

2021

Cluster Profile

PHARMACEUTICAL PRODUCTS

RAWALPINDI



Turn Potential into Profit

Small & Medium Enterprises Development Authority (SMEDA)
Ministry of Industries & Production (MoI&P)
Government of Pakistan

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Table of Contents

1	DESCRIPTION OF CLUSTER	2
1.1	INTRODUCTION / HISTORY & BACKGROUND OF CLUSTER	2
1.2	DEFINING THE PRODUCTS	3
1.3	CORE CLUSTER ACTORS	4
1.4	OTHER CLUSTER ACTORS	5
1.5	GEOGRAPHICAL LOCATION	6
1.6	CURRENT CLUSTER SCENARIO	6
2	ANALYSIS OF BUSINESS OPERATION	7
2.1	PRODUCTION OPERATIONS	7
2.2	RAW MATERIALS:	12
2.3	TECHNOLOGY STATUS	12
2.4	MARKETING & SALES	13
2.5	PRICING STRUCTURE STRATEGY	13
2.6	QUALITY STANDARDS FOLLOWED BY PHARMACEUTICAL MANUFACTURERS	15
2.7	FINANCING	16
2.8	HUMAN RESOURCE MANAGEMENT	16
2.9	GLOBAL SCENARIO	17
2.10	SWOT ANALYSIS	17
3	INSTITUTIONAL SETUP	20
3.1	ENTREPRENEURS ASSOCIATIONS	20
3.2	SUPPORT INSTITUTIONS	20
4	MAJOR ISSUES AND PROBLEMS	21
5	INVESTMENT OPPORTUNITIES IN CLUSTER	22

1 Description of Cluster

1.1 Introduction / History & Background of Cluster

The Pharmaceutical Industry is an integral part of the healthcare system in every country. The industry consist of companies licensed to research, develop, market and distribute medicine for the prevention, treatment and cure of diseases and other health conditions.

The development of the health sector in every nation is critical in promoting the development of other sectors and general socio-economic development of the nation. Pharmaceuticals are an integral component of healthcare systems worldwide, thus, regulatory weaknesses in governance of the pharmaceutical system negatively impact health outcomes especially in developing countries.

The Pakistan Pharmaceutical Industry today is in the front rank of Pakistan's science-based industries with wide ranging capabilities in the complex field of drug manufacture and technology. It is growing very fast in terms of technology, quality and range of medicines manufactured. From simple headache pills to sophisticated antibiotics and complex cardiac compounds, almost every type of medicines is now made in Pakistan. The organized sector of the pharmaceutical Industry has played a key role in promoting and sustaining development in this vital field.

The pharmaceutical industry is knowledge driven industry and is heavily dependent on Research and Development for new products and growth. However, basic research (discovering new molecules) is a time consuming and expensive process and is thus, dominated by large global multinationals, Pakistani companies have recently entered the area and initial results have been encouraging. Pharmaceutical is a continuous growth industry, immune to economic recession and commodity cycles. With rising population, new incidence and resurgence of certain diseases, new practices in healthcare, the industry continues to grow.

The key to the success of Rawalpindi pharmaceutical companies is based on a simple formula, i.e. the production of high quality products at current Good Manufacturing Practices (GMP) - compliant facilities and offering them at the most economical rates. Nearly all of leading pharmaceutical companies have maintained high standards to ensure compliance of all operations of production and quality control under the GMP guidelines. As a result, they are now successfully exporting their products to various international territories.



Presently, Rawalpindi pharmaceutical products manufacturing cluster is comprising of around 215 manufacturing units and is providing direct employment opportunities to around 4,000 people. The cluster is primarily catering for the domestic market needs, especially at local Punjab level and adjoining regions. However, large units have been able to establish sales networks across the country and exporting as well.

1.2 Defining the Products

There is a variety of products that can be included in the product range of pharmaceutical. The products manufactured in the Rawalpindi cluster mainly include the following;

Table 1: Pharmaceutical Products Manufacturing Cluster, Rawalpindi

Sr.No.	Product Group	Verities
1	Liquid Dosage Forms	Liquid dosage forms solutions contain drugs in dissolved form. Solvents are water, alcohol, a mixture of alcohol and water or oil. Pharmaceutical product groups are: Syringes, sprays, vials, cartridges, bottles, ampoules, auto injectors and eye drop systems.
2	Solid Dosage Forms	Solid Dosage Forms are preparations consisting of solid, loose dry and more or less fine particles. Often, powder is the intermediate in the manufacture of other dosage forms such as: Granules, tablets or capsules. Pharmaceutical product groups are capsules, coated tablets, fine-grained powders, granules, tablets, pellets and expedites.
3	Semi-Solid Dosage Forms	Semi-solid preparations for cutaneous use are intended for local or transdermal drug release. They can have a softening or protective effect on the skin. The preparations have a homogeneous appearance. Pharmaceutical product groups are: Ointments, pastes, cremes, gels and suppository.
4	Special Dosage Forms	Special dosage forms are Aerosols (Inhalator), transdermal systems (Patch), implants and sustained released systems (Tablet, Capsules). Pharmaceutical product groups are: Inhalators, transdermal systems, implants and sustained-release systems.

1.3 Core Cluster Actors

The manufacturers of the above mentioned products are the core cluster actors. According to industry sources, Rawalpindi pharmaceutical manufacturing cluster comprises of around 215 manufacturing units, with majority of the units are of small and cottage sizes, with exception of few medium and large ones. The key industry statistics are as follows:

Table 1: Pharmaceutical Products Cluster, Rawalpindi

Number of Units	<ul style="list-style-type: none"> • Approximately 215 units • 65 Units, Large and Organized (Registered Member of Rawalpindi Chamber of Commerce and Industry) • 150 Units, Medium and Small (Organized and Registered Member of Rawalpindi Chamber of Commerce and Industry) • 40 small scale pharmaceutical marketing organizations • about 25 distributors with an average investment of Rs. 2 Million per unit and 3 Million per unit respectively. The role of these marketing companies is to buy the pharmaceuticals from third party manufacturing units and market these as own brand, whereas the distributor markets the brands of manufacturers.
Employment Generated	About 3000-4000 people are directly employed by the manufacturing units.

	Basically, pharmaceutical manufacturing is not highly labor intensive. Generally, manufacturers engage the temporary labor as per the production requirement and demand. The estimated employment generation involving temporary labor or indirect labor is not available.
Estimated Revenues	Approximately Rs. 35 Billion
Capacity Utilization	70% to 90%

Source: Pakistan Pharmaceutical Manufacturing Association (PPMA), Rawalpindi Chamber of Commerce & Industry (RCCI) and Directory of Industrial Establishment Ind. Department Government of Punjab

1.4 Other Cluster Actors

The key cluster support actors who provide support services to core cluster in the area are including but not limited to raw material suppliers, machinery suppliers, finishing and packaging service providers etc.

Table 2: Other Support Actors, Pharmaceutical Manufacturing Cluster, Rawalpindi

Descriptions	Details
Raw Materials and Chemical Suppliers	The raw material is mainly imported from China and India. Occasionally it is also imported from Europe but due to higher costs of the European raw materials the preference remains the mentioned neighboring countries.
Machinery Suppliers	The common trend of the cluster is to import machinery from China. The cluster has a negligibly small capability of the Research and Development. The time and high costs affiliated with the R&D render even the large sized units unable for the purpose.
Traders, Wholesalers and Distributors	There are about 40 small scale pharmaceutical marketing organizations and about 25 distributors with an average investment of Rs. 2 Million per unit and 3 Million per unit respectively. The role of the marketing companies is to buy the pharmaceuticals from Third party manufacturing units and market these as own brand, whereas

the distributor markets the brands of manufacturers.

1.5 Geographical Location

The cluster is scattered around the city, however main concentrations are in:

- Industrial Estate I-9
- Kahota Triangle (Humak)
- Westridge
- Khayaban e Sir syed
- Satellite Town
- Bahria Town
- Chaklala

1.6 Current Cluster Scenario

The pharmaceutical industry is considered the backbone of public health services in Pakistan. This is strategically important both for the well-being of the population in general and for the provision of good yet affordable healthcare in particular. The low cost of production and the huge potential of this sector has attracted major multinationals to establish their operations and production facilities in Pakistan.

The growth of a cluster is dependent on the market demand and availability of supportive environment within the cluster. The cluster firms cannot operate in isolation, related Industries and Service Providers together grow simultaneously. Thus the collective actions lead to the prosperity for the cluster firms, cluster actors, service providers and to the society as well.

Majority of the units are using old/ traditional manufacturing technology due to non-availability of sufficient space for expansion, since they are located in residential areas. The units running in such areas do not have earmarked well-defined areas for the production process, which is mandatory under WHO standards. This has led the entrepreneurs to reconsider the shifting of their works to any industrial area. In this cluster most of the businesses are either family owned or self-established with members of one family serving different functions of business.

2 Analysis of Business Operation

2.1 Production Operations

Pharmaceutical manufacturing products include variety of finished items therefore it does not have same manufacturing process and machine requirements. Besides, the individual business owners have distinctive requirements as per their business needs. Brief description of production operations of these products is given below.

Warehousing

The process starts from the bringing of raw materials to the warehouses. Here the raw material is put in “Quarantine Section”, where samples are taken randomly and are sent to the “Control labs”. Here required tests are done to check the quality of the raw materials according to the set standards. After passing through the tests satisfactory clearance is given and then they are transferred from the Quarantine Section into the regular section for normal usage. After receiving clearance the raw materials are taken from quarantine section. When requisition is received from production side for supply of raw materials these raw materials are provided to them in required quantity and a record is kept of the same quantity. Different presentation of the pharmaceutical products is manufactured.

Production

The production areas are built in accordance with the needs of Good Manufacturing Practices. It has facilities to manufacture tablets, capsules, syrups, Dry syrups, injections, drops and ointments.

Tablet Section

It comprises of six subsections namely granulation, compression, dry compression, sugar coating, film coating and tablet printing.

Capsule Section

These sections are equipped with capsule filling machines. These machines have a capacity of 20000-36000 capsules per hour. This section is equipped with “Air Conditioning and De Humidifying Systems”.



Injection Section

It has its storage, washing, drying sterilizing, filling and sealing facilities for unit dose ampoules and multi dose ampoules. It has capacity of producing one hundred thousand ampoules in a shift.

Syrup Section

This section comprises of three subsections i.e. dispensing area, riling area and packing area. It has facilities of filling and packing the syrups in glass and plastic bottles of different capacities. According to GMP each manufacturing unit has to keep its antibiotic section separate from the main structure. All companies are following these instructions.

Packaging

After the production is complete the products are taken to the packaging section. In the Packaging Section latest packaging techniques including strip and blister packaging are used. Most of the companies have their own designing sections for creating good attractive packing. On each packaging batch number, date of manufacturing and expiry dates are printed.

Infusion Sets

An **infusion set** comprising of a canola with a needle and a tiny plastic tube connects the insulin pump delivery device to body. It works the same way as an intravenous line does.

Intravenous and Intramuscular Solutions

Intravenous (IV) medications are a solutions administered directly into the venous circulation via a syringe or intravenous catheter (tube). The intramuscular (IM) solutions are injected into the muscles.

Medicines

This industry has a total number of 42 units manufacturing Capsules, Injection, Ointments, Suspension, Syrups, and Tablets. This segment not only caters to the domestic market but also exporting a minor percentage to the bordering Afghanistan Market.



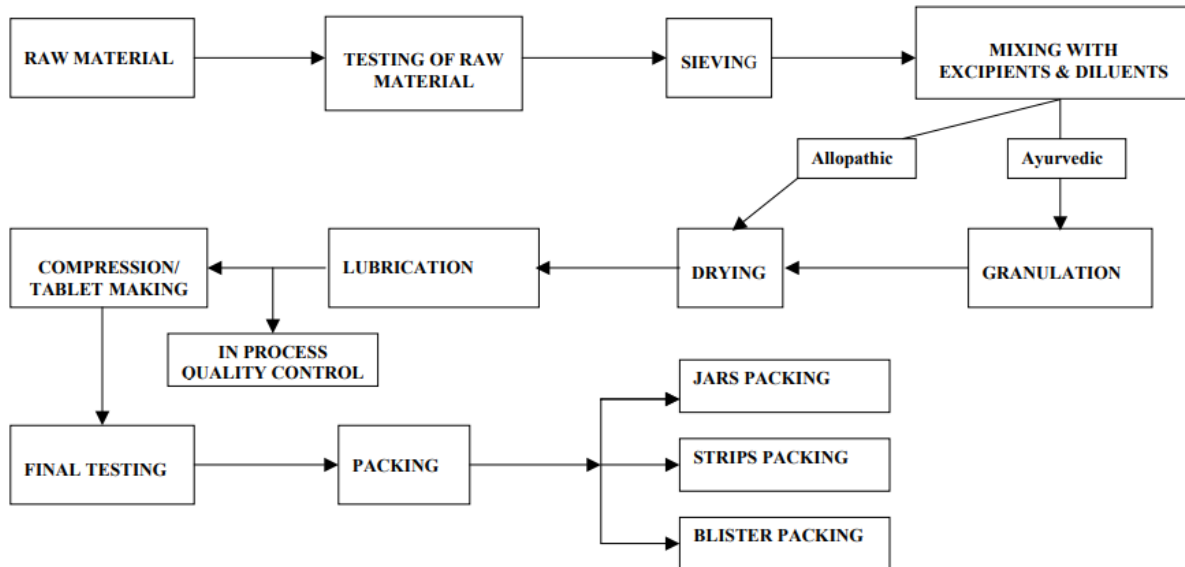
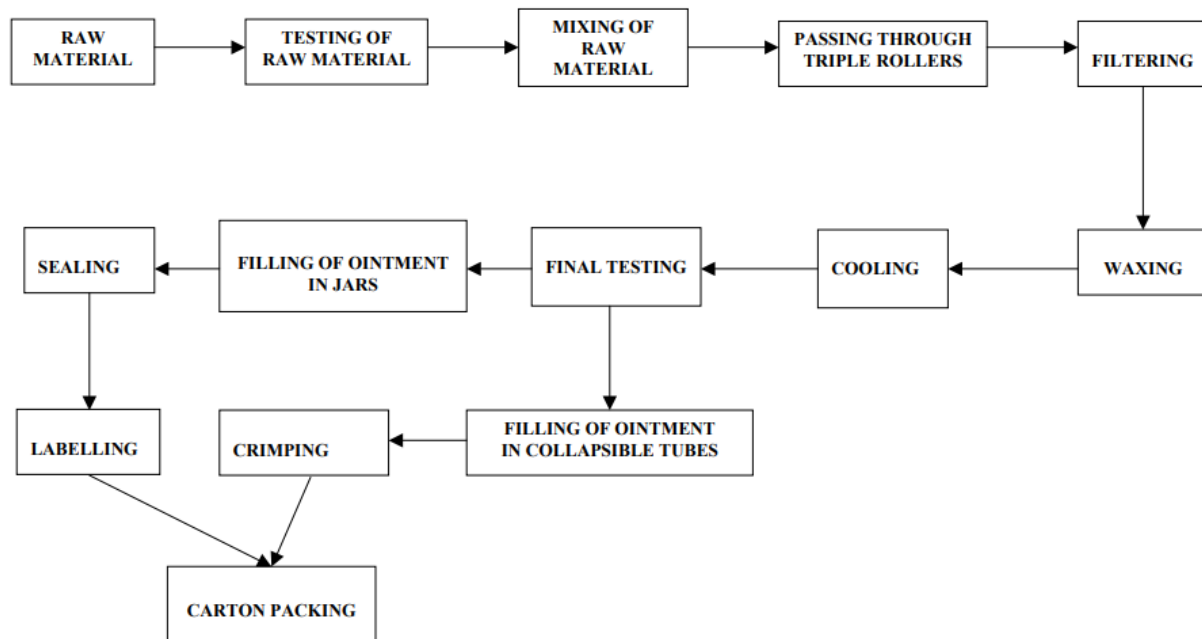
From the marketing point of view, the products are classified into the following categories:

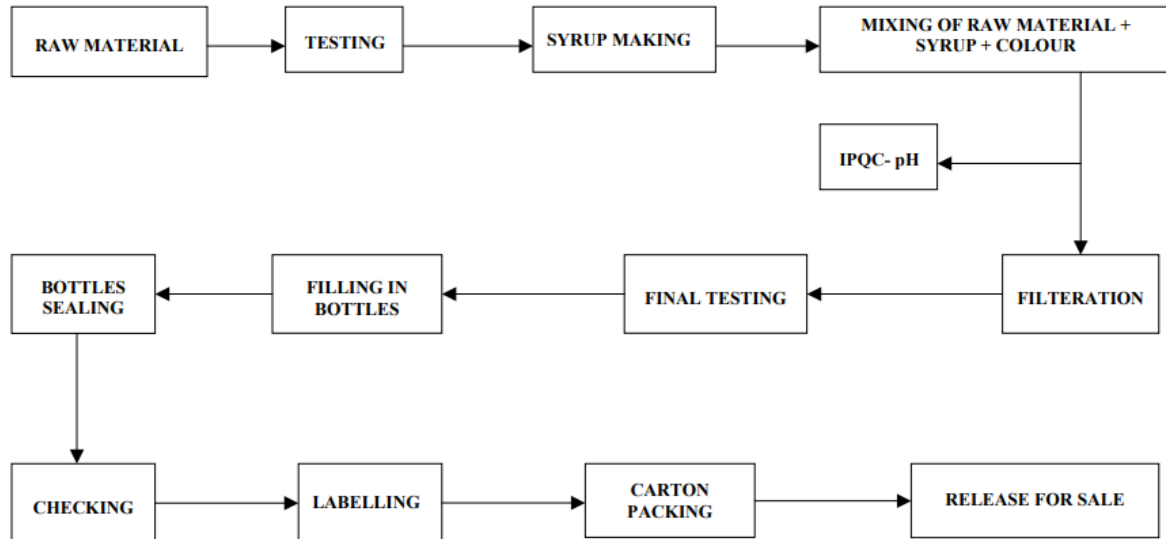
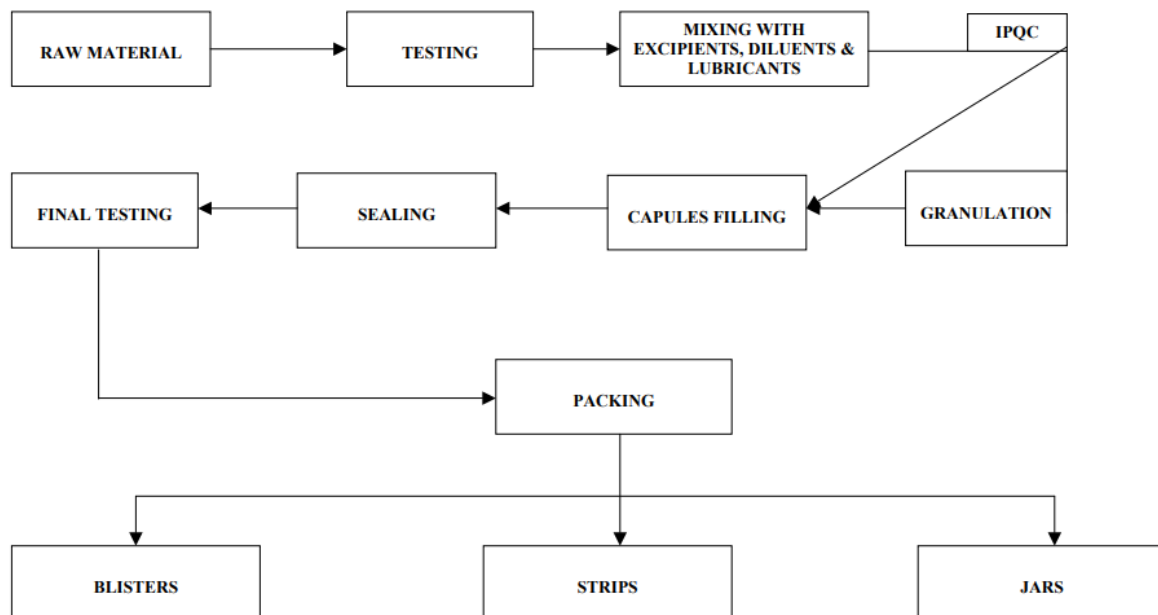
Prescription Medicines

These can be purchased only with the prescription of the doctor (general practitioners and specialists). The senior doctors like professors, and the general practitioners of government and leading private hospitals consider either the products of the multinational organizations or well reputed local companies. In case of the small private clinics and quacks the common practice is the prescription of cheap products.

Over the Counter (OTC) Medicines

As per the global practice these medicines can be purchased without the prescription. In Pakistan due to the negligibly small promotional costs these products are priced very low.

:: PROCESS FLOW – TABLETS ::**:: PROCESS FLOW – ONITMENTS ::**

::PROCESS FLOW – LIQUIDS ::**:: PROCESS FLOW – CAPSULES ::**

2.2 Raw Materials:

There are only few small scale active pharmaceutical ingredients (APIs) manufacturers operating in the cluster, but they have limited technical commercial-scale expertise and resources to operate as per Good Manufacturing Practices (GMPs). However, the Government of Pakistan is inclined to promote Active Pharmaceutical Ingredient (API) manufacturing and has a positive attitude towards this particular category. The Government has often supported quality API manufacturers by granting various tariff protections.

The majority of pharmaceutical companies are dependent on European, Japanese, Korean, South American and Southeast Asian manufacturers for the requirements for their API raw materials requirements of their products hence have little control over the cost of APIs.

Raw and packaging material is easily available from international sources such as India and China. Their quality varies from one source to another. Yet in most of the cases, the materials are subjected to stability testing to conform to the standard of US Pharmacopeias and British Pharmacopeias. The prices of raw packaging have been on the decline for the last few years. The European prices are slightly higher followed by the lower prices of India and China.

2.3 Technology Status

Around 20% of pharmaceutical firms, are adapting and using new technology. These firms continuously strive to have the latest equipment at their disposal since there is realization of importance of technology, thereby not only meeting GMP requirements but also helping them to have latest production technology at their disposal. These, in turn, help achieve more economies of scale and impart productivity gains. But not all firms are good at this aspect. It's only the top-level firms that are keen to make use of new technology. At the lower end of the spectrum, there are many firms that are known to use older machinery and technology for production

The common trend of the cluster is to import machinery from China. The cluster has a negligibly small capability of the Research and Development. The time and high costs affiliated with the R&D render even the large sized units unable for the purpose.

Majority of the units are using old/ traditional manufacturing technology due to non-availability of sufficient space for expansion, since they are located in residential areas. The



units running in such areas do not have earmarked well-defined areas for the production process, which is mandatory under WHO - GMP Norms. No well-equipped in house laboratory/Research and Development facilities in such units force them to depend on Government approved laboratories.

2.4 Marketing & Sales

Rawalpindi Pharmaceutical Products Manufacturing Cluster is primarily targeting the local market; most of the pharmaceutical products produced in the cluster are sold in the nearby regions including, Khyber Pakhtunkhwa, Azad Kashmir, Attock, Chakwal, Jhelum, Islamabad etc. Whereas rest of the products are distributed to other cities across Pakistan. A few of the manufacturers are also exporting the pharmaceutical products to different countries in the world. Presently, the cluster primarily caters to the demand of local market; however, there is lot of scope for exporting locally manufactured pharmaceutical products to various markets in the Middle East, Africa and even USA, to fetch millions of dollars. The sales and distribution network flow in local market trade is as follows;

The marketing depends upon the scale of investment. It may be own marketing team, or may be done through third party or distributors. Similarly, the promotional techniques may include samples, brochures, small gift items, renovation of doctors' clinics, educational and recreational trips to doctors etc. The supply of infusion sets and solutions require bulk purchase orders, normally not less than 3,000 units, whereas the medicine supply has requirements of about 300 packets and above.

2.5 Pricing structure strategy

The Ministry of Health (MoH) controls, assigns and decides the drug prices in Pakistan. Retail price determinations are made by the Price Recommendation Committee (PRC), which regularly monitors the drug prices in the country and decides the ceiling price of a product referred to them by the MoH's Registration Board during monthly meetings.



However, in the exercise of powers conferred by section 10 (I) of the Drug Act, 1976, the Federal Government has constituted a price review committee for price evaluation and reviews. This committee comprises the Director General Health, a Cost Accountant, a Drug Controller, a representative of Pakistan Pharmaceutical Manufacturing Association (PPMA) and a representative of the Pharma Bureau.

The main concerns of the price review committee for the determination of retail price are as follows:

For a drug already on the market:

- Need of the product
- Import price
- Product registration price in other countries
- Prevailing price in neighboring countries
- Price demanded by the applicant and justification thereof
- New molecules
- Available internationally

Other Concerns

- Cost of raw materials
- Demand of the product
- Analyzing competitors
- Marketing concessions

The Government of Pakistan and the Ministry of Health issue instructions from time to time through notifications, orders, circulars, state regulatory orders or legislative amendments for the formation of a pricing strategy that jointly or severally affect the pricing structure in Pakistan.

2.6 Quality Standards followed by Pharmaceutical Manufacturers

The pharmaceutical manufacturers follow international standards for the manufacturing of pharmaceutical products. They follow the instructions given in British Pharmacopoeias and US Pharmacopoeias. These documents provide complete guidelines as to what should be the constituents of the drugs and in what quantities, what additives are to be added and what test are to be performed to ensure the quality of the product. They provide a collection of recommended quality specifications and methods of analysis for selected pharmaceutical products, excipients, and dosage forms. Recommended procedures are intended to serve as source material for reference or adaptation by any WHO Member State wishing to establish pharmacopoeias requirements. Tests described in the volume are designed to determine impurities on which attention should be focused, to fix the limits of those that are tolerable to a certain extent, and to indicate methods for ensuring the absence of those that are undesirable. In most cases, recommended tests rely on simple, classical chemical techniques suitable for use in developing countries.

For manufacturing process, the manufacturers follow the **Good Manufacturing Practices (GMP)** Guidelines. In the manufacture of active pharmaceutical ingredients, overall control is essential to ensure high quality. Haphazard operations cannot be permitted in the manufacture of substances that may be used to save life or to restore or promote health.

The manufacturer must assume responsibility for the quality of the active pharmaceutical ingredients produced. The manufacturer alone can avoid mistakes and prevent mishaps by exercising adequate care in both production and control procedures. Full evidence of compliance with GMP should be given from the step from which the processes or the starting materials used have a critical influence on the quality of the active pharmaceutical ingredient. This step should be determined in each individual case by agreement between the Drug Regulatory and Control Authority and the manufacturer.

2.7 Financing

Generally, investors rely either on their personal investment or friends and family sources of financing. However, almost all the registered financial institutions of Pakistan have their branches within the geographical area of the cluster and are providing the financing. However, formal financing to pharmaceutical manufacturers is predominantly limited to larger units.

At present, no financial institution has developed / offered any customized lending scheme for the requirement of pharmaceutical product manufacturers. The available financial products are not appropriate to cater the requirements of the cluster, especially interest rates are very high.

To meet the working capital needs preference is given to “SME Financing” based short-term loans, which are provided by State bank of Pakistan through commercial banks. Informal credit is also available in the form of credit on the purchase of raw materials or services by the raw material suppliers.

2.8 Human Resource Management

The availability of qualified pharmacists is easy due to the increasing number of the pharmacy graduates from the Universities. The nature of the product demands highly trained marketing representatives. Also, the qualified accountants (Commerce/Business Graduates) are employed due to the size of the organizations and the nature of financial transactions. The administration manager is responsible for employees’ recruitment and retention whereas the production manager ensures achievement of production targets through the shift supervisors.

The education level of workers / labor working in this cluster is low, which is a major hindrance in learning and accepting new tools and techniques. Most of the labor is semi-skilled and is trained on job. They identify sales leads through personal contacts and most of the firms maintain their accounts properly. The accounts are handled generally by primary or intermediate level employees.



2.9 Global Scenario

The pharmaceutical industry in any country is considered as the mainstay of public health. Looking at the global scenario, the importance given by developing nations to the pharmaceutical sector can be clearly identified by including healthcare and pharmaceutical industry in their health and welfare strategy. In the global pharmaceutical market annual growth rate is 6%.

2.10 SWOT Analysis

Strengths

- The Pakistani pharmaceutical industry is growing each year. The growth is phenomenal both in terms of value and volume.
- Pakistani pharmaceutical professionals have developed good skills in making the generic copies of innovative molecules through reverse engineering and process development.
- Most of the Pakistani companies are now inclining towards exports. This surge of exports is well supported by enabling government policies.
- Lower labor costs
- Suppliers of raw material are available
- Many big cities are link-up with this cluster including Islamabad, Attock, Jhelam, Chakwal and KPK etc.
- Good entrepreneurial skills
- Strong logistics infrastructure

Weaknesses

- The low perception of quality – by customers and consumers.
- The Pakistani pharmaceutical industry is 100% dependent on copying of innovative drugs. Not much innovation takes place in processing and developing products.



- Scarce management know-how, especially in international marketing.
- Pakistan is largely dependent on imports for raw materials and hi-tech finished products
- The price of pharmaceuticals in Pakistan is fixed, which restricts competitions.
- Low level of strategic planning and technology forecasting
- Regulation gaps in handling distribution checks for quality of biological in local as well as international network
- Lack of experience in international trade
- High cost of production due to high rate of raw material and electricity
- Unawareness of any quality control and standards
- Small sized companies with weak management skills and structures
- Limited product innovation

Opportunities

- Knowledge of local/regional markets.
- The positive development of the natural products market.
- The rapid development of the generics market.
- Pakistan's economy has taken a positive turn. The per capita income is increasing.
- The increasing penetration of the media and the growing rate of literacy have increased health awareness.
- Recent trends stressing primary healthcare are opening new horizons for exploration.
- The saturation point of the market is still far away.
- Large consumer market with growing demands with epidemic diseases
- Ageing of the world population
- Growing attention for health
- Open up of healthcare insurance
- Gradual decrease in the prices of local raw material
- Networking & linkages of cluster players/stakeholders



Threats

- Trade barriers, especially regulatory difficulties.
- The existence of very strong pharmaceutical manufacturing and marketing industries in neighboring countries that would speedily penetrate the Pakistani market in case of trade liberalization.
- The increasing vigilance of international regulations and the hi-tech demands of the regulators have significantly increased the cost of quality compliance.
- Poor access to finance.
- Globalization, new entrants in the home market and in export markets.
- There is also a rise in the cost of entry into the new export markets.
- Containment of rising healthcare cost
- Stricter registration procedures in the market and high entry cost in the international market
- The introduction of the unregistered wholesaler into the supply chain has resulted in spread of substandard and smuggled pharmacy products, while jeopardizing the sale of the legal entities and the health risks to consumers
- Worldwide focus on regularization of countries pharmaceutical imports
- More patented new drugs and more efficient therapies
- More strict quality assurance demands
- Applications for registration with the Drug Regulatory Authority remain pending.
- The Central Research Fund (CRF) is collected by the Health department from pharmaceutical companies, but not spent for development purposes.
- High cost of inputs and imported raw material
- Domestic/international political situation

3 Institutional Setup

3.1 Entrepreneurs Associations

Pakistan Pharmacist Association

Address: 14D west feroz center, G 6/2 Blue Area, Islamabad,

Tel: (051) 9204191

Web: <https://ppapak.org.pk/>

Pharmacy Council of Pakistan

Pharmacy Council of Pakistan was established under the Pharmacy Act 1967 to promote the field of pharmacy.

Address: Suit # 8, 2nd Floor , B9/B2 , Estate Avenue, Metro Chowrangi, S.I.T.E
Karachi

Tel: (+92) 21-36040111, 32585050 Fax (+92) 21-32585050

Email: Ppma@Pakplas.Com.Pk

Rawalpindi Chamber of Commerce & Industry (RCCI)

Address: RCCI House No. 39, Civil Lines, Mayo Road, Rawalpindi

Tel: (+92) 51- 111-722 475 (+92) 51-8433079

Web: www.rcci.org.pk

3.2 Support Institutions

Drug Regulatory Authority of Pakistan (DRAP)

Address: Birdwood Road, Jubilee Town, Lahore, Pakistan

Tel: (+92) 42 99203335

Web: www.dra.gov.pk



Regional Business Center (RBC) – Small & Medium Enterprises Development Authority (SMEDA)

Address: C/O RCCI House No. 39-A Civil Lines, Mayo Road, Rawalpindi

Tel: (+92) 51-9273019-20

Web: www.smeda.org.pk

Email: asghar.nasar@smeda.org.pk

Punjab Small Industries Corporation (PSIC)

Address: Regional Office Moti Mahel, Murre Road, Rawalpindi

Web: www.psic.gov

Trade Development Authority of Pakistan (TDAP)

Address: Kashmir Plaza, Plot 26D, Jinnah Ave, Block B, Blue Area, G 6/3 Blue Area, Islamabad, Islamabad Capital Territory 44000, Pakistan

Tel: (+92) 51 [9212174](tel:9212174)

Web: www.tdap.org.pk

Ministry of Health

Address: Pak Secretariat C Block Islamabad

Tel: (+92-51) 921 1709

E-Mail: sehat@apollo.net.pk

4 Major Issues and Problems

- Soft and long-term loans are required to build cost saving high-tech new manufacturing units for composite based material goods production.
- Government Technical College, Vocational Technical College, and MIDC etc. largely fulfill the technical and vocational training needs of the industry. However, formal training of mid-level managers is highly required to enhance their efficiency.
- TDAP needs to enhance its cooperation with the manufacturers in international exhibitions.



- Lack of information on potential export markets is an impediment to export growth.
- Interrupted power supply is not only affecting production but also damaging the expensive machines.
- Incentive for deletion is limited to a few components.
- Lack of adequate training institutes.
- Lack of financial assistance.
- Capacity building of the pharmaceutical sector on issues pertinent to strategic planning, quality assurance, and bringing the local industry at par with international standards.
- Drug act should be followed and implemented in true spirit.

5 Investment Opportunities in Cluster

The growing market both at domestic and international levels offers many lucrative investment opportunities to the investors. The need for following projects as potential investment opportunities in Pharmaceutical Cluster Rawalpindi has been identified on the basis of the key strengths of this cluster;

- Large Scale Pharmaceutical Manufacturing
- Medium Scale Third Party Manufacturing Unit
- Marketing Company
- Distributorship

Moreover, the following pre-feasibilities are available on SMEDA website and can be consulted for further information:

- Diagnostic Laboratory, Dialysis Centre
- Essential Oils Distillation Unit
- Liquid Hand Wash
- Medical Store
- Protective Coverall and Medical Masks Manufacturing Unit
- Tissue Paper Converting Unit



- Veterinary Clinic

The above-mentioned documents can be downloaded from www.smeda.org.pk.

