar mills season by season with Cast Iron, Steel & Non Ferrous castings.

GED has also commenced all fabrication of steel structures and peripheral accessories of Ship Lift and Transfer System with the project time lines of 20 Months precisely with the imported steel, with a business quantum of USD $5.2 M.

SLTS Contract Signing Ceremony at MoDP Rawalpindi

Projects Completed FY 2016-17

- Fabrication of Outer Hull Structure (Ballast Panels), Aluminum Casing and Sail Assembly of PNS/M. Hashmat for Pakistan Navy.

- Manufacture, Supply and Transportation of Mud Suction Tank for Pakistan Oil Fields Ltd. Rawalpindi.

  Manufacturing, Supply, Installation & Commissioning of following Cranes:

  1. 2 x 40/5 Ton E.O.H Cranes for Loco Shop Pakistan Railway Lahore.
  2. 1 x 30/5 Ton E.O.H Cranes for Loco Shop Pakistan Railway Lahore.
  3. 1 x 20/5 Ton E.O.H Crane for Diesel Shed Pakistan Railway Lahore.
  4. 1 x 5 Ton E.O.H Crane for Diesel Shed Pakistan Railway Lahore.
  5. 2 x 5 Ton Electrical Hoist for Diesel Shed Pakistan Railway Lahore.

- Re-Shelling of 26 Nos. Sugar Mill Rollers for Various Sugar Mills.
- Manufacture & Supply of 3 Nos. Sugar Mill Roller Shafts for Various Sugar Mills.
- Casting of Sinker Weights for Pakistan Navy Fleet Tanker.
- Re-building/Repairing by Welding, Machining & Grinding of Rollers for Power Cement Ltd.
- Machining of IP Rotor for Al-Tariq Traders.
- Bending/Rolling of 3 Nos. Heavy Steel Plates for Crown Construction Company.
- Machining of 2 Nos. Press Heating Plates for Gharibsons Pvt Ltd.
- Machining of 4 x DSRV Plates of PNS /HASHMAT for PN Dockyard.
- Machining, Chamfering & Bending of Plates of PNS/ HASHMAT for PN Dockyard.

E.O.H Cranes Successfully Installed at PAKISTAN RAILWAY

Orders in Hand

- Fabrication and Installation of Steel structure and accessories of Ship Lift and Transfer System in KSEW.

- Manufacture & Supply of 3 Nos. Sugar Mill Roller Shafts for Various Sugar Mills.
- Manufacture & Supply of 41 Nos. C.I. Alloy Shells for Various Sugar Mills.
- Manufacturing, Installation and Commissioning of 1 x 05 Tons capacity Electric Overhead Crane for SB Hall of SB Div.
- Manufacturing, Installation and Commissioning of 2 x 10 Tons capacity Double Girder Electric Overhead Crane for SWCD and Pre-Fabrication Shop of SB Div.
- Manufacturing, Installation and Commissioning of 25/5 Tons capacity Double Girder Electric Overhead Crane for Machine Shop/ Foundry.
- Manufacture, Supply, Erection & Commissioning of 30/5 Ton Capacity Over Head Cranes for Steel Fabrication Shop at KSEW.

Future Projects

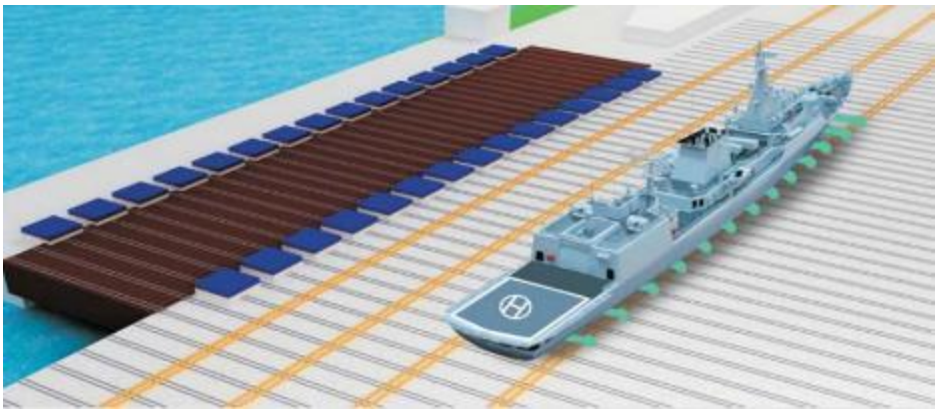
- Fabrication of Outer Hull Structure, Aluminum Casing and Sail Assembly of PNS/Hamza for Pakistan Navy.
- Fabrication of Outer Hull Structure, Aluminum Casing and Sail Assembly of PNS/Khalid for Pakistan Navy.
- Manufacture, Supply, Erection & Commissioning of 20/5 Ton capacity Electric Over head Cranes for Foundry Steel Pakistan Railway Lahore.
- Manufacture, Supply, Erection & Commissioning of 10/3 Ton capacity Electric Over head Cranes for Pakistan Railway Karachi Cantt.
- Manufacture, Supply, Erection & Commissioning of 50/5 Ton capacity Electric Over Head Cranes for Freight Transport Company Pakistan Railway Sahiwal.
- Manufacture, Supply, Erection & Commissioning of 15/3 Ton Capacity Gantry Crane for PN Dockyard.
- Manufacture & Supply of Sugar Machinery Items for Various Sugar Mills.
  Manufacture & Supply of C.I. Alloy Roller Shells for Various Sugar Mills.

PSDP FUNDED PROJECT:

The SL& TS project is a PSDP funded project. The allocative process' is though lengthy, but allocation, as and when demanded, is being made and project is accorded due importance by MoPD&R. Nevertheless, at times the lengthy process causes delays in payments to be made to the contractors, especially during first quarters of the FY.

SHIP LIFT AND TRANSFER SYSTEM

The project envisages enhancement and up-gradation of existing Ship Building and Ship Repair capacities of Karachi Shipyard and Engineering Works, by introducing new technologies and State-of-the-Art machineries and systems. The new Ship Lift system's 125 meters long rigid steel platform, connected with 30 winches will have capacity to lift any vessel up to 8,000 tonnes out of sea and place them on one of the 13 custom built repair stations on land side, through an elaborately rail-linked Transfer System.



Ship Lift and Transfer System will increase business capacity and efficiency of shipyard's turnover by three times. Transfer of Technology has been integral part of project concept and maintenance of the system will be ensured indigenously through well trained organic teams. Overall the installation of the system has been determined as a paradigm shift for KS&EW as new level of efficiencies would enable generation of higher revenue at lower cost, while also supporting all present and future national maritime and defense objectives within shipyard's capacity range. The work generated by enhancing the ship building and repair capacity will out flow to the public and private industrial sectors, thereby providing stimulus to

local industry and increase GDP as well as bringing new employment opportunities.

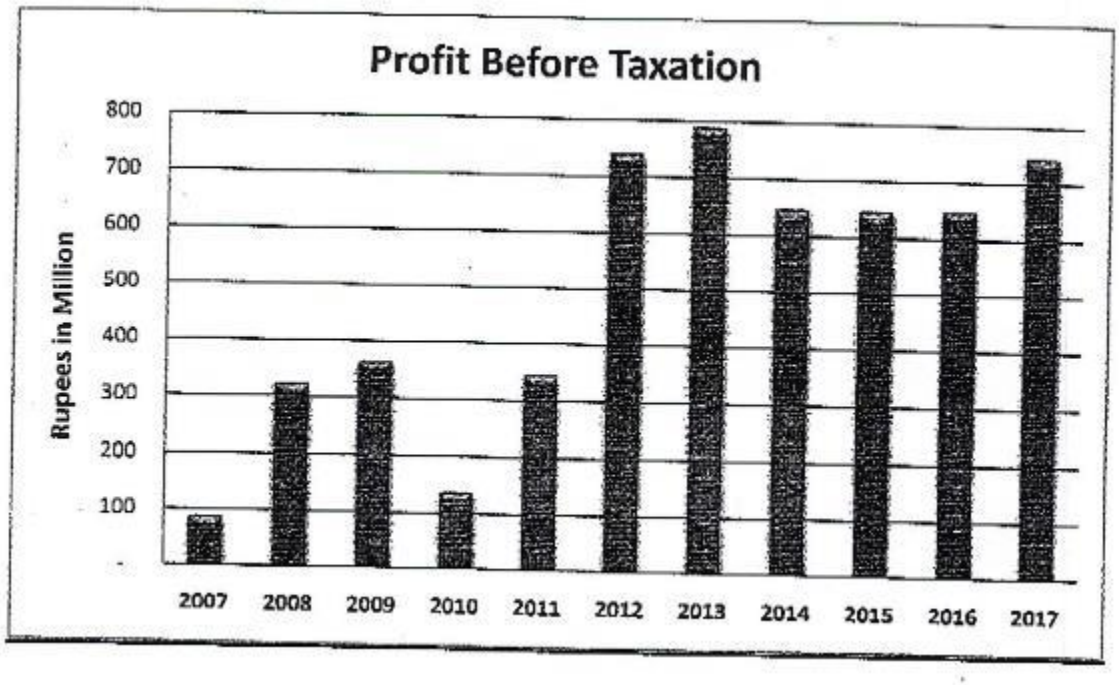
Submarines construction and launching will also be possible for the first time in the country after completion of the project. Accommodating demands of foreign commercial ships and warships will now be possible due to expanded ship repair capacity at Karachi Shipyard. This will become a significant source of earning of foreign exchange.

FINANCIAL PERFORMANCE

Shipbuilding is a highly complex, competitive and capital intensive industry. The booming economies of Japan, South Korea and China are a testimony to its importance as an Engine of growth of the National-Economies. Being a very labour intensive industry, providing jobs to a large number of persons, generating huge economic activity, shipbuilding industry has always been a forefront priority of the respective governments.

Owing to this well-deserved importance, Prime Minister of Pakistan has recently accorded approval for establishment of new shipyard at Gwadar, to make it part of the strategic growth of the region.

KS&EW is not only a strategic maritime organization, but is also a profit generating public sector entity of Government of Pakistan. Its steadfast growth and consistency of performance is reflected from the performance of business generation during the last few years. A brief of revenue generation during the last decade is mentioned below:



Since 2010, over Rs 2.0 Billion has been deposited in government exchequer as tax. The trend of profit making is likely to continue, as all Business Units of KS&EW are working at full capacity. Taxes amounting to Rs 399.2 M and 129.2 M against income tax and sales tax respectively during FY 2016-17, were deposited in government exchequer.

In FY 2016-17, KSEW expected to make its accumulated losses into reserves. This was only possible through continuous efforts to increase quality and reduce costs. This is evident from the fact that Administrative expenses were reduced by 2.5% and Gross Profit increased by 5.4% in FY2016 as compared to previous financial year. This was only possible through KSEW management's close monitoring of projects and financial control.

The present Management is vigorously pursuing to maintain / enhance the upward trend to make it more profitable

WELFARE MEASURES

- To promote Islamic way of life :

  - A mosque within the premises where prayers including Friday Prayers are offered. Employees of adjacent organizations are also allowed.
  - Huffaz Quran employees / workers are given special increment as incentive.
  - Hajj / Umra arrangements to employees at KS&EW expense are made, During 2016-17, 09 employees were sent to perform Umra / Hajj.

- KS&EW helps in protection of family life of its employees by arranging medical facilities, daughter marriage loan, Children education as detailed below:

  - Medical (ceiling/month) is Rs 5,000/month while investigation (lab tests etc) is borne by KS&EW. In case of hospitalization full re-imbursement is given

- Board of Directors of KS&EW has recently approved Corporate Social Responsibility Policy (CSR Policy) of the company. The scope and coverage of the policy stretches out to cover :

  - Contribution towards Health Care

- Contribution towards education and training sector including special education and employment enhancing skills especially among children, women elderly, needy families and the disabled persons.

- Contribution towards betterment of the marine environment

  This recently approved policy marks the major step, towards participation of KS&EW in welfare activities for the society at large, and shall serve as a contribution towards betterment of the deprived, needy and under privileged.

- **Daughter marriage Loan given to employees;-**

  During 2016-17 loan was given to 33 employees (Rs 80,000/-each).

- **Free Education;-**

  Expenses of education of children of workers is borne by KS&EW. During 2016-17 an amount of Rs 691,625/- was disbursed to employees for education fee of their children.

- Organization offers training facilities to matriculate. Trade internship Scheme in shipyard in a continuous process. Students are trained with updated technical skills.

- With courtesy of NAVTTC, courses are extended to youths in various trades including Crane operator, Fitter, Welder, Carpenter, Auto CAD, Diesel Mechanic etc. A new building of Shipyard Institute of Technology with modern facilities is being constructed.

- Subsidized lunch (canteen facility) is given to all employees.

- Funeral expenses to the legal heirs of deceased employee amounting to Rs 50,000/- in case the employee is resident of Karachi and Rs 75,000/- in case the employee is resident of outside Karachi

- Death grant amounting to Rs 500,000 to the legal heirs of deceased employee, if dies during services.

* * * * * * *