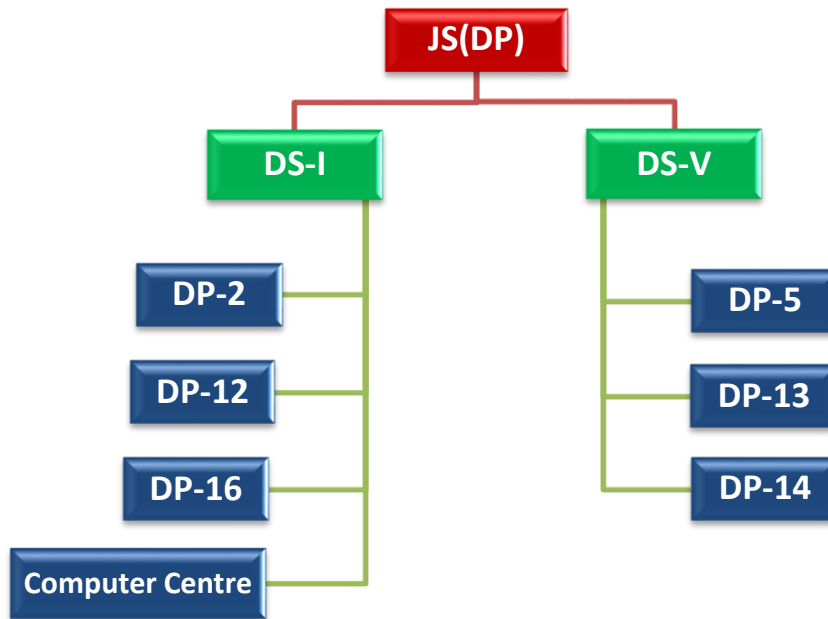


PART – I

WINGS OF MINISTRY OF DEFENCE PRODUCTION

ADMINISTRATION WING



Functions:

As per Secretariat Instruction No. 5 of Rule 5(15) of Rules of Business, 1973 following is the distribution and functions assigned by the Secretary to different units/sections of MoDP:-

DP-2

- Establishment/Personnel matters of MoDP.
- Hiring of residential accommodation
- Supervision of Record Room
- Issue of NOC to officers of MoDP and its organizations visiting abroad.

DP-5

- Work pertaining to DAC/PAC, Appropriation of Accounts & Defence/Commercial Audit.

DP-12

- General administration of MoDP including all matters of transport.

- Protocol work of MoDP
- Issue/Renewal of Passports of MoDP/DPEs
- Central Registry Section
- All procurements out of civil budget of MoDP
- Maint/Repair work of MoDP Sectt/Residential accommodations.

DP-13

- Coordination with DPEs, Federal as well as Provincial Ministries/Divisions.
- All work related to DW & CE(DP).

DP-14

- National Assembly/Senate Business, Cabinet decisions, PM/President Directives, JAC, JCSC, DCC, DP R & D Board, War Book, Year Book, Defence Planning Committees, JLPC, Defence Planning Committees on Essential Supplies/Commerce & Trade, Food Supplies, Price Escalation committees and JSHQ meetings etc.
- Security Officer of MoDP to coordinate and ensure security including maintenance of security equipment in close liaison with overall security officer, (GSO-I DGMP) OCFS Team and OC DSG Platoon under guidance of JS (DP).

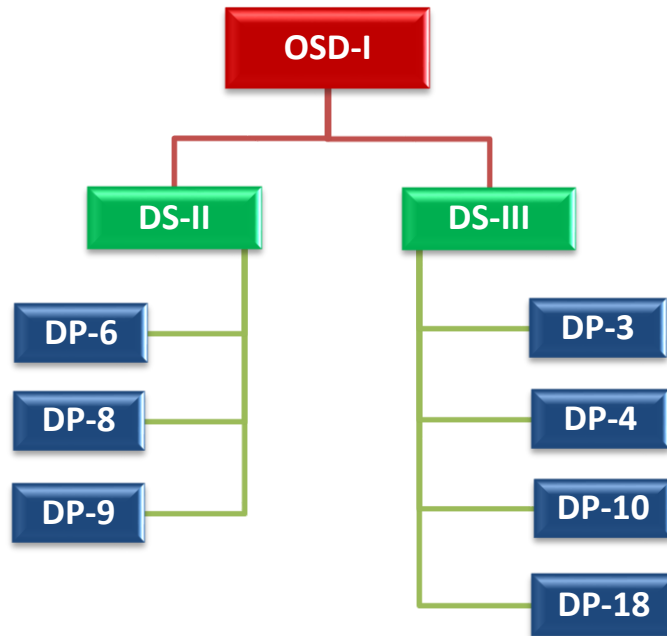
DP-16

- Management of Civil Budget of MoDP/Development Budget/Development Schemes of MoDP.
- All types of advances, reimbursement claims & pension cases of officers/staff MoDP
- Drawing & Disbursing work related to MoDP Secretariat.

Computer Centre

- MoDP website and its updation.
- MIS/ Data Base of MoDP.
- All matters related to Computerization/ Office Automation System of MoDP.
- Maint/Repair matters of all office IT equipment.

PROJECT WING



Functions:

DP-3

- All matters relating to Defence Budget for DPEs received through M/o Defence.

DP-4

- All matters of DGDP (Except Budget, Audit and International Collaboration).

DP-6

- All matters of POFs Board and its subsidiaries (Except Budget, Audit and International Collaboration).

DP-8

- All matters of HIT Board (Except Budget, Audit and International Collaboration).

DP-9

- All matters of DGMP, MVRDE, IOP and ARDE (Except Budget, Audit and International Collaboration).

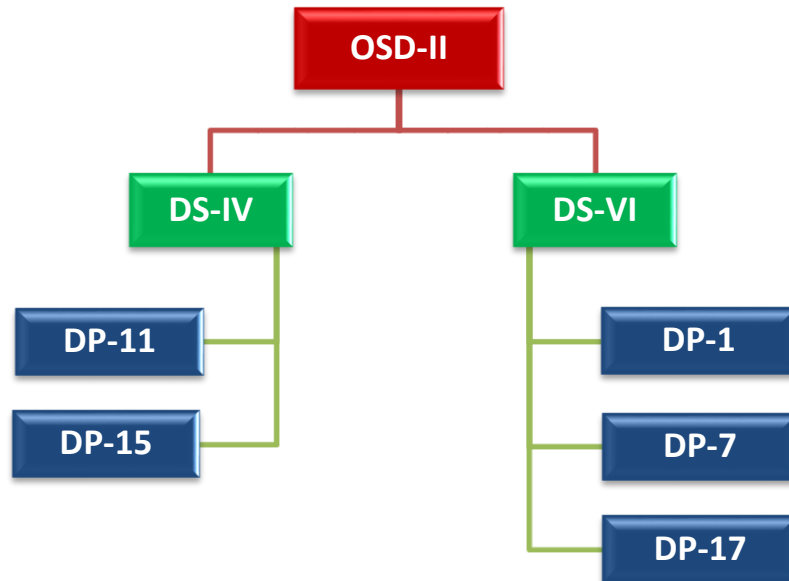
DP-10

- All matters of KS&EW, NRTC (Except Budget, Audit and International Collaboration).
- End user certificates regarding weapons/equipment.

DP-18

- All matters of Shipbuilding Industry in Pakistan including proposed Gawadar Shipyard Project and Port Qasim Shipyard Project.

FOREIGN COLLABORATION WING



Functions:

DP-11

- All matters of PAC Board (Except Budget, Audit and International Collaboration).

DP-15

- All matters of DEPO, International/Local Exhibitions and import and export permits.

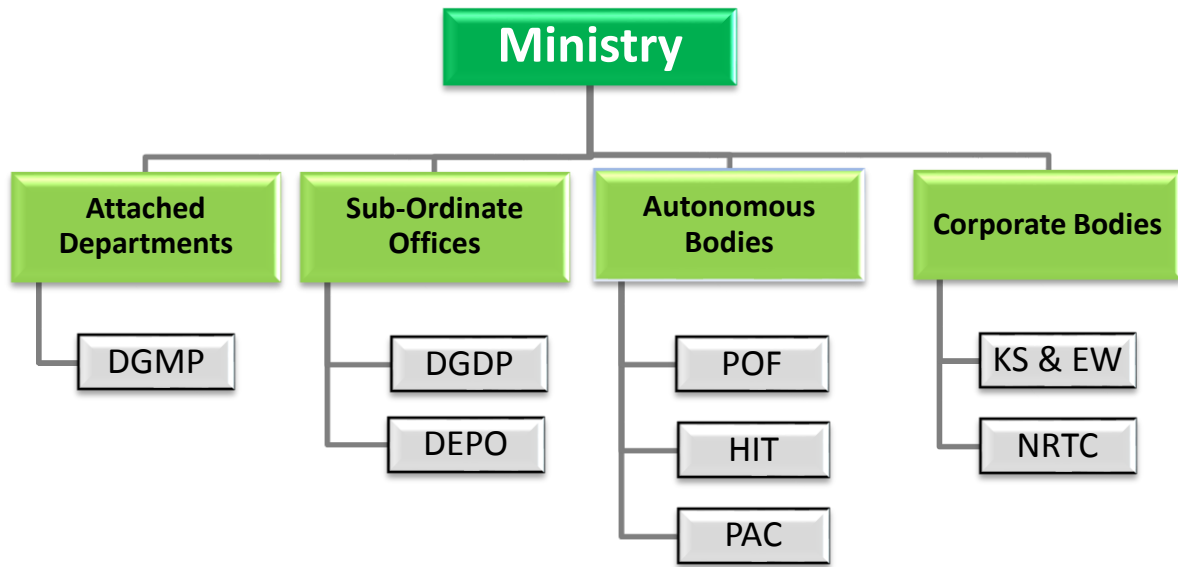
DP-1, 7 & 17

- International Collaboration (Technical & Financial).

PART – II

ATTACHED DEPARTMENTS, AUTONOMOUS BODIES AND CORPORATIONS OF MODP

MINISTRY AND ITS ORGANIZATIONS





***Directorate General Munitions
Production
(DGMP)***

DIRECTORATE GENERAL MUNITIONS PRODUCTION



This organization is placed under the umbrella of Ministry of Defence Production with an aim to undertake indigenous development of defence equipment. Phenomenon of indigenization is a function of many factors and considerations outside the control of developing countries like ours. In 1965, the embargo placed on Pakistan by our allies made the government realize that there was dire need 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 DGDP & DGMP. The former catering to defence procurement and the later for indigenous production of defence equipment. DGMP is organized on a tri-svc basis and has three Directorates dealing with Army, Navy and PAF projects respectively.

Mandate of DGMP is as under:-

- To maximize indigenous production of defence stores in public and private sector with the ultimate aim of attaining self-sufficiency.
- To assist Ministry of Defence Production in formulating plans for giving a defence based to future industrial planning.
- Acquisition of technical know-how, rights of manufacture and enter into collaboration arrangements whenever sizeable import of an item is made.

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

Functions of DGMP

Functions of DGMP are as under:-

- Keeping close and constant liaison with the Services Headquarter and DGDP to identify requirements for indigenous production of defence stores and equipment.
- Development of prototype of major end items and their subsequent production in civil industries.
- Collaboration with foreign countries and manufacturers in joint development and production of defence stores.
- 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 agencies.
- Provide Secretariat Service to Defence Production R&D Board and Inter Services Armament and Explosives Committee.
- Issuance of NOC for import of Defence stores.
- Recommend modification for Defence Procurement procedures where necessary, to support indigenous production.
- Administer funds allocated for development of defence equipment.

Major Achievements

Achievements by Directorates of DGMP during the year 2014-15 are as under:-

- Development of qty-1454 Software Defined Radio (SDRs) for Army.
- Qty-7421 of Night Vision Sight NS-685C for LMG/MG have been handed over to Pakistan Army duly assembled by IOP.
- Assembly/Manufacture of Military Trucks.
- Successful production of 120 x Rockets ex Multiple Launch Rocket System (MLRS) A100.
- 21 x Land Rover Defender Vehicles (Trk 1.25 Ton 4 x 4)

- Contract for the acquisition/construction of Submarines was negotiated for about one year and all the details were worked out minutely. The contract has been signed in Apr 2015.
- Contract for construction of 6 Maritime Patrol Vessel (MPVs) for Pakistan Maritime Security Agency (PMSA) has been signed on 8 Jun 2015.
- Contract for the upgrade of 2 ATR-72-500 Aircraft as MPAs has been concluded with M/s Rheinliand Air Services Gmbh, Germany on 12 Jun 2015. Both aircrafts will be upgraded at contractor's facility in Germany in next three years.
- Contract for the indigenous development of 1 ship-borne system with 1 Land Attack Missile and 1 Anti ship Missile. The project will complete by Oct 2018.
- Contract for the construction of 2 Fast Attack Craft (Missile) FAC(M) was signed in Jun 2010. Both vessels have been delivered to PN. Presently 2 more contracts for indigenous development/construction of FAC(M)s are in progress.
- Delivery ceremony of 1 x 32 Ton Bollard Pull Tug was held on 10 Feb 2014.
- Delivery ceremony of Multi Purpose Barge was held on 9 Sep 2013.
- Construction of 1 x 32 Tons Pusher Tug.
- Construction of 1 x 12 Tons Pusher Tug.
- Indigenous development of 2 x Truck Mounted GPUs (60 KVA).
- Following equipments duly developed/constructed have been delivered to PAF :-
 - Carts Signal Day / Night
 - Remotely Operated Detonation System and Remote Firing Unit
 - Air Charging Trolley
 - GPU 60 KVA
 - Driver Stage Power Amplifier
 - Digital module Test Station
 - Final Stage Power Amplifier
 - IFF Conversion Box

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, engineer equipment an defence related mechanical system. 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. Some of the categories are:-

- Tracked Vehicle
- Wheeled Vehicles
- Training Equipment
- Bridging Equipment
- Ground Support Equipment
- Simulators

Achievements by MVRDE: Following projects have been completed by MVRDE during the FY 2014-15:-

- APU for Tank Al-Zarrar
- Boat BR Erection 19 FT with Cradle
- Conveyor Belt for POL Depot - 01
- Mule MTD Saddle - 03
- Mobile PORTA Cabin - 01
- Truck MTD 5 Ton Crain Cum Carrier Prototype - 01
- Up-gradation of DITS T-80UD - 03
- AVL B Simulator - 01
- Blood Transportation Box - 01
- Prosthetic Knee JT - 03

ARMAMENT RESEARCH AND DEVELOPMENT ESTABLISHMENT (ARDE):

ARDE was established in 1974 for development of weapons and ammunition through R&D and reverse engineering to meet essential requirements of three services. Following projects have been completed by ARDE during 2014-15:-

- Indigenous Development of Alligator Switch (Mutli Purpose)
- Indigenous Development of All Weather Electronic Anti Lifting Device
- Indigenous Development of all Weather Electronic Anti Lifting Device
- Indigenous Development of Arms Spares for Different Guns
- Indigenous Development of E-Grid System
- Indigenous Development of Firing Pins for 14.5mm Sub Caliber Device
- Indigenous Development of Round 125mm FSDS/T
- Development of Sabot End Seal for Shot Assys 125mm FSDS/T prac

INSTITUTE OF OPTRONICS (IOP):

IOP 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 has successfully indigenously developed and produced the following Night Vision Goggle for Pak Armed Forces. The products are compatible with the available system in the international market:-

- NVG SHEBA (Equivalent to AN/PVS-7D) (Locally manufactured)
- Monocular for SMG & G-3 (Locally manufactured)
- IOP initiated fol development works regarding Night Surveillance System:-
 - Night Surveillance System with wireless transmission.
 - Night Surveillance system with wire communication and control effective for 700 and 350 meter range.
 - Night Surveillance system with wire communication and control.
 - Night Surveillance Camera for short range and also useful for driving of a vehicle in dark night conditions.
- Driver's Night Vision Periscope (DNVP)
- Single Tube Goggle (AN/PVS-7D)
- Weapon Sight (NS-685C)



***Directorate General
Defence Purchase
(DGDP)***

DIRECTORATE GENERAL DEFENCE PURCHASE

On creation of Pakistan, Directorate General Supply and Development was established under Ministry of Defence. In 1953, it was reorganized as Defence Purchase Directorate. In 1967, it was merged with DGMP and called Directorate General Munitions Production and Procurement, which was assigned the dual responsibility of procurement of defence stores/equipment and their indigenous production in the country. In 1970, the set up was bifurcated into Directorate General Defence Purchase (DGDP) and Directorate General Munitions Production (DGMP) as separate entities. DGDP was made responsible for procurement and disposal of defence stores, since then it has been functioning under Ministry of Defence Production.

Financial year 2014-15 like previous fiscal year was eventful and rewarding 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. The significant of the achievements are reflected in forthcoming succeeding paras. During the last financial year (2014-15) procurement to the tune of **Rs. 181,202.210 M** was made for the Armed Forces.

Procurement Activities:

2. The summary of procurement activities for financial year 2014-15 (as per allocated budget) in respect of DGDP, DPs and ADPs is as under:-

DIRECTORATES OF PROCUREMENT (DPs)

S/No	Org	Indents Received	Cross mandated	Not Concluded	Contracts Concluded
1.	DGP (Army)	592	12	174	466
2.	DP (Navy)	1225	448	341	436
3.	DP (Air)	503	41	53	429
Total:		2320	501	568	1331

*In few cases against 01 x indent two or more contracts have been concluded.

To assist in the procurement of urgently required stores of those items, which are to be purchased from abroad or which are not available indigenously or when the quoted rates are exorbitant, ADPs abroad are tasked for such proc. For this purpose indents are cross mandated by procurement agencies to ADPs abroad. Detail of indents cross mandated and contract concluded during last financial year is as under:-

ATTACHES DEFENCE PROCUREMENT (ADPs)

S/No	Organization	Indents Received		Not Concluded		Contracts Concluded	
		XM	SP	XM	SP	XM	SP
1.	ADP Washington	47	144	20	40	27	104
2.	ADP London	84	105	27	36	79	79
3.	ADP Paris	47	94	13	61	34	33
4.	ADP Beijing	18	50	08	43	10	07
Total:		196	393	68	180	150	193

Procurement of Major Defence Equipment:

Major equipment procured during last financial year 2014-15 by DGDP and DPs is as under:-

DGDP

S.No.	Description of Stores	Qty	Contract Value	
			FE	LC
1.	35MM Rader Controlled Guns Eqpt a. Skyguard Radar (R) b. 35MM Gun (R) c. Skysim Sml d. Repair/Maint Fac	06 12 01 Misc	CHF 47.33 M	Rs. 4873.96 M
2.	IR SAMs	500	US\$ 39.00 M	Rs. 3970.20 M
3.	LY-80 LOMADS	06	US\$ 373.23 M (Incl GST)	Rs. 37994.81 M (Incl GST)
4.	RBS-70 Mk-II Msls Relifing of RBS-70 Mk-II BORC Ni Sight	500 85 20	SEK 269.44 M	Rs.3136.37 M
5.	Radar Integ EW Sys/ELINT Sys	02	EURO 80.502 M	-
6.	EW Sys (V/UHF Comm EW Sys & HF Comm EW Sys	01 (Each)	US\$ 35.686 M	-

DGP (Army):

1.	Tk Tptr Prime Mover 6x6 M/Benz	60	US\$ 18.318 M	-
2.	RDMS Ammo	2,053	16.013 M	-
3.	Trestle Bridge AM-50	04 Nos	14.301 M	Rs 1451.554 M
4.	Combat Boot Black	397980	-	Rs 1160.112 M
5.	Ecureuil Hel	04	16.396 M	1659.295 M
6.	OH of 6x MI-171/MI-17-1V Hel	6x Hels	12.853 M	1303.39 M
7.	Convoy Jamming Sys CJS-R-6	85	8.098 M	-
8.	Cessna Grand Caravan	02	5.709 M	677.972 M
9.	MDS Ammo	1,785	5.368 M	-
10.	Mine Dispensing Sys	07	4.031 M	409.561 M

DP (Navy):

1.	GSM Monitoring System	-	\$ 2,772 M	-
2.	Vehicle Mounted Wireless Network	-	\$ 2,017 M	-
3.	2 Push back Systems for HTTPS Internet Monitoring	-	\$ 1,998 M	-
4.	Premetric Security System	-	-	Rs. 670.000 M
5.	600 x VHF Hand Held Sets	-	-	Rs. 180,115 M

DP (Air):

1.	Up-Gradation of AIM-9L Missiles	145	\$ 14.994 M	-
2.	Procurement of Used MI-171 Helicopters	02	\$ 14.218 M	-
3.	KLJ-7 Radar (CKD Kits) and associated material for JF-17 Aircraft	15	\$ 14.035 M	-
4.	C802AK Missiles and Missile Packing Container	Ea-20	\$ 13.986 M	-
5.	I-Lever Testers and SRUs of Avionics system for JF-17 A/C	06	\$12.488 M	-
6.	Flight Data and Cockpit Voice (FDCVR) and Digital Video Recorder (DV) Modification for Mirage A/C	05	\$ 12.250 M	-

7.	C802 AK Missiles Spares Parts, Associated GSE, Training and Tech Supp for Upgrade of Test Eqpt	21	US\$ 11.004 M	-
8.	Engines and Propellers for ZDK-03 AWACS	08	US\$ 6.917 M	-
9.	Spares for JF-17 Aircraft	54	US\$ 6.282 M	-

5. The economy factor remained the hallmark of the financial year under report. In order to achieve competitive prices, deliberate efforts were made to achieve the desired rates which ultimately resulted in saving millions of rupees to the National Exchequer. The details of saving during financial year 2014-15 against assessed rates, last procurement rates (LPR) and offered rates are as under:-

AGAINST SERVICE BUDGET:

Organization	Saving Against Assessed Rates (Rs in M)	Saving Against User Est/LPRs (Rs in M)	Saving Against Quoted/ Offered Rates (Rs in M)
DGDP	-	-	-
DGP (Army)	342.879 M	953.259 M	1059.252 M
DP (Navy)	-	280.839 M	-
DP (Air)	1098.782 M	921.352 M	824.538 M
ADP (Washington)	21.803 M	2.913 M	80.084 M
ADP (London)	-	14.687 M	-
ADP (Paris)	212.650 M	0.703 M	-
ADP (Beijing)	7.055 M	-	-
Total	1,683.169 M	2,173.753 M	1,963.874 M

* All figures converted into Pak currency.

Contracts Concluded:

The detail of contracts concluded during the financial year 2014-15 are as under:-

SUMMARY OF CONTRACTS(2014-15)

AGAINST SERVICE BUDGET:

Organization	No. of Contracts Concluded		Value of Concluded Contracts	
	FE	LC	FE	LC
DGDP	-	-	-	-
DGP (Army)	92	374	US\$ 116.339 M	Rs. 35,219.517 M
DP (Navy)	385	329	US\$ 30.529 M	Rs.3,937.230 M
DP (Air)	74	355	US\$ 172.354 M	Rs.35,284.111M
ADP (Washington)	131	-	US\$ 9.725 M	-
ADP (London)	158	-	US\$ 0.104 M € 0.219 M £ 1.224 M	-
ADP (Paris)	67	-	€. 9.484 M	-
ADP (Beijing)	17	-	US\$ 1.711 M	-
Total	924	1058	US\$ 330.762 M € 9.703 M £ 1.224 M	74,440.858 M

Recovery of Risk & Expense Money:

Details of Risk & Expense cases alongwith recovery made during financial year 2014-15 are as under:-

Organization	Total No. of Contracts	Total RE Amount Involved (In Rs. Million)	Total Recovery Carried Out (In Rs. Million)
DGDP	-	-	-
DGP (Army)	1133	Rs. 1880.088	Rs. 42.447
DP (Navy)	-	-	-
DP (Air)	104	Rs. 29.091	-
Total	1237	Rs. 1,909.179	Rs. 42.447

REGISTRATION OF FIRMS

The registration activities of firms during the last financial year are tabulated as under:-

a.	New firms registered	67
b.	Renewal of registered firms	119
c.	Additional indexation of firms	60
d.	Total Number of defaulting firms	-



***Defence Export Promotion
Organization
(DEPO)***

DEFENCE EXPORT PROMOTION ORGANIZATION (DEPO)

Defence Export Promotion Organisation (DEPO) under MoDP provides a platform for promotion, facilitation and coordination of sustainable defence exports to public and private sectors. It organizes International Defence Exhibition and Seminar (IDEAS), biennially, at Expo Centre, Karachi, which is a mega event of International standard in Asian Region. International Defence Exhibition and Seminar (IDEAS) of Pakistan was conceived after the successful conduct of first International Pakistan Naval Defence Show 1999 which was held at Karachi from 22 - 25 February 1999. Last IDEAS was conducted in Dec 2014. On one hand IDEAS provides a perfect interactive forum for the defence forces to assess the products and technologies which fulfil their requirements, on the other hand, it also offers an ideal opportunity to the defence manufacturers for entering into collaboration and joint ventures with other prospective international partners.

Mission: To facilitate and promote export of defence related quality products and coordinate marketing efforts with manufacturing sector at home and abroad.

Achievements and Activities:

- **IDEAS-2014:** The 8th International Defence Exhibition and Seminar (IDEAS-2014) was successfully organized from 1-4 December 2014. Defence industry of Pakistan, both from Public and Private sectors, were able to reach out to the international companies. The salient points are as follows:-
 - **Exhibitors:** During IDEAS-2014, 256 foreign companies from 36 countries and 82 local companies exhibited their products.
 - **Foreign Delegations:** 415 foreign delegations from 113 countries were invited for the IDEAS-2014. However, 85 delegations comprising 294 foreign delegates from 39 countries attended the event, thus projecting the positive image of the country.
 - **Meetings of Foreign Delegates:** To facilitate meetings between the exhibitors, foreign delegations and various Pakistani dignitaries contact details were shared. The number of meetings coordinated between foreign delegates and various Pakistani dignitaries are given below: -

-	Minister of MoDP	:	16
-	Secretary MoDP	:	16
-	Chairman Joint Chiefs of Staff Committee	:	11
-	Chief of Army Staff	:	05
-	Chief of Naval Staff	:	18
-	Chief of Air Staff	:	16

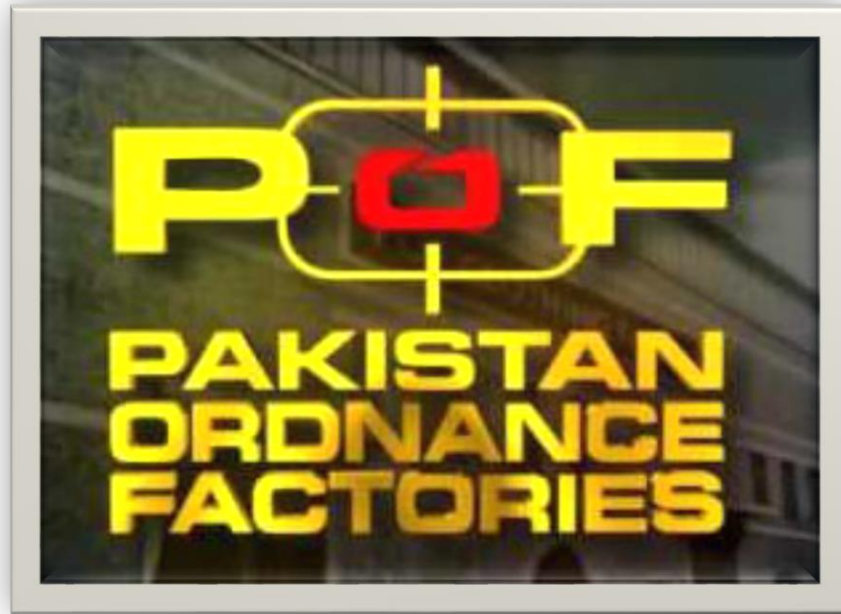
- **Seminar (IDEAS 2014):** The Seminar was held in Movien Pick hotel Karachi on 1st December 2014. **General Rashad Mahmood, NI(M)**, Chairman Joint Chief of Staff Committee was the Chief Guest. A large number of Ambassadors, High Commissioners, Senior Civil and Military Officers and CEOs of national and multinational companies attended the event. Besides conducting a seminar, it also created good will and positive response from friendly countries and a soft image of Pakistan all around the world. The theme of this year’s seminar was **“Matching Research and Production to the Challenges of a Dynamic Security Environment”**.
- **Sideline Conferences:** Sideline Conferences were held from 2–4 December 2014 in Marriott Hotel, Karachi. The theme of the sideline conference was titled as “Security Outlook 2015: National Security and Defence Transformation”. Number of Federal Ministers / Secretaries, Services Chiefs, Ambassadors, High Commissioners, Senior Civil/Military Officers and CEOs of national / multinational companies attended the sideline conferences. This conference was spread over three days representing three services as Air Force day, Navy day and Army day.
- **Participation in Foreign Defence Exhibitions (01 Jul 2014 to 30 Jun 2015):** Pakistan Pavilions were established in the following international exhibitions to promote export of defence related equipment / products and to market International Defence Exhibition and Seminar (IDEAS):-
 - Aerospace & Defence Exhibition (AAD) Cape Town (South Africa) 17 – 21 Sep 2014.

- International Defence Exhibition and Conference (IDEX) Abu Dhabi, UAE 22-26 Feb 2015.
- International Defence Exhibition and Fair (IDEF) Istanbul, Turkey 5-8 May 2015.
- Various DPEs and private sector firms established stalls in above mentioned exhibitions. The breakdown of space which was booked by DEPO for various DPEs is as under:-

Name of DPEs	AAD-14 (17-21 Sep 14)	IDEX-15 (22-26 Feb 15)	IDEF-15 (5-8 May 15)
POF	50 Sqm	50 Sqm	50 Sqm
GIDS	70 Sqm	-	-
HIT	-	50	72 Sqm
NRTC	36 Sqm	-	-
KS & EW	-	36 Sqm	-
PAC	-	-	155 Sqm
DEPO	-	-	09 Sqm
Total	156 Sqm	136 Sqm	286 Sqm

Conclusion: DEPO is committed towards successful conduct of IDEAS-2016 and also to assist in promoting the products of defence industries of Pakistan through participation in International Defence Exhibitions, conducting visits of foreign / local delegations to DEPO and addressing all defence exports related inquires forwarded by DAs or foreign DAs at Islamabad.

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***Pakistan
Ordnance Factories Wah
(POFs)***

PAKISTAN ORDNANCE FACTORIES BOARD WAH



POF Board was constituted under the authority of POF Board Ordinance No. XVII of 1961, as amended. The functions given therein are:-

“The Principal function of the Board shall be to manage and administer the affairs of the factories and to run them on sound commercial lines so as to adequately meet during war and peace the needs of the defence of the country and to utilize the surplus capacity of the factories to meet the needs of the civilian population”.

POF Board has at present following 14 factories and also possesses 100% shares of Wah Industries Ltd., which is a Subsidiary and commercial window of POF. The 14 Factories are:

- Medium Artillery Ammunition Factory, Wah Cantt.
- Heavy Artillery Ammunition Factory, Sanjwal Cantt.
- Tank/Anti Tank Ammunition Factory, Gadwal Wah Cantt.
- Bombs & Grenade Factory, Wah Cantt.
- Small Arms Ammunition Factory, Wah Cantt.
- Weapons Factory, Wah Cantt.
- Machine Gun Factory, Wah Cantt.

- Explosives Factory, Wah Cantt.
- Propellant Factory, Havelian Cantt.
- Tungsten Alloy Factory, Wah Cantt.
- Brass Mill, Wah Cantt.
- Clothing Factory, Wah Cantt.
- Filling Factory, Wah Cantt.
- Carbide Factory, Wah Cantt.

Range of Products:

The range of products developed and produced by POF is around 73. Below is a list of these.

➤ **Weapons:**

- Rifle G3A3/G3P4 (7.62 mm x 51 Caliber)
- Machine Gun MG3 (7.62 mm x 51 Caliber)
- Sub Machine Gun MP5A2/P3 (9 mm x 19 Caliber)
- SMG PK & PK1 (9x19mm Caliber)
- 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 Trg
- 130mm HE Gun Ammo RC & FC
- 155 mm HOW HE M107
- 155mm HOW Trg

➤ **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 Trg Rds

➤ **Rockets:**

- Rocket Propelled Grenade 40 mm HEAT (RPG-7P)
- 3 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
- Mine AP Fragmentation (Shrapnel)
- 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 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)

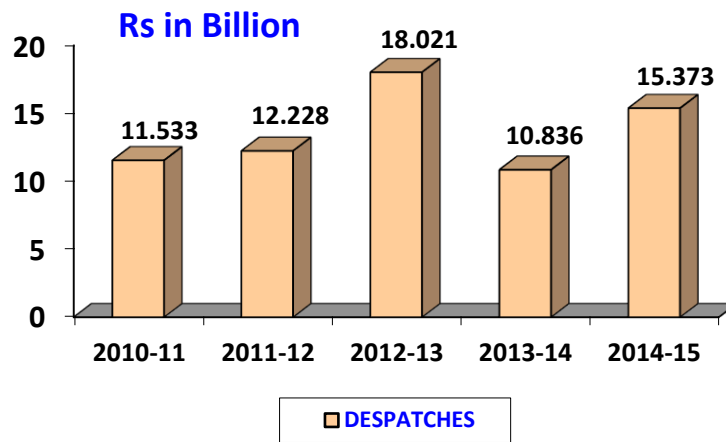
➤ **Garments:**

- Personal Load Carrying Equipment (PLCE)
- Camouflage Combat Dress (CCD) & Stitching Uniforms of LEAs/CAF
- Bullet Proof Jackets
- Mosquito Nets
- Industrial working dress
- Gowns etc.

Production:

Production (Target VS Despatch) – FY 2014 - 2015.

Against Production Targets of **Rs. 16,838 Million** (including backlog + Recoupment) from AFs, combined dispatches to the tune of **Rs. 15,373 Million** were made to Armed Forces.



Research & Development:

- Design and Development of NATO Electronic Pressure Velocity Action Time (EPVAT) System for 7.62 x 51mm Ammo and 20 x 102mm Ammo. First time development in POF for NATO Standard proofing of ammunition. Rs 50 Million saved during development of this system.
- Development of latest Closed Vessel Test System (CVT). CVT system upgraded after integration of latest hardware for reliable proofing of propellants.
- Development of ETSQ Fuze for 155mm HOW as replacement to MTSQ Fuze (Imported American). Electronic Time Super Quick (ETSQ) fuze is essentially required by Pak Army. Saving huge national exchequer on each fuze.
- Development of Rechargeable Battery Pack for POF Eye (corner shot gun). Battery charger with cut off circuit and PCB is developed for reliable performance of POF-Eye (corner shot gun) during operation.

Energy Conservation:

POF has been taking following measures for Energy Conservation since 2008-09.

- High power consuming lights have been replaced with led lights.
- Load staggering of high elect consuming machines / plants.
- Operation of most of the furnaces at 80% charge.
- Shop/office lights are not allowed to switch on un-necessarily.
- Optimum utilization of north lights in shops.
- Leakages of steam, compressed air and water lines are being monitored and controlled.
- Space heating is being controlled.
- Tuning of boilers is carried out periodically to run at optimum efficiency.
- Operation of 2 x boilers on wood scrap / saw dust during winter season at wood working.
- Govt Policy is being followed regarding utilization of air conditioners.

Exports:

By the grace of Almighty Allah, during Financial Year 2014-15, the volume of exports remained at reasonable level against all odds. Following is the breakdown:-

- Total Value of Contracts = US \$ 55.54 Million
- Despatches Made = US \$ 17.48 Million
- Orders under Production = US \$ 38.06 Million
- Exports Earning 2014-15 = US \$ 25.167 Million

During the Financial year 2014-15, POF participated as Trade Visitors and exhibition in the following international defence exhibitions:-

01	Shot Show, USA (20-23 January'2014)	Trade Visitor
02	IDEX'2015, Abu Dhabi (22-26 February'2014)	Exhibitor
03	AAD-2014, South Africa (17-21 Sept'2014)	-- do --
04	IDEAS-2014, Karachi (01-04 December'2014)	-- do --
05	Baghdad Iraq (07-10 Mar'2015)	-- do --
06	IDEF-2015, Turkey (05-08 May'2015)	-- do --

Attendance of POF in these exhibitions remained fruitful in terms of establishment of new contracts as well as revival of existing ones which ultimately yielded into number of new inquiries/confirmed orders. During these exhibitions, POF displayed their complete range of products which were appreciated by the visiting delegates especially our new products like Personal Load Carrying Equipment (PLCE) and G3S (short version of G3A3) Rifle and G3-M etc.

The notable achievement on the part of POF Exports Division is the exploration of new Markets including Morocco, New Zealand, Switzerland and American Civil Market. POF Products have very successfully been promoted in these lucrative markets with great business prospects.

Commercial Production:

POF's Subsidiaries

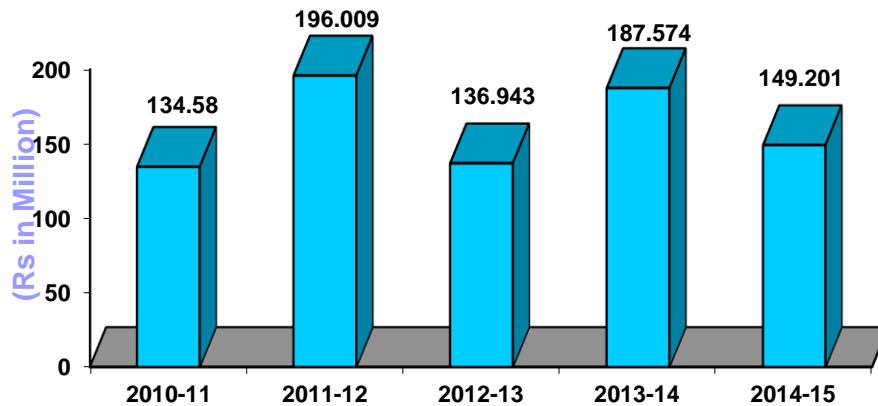
M/s Wah Industries Ltd., (WIL). The year 2014-15 was not shining from business point of view because the country was plunged into multiple problem. The country's energy crises, deteriorating law and order situation, dollar rupee parity and uncertain business environment hampered production in every sphere of life. All the above factors affected the business of the company and sales.

However, all out efforts were made to accelerate/boost-up the sale. As a result a comprehensive increase has been achieved during the financial year 2014-15 which is 1 % high as compared to the last year.

Item	2013-14	2014-15 Provisional	%age Inc/Dec
12 Bore Ctgs	783.155	756.704	- 3
Civil Product	1508.296	1379.253	- 9
Clothing Item (PLCE)	16.783	68.056	+ 306
Wooden Pallet	145.281	--	- 100
Ammo Container	--	388.855	+ 100
Disposal	448.423	325.914	- 27
Overall Sales	2901.938	2918.782	+ 1

M/S Wah Nobel (Pvt) Ltd. are a limited company in which M/S Wah Industries Limited (WIL) hold majority share with 51.75% while M/s SAAB of Sweden and Al-Misehal of Saudi Arabia are other shares holders with 27.23 % & 21.02 % shares respectively. Their sales during 2014-15 were **Rs 3496** Million .Their sales were 13.61% lower than the 2013-14 (i.e. 4047 Million) due to the depressed market conditions and severe energy crisis in the country.

M/S HI-Tech Plastics (Pvt) Ltd. Manufactures various packaging, Containers, Carriers for Ammo and plastic parts of ammos. It has injection, blow molding and extrusion facility. Its annual sales have been presented below in graphical bars. Sales during the financial year 2014-15 is low because less order from the buyers were received. However, next year, it is expected to rise considerably.



POF Institute of Technology (POFIT):

In POFIT, training is imparted to Officers, Staff and employees of POF on regular basis. In addition, different courses of varying duration are also run for the candidates from general public and other departments. Detail is given below:

Sr.#	Training Programme	No. of beneficiaries
1	Orientation Training for newly inducted officer and staff	Officers 65 Staff 190
2	In house/ In-service management course for officers with collaboration with PIM Karachi from POFIT earning.	79

3	In service short courses (POF Candidate)	122
4	Short Courses for Private candidate	91
5	Artisans Training	223
6	Internship of University Students	437
7	DAE Students	1495
8	Services to WEC Students	996
9	Coaching for & Evaluation of Officers, staff, and Workers for Departmental Promotion Examination. i) Technical = 55 ii) Auxiliary = 52	Tech. - 55 Admin - 52
Total:		3805

Welfare Activities:

POF undertakes a lot of welfare measures for its employees and spend huge amount like Rs. 5.930 Million on Wards Marriage Grant, Rs. 3.293 Million on Scholarships to deserving students, including those at Deeni Madaris. Rs. 1.059 Million special Medical Treatment, Medical referral cases & grant given on occasion of death of POF employees or their family members. This is in addition to their normal entitlement of pension, Group Insurance, Benevolent Fund & Assistance Package.

Nomenclature	No of beneficiaries	Amount
Awarded 75% fee concession to sons/daughters of POF employees through WEC	36	2,919,800/-
Awarded 50% fee concession to sons/daughters of POF employees through COMSATS.	132	3,002,800/-
Paid House Building Advances	39	8,444,112/-
Paid Car Advances	06	1,174,600/-
Paid Motor Cycle Advances	20	769,500/-
Paid Bicycle Advances	11	66,892/-

Medical Facilities:

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 increased upto 676 with the 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 in various disciplines. The hospital is responsible to provide healthcare facilities to serving/retired POF's employees & families/parents of the employees, military 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 payment.

ACHIEVEMENTS 2014-15:

- Installation & Inauguration of CT Scan
- Surgical operating microscope for ENT - 01
- Hemodialysis Machines - 02
- Pulse Oximeter with NIBP monitoring - 04
- Electric Dermotome with Mesher - 01
- Ultrasonic Heavy Duty Nebulizer - 04
- Blood Warmer - 10
- Illuminator Magnifying Lamp - 01
- Surgical Head Lights - 01
- Dental Unit Complete - 02
- LED Microscope Single Head
- Ophthalmic Unit



- Oil Rotary Vacuum Pump - 02
- Defibrillator - 04
- Anesthesia Machine with Ventilator - 03
- Digital X-Ray System
- Digital Fluoroscopy & Radiography System
- C-Arm Image Intensifier
- Cardiac Monitors with Central Stations
- General X-Ray Machine
- Vital Signs Monitors - 10
- Chemistry Analyzer
- Diathermy machines
- Ceiling OT Lights
- Posterior Vitrectomy with Endolaser Probe
- Echo cardiac Machine with Tissue Harmonic & TOE
- Installation of KIOSK for Electric Supply of new OPD block

Training Activities:

- Clinico Pathological Conference are conducted on weekly basis.
- Workshops, Seminars are arranged and guest speaker invited occasionally.
- Bimonthly clinical meetings are held for nurses.
- Nursing school is running efficiently and establishment of nursing college is in progress.
- Training of paramedical staff has recently been arranged.

- House job training of 74 house officers in different disciplines.
- 34 Postgraduate Trainees are getting FCPS-II training.
- 2 Workshops for basic life support for paramedics.
- 2 workshops of central venous line insertion for doctors and paramedical staff.
- 2 workshops on research methodology and statistical analysis.

Sports:

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 to POF at National level. It is pertinent to mention here that some international sports events such as SAF Games, International Squash, Tennis, and Volleyball were held at Sports facilities of POF, which speaks of the confidence of various National Sports Organizations in POF Sports Board, management skill and expertise. Presently POF Wah has become the Leading department of the country by organizing International/National tournaments which definitely contributes to bring the soft image and good name of our country. In fact, POF appears to be the only set up in Pakistan attracting sports competitions and to bring youth in the field of sports. In this regard POF Sports Control Board has also organized various local/Wah region tournaments like T-20 Cricket, Wah Open Football Tournament, Inter Factories/Groups Competitions and Wah Region School Sports Gala. Detail is as under:

LOCAL TOURNAMENTS:

- 14th August (Independence Day) POF SCB organized following:
 - (1) Jashn-e-Azadi Walk
 - (2) Cycle Race
- Free Tennis Coaching Clinic.
- POF Wah T-20 Cricket Tournament – 2014.

- Wah Region School Sports Gala – 2014.
- POF Wah Badminton Tournament 2014.
- POF Inter Fy Cricket Tournament 2014.
- POF Wah Floodlit Tapeball Cricket Tournament 2015.

CENTRAL LIBRARY:

POF Central Library was established in 1984, which is the only source of reading 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. POF Central Library is one of the Social Welfare Institutions of POF.



The purpose of its establishment was to promote Educational & Cultural activities and to update the standard of the literary and social communities. This library has over 50,000 books on all subjects. There is also a corner of Fresh Arrivals. Study Corners in order to facilitate the researchers, scholars and educationists are also available in this library.

In addition there are Gosha-e-Iqbal for promoting Iqbal's ideology in the community which will play a vital role to build up the nation and Gosha-e-Itfal for children, who are the builders of tomorrow and future of our nation, depends upon them.

POF Mobile Library:

POF Mobile Library is functioning successfully since its establishment on 23rd March 2013, which is regulated through scheduled programs, to motivate the children towards reading of books and to learn about the new inventions, discoveries and other positive interests. All these are helpful in promoting a civilized culture and environment. Attendance of children is appreciable.



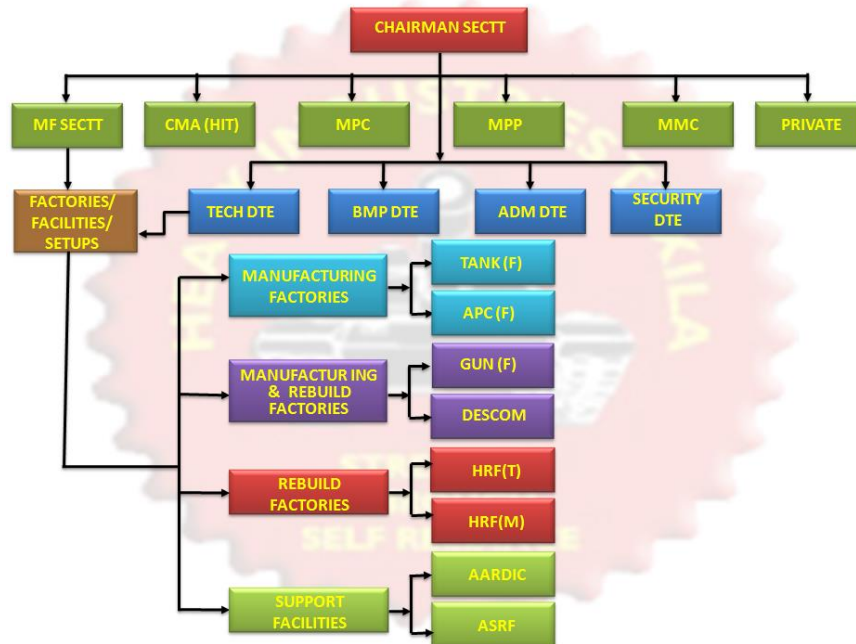
Heavy Industries
Taxila
(HiT)

HEAVY INDUSTRIES BOARD TAXILA



Heavy Rebuild Factories (HRF) was visualized in 1971 as the first project. The main objective of the organization was to rebuild T-59 tanks of the Pakistan Army. HRF went into production in 1979 with a capacity to rebuild / base overhaul 200 tanks T-59 per annum and additional 250 engines. In early 1990s other projects namely, Heavy Rebuild Factory (M Series), Tank Manufacturing Factory, Armoured Personnel Carrier (APC) Manufacturing Factory and Gun Manufacturing Factory were established and HRF was renamed as Heavy Industries Taxila. HITB was established in 1994 through a Presidential Ordinance and same was enacted through Parliament as HIT Board Act No. XII of 1997.

ORGANOGRAM:



DEFENCE ACHIEVEMENTS

HIT, by the grace of Almighty Allah achieved not only the assigned tasks but also executed various new development concepts in the field of Tanks, Armoured Personnel Carriers (APCs) and Armoured Recovery Vehicles (ARVs), Security vehicles and equipment. All these projects have been accomplished within the stipulated time frame. The production progress during financial year 2014-2015 is as under:-

a.	<u>Rebuild / Up gradation Projects</u>	<u>Quantity</u>
	Rebuild of Tanks T-59M/ARV W653	- 8 (2)
	Rebuild of Tank Engines	- 98
	Rebuild of APCs (M113 AI/A2/P)	- 30
	APC Engine Rebuild	- 22
	FCS/GCS Assemblies/Components Repair/Rebuild	- 480
	Repair of TI Sights Tk-AZ/T-69/T-59	- 39
	Rebuild of 125 mm Tank Gun of T-85IIAP	- 3
b.	<u>Manufacturing Projects</u>	
	Tank Al Khalid	- 2
	AVLB Hull	- 2
	Tracked Baktar Shikan Vehicle (TBSV) - Maaz	- 5
	125 mm Tank Gun Barrel	- 5
	APC M113P	- 3
c.	<u>Tank Sustenance by HIT to Field Formations of Army</u>	
	Site Repair Teams sent to Army formations	- 35
	Tanks rendered fit in the field:-	
	(a) Tank T-80UD	- 68
	(b) Tank T-85IIAP	- 75
	(c) Tank Al-Khalid	- 74
	Components/sub-assemblies repaired on Deposit Repair Work Order (DRWOs)	- 2660

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 2014-15 are as under:-

Sr	Products	No of Varieties of Parts Manufactured	
		In house Manufacturing	Through downstream Industries
a)	Tank Al-Khalid/Al Khalid-I	127	17
b)	Tank Al Zarrar	-	3
c)	Tank T -85IIAP	221	31
d)	6-TD-1 Engine Tank T-80UD	-	20
e)	APC Saad/APC MI13/Talha	6	39
f)	ARV W653/653A	2	2
g)	125 MM Gun	28	3
h)	Security Vehicle Mohafiz	464	387
i)	265/580 / 730 HP tank engines/6TD-1	73	23
j)	SP Gun 109/A2	-	4
k)	Assys Developed under Indigenous development for FCS/GCS of Tank T-80UD/ Al Khalid	-	32
l)	Assemblies under indigenous development for FCS/GCS of Tank T-80UD/Al-Khalid	-	13

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 in the year 2014-15 are as under):-

Commercial Products

<u>Sr</u>	<u>Products</u>	<u>Factory</u>	<u>Quantity</u>
a.	Lt Armoured Vehicle Mohafiz	APCF	09
b.	Armour Security Vehicle Protector	TMF	10
c.	Armour Security Vehicle Dragoon	APCF	10
d.	Discrete Armouring of Vehicles (Altis	DESCOM	3687
f.	Bullet Proof Vests	DESCOM	2625
g.	Armoured Guard Post Bunkers	APCF	06

Security Vehicles:

- **Mohafiz - II** The main features are as under:
 - Platform - Land Rover
 - Defender (122 HP).
 - Torque - 360 NM
 - Manufactured with Ballistic steel or Aluminum - steel combination with rotating turret.
 - Protection level - B6
 - Seating capacity - 8
 - Firing ports - 6
 - Run flat tyres.
 - Additional features include Jammer for GSM.

- **Armour Security Vehicle “Protector”** The main features are as under:-



- Engine type - (200 HP), at 3400 rpm
- Drive System - Full time 4-wheel drive (4x4)
- Brake System - Hydraulic power assisted brakes
- Seating Capacity - 8 (2+6)
- Suspension - Heavy duty (Upgrade)
- Body Protection - Provide protection to meet N.I.J. Standard Level IV
- Doors - 3 (2 front, 1 rear)

➤ **Armoured Security Vehicle “Dragoon”.**

The main features are as under:-

- Driver Night Vision periscope - 45°
- Fire Suppression System – Semi automatic
- Protection Level - B-7
- Engine - Caterpillar Engine (300 HP)/ Detroit Diesel 6V53T, 224 kw at 2800 RPM (300 HP)
- Suspension System - Solid Axle System
- Brake System - Hydro pneumatic
- Transmission - Caterpillar/Alison PF MT 653
- Crew Capacity - 11 including Driver
- Doors - 2 (1 x side & 1 x rear)



➤ **Bullet Proof Jacket (Hifazat).** Main features are:-

- Weight - 6 Kg
- Size - Available in all sizes
- Colour - As per user requirement
- Protection - NIJ level III & IV
- Protected area - Front and back, collars, shoulder
- Material - Fire retardant, floatable, chemically inert

Discrete Armoured Vehicles: Main features are as under:-

- Protection B5 / B6 / B6 + level
- Blast protection upto DM51 standard and above
- Bullet proof front, rear and door glasses
- Improved brake system
- Improved suspension system
- Run flat tyres

Benefits of Commercial Activities:

HIT has significantly contributed in government treasury through exports and domestic sale of APCs, Security equipment/ vehicles and discrete armoured of vehicle. Salient are as under:-

- Total sales in FY 2014/15 : Rs. 1250 Million
- Profit earned for Government : Rs. 235 Million
- Proportionate cost remitted to Government as per rules : Rs. 140 Million



***Pakistan Aeronautical
Complex Kamra
(PAC)***

PAKISTAN AERONAUTICAL COMPLEX KAMRA



The foundation of Pakistan Aeronautical Complex (PAC) was laid in 1972, with an aim to establish an indigenous facility for overhauling Chinese origin F-6 Aircraft of PAF. Later on in the seventies, the need to establish a similar facility for newly inducted PAF Mirages was also realized, which led 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 (AMF) 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. 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 of four factories, namely:

- Aircraft Rebuild Factory (ARF)
- Mirage Rebuild Factory (MRF)
- Aircraft Manufacturing Factory (AMF)
- Avionics Production Factory (APF)

➤ **Aircraft Rebuild Factory (ARF):**

ARF was established in 1972. During FY 2014-15, ARF successfully completed the assigned GOH as well as the associated tasks to extend assured and sustained support for PAF operations. Numerous important tasks were accomplished during the specified span of time.

Indigenization / Development Tasks:

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

- Development of Metallic Parts / Casing and Structural parts
- Development of certain Jigs
- Development of Engine Pieces Kits

Special Projects

- Establishment of “Center of Excellence” for manufacturing of Canopy / Windshield
- Enhancement of MRO Facilities & Modification on aircraft
- Rewiring of aircraft and Helicopters
- Manufacturing of MB seat parts
- Development of AME Test Stations
- Manufacturing of parts for Boeing
- Technical Assistance to friendly countries

Mirage Rebuild Factory (MRF)



MRF was established in 1974 to support the Mirage Fleet of PAF. The aircraft group of MRF carries out overhauling of Mirage III and V aircraft and their components.

Engine overhaul group of MRF undertakes engine overhaul of ATAR 09C of Mirage, F-100 of F-16 and T-56 of C-130 aircraft.

Indigenization / Development Projects

Enhancement indigenization of facilities, processes and capabilities for Engine MROs. During the year 2014 – 15 overall production of the Factory was well beyond its established capacity.

➤ **Aircraft Manufacturing Factory (AMF)**



AMF was established in 1975. This Factory is manufacturing Mushshak and Super Mushshak aircraft in addition to producing few sub-assemblies for K-8 Jet Trainer aircraft and drones for aerial target practice. 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:-

➤ **Co-Production Projects**

- JF-17 airframe co-production project at AMF transitioned into the next phase with production and delivery of aircraft.
- Production activities at AMF are progressing very high. All efforts are being made to plan, organize and monitor production work in the most efficient manner.
- AMF continued with Quality Standards for composite parts and sub-assembly manufacturing of Falco UAV.

Repair & Spare Support

AMF continued with support to Armed Forces for SMK, UAV and JF-17 aircraft. Moreover, technical and spare supports were also provided to their mentioned customers of Super Mushshak.

➤ **Avionics Production Factory (APF)**

APF was established in 1986. APF is initially responsible for ground based radars and co-production of selected Avionics systems and later on ventured into design, development and manufacturing of different Avionics systems. The production status of APF during FY 2014 – 2015 was very high.

Indigenization & Co-production Projects

- Enhanced co-production of JF-17 Avionics Systems and their testing/qualification.
- Integration or solutions of various avionics systems of PAF aircrafts were provided to meets the operational requirements.
- A variety of avionics integration and manufacturing specific courses were conducted.
- Several up-gradations were made for better performance of PAF aviation fleet.

Certifications

All PAC factories are ISO 9001: 2000 and aerospace standard 9100 revision 'C' certified. We have also been awarded Boeing quality management system status. Additionally, our 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.

Commercialization

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 has in the world.

Due to the standards and certifications that PAC has acquired, commercial

workload in the following areas is being offered for downloading to PAC:-

- Aircraft Sales
 - Mushshak & Super Mushshak
 - K-8 aircraft
- Aircraft MRO for Mirage & selected Chinese Origin aircraft
- MRO of selected aircraft engines
- Life Cycle Support & Maintenance for Air Defence systems including radars
- Printed Circuit Board (PCB) stuffing
- Aircraft Painting
- Precision Measuring Equipment (PME) calibration
- Environmental Stress Screening (ESS)
- Generic Engineering design and manufacturing

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



***National Radio
Telecommunication Corporation
(NRTC)***



National Radio and Telecommunication Corporation (NRTC) is 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 four decades. NRTC is producing high quality products for Defense services, Pakistan Telecommunication Corporation (PTCL) and other civil / military Organizations since 1965-66.

By virtue of long experience in the field of telecommunication, NRTC has attained excellent technical backed-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.

LOCATION:

It is situated in T&T Complex Haripur, Khyber Pakhtoon Khawa province, Pakistan, which is 80 Km North West of Islamabad.

QUALITY POLICY:

- **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

- **Aim**

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

- **Pride**

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

- **Priority**

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

- **Employees**

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

LIST OF PRODUCTS MANUFACTURED BY NRTC

EXCHANGES

a.	Digital Electronic Field Exchange PFX-6416
b.	Digital Electronic Field Exchange PFX-3208
c.	Digital Electronic Field Exchange PFX-1204
d.	Field Auto Telephone Exchange PFX-1604
e.	Automag Field Exchange (4+12)
f.	Electronic Field Telephone (EFT-101) with/without Keypad Dialer

RADIO SETS

a.	HF Radio Series 9800
b.	V/UHF Software Defined Radios
c.	VHF/FM Freq Hopping Radio Series 9600

d.	Land Mobile Radio (SK-2 System)
e.	Digital Intercom for Military Vehicles
f.	PRC-77 Radio Series Up gradation
g.	TETRA (Terrestrial Trunked Radio) Systems
h.	PRR (Personal Role Radios)

ENCRYPTION PRODUCTS

a.	Bulk Encryptor
b.	IP Encryptor
c.	Secure Mobile Phone
d.	Desktop Encryptor
e.	Secure VOIP Application
f.	Secure VOIP Encryption Device
g.	Vehicle and Personal Tracking Solution
h.	Secure Telephone and Fax

RCIED JAMMERS AND INTERCEPTORS

a.	Broadband Jammer PK -3000
b.	Broadband Jammer PK -6000
c.	GSM Jammers PK-100
d.	Manpack GSM Jammer (MP-GSM)
e.	Manpack Jammers (MP-200)
f.	Manpack Jammers (MP-300)
g.	Manpack Jammers WB-200
h.	Wideband Jammer WB-300 with 3 G add on module

COMMNET, COMMUNICATION & NETWORKING

a.	Tactical Radio Gateway
b.	Tactical Media Gateway
c.	Graphical User Interface
d.	Network Management System based on SNMP

HOME LAND SECURITY SYSTEM

MAJOR ANTENNAS

a.	GSM Antennas 900 MHz, 1800 MHz & 2100 MHz
b.	VHF Antennas 30 to 88 MHz for PRC 77 and PRC 9600 30 to 88 MHz for PRC 77 and PRC 9600
c.	VHF Antennas 136 to 174 MHz for LMR
d.	VHF Antennas 20 to 200 MHz for WB Jammers
e.	UHF Antennas 20 to 175 MHz for Manpack Jammer
f.	UHF Antennas 200 to 500 MHz for WB Jammers
g.	UHF Antennas 100 to 500 MHz for WB Jammers
h.	UHF Antennas 20 to 500 MHz for WB Jammers 3 GHz & 6 GHz
i.	UHF Antennas 30 to 572 MHz for WB Jammers

POWER SUPPLIES AND BATTERY CHARGERS

a.	Single Battery Solar Charger
b.	Universal Dual Battery Charger
c.	Power Supply 13 Volts 5 Amps
d.	Power Supply 13 Volts 10 Amps
e.	Power Supply 13 Volts 20 Amps
f.	Power Supply 24 Volts 10 Amps
g.	Power Supply 24 Volts 20 Amps
h.	Power Supply 24 Volts 30 Amps
j.	Power Supply 24 Volts 50 Amps
k.	Power Supply 48 Volts 10 Amps
l.	Power Supply 48 Volts 20 Amps
m.	Power Supply 48 Volts 30 Amps
n.	Un Interruptible Power Supplies (UPS)

INTELLIGENCE EQUIPMENT

a.	GSM Geo fencing software
b.	CDR analysis software
c.	GSM passive interceptor system
d.	GSM locator system (2G)
e.	3G up gradation of locator system
f.	NRTC smart BTS (Pre Analysis)
g.	Covert Surveillance Vehicle
h.	Communication security for Android based GSM Phones
i.	Unmanned Ground Vehicle

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

NRTC has the state of the art electrical /manufacturing machines equipment and has large potential to manufacture various telecommunication equipments such as:

- 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 equipped with 1.2 MW of generating capacity has been established to meet the power requirement of the factory during load shedding
- NRTC has state of the art mechanical/manufacturing facility, that includes CNC machines of different category including CNC turning, wirecut , 3 axis turning, nibbling and punching machines
- NRTC has established state of the art PCB stuffing and manufacturing facility of international standard, to meet the future requirements of NRTC products.
- 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.
- 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 with General purpose test equipment along with special interface customized as per user requirement to test specific equipment.

MAJOR PROJECTS 2004-2014

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)
- DP Boxes
- Cross-Connection Cabinets
- Power Supplies
- Walkie Talkies
- Dual Battery Charger
- Inter Trench Communication (ITC 2000)
- Antenna RC-292
- Land Mobile Radios (SK-2 System)
- Software Defined Radios (SDR)
- Solar Solutions
- RCIED Jammers
- Home Land Security System
- COMMNET, Communication & Networking

FINANCIAL PERFORMANCE

Financial performance/Sales turnover of NRTC for the year 2014-15 and for the last nine years is as under:

(Rs. In Million)

YEAR	DEFENCE	EXPORT	PTCL / OTHER	TOTAL
2006-07	1199.292	129.397	15.62	1,344.309
2007-08	944.919	77.609	10.337	1,032.865
2008-09	461.417	236.291	1.012	698.720
2009-10	463.729	50.004	46.635	560.368
2010-11	573.017	362.928	29.042	964.987
2011-12	1,472.776	259.221	0.912	1,732.909
2012-13	6,103.007	671.249	43.188	6,817.444
2013-14	5,261.534	683.427	104.194	6,049.155
2014-15	5,687,708	753.960	293.829	6,735.497

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***Karachi Shipyard and
Engineering Works
(KS&EW)***

KARACHI SHIPYARD & ENGINEERING WORKS LIMITED



The Karachi Shipyard & Engineering Works Limited (KS&EW) is a public limited company, with all shares owned by the Government of Pakistan / Pakistan Navy. It is an autonomous body under the Ministry of Defence Production. The KS&EW is situated geographically within the boundaries of Karachi Port, covering an area of 65 acres of land. The setup has been designed and built to undertake construction & repair of small to medium size ships and to undertake heavy engineering activities. It was built with the technical assistance of M/s H.C Stulcken schon of Germany, in 1956.

Vision & Mission:

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. KS&EW 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 KS&EW caters for Pakistan Navy's requirements.
- Additionally, KS&EW undertakes commercial activities mainly Shipbuilding, Ship repair and General Engineering.

SHIPBUILDING

➤ **Commercial Activities**

KS&EW is equipped to build all types of Marine crafts, cargo vessels, containerships, oil tanker, bulk carrier up to 26000 TDW, Harbour tugs, pilot boats, Hopper barges, Dredgers and Launcher etc.

➤ **Defence Related Activities**

KS&EW has the capability of construction of Naval vessels such as Fast Attack Craft, Patrol boats, Gun boats, Missile craft, Submarine and Frigates.

➤ **Shipbuilding 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 control environment as per international standards.
- In order to undertake construction of F22P Frigate for Pakistan Navy, KS&EW has undergone extensive up-gradation during 2008-09. This has enhanced its capacity to compete with the same size international yards in the region

MAJOR DEFENCE PRODUCTS MANUFACTURED BY KS&EW

- **FAST ATTACK CRAFT (MISSILE)**

Multipurpose Auxiliary Craft (MPAC) has designed speed of 32 knots and maximum displacement of 250 tons. Fitted with C802 surface to surface Missile, the boat makes a lethal platform at sea.

- **FAST PATROL BOAT**

A-180 tons Fast patrol boat which has been indigenously designed and built for Pakistan Navy. The craft has capable of doing max speed of 23 Knots. Its main functions are to rescue in shallow water operation as well as self defence, Search & Rescue operations.

- **F22P FRIGATE**

A multi mission conventionally powered frigate having displacement of 2800 tons and designed for maximum speed of 29 knots. Its main role include Air defence, interdiction of hostile surface combats, patrolling / protection of EEZ, radiate combat power in the area of interest and undertake heliborne operations.

- **FLOATING DOCKS**

State of art Floating Docks constructed at KS&EW for Pak Navy. Built in various sizes ranging from 1000-4000 tons lifting capacity, these docks provide mini dockyard facilities at point of choice. This facility is extremely useful for ports having no dry docks, it can be towed & parked at small ports for use as required.

➤ **ACHIEVEMENTS / PROGRESS DURING THE YEAR 2014-2015**

- **ORDERS COMPLETED**

- 12 TONS BOLLARD PULL TUG FOR PAK NAVY (01 NO)**

- The vessel completed and delivered to Pak Navy on 07 Nov 14.

- **SIGNING OF NEW ORDERS**

- Contract for 01 x 600 tons and 01 x 1500 tons Maritime Petrol Vessel was signed on 08 Jun 15 for Maritime Security Agency.

Vessels will be delivered within 34 and 44 months respectively from Contract Effective Date.

- **ON GOING ORDERS**

- i) 01 x Fleet Tanker for Pak (Navy) :
- ii) 01 x Azmat Class Fast Attack Craft Missile for Pak (Navy) – FAC(M) – 3
- iii) Aluminum boats for bridge erection for MVRDE (15 + 7 = 22 nos)
- iv) 02 x Landing Crafts For DGMP (Navy)
- v) 01 x Fast Attack Craft (M) NO. 4

- **PROJECTS IN PIPE LINE**

- Construction of Next Generation Submarines for Pak Navy.
- Construction of 04 Hopper Barges for KPT.
- Construction of Floating Dock for PN.
- Construction of 4 Nos - LNG compatible tugs (3 x 75 tons; 1 x 85 tons for PQA).
- Construction of 1 No. survey boat for PN.

SHIP REPAIRS

Ship Repair Division remains busy throughout the year. So far this MBU has repaired over 5000 ships, with an average about 18-20 vessels per year. Pakistan Navy, Karachi Port Trust, Port Qasim Authority and Maritime Security Agency are regular customers of KS & EW. We also undertake docking and repair of Foreign Ships provided on as & when required basis. Both the dry docks remain booked throughout the year.

Modern and comprehensive facilities exist in KS&EW for undertaking above water & under water repairs of ships. The ancillary facilities include shore electricity supply of 110/220 V DC 220/380/400 V AC cycles, compressed air, oxygen, acetylene

gas and natural gas in pipelines and cylinders as well as fresh and salt water firefighting equipment. For under water repairs, KS&EW has two dry docks with the following specifications:

Dry Dock	Length x Width	Crane	Maximum TDW
1	189 x 26m	30 & 10 tons	26,000
2	171 x 24m	15 & 10 tons	18,000

For above water repairs, quay walls of 500 meter on the northern side and 165 meter on the southern side are available. Further, all kind of facilities exist for repairs of all types of vessels & associated main and auxiliary machinery / equipment.

- **QUALITY OF WORKMANSHIP**

KS&EW 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 every time on every project. Further repair work is carried out upto entire satisfaction of 3rd party inspection i.e Lloyds, BV Surveyors etc.

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 pillar 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.

- **SHIP REPAIR WORK SHOPS**

Although facilities of central machine shop, pipe shop, LSF etc are used, dedicated machine shop, light fabrication shop, fitting shop, pipe shop, electric shop and carpentry shop are also available in SR Div.

GENERAL ENGINEERING DIVISION

The Engineering Division undertakes construction of Package Type Fire Tube Boilers of up to 600 HP – 250 PSI, Water Tube Boilers up to 80 Tons / hour, Pressure Vessels, LPG Tanks, Heat Exchangers, Storage Tanks of all sorts, Gates for Dams, Barrages & Head Works, Conveyors and Elevators for Chemical, Petroleum and Cement Industries, complete Sugar Plant 4000 – 5000 TCD Capacity, Sugar Mill Machinery, all types of Cranes, Steel Structures and Towers, Caravans Overhead Steel Bridges and Treatment Plants etc.

➤ **Orders Completed During (FY) 2014 – 2015**

- Manufacture, Supply, Erection & Commissioning of 2 x 40/5 Tons Capacity Electric Overhead Cranes for Pakistan Railways
- Rebuilding & Machining of Grinding Roller for Power Cement Ltd
- Machining of valve seat retainers, Flanges & Hex Bolts etc. for China Ship Trading Corporation (CSTC).
- Manufacture & Installation of Steel Roof Trusses for Ship Electric of S.B. Division
- Drilling of holes in Boiler Quality Plates for Thatta Cement Ltd.
- Manufacturing and Supply of Kiln Shell Pieces Cutting, Machining & Bending of Steel Plates. for Thatta Cement Co. Ltd
- Cutting, Machining and Bending of Steel Plates for Pakistan Navy
- Hot bending of 4" dia sch. 40, S S Pipe for ENAR Petroleum
- Casting & Supply of Table Platform for HMC
- In-house Refurbishment of old caisson of DD-1 and fixed stagings for Ship Repair Div

- Manufacture & Supply of Ammunition Lockers of PNS/M-SAAD for Pakistan Navy.
- Manufacture & Supply of Ammunition Lockers of PNS/M-HURMAT for Pakistan Navy
- Repair/Refurbishment of Portal Crane's Jibs for Pakistan Navy
- Re-Establishment of KS&EW Foundry
- Shifting of Luffing Crane #.05 (30 Tons Capacity) from South Quay Wall to Dry Cock No.2 for KS&EW

SHIP LIFT & TRANSFER SYSTEM (SL & TS) PROJECT:

- The revised project envisages enhancement and modernization of existing capacity of ship repair of Karachi Shipyard and Engineering Works through installation of ship lift and transfer system replacing old and obsolete machines with state-of-the-art new machines and acquiring land (5 acres) of Pak Navy adjacent to KS&EW. The system will be capable of lifting vessels up to 7781 tons and capability of repair and maintenance of more than 13 ships / vessels at a time.
- At present KS&EW has two dry docks of capacity 26000 DWT tons and 18000 DWT tons constructed in 1966/70-71 having average capacity to repair 16 ships per annum. After completion of the project the repair capacity of KS&EW will be enhanced to 39 ships per annum in addition to the existing capacity of 16 vessels. As a result business volume will increase by many folds.
- The scope of work comprises installation of a new ship lift and transfer system in KS&EW, marine and general civil works and procurement of equipment/ machines etc.
- Project progress was delayed due to filing of litigation case in High Court and Supreme Court by unsuccessful bidder. After receipt of Supreme Court verdict in KS&EW favor the project progress has recommenced and contract for civil works

has been awarded on 10 Jan, 2014. The project is planned to be completed on fast track i.e by Dec 2016.

Financial Health

- During 1990s, due to slump in global shipbuilding market and withdrawal on subsidy on shipbuilding, adversely affected the financial health. Al-hamdulillah, the financial condition of KS&EW has improved and it is back on path of growth and earning profit over the last 6 years. Moreover there are promising opportunities envisaged in near future.

- KS&EW is vigorously pursuing to maintain/enhance the up going trend to make it more profitable. In this regard the main focus is to deliver the current orders in time, preferably before scheduled delivery date to increase the credibility of KS&EW in the market. Timely deliveries of PN projects including F22P Frigate & 32 T BP Tug ahead of schedule are recent examples. Hectic efforts are being made by the Management to materialize the worthwhile orders, which are in pipeline.




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PART – III

APPENDIXES, ABBREVIATIONS & ACRONYMS

HEADS OF MINISTRY OF DEFENCE PRODUCTION

Sr. No	Name	From	To	
1.	Mir Hazar Khan Bijarani	Nov'91	Apr'93	
2.	Mr. Aftab Ahmed Khan Sherpao	Apr'93	May'93	
3.	Mr. Ellahi Bux Soomro	Jun'93	July'93	
4.	Lt Gen Rahm Dil Bhatti (Retd)	Aug'93	Sept'93	
5.	Maj HabibUllah Waraich (Retd)	Dec'02	Nov'07	
6.	Syed Salim Abbas Gillani	Nov'07	Mar'08	
7.	RanaTanveerHussain	Mar'08	May'08	
8.	Mr. Abdul Qayyum Khan Jatoi	Nov'08	Oct'10	
9.	Makhdoom Shabuddin	Dec'10	Feb'11	
10.	Mian Manzoor Wattoo	Mar'11	May'11	

11.	Ch. Pervez Ellahi	May'11	June'12	
12.	Sardar Bahadur Ahmed Khan Sehar	June'12	Mar'13	
13.	Rana Tanveer Hussain	June'13	to-date	

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LIST OF FORMER FEDERAL SECRETARIES/PAOS OF MODP

S.No	Name	From	To
1.	Mr. Abdul Hamid SQA, TPK	22-07-1972	30-11-1973
2.	Mr. Masood Hasan	30-11-1973	01-12-1977
3.	Mr. Tariq Mustafa, Addl Secy Incharge	01-12-1977	19-04-1981
4.	Vice Admiral Ahmed Zamir, HI(M), SJ	19-04-1981	28-08-1982
5.	Mr. Abdul Majid Mufti	29-08-1982	16-07-1985
6.	Maj Gen (R) Anwar Masood, A/Secretary Incharge	01-08-1985	22-02-1986
7.	Mr. Tariq Mustafa, Addl Secy Incharge	23-02-1986	12-04-1986
8.	Mr. Tariq Mustafa	13-04-1986	26-06-1988
9.	Lt Gen (R) Talat Masood, HI(M), S Bt.	26-06-1988	11-10-1990
10.	Maj Gen (R) Riaz Ahmed Chaudhari, A/Secretary	12-10-1990	17-12-1990
11.	Dr. Akhtar Hasan Khan	17-12-1990	20-05-1991
12.	Mr. F.I. Malik	21-05-1991	26-12-1992
13.	Mr. Mazahar Rafi	27-12-1992	28-02-1997
14.	Lt Gen (R) Lehrasab Khan, HI(M), SJ, SBt.	01-03-1997	28.02.2001
15.	Air Marshall (R) Zahid Anis, Secretary	01-03-2001	28-02-2005
16.	Lt Gen (R) Ali Muhammad Jan Orakzai	01-03-2005	23.05.2006
17.	Lt Gen (R) Shahid Siddiq Tirmizey	09.06.2006	08.06.2009
18.	Lt Gen (R) Israr Ahmed Ghumman	09.06.2009	08.06.2011
19.	Lt Gen (R) Shahid Iqbal	23.06.2011	22.06.2013
20.	Lt Gen (R) Tanvir Tahir	04.07.2013	03.07.2015

ABBREVIATIONS & ACRONYMS USED IN THIS BOOK

ADPs	Attaches Defence Procurement
AMF	Aircraft Manufacturing Factory
APF	Avionics Production Factory
ARDE	Armament Research and Development Establishment
ARF	Aircraft Rebuild Factory
APU	Auxiliary Power Unit
ATR	French-Italian Aircraft (English Regional Air Transport)
AVLB	Armed Vehicle Launched Bridge
CMA	Controller Military Accounts
DAC	Departmental Accounts Committee
DCC	Defence Coordination Committee
DAE	Diploma of Associate Engineering
DEPO	Defence Export Promotion Organization
DGDP	Directorate General Defence Purchase
DGMP	Directorate General Munitions Production
DP R&D Board	Defence Production Research and Development Board
DPEs	Defence Production Establishments
DPs	Directorate of Procurements
DW&CE(DP)	Directorate of Works & Chief Engineer
FACM	Fast Attack Craft Missile
FCS	Fire Control Skygurad
FE	Foreign Exchange
GOP	Government of Pakistan
GSO	General Staff Officer
GPU	Graphic Processing Unit
GST	General Sales Tax
HIT	Heavy Industries Board Taxila
IDEAS	International Defence Exhibition and Seminar
IDEF	International Defence Exhibition and Fair
IOP	Institute of Optronics
JAC	Joint Appeal Committee
JCSC	Joint Chief of Staff Committee
JSHQ	Joint Staff Headquarters
JLPC	Joint Logistic Planning Committee
KPT	Karchi Port Trust
KS&EW	Karachi Shipyard and Engineering Works
LC	Letter of Credit/Local Currency
LPR	Last Procurement Rates
LMG/MG	Light Machine Gune/Machine Gun

MoD	Ministry of Defence
MoDP	Ministry of Defence Production
MRF	Mirage Rebuild Factory
MRO	Maintenance Repair Overhaul
MTD	Machine Tool Die
MVRDE	Military Vehicles Research and Development Establishment
MLRS	Multiple Launch Rocket System
MPVs	Maritime Portral Vesels
NOC	No Objection Certificate
NRTC	National Radio and Telecommunication Corporation
NVG	Night Vision Google
OC DSG	Officer Commanding Defence Services Guard
OCFST	Officer Commanding Field Security Team
PAC	Pakistan Aeronautical Complex
PAC	Public Accounts Committee
PMSA	Pakistan Maritime Security Agency
POFs	Pakistan Ordinance Factories
PQA	Port Qasim Authority
SDRs	Software Defined Radios
TDW	tons dead weight
TCD	Tons crushed per day
ToT	Transfer of Technology
UAV	Unmanned Air Vehicle
WBM	Wah Brass Mill
WIL	Wah Industries Limited

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