

Cluster Profile

Electric Fans Manufacturing, Gujrat



Turn Potential Into Profit

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1 Description of Cluster

1.1 History and Background of the Cluster

Today Gujrat and Gujranwala regions are prominent manufacturing hubs of household electrical appliances. The Fan manufacturing industry was started in Gujrat, before the partition of India by late Mr. Muhammad Azam. He founded **M/s S.A Fans** in 1944, and drive the industry with his personal technical skills and experience. He gained experience on fan manufacturing from the city of India, “**Amratsar**”. This Industry initially originated from the fan industry that existed at a small-scale level in Gujrat. However, after the partition, the fan industry experienced growth. Since Gujranwala was already famous for the production of iron, steel, and other metal products, so the electrical fan manufacturing became a major business in the regions of Gujranwala and Gujrat. Dealers from all over the country started purchasing fans from these cities and demand for fans grew rapidly and Gujrat and Gujranwala became a known city in Pakistan for Fan manufacturing.

In the 1970s skilled workers started manufacturing fan components on very small scale and supply to large units. Many other small & medium level fan manufacturers came into existence and components were outsourced by most of the large units. Some of the assembling units graduated to manufacturing some components, assembling, testing and marketing under their brands. This situation resulted in the emergence of manufacturing units in the organized sector as well, each of them manufacturing just one or two components.

In eighties Younis Fans Engineering Company was the leading brand in the Gujrat region. After this success story, new investors entered into the fans manufacturing industry like; Wahid Industry, Rafiq Engineering, Parwaz Engineering etc. With the passage of time, fans industry transformed to Air-Conditioners, Fan (Exhaust, Ceiling, Pedestal etc.), Electric Motors etc.

The Fan Industry still mainly exists at the level of SMEs, with exception of some firms, that have gained extraordinary growth. This cluster is not an organized one. There is no exact figure available about the total number of units, installed capacity and operational capacity. The industry is not only fulfilling the domestic needs but also exporting small quantities of fans. There is a large export potential in the Middle East, Africa, and Central Asia.

1.2 Description of Products

Electric Fans are broadly categorized as general-purpose fans that are meant to provide human comfort for people and industrial fans which are used in factories for driving out hot or polluted air for controlling the environment. General purpose fans mainly include broad range of Ceiling Fans, Table Fans, Bracket & Circo Fans, Exhaust Fans and Pedestal Fans.

Ceiling fans are produced more than 60% out of total fans production. In ceiling fan various sizes manufactured are 48” and 56”. Most of the production requirement is 56” ceiling fan. A ceiling fan consists of down rod, top & bottom covers, bearings, shaft, rotor, stator, canopies, blades and sheet metal components. In Pedestal fan sizes manufactured are 22”, 24”, 26”, but the high production and demand of size is 24” followed by 22” and 26”.



1.3 Core Cluster Actors

The manufacturers of electric fan are core cluster actors. There are approximately more than 350 units engaged in manufacturing of electric fan and its components. Majority of the manufacturers are unorganized and fall in small scale industries. There are about 35 prominent and organized manufacturers in the cluster, which have developed strong linkages and dealers' network all over Pakistan and market their products through outlets of these dealers. They are also exporting their products to Middle East, Africa and Central Asia mainly to Saudi Arabia, Afghanistan, Bangladesh, Yemen, Iraq and Sudan etc. Industrial statistics of core cluster actors are as follows:

Table 1: Electric Fans Manufacturing Cluster, Gujrat.

Number of Units	<p>Approximately 300-350 units</p> <ul style="list-style-type: none"> • 4-5 Units, Large and Organized (<i>Registered Member of Gujrat Chamber of Commerce and Industry</i>) • 15-20 Units, Medium and Small (<i>Organized and Registered Members of Gujrat Chamber of Commerce and Industry</i>) <p>Moreover, as per Pakistan Electric Fans Manufacturing Association (PEFMA) sources there are around 285-300 units of Small and Cottage size operating as unorganized sector in Gujrat. These units manufacture different products like; Ceiling, Pedestal, Exhaust etc. These Units are connected with different distributors and shop owners in different cities for their products selling. Most of their sale is domestic.</p>
Employment Generated	<p>About 40,000 people are Directly and 150,000 people are indirectly employed by the manufacturing units of fans industry at Gujrat. The estimated employment generation involving temporary labor or indirect labor is not available.</p>
Capacity Utilization	<p>Capacity utilization is around 70% to 90%</p>

1.4 Other Cluster Actors

The key cluster support actors that 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, Electric Fans Manufacturing Cluster, Gujarat.

Description	Details
Raw Material and Chemical Suppliers	There are about more than 350 vendors in Gujarat supplying raw material/components to Gujranwala and Gujarat Fan manufactures. The raw materials required for manufacturing electrical fans include metal sheets, aluminum, winding papers, wires, router stator, different chemicals and spare parts etc. S.I.E, and G.T Road, Gujarat is also the main market of fan component traders
Machinery Suppliers	There is number of manufacturers engaged in fan manufacturing machines in Gujranwala, which are expert and fulfilling the need of industry. The machinery used in fan manufacturing units includes lathes, drilling machines, grinding machines, winding machines, injection molding, welding machines, powder coating plants and electronic digital measuring equipment for testing. These machines are available locally and skilled personal for maintenance and operation are also easily available.
Traders, Wholesalers and Distributors	A large number of Traders, Wholesalers and Distributors are operative in the cluster for the sale of finished products of electric fans in the Gujarat city as well as across the country.

1.5 Geographical Location

Electric fans are manufactured in many areas of Gujarat. However, the majority of manufacturing units are located on G.T. Road, S.I.E, Kalupura, and in surroundings.

1.6 Current Cluster Scenario

The Fan Industry still mainly exists at the level of SMEs, with exception of some firms, who have gained an extraordinary growth. This sector is not an organized sector. There is no exact figure available about total no. of units, installed capacity and operational capacity. The industry is not only fulfilling the domestic needs but also exporting small quantities of fans. There is large export potential in Middle East, Africa and Central Asia.



The market for electric fans exists in almost every part of the country. There are a few major market players and the small units cater the remaining market. In recent times, due to setting up of a few quality units and brands, it is evident that exports can also be increased by this sector in the near future.

Fan sector is producing mostly inferior quality because the price sensitivity of the customer is high and the awareness level on the quality aspect of product is rather low. This has led the cluster units to manufacture low priced product and compromise on quality. Cheap fan consumes more electricity and most of the consumers have been paying more on electric bills than the amount they save by buying a cheap quality electric fan. In current position growth trend of fan industry has been declining due to electricity crises because big units have facility of generators but the vendors and small manufacturers don't have Generators which ultimately affect the fan production.

2 Analysis of Business Operations

2.1 Production Operations

Electric fans manufacturing products include variety of finished goods; therefore, the production operations and manufacturing processes vary for different kind of products. Therefore, individual business owners have distinctive production process requirements as per their finished goods requirement.

There are several different processing methods used to make electric fan products. Below are the main methods in which electric fans are processed to form the products that end consumers use.

Table 3: Production Processes for Electric Fan Products Manufacturing

Sr. No.	Molding Process	Products
1	Die Casting	Pipe, fiber, film, sheet and thermoforming, profile, pipe, wire and cable etc.
2	Injection Molding	Melted Plastic from cylinder into die through nozzle
	Cutting	The process to cut metal sheets for sizing.
4	Winding	Slots of coiling the enameled copper wire
5	Varnishing	Baked copper wire in dry oven
6	Painting	Powder cotted fans body for finishing

Die-Casting: The casting was done by melting the metal in the furnace and then pouring the molten metal into a die to get the part in the shape of the die. The process of die-casting was used to make some parts of the electric fan.



Injection Molding: Some plastic parts used in the electric fans is made by the process of molding. The plastic grains were melted and formed into the required shape. A piston was used to inject the melted plastic from the cylinder into the die through the nozzle, as it was done in the injection. So, the process was called injection molding, and the machine used for such process was called injection-molding machine.

Cutting: Some parts of these fans were made up from metal sheets. This process was especially used in making the core of electrical fields, i.e., rotor and stator. The commonly used cutting press was the locally manufactured ordinary power cutting press (10 to 25 tons force). Whereas, some of the large-scale manufacturers use the stepping press (force 70 tons or higher), which was more useful for large-scale production.

Winding: Winding is the process of coiling the enameled copper wire in the slots of the core of the electric fields. This process is done by using semi-automatic and fully automatic winding machine. Some large-scale manufacturers are using imported inner slot coil and wedge inserter machines, which helped them in improving the mass production, material saving, improvement in quality, and labor saving, etc.

Varnishing: Varnishing start after the enameled copper wire had been coiled on the core and the electrical field had been formed, the copper wire varnished and then baked in the oven to dry up. This process done to ensure that there are no chance of short circuit in the electrical field and to keep the coils intact.

Grinding: This process is used in finishing some components, which are either made by die-casting or cutting. For such purpose, either the cylindrical grinding machine or lathe machine was used

Assembling: Various parts and components are made by different production departments/vendors comes at assembly area and joined them a per procedure. Finally, a complete fan come it final shape.

Paint: After all the processes of assembling/fittings the finished product painted. The powder coating is the modern method, in which the surface to be painted was ionized first and then powdered paint was sprayed on that surface and heated in the oven to produce high class finish.

2.2 Raw Materials

The raw materials required for manufacturing electrical fans include metal sheets, aluminum, winding papers, wires, router stator, different chemicals and spare parts etc. These raw materials are easily available in the market. Blades, Top & Bottom Covers, Capacitors, Bearings, Rotor Stators, Canopies, Down Rod, Enameled Copper Wire / Aluminum Wire.



Following are the main raw materials or inputs used in production of electric fans.

Table 4: Major Raw Materials

Description	Details
Electrical Steel Sheet	Used for rotor stator to make motor
Aluminum	Used for making upper and lower body of fans
Copper Wire	This wire use to winding in router statur
Poly Fiber	Used in motor inner and outer wiring to make good strength.
Capacitor	Used to control fans machine
Paint	Powder coated painting for finishing the product and for designing
Paper	Used in packing the fans body

2.3 Technology Status and Quality Assurance

The involvement of technology in manufacturing process or for that matter in any process is minimal. Most of the units are at micro level about 10 – 12 % can qualify as proper units. There is lack of use of modern manufacturing machines and techniques. Due to these issues, small units are closing down. However, the large size manufacturing units are filling this gap.

After receiving the parts from the vendor, the assembler checks it as per the given specification. The passed parts are issued to the process. At every level of work in process, the relevant foremen are responsible for the quality; they check the quality on behalf of their department. After completion of the product different types of in-house tests are conducted for own quality assurance purposes as well as for meeting the buyer's requirement i.e. watts, ampere, voltage test, RPM (Revolutions per minute), Temperature rise test etc. Facility of labs is also available in this cluster for quality tests.

Dies and molds are important components for manufacturing high quality and standardized products. Mainly, manufacturers are using imported dies / molds, especially from China. According to industry estimates, around 6,000 molds are imported from China every year by the cluster. Locally made dies and molds are generally produced through conventional machine tools

2.4 Marketing & Sales

Large Manufacturers have developed contacts with the distributors all over the country and place their product on the market through these outlets. The distribution channel moves goods from producer to consumer.

Small manufacturers and venders usually supply their products to the wholesalers and retailers of other cities. Small units don't have brand names. Sales agents are also working in this sector. They book orders from other cities and supply the required quantity after purchasing from small manufacturers. Some manufacturers also have their own retail stores for distribution of their products.

The sales and distribution network flow in local market trade is as follows;



Some of the manufacturers also have their own retail and distribution arrangements for distribution of products. Additionally, export agents and local sales agents are also working to facilitate sales of electric fans.

2.5 Financing

Almost all the registered commercial banks of Pakistan have their branches in the cluster and providing the financing at competitive rates. But most of stakeholders depend upon their own financial equity-based resources. Due to unawareness, ineffective information flow and paper work these entrepreneurs are reluctant to go to the financial institutions.

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

2.6 Human Resource Management

There is shortage of human resource and skills are traditionally inherited. There is an institution for technical and vocational education, but workers and owners are not willing to waste their time and recourses. The entrepreneur generally deals with management issues and marketing related activities. There is no specialized marketing or accounts department in small units. They facilitate their sales only on the basis of personal contacts and no proper accounts are maintained therefore certain problems related to the tax return, monitoring, and evaluation are faced.

2.7 SWOT Analysis

Strengths

- Significantly matured and well-established industry
- Existence of large number of vendor industry
- Availability of low-cost labor in the cluster
- Extensive domestic retail network
- Small initial investment requirement
- Good infrastructural facilities

Weaknesses

- Unreliable and expensive energy supply
- Weak in economies of scale
- Price sensitive customer base
- Least willingness to move towards quality inputs, that's why lack of international standards
- Weak Industry / Academia linkages

Opportunities

- Growing demand in local & export markets
- Establishment of brands in export markets
- Innovation towards emerging efficient and decor fans
- Rising domestic market potential for better quality fans

Threats

- Price variability in raw material and components
- Entry barriers for new investors
- Inconsistent Government support and incentives to promote competitiveness as compared to competing countries (E.g. China and India)
- High end domestic demand for imported brands
- Strict international certification standards
- Increasing price of raw material resulting in reduced margins.

3 Institutional Setup

3.1 Entrepreneurs' Associations

Pakistan Electric Fans Manufacturers Association (PEFMA)

Address: PEFMA House, Near NAYYER Carpet, G.T.Road, Gujarat

Tel: (+92 53) 3707606

Email: pefma@gmail.com

Web:

Gujarat Chamber of Commerce and Industry (GtCCI)

Address: GTCCI Building, G.T.Road Gujarat.

Tel: (+92 53) 9330021-5

Web: www.gtcci.org.pk

3.2 Business Support Institutions

Small & Medium Enterprises Development Authority (SMEDA)

Address: 4th Floor, Building No 3, Aiwan e Iqbal Complex, Egerton Road, Lahore

Tel: (+92 42) 111 111 456

Web: www.smeda.org.pk

Email: helpdesk@smeda.org.pk

Punjab Small Industries Corporation (PSIC)

Address: Ground Floor, Alfalah Building, The Mall, Lahore

Tel: (+92 42) 99200439

Web: www.psic.gop.pk

Trade Development Authority of Pakistan (TDAP)

Address: Regional Office, 62, Garden Block, Garden Town, Lahore.

Tel: (+92 42) 111 444 111

Web: www.tdap.gov.pk

3.3 Banks and Financial Institutions

Almost all the registered financial institutions of Pakistan have their branches in the cluster.

4 Major Issues and Problems

- Majority of the existing manufacturing units need up-gradation to new plants and latest machinery to remain competitive in regard to quality and price not only globally but also in local market against imported products.
- A Technology Up-gradation Fund Scheme for plastic industry is needed. Such scheme may offer loan to local manufacturers at subsidized rates for machinery up-gradation specifically for setting up of new units with state-of-the-art technology.
- Lack of modern marketing and branding techniques is an issue restricting the growth and development of this cluster, as there is not any specialized marketing department even in medium level units.
- Further, absence of websites, branding and product advertisement, non-participation in national or international Exhibitions, lack of educated, certified and professionally trained / skilled workforce makes things more difficult.
- There are no export ware houses particularly for capturing South African market. Trade Development Authority of Pakistan needs to enhance its cooperation with the manufacturers in international exhibitions.



- The education level of workers/labor working in this cluster is very low which also creates difficulties in learning and accepting new tools and techniques.
- Cost of energy and continual supply of energy is another issue for the manufacturers that needs to be addressed to remain competitive in the market.

5 Investment Opportunities

Investment Opportunities in Electric Fan Cluster, Gujrat

Exploring new business or investment opportunities in the electric fan cluster in Gujrat, Pakistan can be promising due to the region's established presence in the fan manufacturing industry. Here are some potential areas for consideration:

I. Innovation and Technology Integration:

- Invest in research and development for energy-efficient and smart fans.
- Explore the integration of IoT (Internet of Things) technology for remote control and monitoring features.

II. Export Market Expansion:

- Identify and target new international markets for fan exports.
- Establish partnerships with international distributors and retailers.

III. Diversification into Allied Products:

- Expand product offerings to include related items like lighting fixtures, air purifiers, or other household appliances.
- Diversify into industrial fans for commercial applications.

IV. Green and Sustainable Practices:

- Implement eco-friendly manufacturing processes.
- Consider renewable energy sources for production facilities.

V. Supply Chain Optimization:

- Enhance supply chain efficiency through technology adoption.
- Explore partnerships with local suppliers for cost optimization.

VI. Digital Marketing and E-Commerce:

- Invest in online platforms to increase market reach.



- Implement digital marketing strategies to boost brand visibility.

VII. Quality Certification and Standards Compliance:

- Obtain and maintain international quality certifications to enhance product credibility.
- Ensure compliance with global safety and environmental standards.

VIII. Access the Government Initiatives:

- Leverage Government incentives and subsidies for promoting sustainable practices.
- Participate in initiatives supporting local businesses and exports.

IX. Customer Engagement and After-Sales Services:

- Improve customer service and after-sales support.
- Develop loyalty programs to retain customers and encourage repeat business.

X. Smart Manufacturing:

- Implement automation and smart manufacturing processes to improve efficiency.
- Explore Industry 4.0 technologies for data-driven decision-making.