

MINISTRY OF DEFENCE PRODUCTION

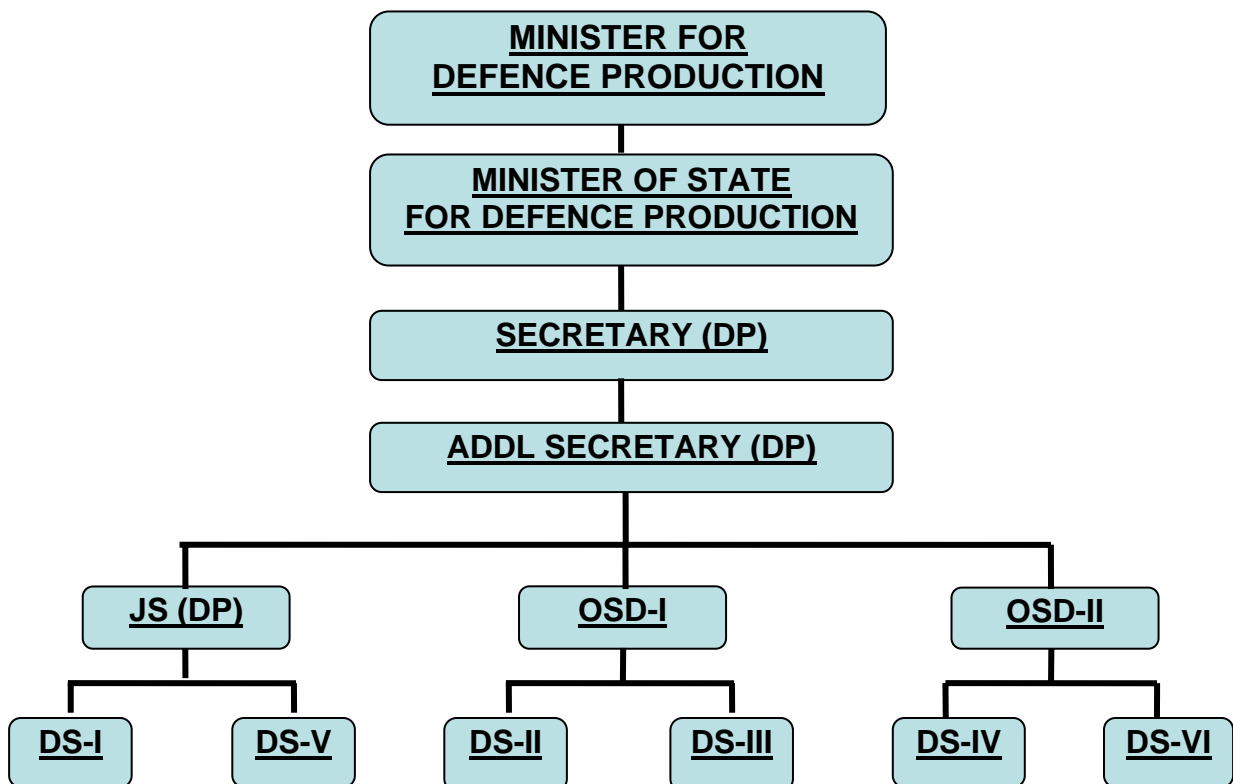
INTRODUCTION

Ministry of Defence Production (MoDP), created in 1972 as a Division of Ministry of Defence, is now a separate Ministry. It is responsible for the policy, formulation of plans and coordination between Procurement and Development in the field of Defence Production. The Ministry is implementing a programme to achieve the following objectives:

- To provide base for maximum self-reliance in the production of defence requirements of the three services.
- To accelerate pace of technological development to contemporary levels.
- To identify, integrate and utilize industrial potential available in public and private sector for production and procurement of defence stores and equipment.
- To attain economy of scales through optimum production.

ORGANIZATIONAL SETUP

The Organizational set-up of Ministry of Defence Production is as under:



PAKISTAN ORDNANCE FACTORIES BOARD, WAH

POF Board was constituted on 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.

- Medium Artillery Ammunition Factory, Wah Cantt.
- Heavy Artillery Ammunition Factory, Sanjwal Cantt.
- Tank/Anti Tank Ammunition Factory, Gadwal in 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

- **Weapons**

- Rifle G3 (7.62 mm x 51 Caliber)
- Light Machine Gun MG3 (7.62 mm x 51 Caliber)
- Sub Machine Gun MP5A3, A4, P7 etc (9 mm x 19 Caliber)
- Anti Aircraft Gun (12.7mm Caliber)- Chinese



- **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 Parabellum
- 5.56 mm x 45 M193 (Ball)
- 5.56mm x 45 B855 (Penetrator)
- 7.62 mm x 39

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

- **Mortar Bombs**
 - 60 mm HE & Smoke WP, Illu, Signal (Red & Green)
 - 81 mm HE & Smoke WP, Illu
 - 120 mm HE & Smoke WP

- **Aircraft Bombs, Aircraft & Anti Aircraft Munitions**
 - 250 Kg – Mk 82 Aircraft Bomb
 - 6 Kg & 25 Lbs Practice Bombs
 - 30 mm HEI
 - 30 mm API
 - 30 mm Practice
 - 37 mm Anti Aircraft
 - 20 mm Phalanx (for Navy)
 - 12.7 mm x 108 API & APIT

- **Tank & Anti Tank Ammunition**
 - 125 mm APFSDS
 - 125 mm HE
 - 105 mm APFSDS
 - 105 mm HE
 - 100 mm APFSDS
 - 100 mm HE
 - 106 mm RR HEAT

- **Rockets**

- Arty Rocket 122 mm MBRL Yarmuk
- Rocket Propelled Grenade 40 mm HEAT (RPG-7P)
- Rocket Propelled Grenade 40 mm AP (RPG-7P)
- 73 mm Recoilless AT Grenade (SPG-9P)
- **Grenades, Pyrotechniques & Mines**
 - Hand Grenade Arges 84
 - Grenade Target Indication, White, Red, Yellow, Green etc.
 - Smoke Grenade WP P1 Mk1
 - Mine AP P4
 - Mine AT P3 Mk-2
 - 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**
 - Emulsion Explosives, Dynamites
 - Semi-Gelatinous & Powder Explosives
 - Blasting Accessories, Safety Fuze Cords
 - Detonating Cords
 - Detonators (Plain & Electrical)
- **Commercial Products**
 - Brass Rods, Pipes, Plates, Sheets & Extrusions
 - Gilding Metal Clad Steel Strips
 - Tungsten Carbide Tool Tips, Nibs & dies
 - 12 Bore Sporting Ammo
- **Miscellaneous**
 - Military Uniforms, Mosquito Nets, Kit Bags, Gowns etc.

Manpower

POF has a sanctioned strength of 32,424, against which present strength is 24,565. POF is thus the largest industrial employer in the country and has well trained and experienced technical manpower.

SWOT

Strength: Skilled manpower & strong internal control system, ISO-9001 certified, strong diversified products.

Weaknesses: Old technology, weak inventory management because of huge inventory of 227,000 items, lack of professional accounting staff, high cost of production.

Opportunities: Improved production through standardization, access to international markets for Ordnance related products, utilization of spare capacity for production of civil products.

Threats: International sanctions on purchase of Raw Materials/Restrictions on export to other countries, high dependence on Pak Army.

Financial Highlights

The Annual Budget of Rs.10,112.523 Million was allocated in Financial Year 2009-10 for the targets of Armed Forces. However, POF spent Rs.2,032.973 Million from its own sources to augment the budgetary deficiencies, and on procurement of raw materials, stores and plant & machinery required for exports and civil production.

Deposits with State Bank of Pakistan

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. POF has at present a balance of Rs.7,627.798 Million in Special Deposit Fund (SDF) of Exports earnings and Rs.382.752 Million in local currency account of commercial sales (RD&R). The receipts and expenditure trends of said funds were as follows:-

SDF

(Rs. in Million)

Year	2008-2009	2009-2010
Opening Balance	5,210.039	7,365.735
Receipts	4,221.571	1,825.719
Expenditure	2,065.875	1,563.656

Closing Balance	7,365.735	7,627.798
-----------------	-----------	-----------

RD&R

(Rs. in Million)

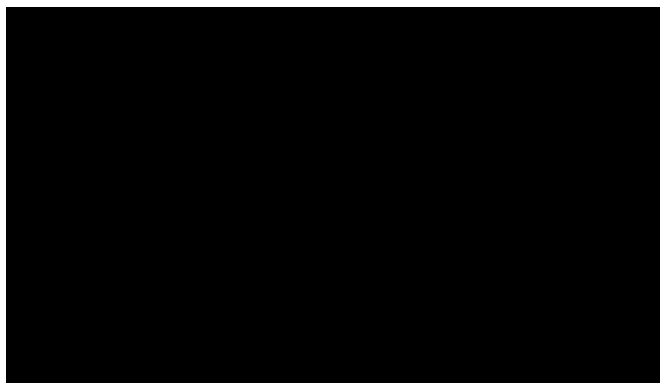
Year	2008-2009	2009-2010
Opening Balance	1,104.308	431.340
Receipts	585.947	420.729
Expenditure	1,258.915	469.317
Closing Balance	431.340	382.752

Production

Production (Target VS Despatch) – FY 2009-2010.

During 2009-10, POF required procurement budget to the tune of Rs.7000 Million against which only Rs. 2632 million were allocated. However, GHQ provided additional budget in Feb'2010 to meet the shortage. Combined despatches worth Rs.10.408 billion (Estimated) against total allocation of procurement budget Rs.5600 Million (MoDP 2632 Million & GHQ Rs.2968 Million) were made up to 30-6-2010.

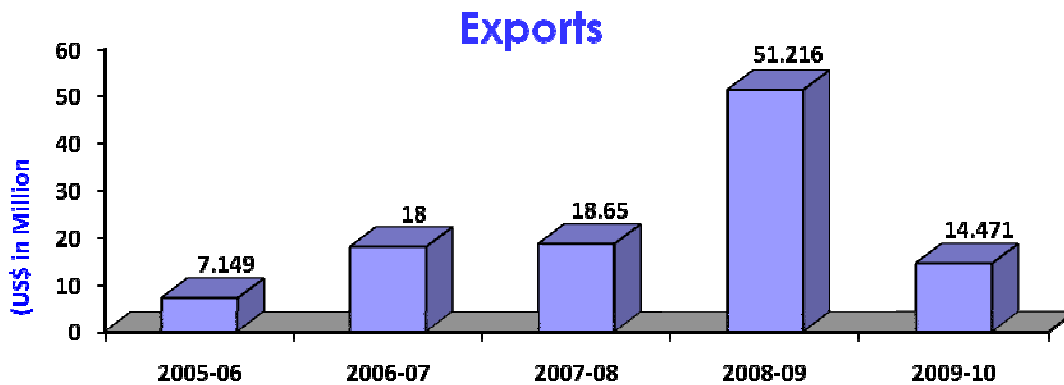
Performance Trend during last five years is reflected as under:-



Exports

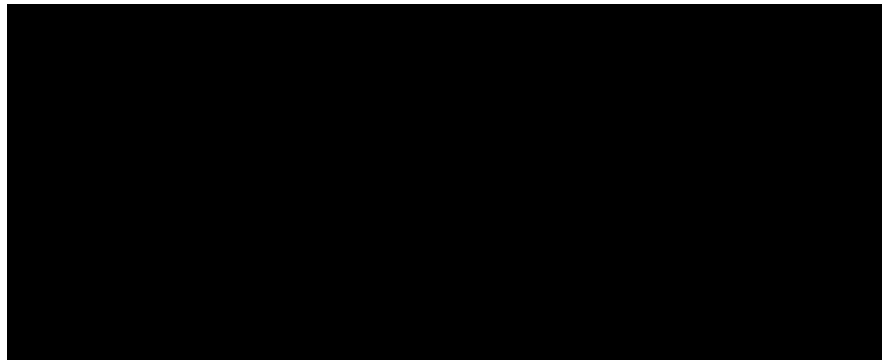
POF has to compete in a highly competitive and ever shrinking international defence corporate market from a public sector platform. This daunting challenge can only be met by ensuring quality, competitive pricing and above all aggressive and professional marketing. POF's engagement in production for War on Terror has also affected the capacity available for export production.

Trend of exports in last five years is as under:-



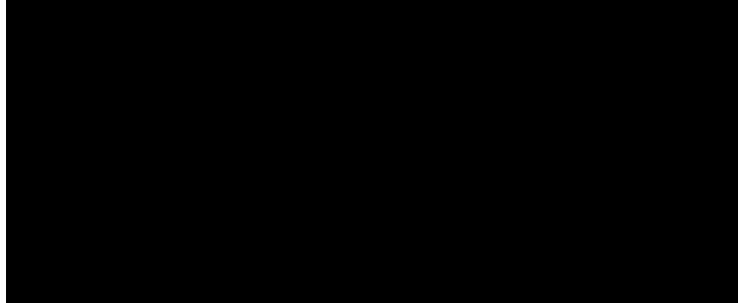
Commercial Production

POF's commercial production was showing downward trend during the last three years mainly due to recession and law & order situation in the country. However WIL's concerted efforts have succeeded in securing more orders.

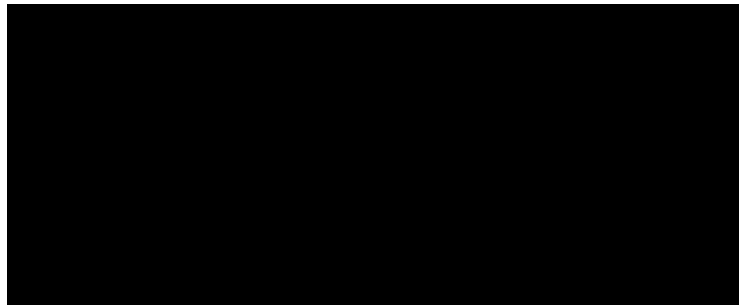


POF's Subsidiaries

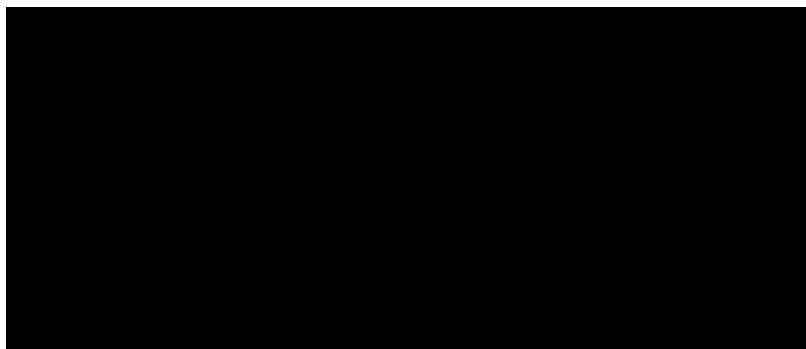
M/s Wah Industries Ltd., (WIL). Its overall sales during the year 2009-10 were Rs.1,721.88 Million, which are 87% higher than the sales of 2008-09 (i.e. Rs.920 Million). The profit margin was Rs.338.000 Million before Tax and Rs.235.000 Million after payment of tax during 2009-10.



M/S Wah Nobel (Pvt) Ltd. is a subsidiary of POF in which M/S WIL holds majority share with 51.75% while M/s SAAB of Sweden and Al-Misehal of Saudi Arabia are other share holders with 28.25% & 20% shares respectively. Its sales pattern in last five years remained as follows.



M/S HI-Tech Plastics (Pvt) Ltd. manufactures plastic parts, mainly bodies of A/Tk and AP Mines. During financial year 2009-10, gross sales of Hi-Tech Plastics were Rs.138.86 Million, which are 32.7% higher than the sales of 2008-09 (i.e. 104.65 Million).



Quality Assurance

POF has already obtained the accreditation of ISO in following standards, which were audited by External Auditors during the year and accreditation extended:-

ISO 9001-2000	Pertains to International Quality Standards for Design, Development & Manufacture of Small Arms and Ammunitions etc.
ISO-14001	International Certificate for maintaining ideal Environmental Standards.
ISO-17025*	Pertains to the Certification of Material Testing Labs, Ballistic Labs and Standards Labs.
ISO-18001	Pertains to occupational Health & Safety Management Systems

*The scope of accreditation includes 52 different tests, which are performed in these labs. Incidentally no defence industry in whole of the Asia possesses the accreditation of all the said three standards at a time, which is a distinction for the POF.



POF Institute of Technology (POFIT)

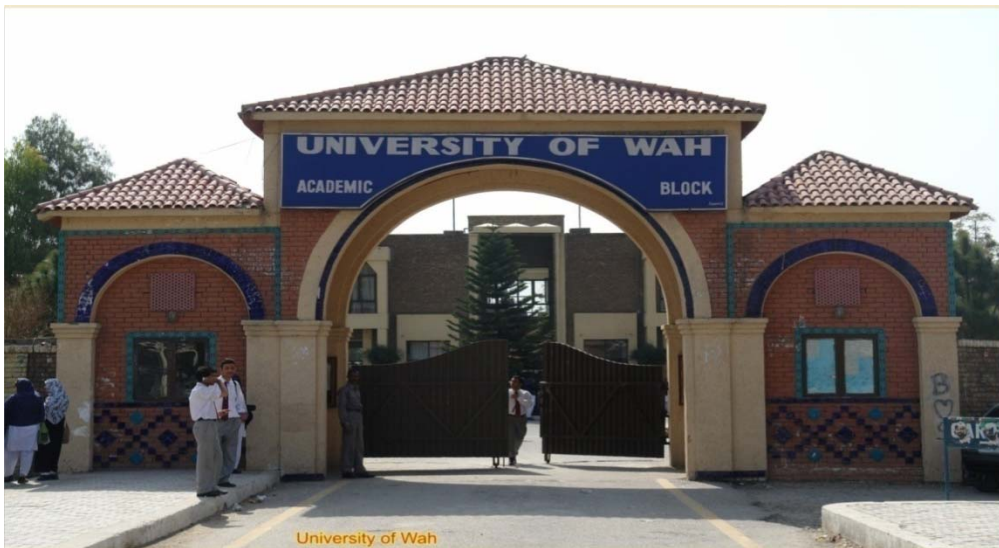
POFIT is imparting both Technical & Management Training to workers, Staff and Officers.

Welfare Activities

POF undertakes lot of welfare measure for its employees and spent huge amounts like Rs.9.210 Million on Ward Marriage, Rs.3.134 Million on Scholarship, to deserving students, including those of Deeni Madaris, Rs.3.453 Million on Haj & Umra contingents & Rs.7.469 Million special medical treatment. The family of every employee up to BS-16, who dies in service, is also given Rs.50,000 as special Death Grant. This is addition to their normal entitlement of pension, Group Insurance, Benevolent Fund & Assistance Package.

Sports

POF has excellent sports facilities of international standard like 9 Hole Golf Club, Skeet Club, Indoor Games Hall, Squash Courts, Synthetic and Clay Tennis Courts, Hockey Ground having Astro turf, Cricket, Athletics and Football Grounds.



Education

POF Wah has the distinction of having 98% literacy rate, which is the highest in the country. There is University of Wah, Medical College, Engineering College, COMSAT Institute and lot of other educational institutions. In addition 13 buses are plied from Wah Cantt to Rawalpindi/Islamabad, five buses from POF Havelian to Havelian Town/Abbottabad/Wah Cantt and five buses from POF Sanjwal to Wah Cantt/Islamabad for students.

University of Wah has been granted Accreditation i.e. formal recognition by Govt. of Punjab, while Wah Medical College (WMC) is already affiliated with University of Medical Sciences. WMC students showed brilliant results in Professional MBBS Exams 2009. It is a matter of great pride for Wah Medical College that it stood First among all the medical colleges affiliated with University of Medical Sciences Lahore.

HEAVY INDUSTRIES TAXILA

FACILITIES AND PRODUCTS

Over View

Heavy Industries Taxila (HIT) is a large defence and security equipment production industry, working under Ministry of Defence Production. It comprises six production factories and engineering support facilities. The industry is under taking following activities:-

- Rebuilding, up-gradation and modernization of tracked vehicles.
- Manufacturing of tanks, Armoured Personnel Carriers and its variants, Armoured Recovery Vehicles, tank guns and security vehicles/equipment.
- Research and development of modern Armour Systems in order to incorporate latest trends in Tank Technology.

Rebuild Factories

Heavy Rebuild Factory (Tanks). Established in 1979 with a capacity to rebuild and upgrade 50 tanks per year. Factory has under taken rebuild and upgradation of Tanks T-59 M, T-59 MII, T-85 and ARV W-653 including modernization of old Tanks T-55 and T-59 to Tank Al Zarrar. The factory products are as under: -



- **Upgradation of T Series Tanks into Al Zarrar.** A total of 394 Tanks Al Zarrar have been handed over to Pakistan Army. Production of next batch of 92 Tanks is in progress.
- Rebuild and upgradation of Tank T-85IIAP.
- Rebuild of Tank T80UD engines



and assemblies.

- Upgradation of ARV W653 to W653 A.
- Rebuild / conversion of 105 mm T59 Tanks to 100 mm for FC Khyber Pakhtunkhwa and Baluchistan.

Heavy Rebuild Factory (Mechanized).

Established in 1987, Capable of rebuilding 100 APCS M113 and 15 self propelled guns per year. Products are as under: -

- APC M113A1/A2.
- SP M109A1/A2 Guns.



Advance Systems Rebuild

Factory (ASRF). This factory was established in 2007. It has capability to rebuild the following stand alone systems of Tanks including its standardization and integration: -

- FCS/GCS.
- Hydraulic Systems.
- Electronics and Electrical sub systems.
- Mechatronics Systems.
- Optronics.
- NVDS / Thermal Imaging Sights assembly and testing.
- Auxiliary Systems (NBC, FESS, APU, Communication).



Manufacturing Factories

Tank manufacturing Factory. Factory was established in 1992 with a capacity to manufacture 50 Tanks per year. Tank Factory is a modern outfit with latest Tank manufacturing facilities, which includes state of the art CNC machines for heavy duty flexible machining operations and a complete infrastructure for manufacture of Tank. Factory production started with manufacture of Tanks T-69, T-85



and ARV W-653. Manufacturing of 300 Tanks Al Khalid has been successfully completed. Next batch of 21x Al Khalid will be manufactured in year 2011/12. Main features of Tank Al Khalid are as under:-

- **Main Armament.** 125mm smooth bore Gun with an Autoloader and Image Stabilized Fire Control System. The gun control system is also integrated with Auto Tracking and Hunter killer Device. For night operation Tank is equipped with thermal night sight.



- **Power Pack.** Tank is equipped with 1200 HP multi fuel engine coupled to Multiple Reverse Speed (MRS) with Power to weight ratio of 26:1.
- **Armour Protection**
 - (a) Composite Armour.
 - (b) Explosive reactive armour.
 - (c) BC protection system.
- Additional feature includes Integrated Battle Field Management System (IBMS).

Armoured Personnel Carrier Factory Established in 1992. Manufactures APC M113P, APC Talha and different variants of APCs with a capacity of 150 APCs per year. APC Factory has absorbed the technology to manufacture APCs and has been able to develop APC Talha and Saad. APC Saad has been designed and developed as a defence product and is equipped with state of the art systems. APC Saad has enhanced power to meet the dictates of modern



battle field. The main features are as under: -

- 408 HP Diesel Engine.
- Automatic Transmission.
- Enhanced Mobility.
- Enhanced Armour Protection.
- NBC Protection System.
- Air Conditioned.



Gun Manufacturing Factory. Established In 1992 with a capacity

to manufacture 50 tank guns per year. Gun Factory has the capability of producing smooth and rifled gun barrels ranging from 105mm to 203mm caliber. Each barrel is processed through precision machining operations and subject to stringent quality control parameters. Presently manufacturing 125 mm smooth bore Tank Gun for tank Al Khalid and Al Zarrar.



Surplus Capacity Utilization. Manufacturing factories are utilizing surplus capacity to manufacture Security Vehicles, Discreetly Armoured Vehicles and Security Equipment.

Allied Facilities

DESCOM. The Development Engineering Support and Component Manufacture (DESCOM) is the factory implementing deletion plan through indigenization. This includes manufacture of in-house items and



development of parts and components through down stream industry.

- 39,800 variety of items are being manufactured through In House Manufacturing facilities.



- Factory also engages Pakistan's down stream industry for manufacturing of 58,900 variety of items.

AARDIC. Advance Armour Systems Research And Development, Information & Integration Centre (AARDIC) is engaged in development of following systems of tanks:



- Integration of IBMS in Tank Al Khalid
- Universal Fire Control System for 125 mm tank guns
- Dynamic Muzzle Reference System
- Auto Tracker Tank Al Khalid
- NBC Systems for tanks, APC/M109A2
- Remote Controlled Weapon Station
- Bomb Blanket for Toyota Land Cruiser, Defender D-90 and Defender SW-110
- Development of body armour

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), Armoured Recovery Vehicles (ARVs), Security Vehicles and equipment. All these projects have been accomplished within the targeted time frame. The production progress during financial year 2009-2010 is as under:-

Rebuild / Upgradation Projects

	Quantity
➤ Rebuild/conversion of T-69IIM tanks to 100 mm Gun for FC KPK & Balochistan	- 88
➤ Upgradation of ARV W653 to W653A	- 10
➤ Rebuild of old T-Series Tanks	- 07
➤ Tank Engines	- 139
➤ FCS/GCS	- 105
➤ MUAs, assemblies and components	- 1879

Manufacturing Projects

➤ Al-Khalid Tank	- 03
➤ Command Post Carrier	- 04
➤ APC M113P	- 06
➤ Generators - 600/500/70/50 KVA	- 10
➤ TI Sights	- 110

INDIGENIZATION

All HIT products are subjected to time based deletion plan through indigenization. This includes manufacture of in-house items and development of parts and components through down stream industry. The achievements for year 2009-10 are as under:-

Ser	Products	No of Varieties of Parts Manufactured	
		In house Manufacturing	Through down stream Industries
a.	Tank Al-Khalid	16	66
b.	Tank Al Zarrar	153	106
c.	Tank T-85IIAP	85	85
d.	Tank T-80UD	06	-
e.	APC Saad	03	70
f.	ARV W653/653A	40	40
g.	125 MM Gun	86	-
h.	Security Vehicle Mohafiz	25	-
j.	580 HP tank engines	11	-
k.	730 HP tank engine	16	-

Indigenous Effort Benefits

Through value addition, HIT is contributing approximately Rs. 3.8 billion annually towards the overall saving beside generation of economic activity through the down stream private/vendor industry.

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. Commercial products manufactured in year 2009/10 are as under: -



<u>Ser</u>	<u>Product</u>	<u>Factory</u>	<u>Quantity</u>
a.	Security Vehicle Mohafiz	TM (F) & APC (F)	52
b.	Discreet Armouring of Vehicle	TM (F)	17
c.	Bullet Proof Jackets (BPJ)	AARDIC	14,325
d.	Bullet Proof Vests	AARDIC	157

Commercial Products

- Security Vehicle Mohafiz - Steel Based & Hybrid
- Wheeled APC Buraaq
- Armoured Guard Post (AAHAN)
- Discreetly Armoured Vehicles
- Bullet Proof Jacket (Hifazat).

Benefits of Commercial Activities. It 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 2009/10	: Rs. 2058.50 Million
b.	Profit earned for Government	: Rs. 388.50 Million
c.	Proportionate cost remitted to Government as per rules	: Rs 84.00 Million

d. Remittance under process : Rs 86.06 Million

PAKISTAN AERONAUTICAL COMPLEX, KAMRA

Production Statistics of the four Factories for the last Fiscal Year are tabulated below:-

F-6 Rebuild Factory (F-6 RF)

(a)	GOH aircraft production	:	30
(b)	GOH component production	:	45,034
(c)	C-130 aircraft propellers overhauled	:	05
(d)	Drop tanks repaired/overhauled	:	91
(e)	Hardware and rubberized parts manufactured	:	2,95,183
(f)	Aircraft wing re-rubberization	:	18
(g)	Mirage AME Refurbished	:	126

Mirage Rebuild Factory (MRF)

(a)	Mirage A/C	:	16
(b)	ATAR 09C Engine	:	115
(c)	ATAR Engine Accessories	:	9850
(d)	ATAR Jet Pipe / Junction Section	:	75
(e)	F-100 Engine / Modules	:	31
(f)	F-100 Accessories	:	199
(g)	T-56 Engine	:	10
(h)	T-56 Engine Accessories	:	811
(j)	J-69 Engine Parts	:	501
(k)	MPR Modification	:	02

Aircraft Manufacturing Factory (AMF)

(a)	K-8 Sub Assemblies	:	24
(b)	Retrofit III of Mushshak aircraft for PAF	:	14
(c)	Small assemblies	:	277
(d)	Spares Support to PAF & Pak Army	:	5591

Kamra Avionics and Radar Factory (KARF)

(a)	Rebuild of Mobile Pulse Doppler Radars	:	05
(b)	Rebuild of TPS-43 Sensor	:	01
(c)	Refurbishment of Radio Relay Vehicles	:	03
(d)	Refurbishment of Air Conditioners	:	15

(e) Life Cycle Maintenance of Avionics LRUs : 1067
& SRUs of ROSE Modified Mirage aircraft

Significant Achievements

The achievements of respective factories of PAC, Kamra during the period of report are highlighted in the subsequent paragraphs.

F-6 Rebuild Factory (F-6RF)

The following new projects were accomplished by F-6RF during the period under review:-

(a) Indigenization Task Development. In addition to the manufacturing of kit items for F-7PG aircraft indigenous development of three special tools (Wrench, Ring Spanner and Pressing Tool) for F-7PG aircraft has also been carried out to meet the requirement of respective Bases.

(b) Completed. Following major tasks were also accomplished during the period under review:-

- (i) Re-induction of A-5III aircraft for structural **Life Enhancement Programme** (LEP)
- (ii) Re-induction of FT-6 for GOH**
- (iii) Quick Engine Change (QEC) overhauled facility
- (iv) Re-Certification Audit of ISO 9001: 2000 and AS-9100 Rev "B"
- (v) NADCAP Accreditation to specific service

(c) On-Going Specialist Projects. The manufacturing of metal parts for FALCO UAV and MPR (Mirage Pressure Refueller) Project is in progress.

Mirage Rebuild Factory (MRF)

The following new projects were accomplished by MRF during the period under review:-

(a) Re-certification Audit of MRF. Re-certification Audit of MRF on ISO 9001: 2008 & AS 9100 Standard Rev 'B' was conducted by Aerospace Lead Auditor of ISA (Inc) USA in the month of May, 2010.

(b) Human Recourses Development. The following courses were held at MRF to educate personnel of MRF to enhance their capabilities according to the recent advancements in the field of engineering technology and management.

- (i) Lead Auditor Course on ISO 9001:2008 Quality Management System and Occupational Health and Safety Management System (OHSAS) 18001.

- (ii) Training of 01 officer & 01 Technician on Highly Sophisticated Soap Analysis Machine from Perkins Elmer
- (iii) Management Courses
- (iv) Central Trade Test Board (CTTB) and Practical Trade Test Board (PTTB) Examination

Aircraft Manufacturing Factory (AMF)

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

(a) JF-17 Airframe Co-Production Project. Activities related to JF-17 airframe co-production project at AMF, PAC Kamra continued at a rapid pace during the year 2009-10. Under the provisions of JF-17 SP co-production contract, ToT for Final Assembly and FTS work started in June, 2009. The first locally-assembled aircraft was rolled-out in November, 2009 in a ceremony graced by the Prime Minister of Pakistan. In addition, sustained sub-assembly work of LEF, TEF, and Aileron assemblies was started while the ToT for installation of LEF, TEF, and Aileron on Wing also commenced in June, 2010.

(b) Manufacturing of K-8 Small Assemblies & Front Fuselage. Presently AMF has work in hand for manufacturing of 50 small assemblies (10 each of Horizontal Stabilizer, Elevator, Vertical Stabilizer, Rudder and Engine Cowling), and 05 Front Fuselages of K-8 aircraft for China. Twenty Assemblies (04 Sets) were shipped to China in May, 2010, whereas remaining thirty assemblies are under the process of packing prior to shipment. Two out of five Front Fuselages have been manufactured and under packing process whereas work on remaining three Front Fuselages is at varying stages of production.

(c) Indigenous Development, Repair and Up-gradation on Super Mushshak Aircraft. Up-gradation of PAF remaining 10 MSK A/C to SMK A/C is in progress. 06 aircraft have so far been upgraded and handed over to PAF till July, 2010. 57 line items were developed in AMF for Super Mushshak aircraft during the year 2009-2010.

Kamra Avionics & Radar Factory (KARF)

KARF is working with the vision “To provide the most cost effective engineering solutions and thereby increase indigenous support to Pakistan Air Force and friendly countries”. This factory at present is supporting PAF in the following dimensions:-

(a) Rebuild of MPDRs (Ground Sensors).

(b) Rebuild of TPS-43G Sensor.

(c) Refurbishments of Radio Relay vehicles and air conditioners of PAF.

(d) Production of AVTR, IFF Transponder, RWR and Grifo-7 / PG Radars.

(e) Life Cycle maintenance of Grifo-7, Grifo M-3, Grifo PG radars and other Avionics System LRUs / SRUs.

(f) Life Cycle Support of Grifo-7, PG and M3 Radars during High Mark, 2010.

During Exercise High Mark- 2010, KARF repaired 179 LRUs of Grifo-7 Radar, 60 LRUs of Grifo-PG Radar and 27 LRUs of Grifo-M3 Radar. It is pertinent to mention that all NORS related to radar were met during the exercise to ensure 100% availability of the equipment on all three weapon systems.

(g) Life Cycle Support of Grifo-7, PG and M3 Radars during 2009-2010.

During 2009-2010, KARF repaired 590 LRUs of Grifo-7 Radar, 246 LRUs of Grifo-PG Radar and 179 LRUs of Grifo-M3 Radar. Through concerted and dedicated efforts, KARF was also able to reduce backlog of unserviceable LRUs from 13 to 5 of Grifo-7 and 13 to 11 of Grifo-M3 which enhanced the radar availability in the field.

(h) Successful Trial Repair of BTE-2000 Radar Altimeter. ROSE-III Radar Altimeter Test Station BTE-2000 of PAF Base, Rafiqui became unserviceable in August, 2009. The dedicated industrial PC, remotely configurable external power supply, microwave rack and interface cards of the STTE, BTE-2000 were successfully repaired using reverse engineering techniques in January, 2010.

KARACHI SHIPYARD & ENGINEERING WORKS LIMITED

INTRODUCTION

The Karachi Shipyard & Engineering Works Limited (KSEW) is a public limited company, with all shares owned by the Government of Pakistan / Pakistan Navy. It is an autonomous body under administrative control of Ministry of Defence Production. The KSEW is situated geographically within the boundaries of Karachi Port, covering an area of 65 acres (approx). The set up 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 H. C. Stulcken Shon of Germany, in 1956.

MAIN FUNCTIONS

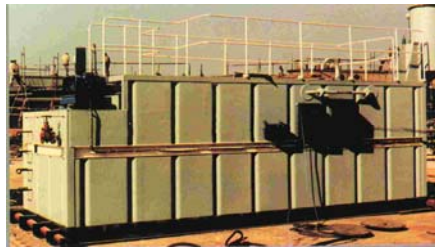
- As per Government's mandate KSEW caters for Pakistan Navy's requirements as PAC KAMRA and HIT cater for PAF and Pak Army's requirements respectively.
- Additionally, KSEW undertakes commercial activities mainly, Shipbuilding, Shiprepair and General Engineering. KSEW is equipped to build all types of Marine Crafts, Motor Cargo Vessels, Container Ships, Oil Tankers, Bulk Carriers of up to 26,000 TDW, Harbour Tugs, Pilot Boats, Hopper Barges, Dredgers and Launches etc.
- F22P Frigate for Pakistan Navy is under construction at KSEW in collaboration with CSTC of China, alongwith ToT.
- It has also been decided that as against few sub-sections of Agosta 90B Submarine which were made at KSEW, all new Submarines for PN will be completely built at KSEW. The KSEW now has the needed expertise and the project will be executed in collaboration with OEM.
- KSEW already has the capability of indigenous construction of Fast Attack Missile Crafts, Patrol Boats, Gun Boats & Missile Boats size ships. Quite a few vessels have been built and supplied to PN as well as to international clients
- To support this shipbuilding activity, KSEW houses three Ship building berths with the following sizes & capabilities :-

<u>BERTH NO.</u>	<u>SIZE</u>	<u>MAX. TDW.</u>
1.	169 X 23 M	15,000
2.	118 X 23 M	6,000
3.	213 X 31 M	26,000

MAJOR PRODUCTS

- F22P FRIGATE
- AGOSTA 90B SUBMARINE
- FAST ATTACK CRAFT (MISSILE)
- 500 TON FAST ATTACK CRAFT (MISSILE) FAC (M)
- FLOATING DOCKS
- SHIPREPAIR
- GENERAL ENGINEERING

7.1 **GENERAL ENGINEERING PRODUCTS**



Sewage Treatment Plant



LPG Storage Tanks



Fire Tube Boilers



FRP Tanks



ACHIEVEMENTS /PROGRESS DURING THE YEAR (2009-10)

SHIP BUILDING :

ORDERS COMPLETED DURING 2009-10

- R & D works of varying degrees for MTC
- Provision of sliding Rope Rail on MT Sachal & Deebal Tug Boats for PQA
- Repair of Mooring Buoy for Coastal Refinery

ORDERS IN HAND

- Construction of 2 x Small Tanker Cum Utility Ships (STUS) being built for Pakistan Navy had started on 22.02.2008 and 24.4.2008. 1st STUS was Launched on 12 Jan 2009 and 2nd STUS launched on 28 Feb 2009, much ahead of scheduled time. Construction work is in full swing and STUS would be delivered as per contract.
- Construction of 4th F22P Frigate for Pak Navy at KSEW has started and Steel Plate Cutting Ceremony was held on 05.03.2009. Construction of infra structure, up-graduation of machinery and training of KSEW personnel in China is being conducted smoothly as per schedule
- Construction of 02 x Pusher Tugs and 01 x Dredge Tender at KSEW for Karachi Port Trust has been signed at a total cost of Euro 5.726 Million.
- Construction of 01 x 500 ton Fast Attack Craft (Missile) for Pakistan Navy.
- R & D works for MTC

SHIP REPAIR

- The Shiprepair Section of KSEW undertook repairs of over 22 vessels of various clients such as PN, KPT, PQA, MSA, Hwadar Port and six foreign flag vessels including one from Republic of Yemen Navy during the year 2009-10.

GENERAL ENGINEERING:

ORDERS COMPLETED DURING 2009-2010

- Machining of Bearing Portion of Generator for Siemens Pakistan.
- Repair of 1 set of Mill head stock for Matiari Sugar Mills.
- Alignment work of Rail Fish Plates for China Harbor Engineering.
- Stress Relieving of 2-Nos Pressure Vessels for SEFEC Engineering Ltd.
- Machining / Skimming of Armature of main rotor for PN Dockyard.
- Manufacturing and installation channel covers for new Gantry Cranes of KSEW.

SAVING THROUGH INDIGENIZATION

Shipbuilding and Shiprepair are capital intensive business. Out of the work handled at KSEW considerable amount of foreign exchange has been saved during 2009-10.

CAPACITY BUILDING/YARD UPGRADATION

In order to enhance capacity and to handle production on modern lines, KSEW is going through extensive upgradation. This upgradation worth billions of Rupees will Inshallah convert KSEW into a state of the art Shipyard which should be able to compete with the similar size yards in the international market.

YARD UP-GRADATION PLAN OF KSEW

As part of general yard upgradation plans, KSEW has finalized three consultancy contracts with a German firm M/s Inros Lackner for civil works pertaining to construction project of F22P Frigate, repair/refurbishment of dry docks and installation of ship lift & transfer system. Based upon the outcome of the consultancy the contracts will be awarded to the qualified firms to undertake these jobs

SHIP LIFT AND TRANSFER SYSTEM

The project of Ship Lift and Transfer System is in progress and scheduled to be completed by end 2012. This system has a capacity to lift ship and submarines having displacement upto 7,500 tons. There are 13 repair stations in the Master Plan. Once completed, this facility will take care of repair / maintenance requirements of domestic market completely as well as the foreign flag ships would also be accommodated.

SUBMARINE CONSTRUCTION

An independent department for construction of future Submarines has been established at KSEW. The process to finalize contract for complete construction of Next Generation Submarines at KSEW for Pakistan Navy is under process at MoDP and NHQ.

FINANCIAL PERFORMANCE / REVITALIZATION

The revitalization plan put together with the active support of PN, MoD & MoDP is being vigorously pursued. Upgradation of facilities and installation of new machinery is in progress. Some major ship building contracts have already been signed while some are in the pipe line. After a rather weak performance of over a decade, KSEW is back on even keel. Financial restructuring duly supported by GoP revival package has provided a new lease of life. KSEW has become self sustaining and as against in the past, seeks little help from the Govt. It is now meeting its all expenses including land rent etc out of its own earnings. This will also provide KSEW a much needed capability to enter the international market.

NATIONAL RADIO TELECOMMUNICATION CORPORATION

COMPANY PROFILE

HISTORY:

National Radio and Telecommunication Corporation (NRTC) is a high tech industry engaged in manufacturing of telecommunication equipment in Pakistan. NRTC is the pioneer in Telecommunication Equipment in Pakistan and leader in the field of communication for the last over three decades. NRTC is producing high quality products for Defense services, Pakistan Telecommunication Corporation (PTCL) and other 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 for producing telecommunication equipment to the entire satisfaction of end users. We are **ISO-9001-2000** certified which is the highest degree of quality management and quality assurance of products.

LOCATION:

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

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.	Rural Development Branch Exchange RDBX-5200 (2+48) & (4+96)
f.	Automag Field Exchange (4+12)

g.	Electronic Field Telephone (EFT-101) with/without Keypad Dialer
----	---

VHF RADIO SETS

a.	VHF/FM Freq Hopping Radio Set PRC-9610 (5W Manpack)
b.	VHF/FM Freq Hopping Radio Set VRC-9611 (5W Vehicular)
c.	VHF/FM Freq Hopping Radio Set VRC-9612 (50W Vehicular)
d.	VHF/FM Freq Hopping Radio Set VRC-9621A (5W Tank)
e.	VHF/FM Freq Hopping Radio Set VRC-9622A (50W Tank)
f.	VHF/FM Freq Hopping Radio Set VRC-9624A (5+50W Tank)
g.	VHF/FM Radio Set AN/PRC-77/25 (Modified)
h.	VHF/UHF Single and Multi Channel Radios
j.	Land Mobile Radios (SK-2 System)

POWER SUPPLIES

a.	Power Supply 13 Volts 5 Amps
b.	Power Supply 13 Volts 10 Amps
c.	Power Supply 13 Volts 20 Amps
d.	Power Supply 24 Volts 10 Amps
f.	Power Supply 24 Volts 20 Amps
g.	Power Supply 24 Volts 30 Amps
h.	Power Supply 24 Volts 50 Amps
j.	Power Supply 48 Volts 10 Amps
k.	Power Supply 48 Volts 20 Amps
l.	Power Supply 48 Volts 30 Amps
m.	Un Interruptible Power Supplies (UPS)

MISC PRODUCTS	
a.	Inter Trench Communication (ITC 2000)
b.	Broad Band Antenna (PK-2000 MK-1)
c.	Antenna AT-892
d.	Antenna AT-271
e.	Antenna AT-1730
f.	Antenna AT-1065
g.	Antenna RC-292
h.	Nickel Cadmium Batteries 13.2V & 14.4V
j.	Dual Nickel Cadmium Bty Charger
k.	Under Ground, Aerial Cables, Drop Wire

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.
- DP Boxes, Cabinets and other accessories of out side plants.
- VHF/UHF Antennae for Military/Commercial Radios including Extend Radios.
- Environmental Test facilities as per MIL-STD-810E
- PCB stuffing upto 8-layers

MAJOR PROJECTS 2000-2009

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
- Digital Electronic Field Telephone Exchange PFX-1204
- Field Auto Telephone Exchange PFX-1604
- Electronic Field Telephone (EFT-101)
- 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)

FINANCIAL PERFORMANCE

Financial performance/Sales turnover of NRTC during last five years is as under:-

YEAR	DEFENCE	EXPORT	PTCL /OTHER	TOTAL
2005-06	867.582	471.475	45.227	1,384.284
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
---------	---------	--------	--------	---------

DIRECTORATE GENERAL DEFENCE PURCHASE

Financial year 2009-10 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 facets. The improvement in output is attributed to wholehearted and well-coordinated efforts put in by all agencies and Organizations, which certainly deserve appreciation. The salients of the achievements are reflected in succeeding paras. During the preceding financial year procurement to the tune of Rs. 94,502.15M has been made for the Armed Forces.

Procurement Activities

The summary of procurement activities for Financial year 2009-10 in respect of DGDP, DsP and AsDP is as under:-

PROC ACTIVITIES FY 2009-10

DGDP

a. AGAINST DEV PACKAGES

Indents Received	Crossmandated	Cancelled/Not Concluded	Contracts Concluded
02	-	-	02

b. AGAINST SVC BUDGET

Indents Received	Crossmandated	Cancelled/Not Concluded	Contracts Concluded
06	-	01	05

PROC ACTIVITIES FY 2009-10
DIRECTORATES OF PROCUREMENT (DsP)

a. AGAINST DEV PACKAGES

S/No	Org	Indents Received	Crossmandated	Cancelled/ Not Concluded	Contracts Concluded
1.	DGP (Army)	37	-	13	*25

No contract has been concl by DP (Navy) and DP (Air) against Dev Packages

b. AGAINST SVC BUDGET

S/No	Org	Indents Received	Crossmandated	Cancelled/ Not Concluded	Contracts Concluded
1.	DGP (Army)	451	02	92	401
2.	DP (Navy)	561	89	190	373
3.	DP (Air)	321	44	31	289
Total:		1333	135	313	*1063

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

AsDP assist DGDP and DsP in procurement of equipment, which is not available locally and can be purchased economically direct from abroad. For this purpose indents are crossmandated by procurement agencies to AsDP abroad. Detail of indents crossmandated and contract concluded during last financial year is as under:-

PROCUREMENT ACTIVITIES FY 2009-10
ATTACHES DEFENCE PROCUREMENT (AsDP)

a. AGAINST DEV PACKAGES

No contract has been concluded by AsDP against Dev Packages.

b. AGAINST SVC BUDGET

S/No	Org	Indents Received	Cancelled/ Not Concluded	Contracts Concluded
1.	ADP Washington	118	08	115
2.	ADP London	363	76	304 (14 x Partial contract)
3.	ADP Paris	126	54	72
4.	ADP Beijing	81	64	17
Total:		688	202	*508

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

SUMMARY OF TOTAL SAVINGS OF CONTRACTS
CONCL DURING FIN YEAR 2009-10

a. AGAINST DEV PACKAGES

Org	Saving Against Assessed Rates	Saving Against User Est/LPRs	Saving Against Quoted/ Offered Rates
DGDP	-	Rs. 230.715M	Rs. 99.976M
DGP (Army)	Rs. 1064.161M	Rs. 416.543M	Rs. 82.28M
DP (Navy)	No Contract has been concluded by DP (Navy), DP (Air) & AsDP against Development Packages		
DP (Air)			
ADP (Washington)			
ADP (London)			
ADP (Paris)			
ADP (Beijing)			
Total	Rs. 1064.161M	Rs. 647.258M	Rs. 182.256M

b. AGAINST SVC BUDGET

Org	Saving Against Assessed Rates	Saving Against User Est/LPRs	Saving Against Quoted/Offered Rates
DGDP	Rs. 1108.490M	-	Rs. 1640.167M
DGP (Army)	Rs. 432.443M	Rs. 830.005M	Rs. 313.025M
DP (Navy)	Rs. 3.355M	Rs. 326.739M	Rs. 434.710M
DP (Air)	Rs. 283.757M	Rs.174.996M	Rs. 724.232M
ADP (Washington)	Rs. 26.080M	Rs. 33.543M	Rs. 10.132M
ADP (London)	Rs. 11.417M	Rs. 7.434M	Rs. 0.278M
ADP (Paris)	Rs. 66.021M	-	Rs. 6.448M
ADP (Beijing)	-	Rs. 3.813M	Rs. 0.876M
Total	Rs. 1931.722M	Rs. 1376.530M	Rs. 3129.868

*** All figures converted into Pak currency.**

Contracts Concluded:

The details of contract concluded during the financial year 2009-10 are as under:-

SUMMARY OF CONTRACTS CONCLUDED DURING FIN YEAR 2009-10

AGAINST DEV PACKAGES

Org	No. of Contracts Concluded		Value of Concluded Contracts	
	FE	LC	FE	LC
DGDP	02	-	US\$. 5.990M	-
DGP (Army)	10	15	US\$. 88.584M	Rs. 6004.355M
DP (Navy)	No contract concluded by DP (Navy), DP (Air) & AsDP during Fin Year 2009-10			
DP (Air)				
ADP (Washington)				
ADP (London)				
ADP (Paris)				
ADP (Beijing)				
Total	12	15	US\$. 94.574M	Rs. 6004.355M

AGAINST SVC BUDGET

Org	No. of Contracts Concluded		Value of Concluded Contracts	
	FE	LC	FE	LC
DGDP	05	0	US\$. 86.968M €. 66.599M	-
DGP (Army)	83	318	US\$. 50.012M	Rs. 26475.784M
DP (Navy)	53	267	US\$. 62.322M	Rs. 1306.071M
DP (Air)	86	203	US\$. 135.718M	Rs. 15614.865M
ADP (Washington)	115	-	US\$. 4.392M	-
ADP (London)	304	-	US\$. 0.085M €. 0.380M £. 1.780M	-
ADP (Paris)	72	-	€. 4.337M	-
ADP (Beijing)	17	-	US\$. 0.349M	-
Total	735	788	US\$. 339.846M €. 71.316M £. 1.780M	Rs. 43,396.725M

Recovery of RE Money

Details of RE cases alongwith recovery made during fin yr 2009 -10 are as under:-

AMOUNT RECOVERED AGAINST RE DURING FIN Yr 2009-10

Org	Total No. of Contracts	Total RE Amount Involved (In Rs. Million)	Total Recovery Carried Out (In Rs. Million)
DGDP	-	-	-
DGP (Army)	1455	1987.226	0.1793
DP (Navy)	13	15.93	0.555
DP (Air)	185	42.832	-

Total	1653	2045.988	0.7343
--------------	-------------	-----------------	---------------

REGISTRATION OF FIRMS

The results of registration activities during the LFY are tabulated as under:-

a.	New firms registered	-	94
b.	Renewal of registration	-	247
c.	Additional indexation of Firms	-	87
d.	Total No. of defaulting firms	-	Nil

DIRECTORATE GENERAL MUNITIONS PRODUCTION

General

DGMP is tri services org, created in 1970 with a view to promote indigenization of def eqpt through pub and pvt sector to achieve self reliant def industrialization. It has handled projs like indigenous assy / mfr of Land Rover Defender Jeeps, Truck 5 Ton 4x4 Hino, co-production of Frequency Hopping Radio Sets 9600 Series, Agosta 90-B Submarine and is now engaged with production of F-22P Frigate. It has a long list of other eqpt locally developed and delivered to the Armed Forces. It also remains in touch with local industry, Chambers of Commerce and other business within and outside Pakistan for investment in joint ventures and co-production. To enhance indigenization, all procurements from abroad necessitating Sales Tax Exemptions are processed through DGMP for issuance of STECs (Sales Tax Exemptions Certificates). Through its integral R&D estbs as well as a large pool of vendor industry, DGMP indent and selects projs to be locally dev in close coord with user svcs, thereby saving foreign exchange and developing local industry.

Contracts Signed during the Year 20098-10

Number of contracts signed during FY (incl u/c estbs) with their total value are:-

a.	Total number of contracts signed	-	56
b.	Value in LC	-	Rs Rs 5453.3996 Mn
c.	Value in FE	-	US\$ 487.493 Mn

Major Achievements

Achievements of DGMP during the year are as under:-

- d. Assy / Mfr of Land Rover Defender Jeeps / Dodges.
- e. Aay/Mfr of Truck 5 Ton 4x4.
- f. Fabrication of Aviation Fuel Bowzers.
- g. Development of Mobile Field Kitchen.
- h. A saving of US\$ 84.802 Mn has been accrued through effective price negotiation for Software Defender Radio (SDRs).

- i. Commissioning ceremony of PNS ZULFIQAR was held on 30 Jul 09 at HZ Shipyard, China. The ship was inducted in Pakistan Navy Fleet on 19 Sep 09.
- j. Commissioning ceremony of PNS SHAMSHEER was held on 19 Dec 2009 at HZ Shipyard, China. The ship was inducted in Pakistan Navy Fleet on 8 Feb 10.
- k. The HATs/SATs trials of the ship are at final phase. The ship is scheduled to be commissioned on 15 Sep 2010 at Shanghai.
- j. Installation of equipments and machinery is in progress. Construction and training is also in progress. The launching of 4th ship is scheduled on 4 Jun 2011 as per contract.
- k. Last batch containing 4 x Z9EC helicopters have been received at PNS MEHRAN on 26 Jun 2010.

ARDE

Achievements of ARDE are as under:-

- a. **Explosive Grid System.** Prototypes for Mesh detonating have successfully been developed by ARDE and trials were carried out at Tilla Ranges in Jul 2010. Prototypes gave excellent results as all Anti Tank and Anti Personnel (AP) Mines laid under the detonating mesh were completely detonated / destroyed.
- b. **Modified Multi Channel Exploder.** ARDE successfully developed modified Multi Channel Exploder comprising 1 x Master control unit and 1x slave unit.
- c. **All Weather Electronic Anti Lifting Device (Modified).** 5x prototypes including electronic circuitry are currently under development for further trials.
- d. **Simulation Mines (AP).** 50x mines were accepted by user. Remaining 400 x Mines are expected to be dev during Sep 2010.
- e. **Enhancement of Penetration Power of HEAT Rocket RPG-7.** Qty-20 HEAT Rockets of RPG-7 with enhanced penetration (430mm) have successfully been developed. Users cum tech trials were also carried out which proved successful.

SRC

Achievements of SRC are as under:-

- a. Master Plan for SRC Project has been completed.

- b. 30% work on construction of 300 men barrack at Ormara has been completed.
- c. 40% work on Geotech soil investigation of SRC land has been completed.

DEFENCE EXPORT PROMOTION ORGANIZATION

General.

Defence Export Promotion Organisation (DEPO) since its inception in 2000 has been promoting the products of public and private sectors defence industries. Detail of activities of DEPO in 2009-2010 are given in subsequent paragraphs.

IDEAS-2010

Due to unprecedented destruction and human loss as a result of floods in 2010, IDEAS-2010 to be held at Expo Centre Karachi from 6 – 10 December 2010 was postponed.

Foreign Delegations Visit to DEPO. All delegations visiting Pakistan or any defence organization/JSHQ and three services, are normally sent to DEPO for briefing/visit to product galleries to promote export of public/private defence manufacturing industries. The high level visits are, however, not being conducted presently due to non availability of display halls and appropriate Conference / Briefing room at the present location (Islamabad). Few visits, however, took place in the period under review and their details are given below:-

- a. Poland Delegation was headed by General Franciszek Gagor, CGS
- b. Azerbaijan H.E. Dr Eynulla Madatli Ambassador of Azerbaijan
- c. China H.E. Mr. Luo Zhaohui Ambassador of People Republic of China
- d. Sri Lanka H.E. Mr. Gotabhaya Rajapakse Secy Defence Sri Lanka
- e. Turkey High level Military Delegation Headed by Gen Hasan IGSIZ (TGS).

International Exhibitions attended in 2009-2010. Following International Exhibitions were attended in 2009-2010:-

- | | | | |
|----|-------------------|----------|-----------------------------------|
| a. | IDEF-2009 | Turkey | Pakistan Pavilion was established |
| b. | IDEX-2009 | Dubai | Pakistan Pavilion was established |
| c. | DSA – 2010 | Malaysia | Pakistan Pavilion was established |
| D | Eurosatory – 2010 | France | Only Delegation attended |

NATO Codification System (NCS). Pakistan is in the process of joining NCS. Prior to signing the agreement, a defence delegation visited HQ Allied Committee/135 at Brussels, to understand the working of NCS.