

**PUNJAB SMALL INDUSTRIES CORPORATION
GOVERNMENT OF PUNJAB**

**DIAGNOSTIC STUDY FOR CERAMIC SANITARY WARE
CLUSTER, GUJRANWALA**

**FINAL REPORT
2015-16**

EY

Building a better
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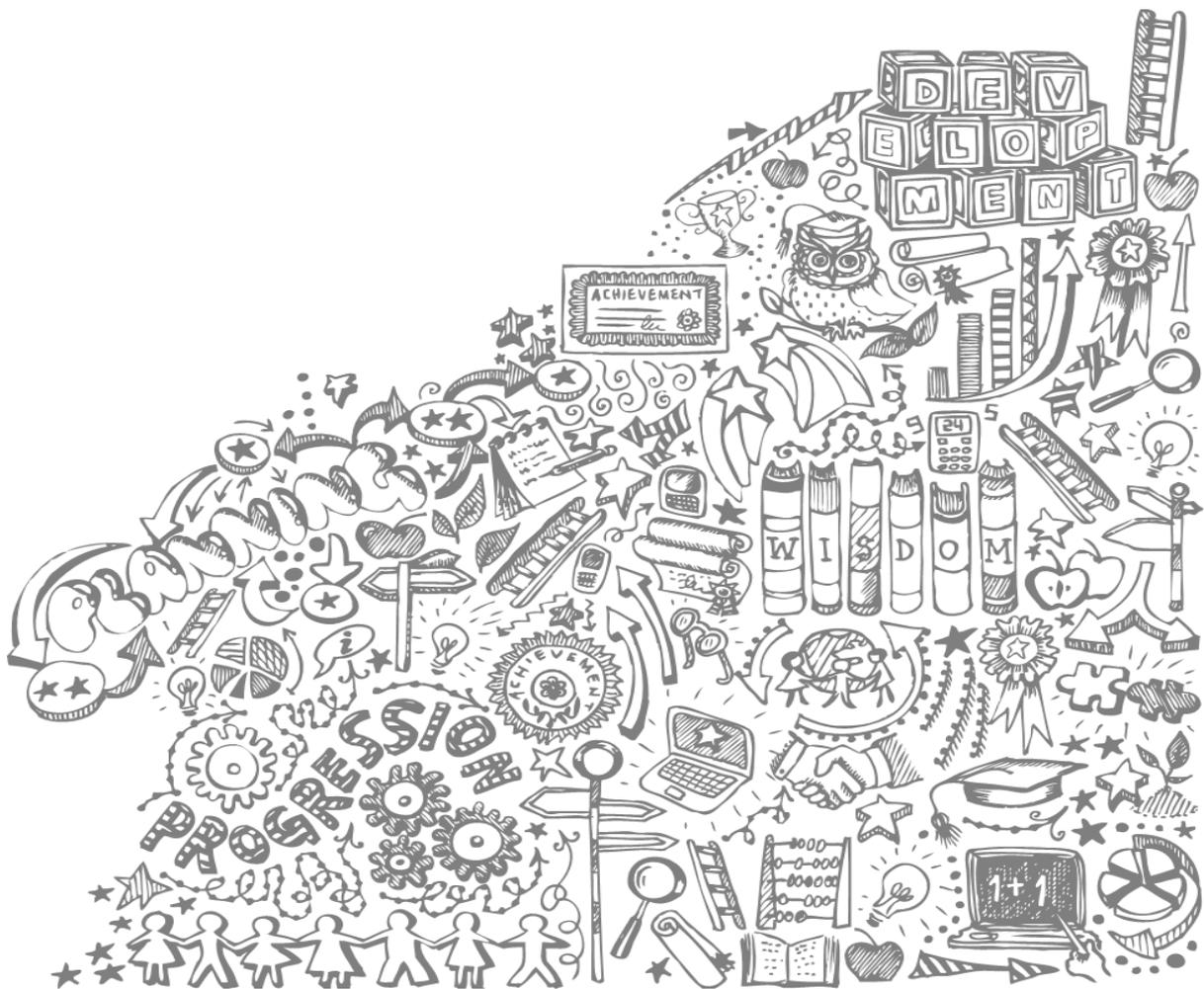


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ACRONYMS

CDC	Cluster Development Center
CDTC	Ceramics Development and Training Complex
CFC	Common Facility Center
EY	Ernst & Young Ford Rhodes Sidat Hyder
GDP	Gross Domestic Product
GTDMC	Gujranwala Tools, Dies and Moulds Center
GCCI	Gujranwala Chamber of Commerce and Industries
HR	Human Resource
LPG	Liquefied Petroleum Gas
PCMA	Pakistan Ceramics Manufacturers Association
PSIC	Punjab Small Industries Cluster
R&D	Research & Development
SIE	Small Industries Estate
SME	Small & Medium Enterprise
SMEDA	Small & Medium Enterprise Development Authority
SOP	Standard Operating Procedures
SWOT	Strengths Weaknesses Opportunities & Threats
TDAP	Trade Development Authority of Pakistan
TEVTA	Technical Education and Vocational Training Authority
USD	United States Dollars
CPEC	China Pakistan Economic Corridor
WTO	World Trade Organization



1. Introduction

The statutory body of PSIC was established in 1972 with the mission to promote, sustained industrial development through provision of market driven credit, infrastructure and technological support contributing to employment generation, poverty alleviation and socio-economic uplift of the province.

The Punjab Small Industries Corporation Bill, 1973 was passed by the Provincial Assembly on 13 July 1973. Since then PSIC has been a sound contributor to the small industrial development in the province through its various schemes. Recent transition of industrial climate and liberalization of the total economic environment within the country and international area has witnessed tremendous change in domestic as well as international market. PSIC's story of excellence is spread over more than four decades of transitive growth and development of small scale industry. PSIC has proved its strength in the country by exhibiting a progressive attitude towards modernization, up gradation of technology, quality consciousness, strengthening linkage with large and medium scale enterprises and boosting exports of the products from small enterprises. PSIC is an important instrument for enterprise building, micro economic development and employment generation and poverty alleviation.

The development and upgrading of clusters is an important agenda for economic growth in national economies. Handicrafts clusters development initiatives are an important new direction in economic policy in macroeconomic stabilization, privatization, opening of markets, and reducing the cost of doing business. In this regard, our consultancy services are sought for diagnostic study of industrial and handicrafts clusters in Gujranwala, Wazirabad, Gujrat and Mandi-Baha-ud-Din districts of Punjab.

1.1. Background

PSIC awarded this assignment to Ernst & Young Ford Rhodes Sidat Hyder (EY) for the study "Diagnostic Study of Industrial and Handicraft Clusters in Punjab for Gujranwala, Gujrat, Wazirabad & Mandi Baha-ud-Din". Work was awarded by PSIC on February 22, 2016 and the kick-off meeting was held on March 17, 2016 while the Inception Report was submitted to PSIC on April 15, 2016. The work included preparation of diagnostic study reports for following 12 clusters:

- ▶ Plastic Furniture, Gujranwala
- ▶ Kitchen Ware (metal and stainless steel), Gujranwala
- ▶ Sanitary Fittings, Gujranwala
- ▶ Ceramic/Sanitary Ware, Gujranwala
- ▶ Light Engineering, Gujranwala
- ▶ Domestic Electrical Appliances, Gujranwala
- ▶ Farm Agriculture Machinery/Implements, Daska
- ▶ Cutlery and Allied Goods, Wazirabad
- ▶ Ceramics/Pottery, Gujrat
- ▶ Fan and Light Engineering, Gujrat
- ▶ Wood Furniture, Gujrat
- ▶ Auto Parts Manufacturing, Mandi Baha-ud-Din

This report covers the **Ceramics Sanitary ware** cluster in Gujranwala.

1.2. About Survey

We have carried out an industrial survey of the cluster. The sample size for survey was based on 90% level of confidence and error margin of 10%. Based on a total population of 76 industries as per then available list, the sample size of 31 has been selected. We carried out 31 surveys in the cluster. The results of survey are presented in the relevant section.

1.3. Overview of Industries in Punjab

Punjab is the most populous province of Pakistan and has a large number of industries. As per data of 2010 provided by Directorate of Industries, there are around 17,800 industries in Punjab falling under a wide array of over 200 clusters including large, medium and small units. The area specified for this study i.e. Gujranwala, Gujrat, Wazirabad & Mandi Baha-ud-Din has over 3800 industries. Around 1500 of these industries can be categorized in the above mentioned 12 clusters.

1.4. Gujranwala District Overview

Gujranwala is an industrial city of Punjab Province in Pakistan. Gujranwala is the seventh most populous city of the metropolitan areas of Pakistan. It is 226 meters (744 ft) above sea level, sharing border with Ghakhar mandi and several towns and villages. Currently Gujranwala is divided into four (4) Tehsils named as Gujranwala, Wazirabad, Naushehra Virkan and Kamonki.

According to the census conducted in 1998 by Government of Pakistan, the population of district was 3,400,940 of which 49.45% was rural and 50.55% was urban. Population density was 939 per Km² with average household size of 7.6 and Literacy rate of 56.5%. Climate of Gujranwala is a hot semi-arid and it changes throughout the year.

Due to extensive road and rail links the city has flourished within the manufacturing and agricultural markets. Gujranwala is on the Grand Trunk (G.T) road which allows logistical connections with other cities and rural areas.

The major industries in Gujranwala are light engineering, domestic electrical appliances, sanitary fittings, ceramics/sanitary ware, textile, cutlery manufacturing, large agricultural processing plants, kitchen ware, plastic furniture and tannery production. The major exports include rice, sugar, textiles, carpets, glass goods, medical equipment, leather products, metal utensils and agricultural equipment.

Gujranwala also has three Small Industrial Estates (SIEs).

SIE-I Gujranwala was established in 1967 over an area of 103 acres having 426 plots of various sizes. The major industries in the SIE-I Gujranwala are Plastic Furniture, Light Engineering, Chemicals, Textiles and Ceramics.

SIE-II Gujranwala was established in 1987 on an area of over 107 acres having 554 plots of various sizes. The major industries in this SIE are Ceramics, Electrical Machines, Domestic Machines, Fabrication and Consumers goods etc.

SIE-III Gujranwala was established jointly by PSIC and Export Processing Zone Authority in 2007 and was declared as an Export Processing Zone (EPZ). It covers around 113 acres and has 212 plots of various sizes. New SIEs, namely SIE-IV Gujranwala and SIE-Wazirabad are planned and expected to be functional in few years

2. Cluster Profile

2.1. About Ceramic Sanitary Ware in Gujranwala

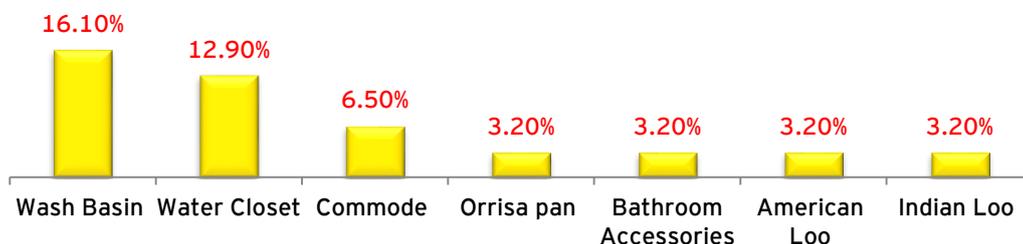
Gujranwala district is famous for its high quality ceramics and sanitary ware items. The establishment of this industry in Gujranwala is the result of transfer of skilled labor and technology from Gujrat, where people have been attached with this sector prior to the independence. Now it has a long chain of ceramic manufacturing plants in surroundings.

Ceramics sanitary ware industry in Gujranwala is not only catering the local market demand but also contributing in export to international market. Ceramics sanitary ware industry in Gujranwala is engaged in manufacturing wash basin, commode, water closet, bidet, wash stand, urinal, bathroom accessories, Orissa pan etc. Most of these products are sold in local market in order to cater local demand.



As per our survey, industries are producing variety of sanitary ware products. A percentage analysis of industries manufacturing different sanitary ware items is given as under:

Percentage Analysis of Industries Manufacturing Different products



The products with highest demand include wash basin and Indian WC. The products with lowest demand include western WC, wash basin pedestal etc. According to survey results, 35.5% of the industries plan to introduce new styles/designs of the currently produced items in near future.

Gujranwala represents major portion of sanitary ware manufacturer in Pakistan. During geo-tagging of sanitary ware industries, we have identified 202 sanitary ware manufacturing units of which geographical distribution is as under:

- ▶ G.T Road 89
- ▶ Sheikhpura Road 54
- ▶ Kangniwala Road 12
- ▶ Eminabad Road 12
- ▶ Small Industrial Estate 2
- ▶ Other Areas 33



2.2. Supporting Ceramics Institutes and Association

Following are the available institutes for support of the ceramic sanitary ware industries in Punjab:

- ▶ Ceramics Development and Training Complex (CDTC)
- ▶ Gujranwala Tools Dies and Moulds Centre

For the support of ceramic sanitary ware cluster in Pakistan, there is an association called Pakistan Ceramics Manufacturers Association (PCMA).



2.3. Annual Cluster Output

The estimation of annual output in the cluster based on the assumptions provided by the PCMA is tabulated as under:

Unit Size	No.	Total Monthly Production Capacity (Pieces)	Capacity	Total Annual Production (Pieces)	Average Rate per piece	Total Annual Production (Pieces)
Large	10	6,600,000	25%	1,650,000	600	990,000,000
Medium	97	31,000,000	25%	7,750,000	600	4,650,000,000
Small	95	17,500,000	25%	4,375,000	600	2,625,000,000
Total	202	55,100,000	25%	13,775,000	600	8,265,000,000

The output from the cottage industries have not been considered which may be within 5 to 10% of the total annual production estimated above.

2.4. Annual Raw Material Requirement & Supply

The raw material for sanitary ware items include clay, feldspar, glass, colors, chemicals, etc of which major raw material is clay. The estimation of annual requirement of clay is 275,500 tons that cost approximately Rs. 688 million.

Most of the raw materials are from Pakistan except colors and chemicals. The major raw materials are procured from Abbotabad, Tharparkar, Mianwali, etc. Further, china clay is also imported from China. Apart from these material chemicals are also imported from China and from several other countries e.g. UK, and Australia. The importers of these materials are mainly based in Gujrat, Gujranwala, and Lahore.

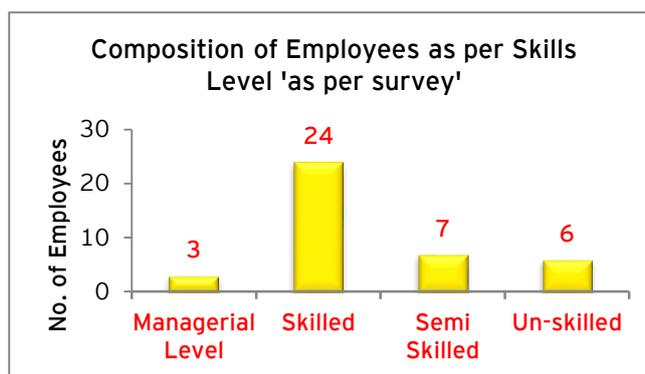
2.5. Cluster Investment & Employment

The estimated capital investment and number of employees in the sanitary ware cluster is provided in the table below:

Unit Size	No.	Avg. Inv. Assumed (Rs. In million)	Total Inv. (Rs. In million)	Avg. No. of Employees Assumed	Total No. of Employees
Large	10	120	1,200	20	4,040
Medium	97	70	6,790		
Small	95	40	3,800		
Total	202		11,790		

As evident, the sanitary ware cluster provides direct employment to over 4,000 families and indirect employment to 4,000 families.

There is shortage of labor but skills of the labor are traditionally inherited. The owner usually deals with management issues and marketing related activities. Shortage of labor is one of the important issue in this cluster because of the changing preference of the labor. Few of the industries have taken initiative to internally train the labor, however, all market participants may not be able to afford such practice. Average earning of labor in the industry is Rs 25,000.

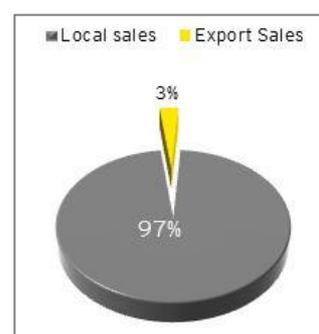


2.6. Product Demand and Marketing

Sanitary ware manufacturers in Gujranwala satisfies most of the sanitary ware demand of Pakistan, however, only minute export potential has been explored. Being representative of Pakistan sanitary ware, it is selling to all over Pakistan. With respect to access of ceramic sanitary ware products of Gujranwala in different areas of Pakistan, an analysis from our survey is as under:

- ▶ 13% industries are limited to their own district
- ▶ 42% industries are limited to their own province
- ▶ 45% industries have access to all over Pakistan to sell their products. Out of 45% industries, 10% industries have major customers in other provinces

For accessing markets all over the country, a network of distributors and retailers is being benefited. Some large companies also operate through their owned sale points in large cities. Based on our survey, analysis of distribution channels is as under:



- ▶ 64.5% industries are only selling directly to retailers
- ▶ 22.6% industries are selling to a mix of retailers and distributors
- ▶ 6.5% industries operates only through distributors
- ▶ 3.2% industries are selling through owned sales points and distributors
- ▶ 3.2% industries are using all three modes for selling products In terms of marketing of product,

The cluster is using primitive forms of advertisements where a majority of sales are carried through personal contacts whereas website advertisements are also being used. During survey, it was identified that 94% industries are using brochures for advertisements. Marketing using advance advertisement channels, employing dedicated marketing teams for brand development are the least preferred and popular methods for growth in Gujranwala ceramic ware cluster.

The cluster exports were growing until the energy crisis poses as a significant threat on the energy intensive cluster. Due to four (4) months straight cut down of gas supplies in winter season, the local manufacturers were unable to meet even local demands that result in entry of International sanitary wavy producers in Pakistan. Further, it results in decrease in share of export marketing. Currently, only 3% industries have confirmed that they are making export sales of sanitary ware products. To understand the export potential of this cluster, stats from the Indian sanitary ware clusters are discussed here under:



“Marbi is the largest sanitary ware cluster in India, representative of 75% ceramics products in India. It has combined turnover of INR 15,000 crore in FY 2014 and exports of INR 2,700 crore. There are 65-70 vitrified tiles, 350-400 wall tiles, 80-90 floor tiles and 50-60 sanitary ware producing units in Morbi. The ceramics sanitary ware industry of Morbi cluster is providing employment to more than 7,500 workers with 5 associations backing this cluster”

With attractive export potential and availability of primary local capabilities, sanitary ware cluster in Gujranwala can ignite towards its true stature through interventions discussed in later part of this document.

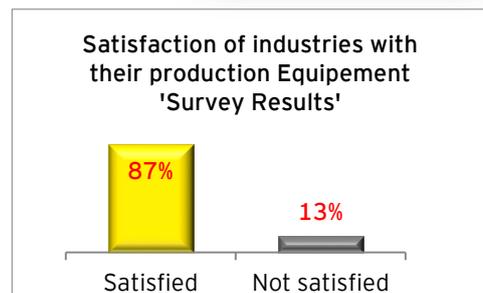
2.7. Plant & Machinery

The technology employed by the cluster is traditional and old in totality. Ceramic kiln is the most important equipment in ceramic ware manufacturing in terms of both manufacturing time and cost. Kilns available in the cluster have passed the useful life and result in low energy efficiency and higher manufacturing cost which affect the competitiveness of the products in local and international markets.



Machinery being used for manufacturing sanitary ware products include ball mill, spray booth, glaze containers, drums and kilns.

Gujranwala engineering sector supports industry in supplying machines for the ceramics ware industry e.g. glaze container, spray booth, drum etc. Currently installed Kilns are also designed by engineering sector but are manufactured by the kiln makers. Local capabilities as to design and manufacture kilns as per latest technology, do not exist. As per our

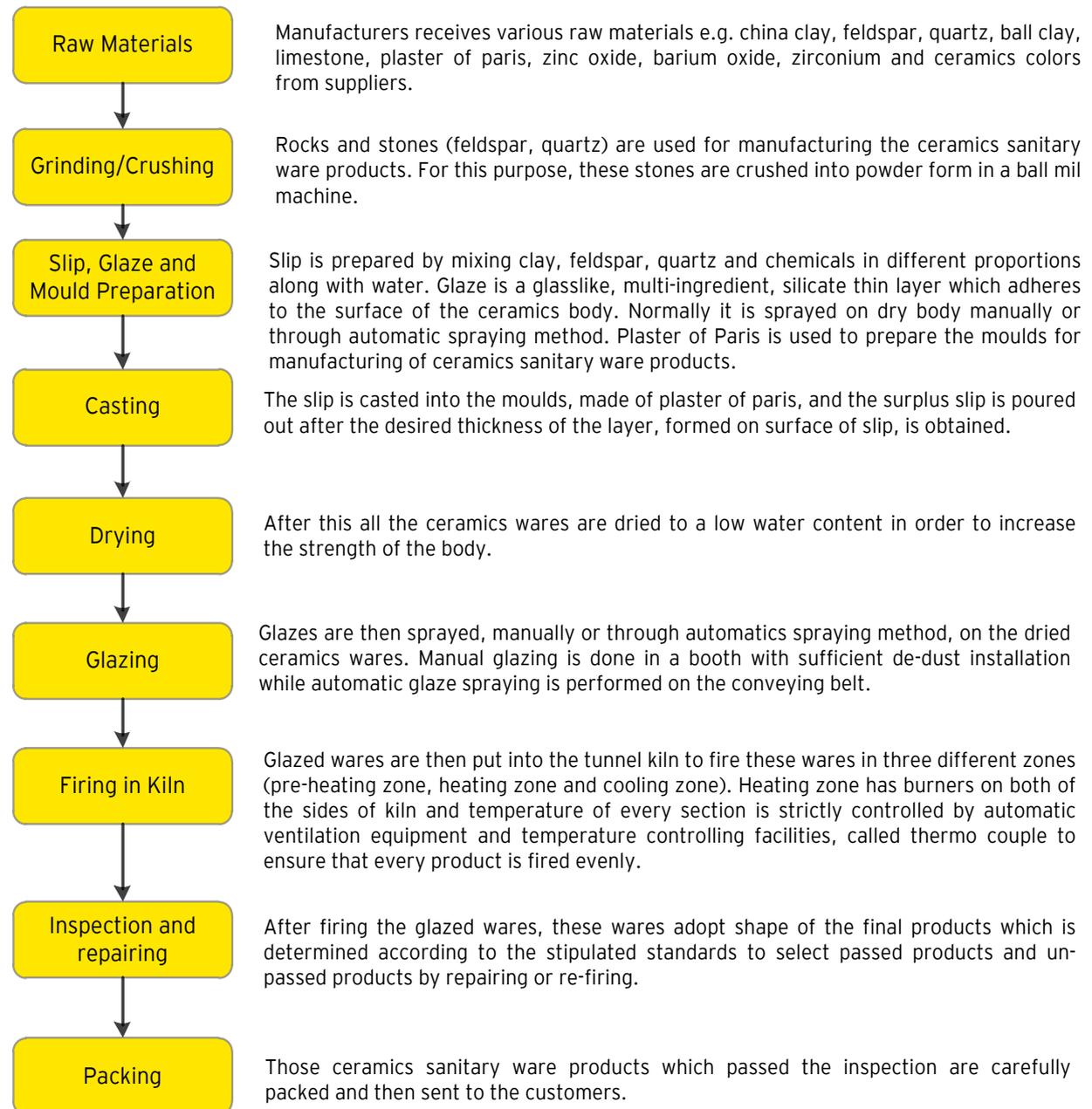


survey, 81% industries expressed satisfaction with equipment supplier's services, 16 % industries were not satisfied, whereas remaining industries did not comment. Suppliers are being selected through in-house expertise (97%) and no consultancy is sought.

As per survey, large number of industries are not considering to upgrade as they are satisfied with current technology.

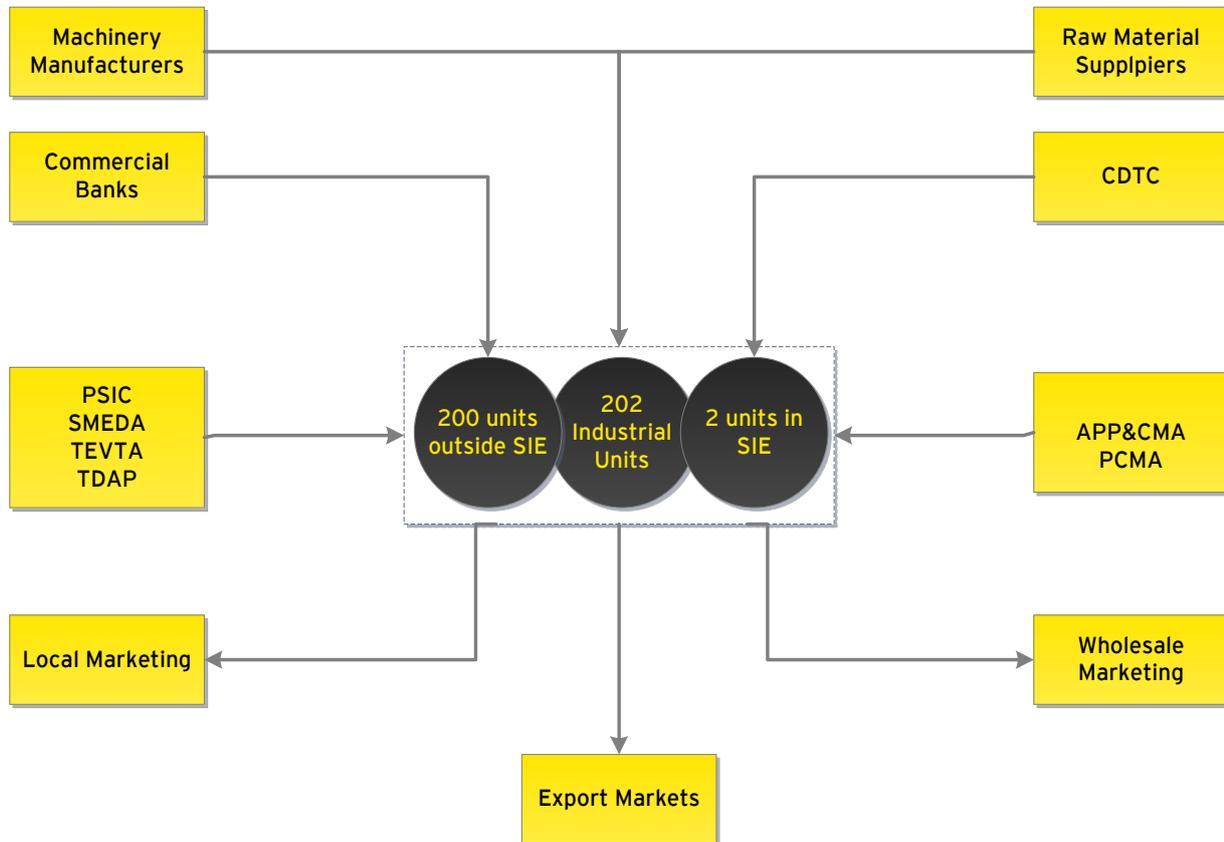


2.8. Process Flow Chart



2.9. Core & Other Cluster Players

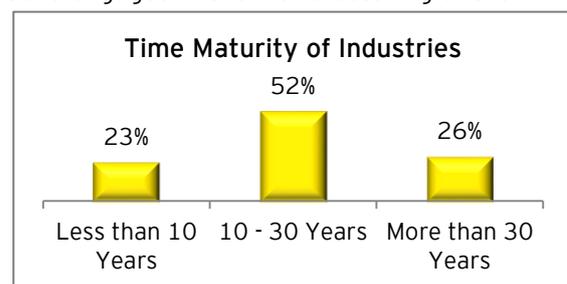
The core players include raw material suppliers, equipment suppliers, wholesale, dealers, retailers, Associations, Chamber of Commerce, Industries, SMEDA, TEVTA, PSIC, Commercial Banks and Ceramics Development and Training Complex.



a) Manufacturers:

There are total 202 manufacturing units that are engaged in the manufacturing of the ceramics sanitary ware products in Gujranwala. Among these few major players are selling their products in both national and international market.

Based upon our survey results, there are 84% sole proprietor and 16% partnership concerns, working through their production facilities, which are 16%, rented and 84% owned.



b) Raw Material Suppliers:

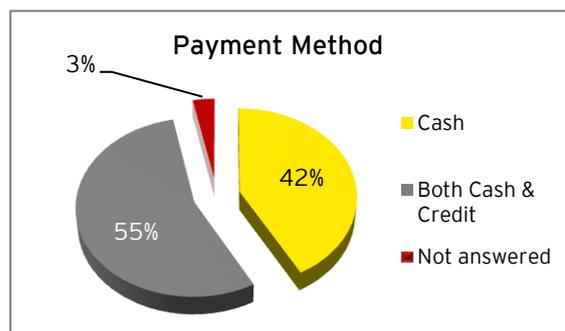
In Gujranwala, there are about 4-5 major raw material suppliers who are supplying material to the ceramics sanitary ware industry. Suppliers provide various types of raw material including



feldspar, clay, zirconium, plaster of Paris, chemicals and colors.

Few raw materials i.e. Zirconium and colors are imported from UK, USA, Italy and Taiwan. The importers of chemicals and colors are mainly in Gujranwala, Gujrat and Lahore.

Gujranwala ceramics sanitary ware industry purchases local & imported raw material from local market on cash or credit basis.



c) Machinery Suppliers:

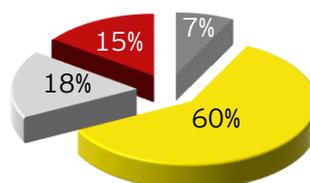
Kilns, Glaze Container, Ball Mill are used in the process of manufacturing the ceramics sanitary wares products. In Gujranwala, there are kiln makers that are fulfilling the need of the industry in respect of machineries. Engineering sector of Gujranwala is manufacturing and supplying the other related machines to the industries. Latest technology as to kilns is not available locally.

d) Human Resource

The average number of permanent and daily wage employees in the ceramics sanitary ware industries are 22 and 15 respectively. Further breakdown is provided in the pie chart below:

Average number of Employees

■ Managerial Level ■ Skilled ■ Semi-Skilled ■ Un-Skilled



e) Gujranwala Chamber of Commerce and Industry (GCCCI):

Gujranwala chamber of commerce & industry (GCCCI) was established in 1978, has total membership of more than 5000 industrial units. Based on the survey conducted, it is observed that 6.5% industries are registered only with GCCCI whereas 38.7% industries are registered with both GCCCI and association. GCCCI role includes provision of services as per following:

- ▶ To form a code of practice to simplify and facilitate transactions of business and to frame bye-laws; rules and regulations for the officers of the Chamber to carry out various objects of the Chamber.
- ▶ To draw, accept, endorse cheque, bills, hundies, notes or other negotiable instruments and to invest in or operate the accounts of the Chamber with any Bank or Bankers.
- ▶ Promoting and protecting the economic interest of the country is general and of those engaged in trade, commerce and industry in Gujranwala in particular.

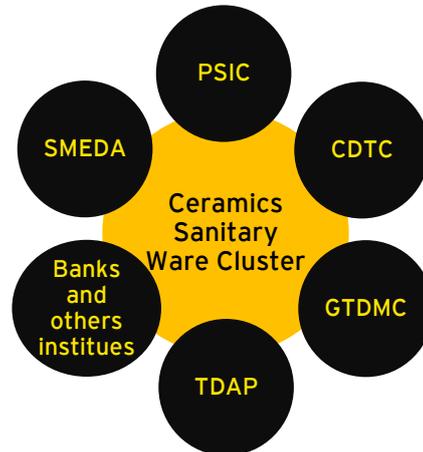
- ▶ To collect and circulate statistics and other information relating to the commercial, industrial, agricultural and financial interest of the businessmen and industrialists.
- ▶ To communicate with the Chambers of Commerce & Industry or public bodies within or outside Pakistan and to concert and promote measures for the protection of trade, commerce and manufacturers and the labour engaged therein and to remove mutual hardships.

2.10. Institutional Linkage

a) Punjab Small Industries Corporation (PSIC):

Punjab Small Industries Corporation (PSIC) has been promoting the industrial culture in the province by providing various services to the industries all over the Punjab. PSIC has been providing different valuable services to the industry since 1972:

- ▶ Development of industries through sectorial analysis and Development of clusters
- ▶ Strengthening of clusters through survey and analysis and designing requisite interventions
- ▶ Provision of land to SSIs & creative and cultural industries in the clusters
- ▶ Subsidized credit to industries in industrial hubs and clusters
- ▶ Training in creative and cultural sector
- ▶ Marketing support to artisans
- ▶ Provision of feedback for HR development to concerned organizations on the basis of cluster analysis
- ▶ Provision of business plans and other advisory services
- ▶ Policy Advocacy



b) Small and Medium Enterprise Development Authority (SMEDA):

SMEDA was established in 1998 in order to face the challenges being faced by the Small and Medium Enterprises. In Gujranwala SMEDA has RBC (Regional business coordinator) which is providing services to the all of the industries for the purpose of development of businesses.

Small and Medium Enterprise Development Authority (SMEDA) is mainly providing following services to all of the industries:

- ▶ Training services
- ▶ Financial services
- ▶ Legal services
- ▶ Services of business development and policy planning.

c) Trade Development Authority of Pakistan (TDAP):

Trade Development Authority of Pakistan was set up in 2006 by the Government. TDAP is the successor organization to the Export Promotion Bureau (EPB) and is mandated to have a holistic view of global trade development rather than only the 'export promotion' perspective of its predecessor. TDAP participates in 60-80 international trade delegations annually and send 20-40 trade delegations abroad every year. TDAP is engaged in promotion and boosting of country's exports by conducting fairs and exhibition and seminars/conferences and creating export facilitation committee for exporters.

TDAP's functions and mandates are as follows:

- ▶ To encourage and train new exporters.
- ▶ To develop a consistent, sustainable and result oriented, holistic export development plan, outlining vision, objectives, strategies and plan as approved by the Board.
- ▶ To encourage and promote research in trade and policy related studies that may facilitate in formulating an effective export policy and plans
- ▶ To provide advisory support to stakeholders.
- ▶ To liaise with trade bodies abroad.
- ▶ To plan, organize exhibitions, delegations to and from Pakistan.
- ▶ To plan and organize local, international and inter-provincial export promotional conferences, workshops, seminars.

d) Training Institute - Ceramics Development and Training Complex, Gujranwala

Ceramics Development and Training Complex is helping the industries in Gujranwala. CDTC (Ceramics Development and Training Complex) has been established by TUSDEC (Technology Upgradation and Skill Development Company) in Pakistan's major sanitary ware cluster. Currently, it is currently working as company under section 42 of companies ordinance 1984.

The objectives for which CDTC is established are as follows:

- ▶ To provide training, guidance, facilities and services to the engineers and designers.
- ▶ To help upgrade ceramics industry, in particular the Sanitary ware sector and other ceramic sectors in general by providing access to contemporary machinery, engineering technology and production and manufacturing support in the form of a common facility Centre, for improving product or parts productivity, quality and enhancing skills of engineers and designers.
- ▶ To provide testing facilities for raw materials and finished goods.
- ▶ To offer courses in the disciplines of demonstration of hardware and software techniques in Ceramics Production, Quality Control, Computer Aided Engineering



Courses for Ceramics Design Analysis, courses on Sanitary ware Design using Advanced Techniques, on Computer Aided Design and Machining and Operation, Application of Engineering Resource Planning and Product Data Management.

e) Gujranwala Tools, Dies and Molds Centre:

GTDMC (Gujranwala Tools, Dies and Molds Centre) is a modern; State-of-the-Art Common Facility Centre (CFC) established under section 42 of the companies ordinance 1984 Ministry of Industries and Production of Government of Pakistan, it is a public-private partnership, owned by the Government of Pakistan and run by the Private sector. GTDMC is located at Gujranwala for the vibrant industrial clusters in and around Gujranwala, Gujrat, Sialkot, Daska and Wazirabad. The objective is to provide the Gujranwala and neighboring industries the access to most modern machines available today. In addition, Dies and Moulds design and technical assistance is also available while training on modern technologies/machines would be provided in future.

The aim of the Centre is to enable the local industry to assist the local industry in producing high quality production tooling benefiting in terms of direct foreign exchange savings and to enable the local industry producing TDM based finished products meeting international quality standards.

GTDMC offers a comprehensive and wide range of engineering solutions for industry, including the following:

- ▶ Advanced level engineering projects - from concept to the end product
- ▶ Consumer, commercial, medical, sports and industrial products and parts manufacturing
- ▶ High, medium, and low volume manufacturing environments
- ▶ Product design, fully or semi-automated machining, tooling plus fundamental manufacturing process development
- ▶ New product development, 3D modeling and prototyping.



f) Financial Institutions:

The financial institutions include number of commercial banks, leasing agencies that operate within the district of Gujranwala. Most of these institutions have different credit schemes as per their policies.

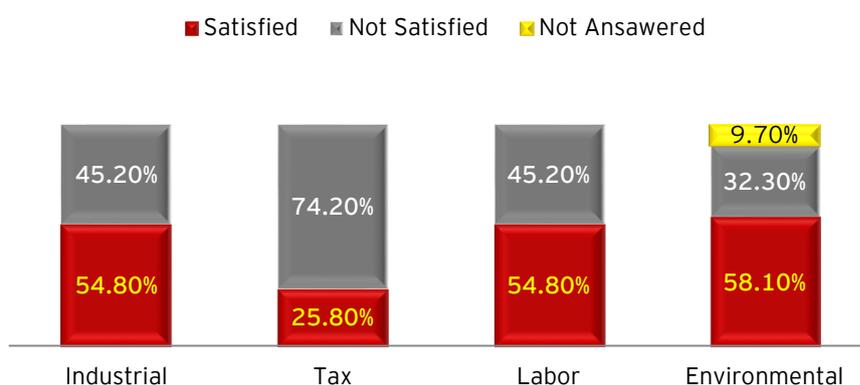
2.11. Other Feedbacks from Survey

a) Policies and Regulations

- ▶ 77.4% of the industries in ceramic sanitary ware cluster are not satisfied with the support provided by Government or Semi-government organizations especially SMEDA, PSIC, and TDAP. 22.6% of the ceramics sanitary ware industries are satisfied. The following suggestions/comments were provided for these three organizations:

Organization	Comments/Suggestions
SMEDA	Should provide support to SMEs
PSIC	Should provide support to SMEs
	Loans to SMEs
	Ban import of locally manufactured products from China
	Should provide training & technology support
	Devise policies for welfare and growth of SMEs
TDAP	Does not provide support to SMEs
	Ban import from China or impose high duties

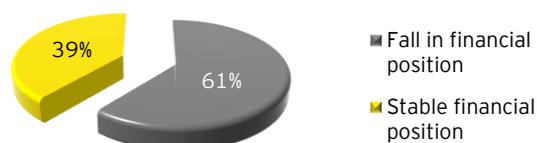
► The level of satisfaction pertaining to various government laws is provided below:



57.1% industries have highlighted their concerns pertaining to government policies and laws through chamber of commerce, 37.1% never highlighted their concerns, while 5.7% did not comment. More than 51% industries are not satisfied by the actions taken by the Chamber on the highlighted concerns.

b) Financial Position

► Change in financial position of the ceramics sanitary ware industry in Gujranwala over last three years are described below:



Based on the results of survey, it was noted that 61% of the participants experienced fall in their financial position while 39% of the participant’s financial position remained stable and not a single participant has observed improvement in his financial position.

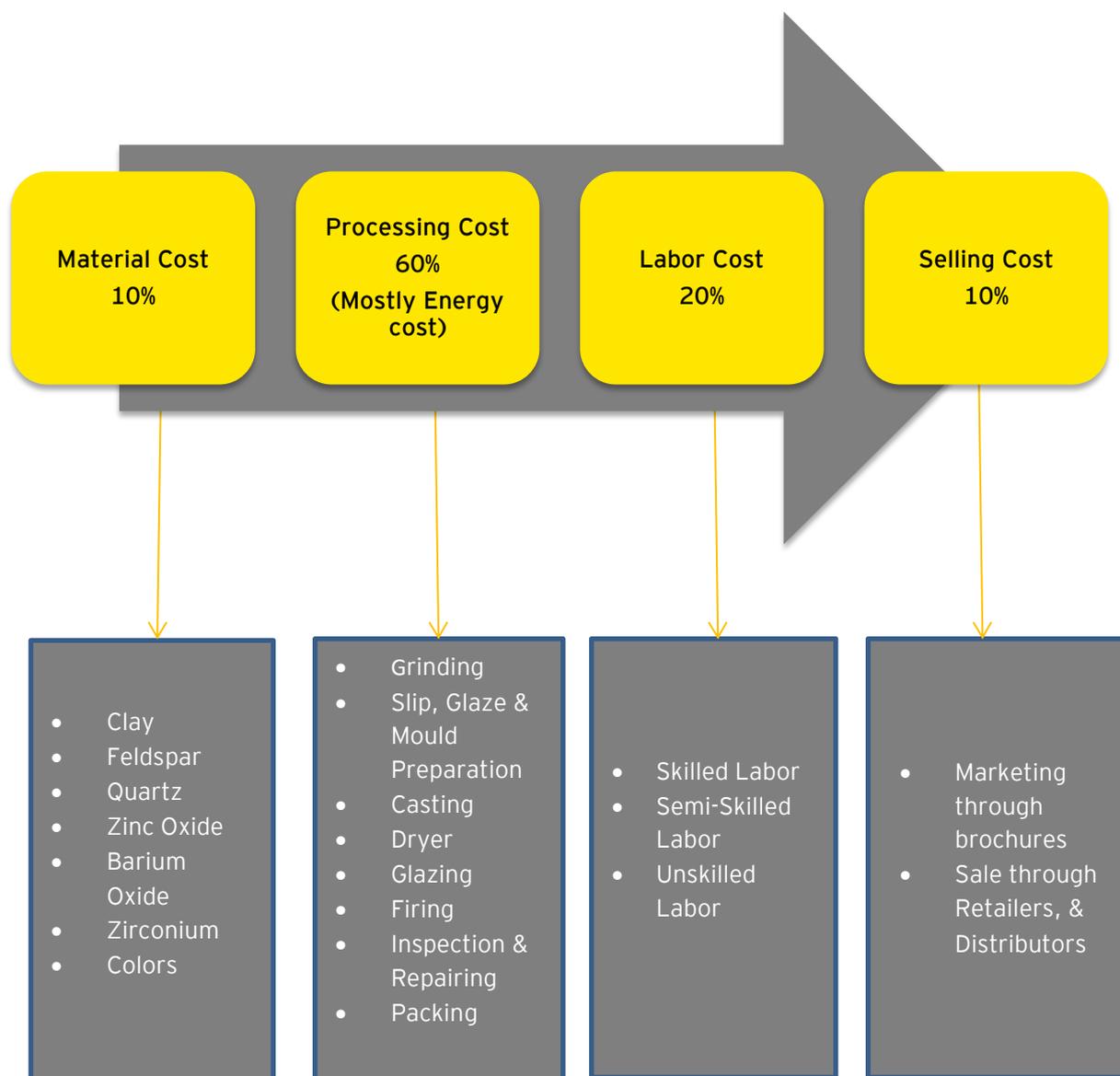
► Satisfaction level of the industry with their financial position.

Satisfaction Level	Percentage of industries
Satisfied	28.6%
Not satisfied	71.4%

- Other suggestions & comments provided by the cluster units are provided below, along with the frequency of each suggestion/comment:

Sr. #	Suggestions	Frequency	%age
1	China import is big issue for our industry, near to close.	17	27.4%
2	Electricity & Gas should be provided	7	11.3%
3	Taxes on import of raw material should be waved off by the Government	6	9.7%
4	Electricity load shedding is a big problem	5	8.1%
5	Need to procure new equipment	5	8.1%
6	Gas load shedding should be controlled	4	6.5%
7	Raw material quality / cost should be maintained	4	6.5%
8	Taxes should be reduced	3	4.8%
9	Export duties should be reduced	2	3.2%
10	Budget should be according to chamber's recommendations	1	1.6%
11	Tax deduction should be reduced by banks	1	1.6%
12	One window tax authority for industry instead of several departments	1	1.6%
13	Small loans to industrialists, free of interest	1	1.6%
14	Skilled labor retainer ship problem	1	1.6%
15	Govt. should start education programs for skilled labor	1	1.6%
16	Govt. should be supportive	1	1.6%
17	Law departments are irritating	1	1.6%
18	Need more markets for sale	1	1.6%
	Total	62	100%

3. Value Chain Diagnosis



3.1. Raw Material:

The applicable raw materials are kaolin, clay, quartz, feldspar and calcium carbonate. A typical batch consists of 40 - 50 % kaolin and clay, 20 - 30 % quartz, 20 - 30 % feldspar and between 0 - 3 % calcium carbonate. Kaolin is stored preferably in lumps with a maximum water content of 15 per cent. Hard materials such as quartz and feldspar are ground to small particles and applied with a water content of less than one per cent. The raw materials are stored in silos or boxes to avoid any atmospheric influence. Clay is a basic raw material and can be obtained locally from Abbottabad, Sindh, Tharparker and Mianwali. Further, feldspar and quartz are also available locally. Zirconium is the costly raw materials which is normally used in glazing process. Zirconium is not produced locally and imported from England, USA, China and Taiwan. Some Chemicals and paints, which also use in ceramics sanitary ware production, are also imported from England, USA, China and Taiwan. Plaster of paris is the material used in the preparation of moulds to manufacture the ceramics sanitary ware products.

Raw material cost represents 10% of the total cost of ceramic sanitary ware products. Local and imported raw material can be procured from local market on cash and credit basis. Imported raw material can be procured locally from importers based in Lahore, Gujranwala and Gujrat. Testing facility is currently available at CDTC to test raw material but it is not used by the industry. Raw material shortage is observed in peak seasons. Due to this scarcity, manufacturers have to import the material from international market that causes rise in their input cost due to import duties.

3.2. Processing

Processing of the sanitary ware is the main cost consuming process. Apart from labor cost, 60% of the total cost is incurred in the form of energy cost. This process involves the following steps:

Shaping

Most ceramic goods are still shaped in plaster moulds. The development trend is towards a plaster-free shaping process performed in porous polymer moulds. The casting process normally takes place in plaster moulds. The body formation time is reduced by pressure. After the separation of body and mould, the mould marks are fettled and further treated.

Drying and glazing

The green ware is dried in two stages. After the leather-hard drying, the green ware is perfectly treated. The drying process takes place in tunnel or chamber dryers. After white drying, the green ware is inspected and the surface is cleaned of dust and foreign particles. The glaze is applied to the surface of the ware by spraying, performed by hands.

Firing

Sanitary ware is fired in tunnel kilns and roller hearth kilns at temperatures of between 1,250 and 1,290 °C in an oxidizing atmosphere. Small scale production is carried out in flexible periodically operated kilns such as shuttle kilns. Shuttle kilns are operated to change the product specific firing curve in very short cycles. In the sanitary ware manufacturing process, natural gas and liquefied petroleum gas are mainly used as fuels in the different types of kilns.

Subsequent treatment

After the final sorting, mounting surfaces are abraded by wet grinding and polishing. In special cases, fittings are added to lavatory bowls and cisterns followed by the final packaging.

Majority of the units in cluster has in-house expertise to select and procure equipment from the market, whereas remaining manufacturers rely on suppliers' advice. Furthermore, a large number of manufacturers of ceramics sanitary ware products do not need to outsource any of the activity involved in the production of these products as they have their own machining facility, whereas only some of the units outsource few of their production activities.

Major concern in processing is unavailability of gas. Due to old technology machines are energy inefficient and has low productivity. Energy crisis in Pakistan has great impact on this industry as due to disruption of gas supply in winter, useful life of the kiln is reduced by 25%.

3.3. Labor:

Labor cost constitutes 20% of the total cost of the ceramics sanitary ware products. Skilled labor is required for quality manufacturing of ceramics sanitary ware products but due to scarcity of the labor in the area, manufacturing units have to struggle to find the labor which is technically strong and possess required level of skills. On the contrary, unskilled labor is

available in the area but entrepreneurs cannot use unskilled labor as a replacement of skilled labor as they lack skills, education, experience and knowledge.

Cluster is experiencing issues in retaining existing labor. New labor is also not attracted towards this industry due to unsatisfactory working environment.

3.4. Sales and Marketing

Selling costs represents 10% of the total cost of the product. Majority of the units are marketing their products only through distributing brochures. Most of the units are selling their products through retailers and distributors and only few of manufacturers have their own sale points.



4. Understanding Effects of China-Pakistan Economic Corridor (CPEC) on Local Industry

Several projects under China-Pakistan Economic Corridor are in process currently. The corridor has long lasting effects on the economic development of Pakistan, especially industrial sector of Pakistan. To provide readers a holistic view about the opportunities and challenges emanating from CPEC for industrial sector, this section has been included in this study.

Brief Introduction

The China-Pakistan Economic Corridor (CPEC) is an ongoing development megaproject, initiated in 2013, which aims to connect Gwadar Port in south-western Pakistan to China's north-western autonomous region of Xinjiang, via a network of highways, railways and pipelines to transport oil and gas. Further, The plan is involved in laying the foundation for regional cooperation, improving economic growth, development of Gwadar port, investing in transporting, mining, telecommunication, industrial parks, offering trade diversifications and creating political flexibility. The plan has a vision with world-changing implications, an explanatory plan that would unite much of Asia, Europe, Africa, Oceania and the Middle East much more closely together through a patchwork of diplomacy, new infrastructure and free trade zones.



Investments and Projects

In persistence of CPEC, Pakistan and China signed an agreement to commence work on the estimated \$45.6 billion agreement, highest foreign direct investment after 9/11. Out of \$45.6 billion, \$33.8 billion and \$11.8 billion were embarked for energy and infrastructure sector respectively. It is also estimated that \$11.6bn will be invested in Khyber Pakhtunkhwa, \$11.5bn in Sindh, \$7.1bn in Baluchistan and \$6.9bn in Punjab, out of total \$33.8 billion embarked for energy sector.



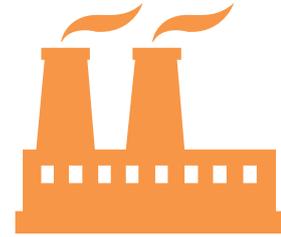
Opportunities and Impacts

As a large portion of CPEC is reserved for power projects to reduce demand-supply gap in energy-starved Pakistan. Further as part of CPEC, industrial estate/special economic zone fortified with all basic infrastructure facilities i.e. electricity, gas, roads, sewerage system, emergency services etc. is developed in each province of Pakistan. China has also plan to shift technological and scientific knowledge to Pakistan by establishing technical institutes in Pakistan resulting in supply of trained and skilled labor.

The supply of uninterrupted energy, easy excess to markets, infrastructural development, and establishment of industrial zone and availability of skilled labor provide growing and investment opportunity to local and international investors and also attract foreign direct investments. It also provides opportunity to local industry especially SMEs' to get access to international markets for their products or to procure raw material at low rates. The above stated facts also help the industry especially SMEs' to reduce the cost of production resulting in export potential at competitive prices.

The investment is believed to augment the growth and income levels, which should help improve feasibility of expansions, expand margins and accelerate earnings growth. Consumers stocks would also benefit from the higher demand and income levels.

CPEC results in employment, revenue generation and technological advancement that ultimately lead to development of local industry especially for SMEs. It is estimated that proposed investment portfolio will add 2 to 2.5% in country's economic development growth.



Despite the pros of the CPEC, we also need to examine the possible long run challenges on local industrial sector, especially small and medium sized manufacturers, due to increase in global competition. The competition will primarily emanate from introduction of cheap Chinese products in local market and gulf countries where lower transportation cost will be an added competitive advantage to China. Smuggling of Chinese products will also be encouraged by said project. It is estimated that imports from china will be increased by 33% on completion of CPEC. Steel, cement, agriculture, electronic appliances and fertilizer industry, especially SME's, will be most affected industry due to increase in import of Chinese products.

CPEC - The Way Forward for Industrial Sector

Government, in alliance with all stakeholders including political and business community, universities and local people, should develop a strategy after conducting an in depth homework to capitalize all benefits associated with CPEC and to overcome threats arising from Chinese products, as earlier discussed.

Government institutions can help prepare industries for CPEC. In this regard, areas of attentions are briefly discussed hereunder:

- ▶ Provide guidance to industries about the possible challenges to industrial sector
- ▶ Provide assistance to industry for improving advancement of technology
- ▶ Provide technical and financial support to SMEs' to access capital market
- ▶ Create strong linkages between academia for research and global competitiveness as well as on collaborations with both domestic and international markets.
- ▶ Provide financial support to ensure sustainability of SME's
- ▶ Initiation of government programs to encourage private-sector collaborations
- ▶ Provide business development services to SMEs' to manage their growth
- ▶ Issue prudential regulations and guidelines for the creation of venture capital and private equity fund.
- ▶ Take steps to reduce reliance on imports.
- ▶ Provides ground for academia and opinion makers to share their concerns, doubts, and analysis, useful to achieve ultimate objectives of project.

Thus CPEC is indeed a great 'game changer' which should complete its short term goals but for long-term trade goals, Pakistan shall really have to exploit opportunities from this corridor at full potential and also save interests of existing industries through their capacity building.

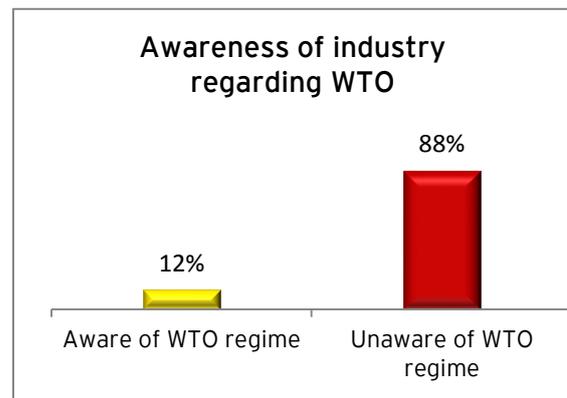
5. The World Trade Organization

The World Trade Organization (WTO) intends to supervise and liberalize international trade. WTO was established on January 1, 1995 under the Marrakech Agreement, replacing the General Agreement on Tariffs and Trade (GATT). The basic objective of WTO is to create a liberal and open trading system for member countries where these countries can trade with each other without any trade barriers. It tries to provide market access to countries for their products and services and promotes friendly investment policies by eliminating trade distortions between countries, trimming down tariff and non-tariff barriers, removing quotas and abolishing subsidies in a phased manner.

It also has rules that protect local businesses and industry from foreign goods and services using unfair practices like dumping or transfer pricing mechanisms. WTO has rules to address quality issues, labor standards, environmental aspects, government regulation, and legal frameworks.

Currently 162 countries are member of WTO and it oversees 60 agreements related to trade liberalization. Few of the most discussed agreements are "Agreement on Agriculture (AOA), General Agreement on Trade in Service (GATS), Agreements on Trade related Aspects of Intellectual Property Rights, Agreement on the Application of Sanitary and Phytosanitary Measures"

We have carried out 327 surveys in 12 clusters of Gujranwala, Wazirabad, Gujrat and Mandi Baha-ud-din and during survey it was revealed that only 12% of industry was aware of the WTO regime.



Impacts of WTO agreements on industry of Pakistan are described below.

- ▶ WTO liberalize international trade by removing tariff and non-tariff trade barriers, Pakistani industry will have access to major markets of developed countries and products of Pakistani industry can be competitive due to lower trade barriers and duties in those markets.
- ▶ Government will not be able to protect local industry by imposing higher tariffs to the imported goods.
- ▶ Industry can achieve economies of scale through increased production as industry will have access to additional international markets.
- ▶ Local industry will be able to import quality raw material from developed countries at cheaper rates which will result in decreased production costs and enhance quality.
- ▶ Trade liberalization encourages competition as international products with better quality will have access to Pakistani markets with lower trade barriers and tariffs. However, increase competition may threaten the survival of local manufacturers.

WTO agreements will have both positive and negative impact on the local industry. Industries should be provided awareness about WTO regime and how to prepare for upcoming challenges.

6. Detailed Issues, Recommendations and Action Plan

The issues and impediments have been identified through the analysis of secondary and primary data collected through the meetings with the stakeholders including Associations and industrial surveys in the cluster, and are provided in the subsequent section. Reader are encourage to go through all issues and recommendations to comprehend the relationship between all issues and recommendations and thus to have a holistic view of the issues in hand.

The following cluster issues and impediments were observed during the discussion with the association as well as meeting with entrepreneurs in the cluster.

6.1. International Competitiveness

a) Issue

About five (5) years ago, energy crisis started which stretches the idle period of the cluster to eight (8) months. Owing to limited production, local industry was unable to fulfil the demand of even local markets. Before energy crisis, Gujranwala sanitary ware cluster was used to export 40 containers per month to Middle East, Africa and other countries. The limited local production of sanitary ware allowed imports to bridge the gap between supply and demand and also dent the sanitary ware exports of Gujranwala to thin numbers. Currently, large number of Chinese products are being imported to local industry. Imports from India through undocumented channels were indicated by industries in their interviews. It is to be noted that imports of sanitary ware from India is banned. Despite 20% import duty, local industry is not competitive with the imported goods because of inefficient equipment and prolonged energy shut down periods (these factors are discussed in detail in sections 4.2 and 4.3).

It is to be noted that there is a great potential of exports to U.A.E, Qatar, Bahrain, Saudi Arabia and African countries. India is exporting sanitary ware products amounting to INR 17,000 crore through its Morbi cluster.

Moreover, sanitary ware industries are not being facilitated to attend trade fairs and exhibitions to understand the trade and market potential, also to build driving force towards prerequisites of maturing international business.

b) Recommendation

To revamp the local sanitary ware industries, regulatory duties should be levied to make the local products competitive in local markets, however, such regulatory duties should be time bound i.e. till the implementation of interventions to upgrade technology and to ensure uninterrupted gas supply. Further, such regulatory duties should only be imposed once a detailed implementation plan is put in to action regarding aforementioned technology and energy interventions.

Export related incentives needs to be provided to industry. These can be in shape of rebates and taxation relief. Moreover, TDAP should facilitate the industries in participating in the trade fairs and exhibitions. Discounted rates should be offered for participation of industries in such trade fairs and exhibitions.

6.2. Obsolete and inefficient technology

a) Issue

Technologically equipment used in the industry is old and energy inefficient. There are two major issue:

1. Kilns used for sanitary ware are intermittent (Periodic) kilns which are shuttle and hood type kiln, Chamber (Hoffmann) Kiln and tunnel kilns. Few of the industries are also using roller bat kilns. All these equipment are old and energy inefficient. New Kilns including new roll bat kilns take 6-8 hours pre-heat up while old equipment requires more than 24 hours pre-heating. Similarly, the heat loss and energy consumption is very high in the old kilns. There is energy saving potential of more than 50% with increased output and reduced production time.
2. Clay is poured into the cast. After coming out of the mould, it is placed for drying. This process is time consuming that requires processing time of more than 24 hours, requires more labor hours and results in high rejection rate.

As per the survey results, 86% of the respondents were unaware of the new technological advancement and energy conservation measures and thus were satisfied with current equipment/technology.

Energy saving potential of the sanitary ware industries is currently not known accurately owing to nonexistent energy audits in the cluster

b) Recommendation

New energy efficient kilns must be imported and can be reverse engineered locally. Government should support the import of the new machinery including automated lines for the automation of the industry. Minimum investment for up grading kilns is Rs. 10 million which increase proportionately with the capacity of the kiln and varies as per the country of import.

High pressure casting machines needs to be imported and provided to the industry. One machine costs around Rs. 2.5 million and varies with the country of import. This will reduce the time and labor requirement. Duty free imports of high pressure casting machines and soft financing to the industry are other possible incentive for the equipment import. New technology i.e.

high pressure casting machines complete the process in 8 hours. This reduces labor input and also speed up the production process.

Finance facility can be provided for the up gradation of the machinery. In this regard, interventions discussed in section 4.8 should be considered for purchase of equipment.

Government can support energy audits which will identify the power savings and also calculate the payback time.



Workshops should be conducted with the Chamber of Commerce and Industries and Ceramic Association. These workshops should brief members about the new technology and investment requirement. To provide the incentive to the industry and to invest in the new technology, complete working of production output and quality with the payback period of the investment must be shared. Technical support in the equipment selection and import also needs to be provided by the Government.

Tax benefits in the form of tax credit on purchase of new equipment and carbon credits for low emission of carbon should be introduced to incentivize purchase of new equipment. This will also result in the gas consumption savings at the national level. Supply of gas can be linked with the energy conservation measures taken by the individual industry to provide incentive for the investment in new technology.

To keep industries upgraded with latest available technologies, Trade Development Authority Pakistan (TDAP) should make arrangements for the participation of the main cluster actors in the international exhibitions at a subsidized cost.

6.3. Energy

a) Issue

Energy being the representative of 50% of the sanitary ware cluster is the basic and most important input. Energy crisis have hurt the industry more than anything else. The nature of the sanitary ware is such that it involves continuous processing and supply of gas. Kiln requires two days heating to reach the optimum temperature for quality production. Most of the industry runs on gas as the main power source for the kiln. Apart from gas, electricity and other fuels are also used. There have been shortage of gas resulting in the complete shutdown of supply in winter season i.e. from November to February. During other 8 months of the year, gas is supplied to the industry for only 15 days each month. Effectively Ceramic industry works for only 4 months. The energy crisis has incurred following costs to the cluster:

- ▶ Lower capacity utilization which allowed imports from other countries
- ▶ High production costs due to energy wastages from re-heating of kilns after each gas failure
- ▶ High labor cost and production overheads per piece of finished goods resulting from prolonged annual idle period of approximately 8 months
- ▶ Reduction in the life of kiln by 25%

Based on the survey results, more than 70% of the manufacturing units are not satisfied with the supply of gas to this cluster. Further, gas pressure is also variable which affects the quality of product. Supply of electricity to the units, in summer is also reduced to great extent. Moreover, only 19% of the units in the cluster are satisfied with the supply of electricity to the cluster as electricity is not supplied consistently and unannounced load shedding of electricity has also affected the productivity of the ceramic sanitary ware units.

b) Recommendations

With the introduction of new technology, uninterrupted supply of energy is mandatory to avoid equipment failure and achieve maximum efficiency.

The cluster should analyze feasibility of and benefits from alternate fuels i.e. coal and lignite as being used in Morbi ceramics cluster of India.

Import of LNG from Qatar will increase the gas supply in the country and hence, Government can ensure the consistent and uninterrupted supply of gas to the ceramics sanitary ware industry.

It is also recommended that Government should also develop and install solar and wind projects in different areas of the country in order to overcome the overall energy crises. Further, it is suggested that Government should also take every necessary step to resolve the electricity issue including importing the electricity from several countries.

6.4. Supporting Centers for the Sanitary Ware Clusters

a) Issues

There are two institutes in Gujranwala that can support ceramic sanitary ware cluster i.e. Ceramic Development and Training Complex (CDTC) and Gujranwala Tools, Dies and Moulds Center (GTDMC). Currently, these institutes are not working to their true potential because of the following factors:

- ▶ Lack of interest of industries over these institutes for quality services in terms of time taken for service delivery and cost competitiveness.
- ▶ Industries do not understand true potential of these institutes and the services which these institutes can provide.
- ▶ CDTC has all necessary resources to provide trainings, common facilities in the form of kiln and testing facilities for the raw material and finished products, however, cluster is currently focusing self-sustenance rather than facilitation to industries. Commercial production and renting institute premises for commercial reasons was noted during our visit to the center. Previously, discrepancies in purchase of equipment for the institute is under trial where major investment was made for marble cutting machine when whole infrastructure was developed with an objective to support sanitary ware and ceramic pottery cluster.
- ▶ GTDMC can provide many services including product design and development through reverse engineering, manufacturing moulds and tooling services for the various industries through latest available machinery, however, the institute is working at 40% capacity owing to lack of trust and unawareness of industries.

b) Recommendations

It is suggested that steps should be taken to make Ceramic Development and Training Complex (CDTC) as a facilitator to provide all the required services to the industries which include but are not limited to product design & development, marketing, legal advice, supply of skilled manpower, advance raw material and finished product testing facility and financial advice etc.

Cost for testing the raw material should be subsidize and organizations like PSIC and SMEDA should govern these centers. Government, Associations and Chamber of Commerce and Industries should ensure that CDTC is running properly. Technical people (engineers) should be the head of the institute.

Cluster Development and Facilitation Center (CDFC) needs to be developed by Punjab Small Industries Corporation (PSIC) to create linkages between the respective cluster and to identify new areas for the local and export sales. Terms of Reference (TORs) for the center can be agreed and funding can be obtained for development and operation of the center.

6.5. Un-availability of skilled labor & training facilities

a) Issues

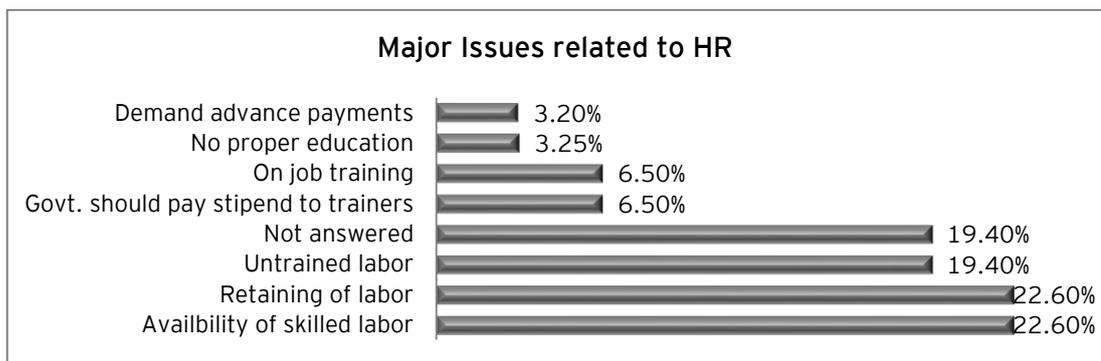
Ceramic sanitary ware is a labor intensive industry in which every process requires human input. Quality, quantity and time required to produce the products is dependent on the expertise of the workforce.

Most of the ceramic ware industry operates with the model where labor is provided on job training. Ceramic Development and Training Complex (CTDC) is also responsible for the training of the labor to produce skilled work force and to meet the demand in the market. But this facility does not seem to benefit the industry as during our survey 22.6% industries indicated difficulties regarding availability of skilled labor whereas 19.4% have mentioned untrained labor as there major human resource problems.

Further due to energy crisis, industrialists in this sector are reluctant to invest much in the workforce. Nature of the ceramic ware production process is such that new labor is reluctant to adopt this sector as a profession due to hardship and general attitude of population towards the convenient and work force friendly jobs. Situation is also deteriorated by the decline of share of the local producers in the local market.

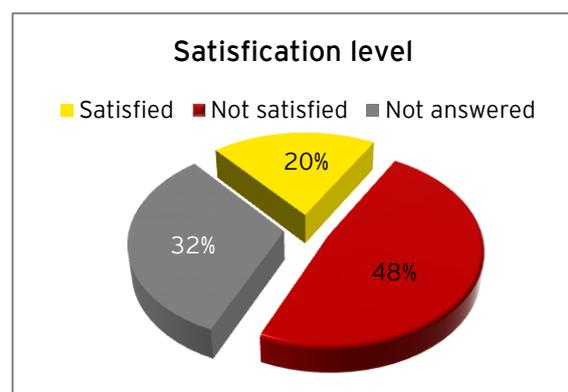
There is a lack of infrastructure and support for the employees that leads to further dissatisfaction and can be considered as a barrier for the new entrants in this industry.

The major issues pertaining to human resource are as under:



As per the survey, 45% respondents were of the opinion that there is no functional training institute in Gujranwala for sanitary ware labor.

Further, it was observed that the major reason behind the dissatisfaction with the institute is lack of coordination between industry and institute as only 23% of the industry have ever coordinated with the training center.



b) Recommendations

There is a strong need to develop coordination among industry and CDTC. This can be achieved through the support of Association and chamber of commerce. Formal need assessment for identification of training needs of industries should be developed in close coordination with the industries. All courses by CDTC should be based upon the needs of the industries.

To facilitate trainings and attract work force towards this cluster, government should provide stipend to the trainees. This will provide them the incentive to join this industry.

Regulation can be brought for the quality of basic facilities for the labor. This can include subsidized canteen, transport services and basic work environment etc.

On job trainings should be introduced and industries should provide support to institute for on job trainings in industries.

As per the survey, following courses are required to be offered by the training institutes for ceramic cluster:

- ▶ Kiln loading and firing techniques,
- ▶ Mould preparation
- ▶ Casting in ceramics.

6.6. No research and development**a) Issue**

Ceramic sanitary ware industry is currently copying designs of the products from China and Europe. There is no research and development in the product development and design. GTDMC has the facility for the product development and design but currently they are also copying the products imported from China.

Results of lack of R&D and innovation are as follows:

- ▶ No product diversification.
- ▶ Lack of knowledge of new technology and techniques.
- ▶ Lack of market research
- ▶ Lack of development of unique brand equity in local and international market

Apart from the issues mentioned above, following impacts the ability of the cluster to compete globally:

- ▶ Lack of proper packaging and transport facilities
- ▶ Not defined departmental structures
- ▶ No proper record maintenance
- ▶ Lack of coordination among the cluster players

b) Recommendation

GTDMC has the ability to cater for these requirements of the industry. There are latest technologies for product design i.e. CATIA software and 3D printing, and reverse engineering technologies for product development. Industry should be provided awareness sessions about the facilities of the product design and development and the benefits that

can be obtained from these services. Moreover, workshops and trainings for the capacity building of the center staff should be conducted. Further courses can be offered at TEVTA.

Training sessions and workshops with the factory owners for their capacity building and to provide them insight into the new business tools and techniques. Modern development and global value chain should be included to broaden their perspective of the business and to enable them to tap the new markets.

6.7. Taxation problems

a) Issues

Currently, imports of sanitary wares pose threat to the local industry. In this regard, import duties have been levied at 20% on imports of the finished goods, however, there is no regulatory duty on import of these products. It is to be noted that such products are included in the sensitive list under SAFTA agreement which means regulatory duties can be levied on sanitary ware products. Considering the eight (8) months idle period and low energy and production efficiency of local industries, local products are not competitive thus are experiencing quick drifts of markets towards imported products.

Income taxes, sales taxes (GST and GSTS), import duties, withholding taxes and excise duties are applicable on ceramic industry where indirect taxes constitute approximately 68% of total taxes as per an estimate. In this regard, frequent changes in tax laws and regulations have been observed, which are adding complexity for the industries that hamper the smooth operations and contribute towards uncompetitive prices of Pakistani ceramics products in global markets. It is the general perception of industry that tax laws are very complex thus encourages tax avoidance. Moreover, industries perceived taxation procedures as difficult and thus are reluctant to approach tax authorities for normal or exceptional tax matters including claim of refund. Industry participants are unaware of changing tax requirements which further incentivizes the adoption of unfair means to avoid tax.

Owing to high cost of compliance with laws including EOBI, social security, taxes and company laws, the industry participants opted other means to bypass those laws and regulations. Moreover, achievement of associated benefits with laws including EOBI and social security are not trusted by stakeholders.

b) Recommendations

Regulatory duties should be levied on imports of sanitary ware to make the local products competitive in local markets, however, such regulatory duties should be time bound i.e. till implementation of interventions to upgrade technology and to ensure uninterrupted gas supply. Further, such regulatory duties should only be imposed once a detailed implementation plan is put to action regarding aforementioned technology and energy interventions.

Chambers of Commerce Gujranwala should hold seminars and workshops on changes in tax rules and regulations. Moreover, Chamber of Commerce and Association should ensure maximum participations from the industries' representatives in such seminars and workshops being organized by the Chamber of Commerce, taxation authorities or other stakeholders. It is to be ensured that such awareness sessions include guidance about

procedural aspect of tax matters and to discourage opting unlawful methods to ensure compliance with unknown tax procedures.

Short term changes in tax laws and regulations should be discouraged. In this regard, confidence in taxation system should be reinforced by declaring long-term tax rates with minimum changes.

Policy interventions should be pursued with taxation authorities to seek simplified tax laws and regulations.

Compliance procedures in laws and regulations should be simplified and rates should be reduced to persuade industries to ensure compliance by the industries without opting unlawful means. Efforts should be made to regain trust of all stakeholders about the application of EOBI and social security being deposited through industries.

6.8. Difficult access to financing facilities

a) Issues

Most of the industry owners are not aware of the requirements of complex bank loaning systems and heavy documentation requirement; therefore, they are generally hesitant/shy to approach the banks for loaning needs. The requirements of collateral and public religious take on the interest kept public away from obtaining finance facilities. Further, the markup offered by the banks does not meet their business requirements, as their return on investment is quite low as compare to heavy markup rates being charged by commercial banks. Further, we observed that there is no will to obtain financing facilities.

b) Recommendations

It is proposed that the loaning procedures for the SMEs should be revisited and improved. Moreover, industries should be provided with guidance on Islamic mode of financing and grant of financing facilities with easier requirement of collaterals. Moreover, financing programs should be introduced to facilitate upgrading of machinery with easy conditions as to paybacks and collaterals requirements.

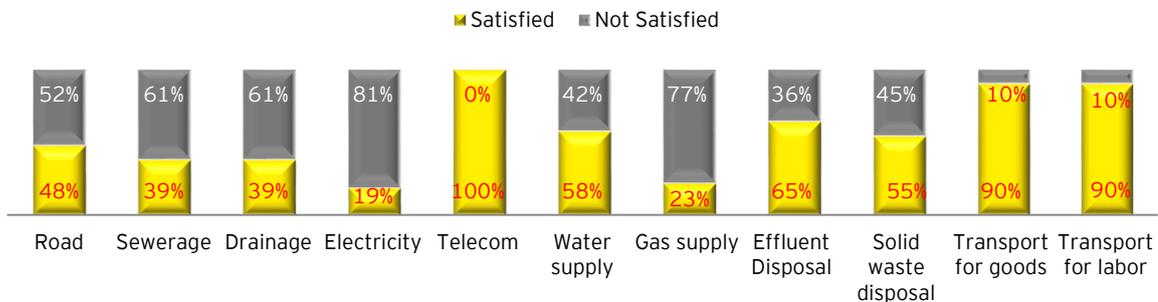
6.9. Inadequate infrastructure

a) Issues

There is no environmental management system either in the SIE or in the industries out of the SIE. There are no treatment/recycling facilities at industry or estate level.

During our visit to SIE - II, we noted poor sewerage and roads. During our discussion with the local PSIC official, we were informed that tender has been issued for the repair and maintenance of infrastructure and the conditions will be improved to great extent in short term period. Ceramic Kilns produces huge amounts of flue-gas. In firing process in tunnel kiln, flue-gas volume flow is around 12,000 m³/h and in shuttle kiln it goes up to 50,000 m³/h. Treatment plants for these gaseous discharge are required to be installed to minimize the environmental impact.

Further, the disposal of industrial effluent is discharged to the water bodies without treatment creating unhealthy environment in the area, and damaging the underground water quality. We did not observe any solid waste disposal site in the area. Conditions of roads and sewerage were not given satisfactory rating during our survey. Results of our survey as to satisfaction with infrastructural facilities are presented below:



b) Recommendations

To improve the infrastructure, following should be given priority attention:

- Road, sewerage, drainage and water supply system should be improved. Plan for continuous repair and upgrade infrastructure facilities should be devised.
- The industries in association with the provincial government should develop a plan for the setting up of treatment plant as well as solid waste disposal site.

PSIC with the help of association can conduct awareness program to understand the impact of the poisonous discharge. This should also need to take into the account the cost incurred and the potential benefits in terms of exports to the industry.

Treatment of the contaminated gaseous and water discharge must be made mandatory for the industries. However, in the current circumstances, industry will be reluctant to incur any such cost. Government needs to provide the financial assistance for the sustainability measures. Or conversely government can import the sustainable equipment and provide it to the industry on flexible terms.

6.10. Role of Association

a) Issues

As per leading practices, responsibilities of associations are perceived to include support of industry in matters including availability of raw material and skilled labor, capacity building of industry participants, Innovation and R & D in machinery and products, continuous mobilization and active participation of the stake holders of the industry. Associations provide active support to industry and take steps including raising industry’s concerns to appropriate forums.

The role of Pakistan Ceramics Manufacturing Association is majorly to address issues of the sector at different forums which are mostly related to taxation and other government departments’ related issue.

b) Recommendations

Role of Association needs to be broadened which apart from problem solving of the industry should include the capacity building and trainings of the cluster players. This

should also include the sharing of the experience of members who have visited China to observe the technological advancement.

Association can prepare a delegation of members and can visit China. Members of the delegation can jointly then assess if they can import any technology and use it at as a common facility and charge it equally to the members for the collective use of the new technology.

6.11. Geographical spread of ceramic sanitary ware in Gujranwala

a) Issue

Most of the industry is located out of the industrial estate. This means that the benefits available in the industrial estate are not available to these units. This results in the difficulty in providing common facility center. Industry is located mostly outside industrial estate.

b) Recommendation

PSIC should encourage the industrial units for the relocation into the new industrial estates. As this cluster is surviving in this crunch conditions and also exporting, so PSIC can think on lines of reducing the cost of land to provide incentive for the cluster to shift in the industrial estate.

6.12. Global value chain

a) Issue

Ceramic industry is currently working in isolation in Pakistan. There are no direct links with the international firms. Ras Al Khaimah (RAK) is the world's largest ceramic manufacturer with more than 13,000 designs of sanitary ware. They have set up their facility in Bangladesh with 90% foreign investment and 10% local share. They operate plants in China, Sudan, Bangladesh, India and Iran. Due to lack of knowledge and initiative, these global linkages are missing.

b) Recommendation

As earlier explained, Association, TDAP and other institutions including common facility center needs to research and analyze the potential global linkages.

Government schemes needs to be introduced for such foreign investments. These schemes should allow easy one window operation for the plant setup, continuous energy supply agreements and other guarantees for the safeguard of the investment.

7. SWOT ANALYSIS

Based on the data collected through the discussion with the Association, meeting with the stakeholders, industrial surveys, and using the SWOT tool, an analysis of the cluster has been carried out. The result of the SWOT analysis based on internal and external factors is provided below:

Strengths	Opportunities
<ul style="list-style-type: none"> ▶ Raw material is locally available through local supplier ▶ Local demand for ceramics sanitary ware is high ▶ Machinery used is locally manufactured with repair and maintenance facilities easily available ▶ Entrepreneurs have several years of experience where trade and manufacturing arts is being inherited through continuance process ▶ Basic infrastructure is available ▶ Developed retail and marketing channels ▶ Developing skills of unskilled labor through on job training ▶ Concentration of ceramics sanitary ware industry in Gujranwala ▶ Availability of CDTC in Gujranwala having upgraded machinery for trainings, material testing and other common facilities ▶ Availability of GTDMC for product design, development, tooling, mould making and other common facilities ▶ Low labor cost ▶ Access to export markets though export volume is low ▶ Finished products have been found to with stand fire better than Chinese ceramic ware 	<ul style="list-style-type: none"> ▶ Increase cost competitiveness by exploring energy conservation potential and increase in production efficiency with the introduction of new technology and equipment ▶ Energy audits for the energy conservation strategy ▶ Potential to export the products in international markets. ▶ Claim share of local market by driving out imports ▶ Development of skilled labor as per the requirements of industry ▶ Participation in the trade fairs and exhibitions to bring in new technology ▶ Availability of quality raw material by installing better extraction facilities ▶ Preference of higher quality of products. ▶ Quality testing labs and standardization ▶ Diversification of products ▶ Potential of linkage with the global value chain ▶ Bring sanitary ware industries of Gujranwala in one place to benefit from common facilities more effectively ▶ Imposition of regulatory duty and increase in import tariff ▶ Product design and development through institutes ▶ Brand development and marketing

Weaknesses	Threats
<ul style="list-style-type: none"> ▶ Quality of the end product is very low and non-competitive with the international market especially China ▶ Plant and machinery is old and out dated. ▶ Issues with the availability of gas (non-availability in peak season and low pressure gas) ▶ Plant is highly energy inefficient ▶ Sales and marketing strategy is not developed for exports ▶ Skilled labor is not available ▶ Lack of interest of new labor in this industry due to working conditions ▶ Sub-standard employee facilities (transport, health and safety etc.) ▶ Lack of functional training institutes in the area ▶ No research and development of the products ▶ Lack of knowledge of the new technology and techniques in the industry ▶ Education level of the management and labor is ordinary. ▶ High bargaining power of suppliers in the peak season ▶ Lack of awareness of standards and ISO certification ▶ Lack of information about the potential of the export markets ▶ Lack of understanding of taxation issues ▶ Shortage of the financing requirement and complex banking system to obtain finance ▶ Weak management structure and skills 	<ul style="list-style-type: none"> ▶ Imports of high quality products at cheaper rates ▶ Lack of interest of new work force in this industry due to working conditions ▶ Closure of raw material mines ▶ No supply of gas ▶ Global free trade ▶ High markups on loans ▶ New laws and regulations being imposed resulting in the increased cost to the industry ▶ Environmental pollution through gaseous discharge and water waste, may be regulated by the government. Treatment plants will be required to be installed to cater for environmental requirements ▶ Introduction of alternative materials like plastic and ceramic plastic composite.

8. Cluster Vision

“The Ceramics Sanitary Ware cluster will become a leading cluster in the domestic market and will improve export of its products to the neighboring countries. The strengths of the cluster will lie in diversified products, design, quality and attractive finishing that will be achieved by means of modernization of the production system and introduction of improved technology”

8.1. Strategy

In the Ceramics Sanitary Ware cluster at Gujranwala there is an ample scope for strategic interventions in certain key areas as described here under:

Imports from International markets

Import tariff on sanitary ware products is 20%. There is no regulatory duty imposed. There are in fact no barriers to import and most of the imports are from China. This is creating immense competition in the local market.

Government should take the following measures for a short term to bring the local industry (which is currently at disadvantage due to energy shortage) at par to compete with China:

- ▶ Increase import tariff and Impose regulatory duty till implementation of technology and energy interventions
- ▶ Put in place additional measures to stop imports of sanitary ware from India. (Imports are banned from India but there are leakages)

Interventions in supporting centers

This institutes requires some additional facilities and change in the strategy. Main focus of the institutes is self-sustenance rather than providing common facilities to the industry.

- ▶ Strategy change: provide one window operation for the industry
- ▶ Installation of roller bat kilns as a model facility to facilitate reengineering.
- ▶ Installation of high pressure molds.
- ▶ Trainings of the staff on CNC and high pressure moldings
- ▶ Training of the master trainers for capacity building at different departmental level of the industry
- ▶ Trainings of the staff for capacity building of industrialists
- ▶ Product development and design team
- ▶ Arranging awareness sessions of industries for building trust of institutes with industries and to educate industries regarding the facilities being provided by institutes.
- ▶ Restructuring of institutes to bring technical people for management of affairs of the institutes
- ▶ Set up of research and development unit with precise targets
- ▶ Trainings and capacity building of staff for the provision of export, marketing etc. facilities.

Technological Up-gradation:

As explained in the section 4.2, change in the technology will bring energy savings of more than 50% along with increased production with better quality. Government can provide assistance for the purchase of new technology in the following ways:

- ▶ Purchase of machinery on installments
- ▶ Waiver on import tariffs
- ▶ Facilitation in import of new plant and machinery
- ▶ Conduct techno economic study for the new technology
- ▶ Assistance in the selection of technology
- ▶ Workshop on required technologies with the core cluster actors

- ▶ Assist in the conduct of energy audit and recommend with the potential payback period to the industrial units
- ▶ Government can provide low emission tax benefits which will provide incentive to the industry to invest in the new technology. This will also reduce carbon footprint and wastes in water.

Energy:

Up gradation of technology will bring the energy savings. Government can bring in following interventions:

- ▶ Conduct study for alternate fuel resources like charcoal and lignite
- ▶ With the arrival of LNG, provide Gas at priority to the sanitary ware industry
- ▶ Increase tenure of supply of Gas per month

Trainings of Labor

There needs to be strong coordination among industry, TEVTA and CDTC to provide training facilities. As per the association, following courses are required for the labor:

- ▶ CNC machines operator training
- ▶ Kiln loading and firing techniques,
- ▶ Mold preparation
- ▶ Casting in ceramics.

Further government can provide stipend to the under training labor. This will provide incentive for them to join the industry.

Improvement in Quality of Products:

As evident, in most of the industry quality of the ceramics sanitary ware product is compromised. It should be ensured that products manufactured in the cluster need appropriate inspection and quality control system at every stage of production.

This will ensure the competitiveness of cluster nationally and internationally. Proposed activities are:

- ▶ Quality Standardization.
- ▶ Improving production technology
- ▶ Establishment of a local quality approval organization by Government.
- ▶ Awareness Programme(s) on ISO-9000 QMS.
- ▶ Educational Programme(s) on ISO-9000 QMS.
- ▶ Promoting the importance of maintaining product quality for survival in the long run against competition.
- ▶ Initiating Action for establishing Testing labs.
- ▶ Common training for workers on quality issues

Standardization & Design improvement:

Design Institutes play a pivotal role in developing new designs of the products and to support the related industry. This ensures that the aesthetic appeal of the product.

Hence, various design institutes such as NCA, Fine Arts Department, University of Punjab as well as national and international design institutes or designers needs to be connected with the ceramics sanitary ware industry. This can be managed at the association level so that all the industries can benefit from their product design.

- ▶ Meeting with the stake holders
- ▶ Assess the capacity of the design institutes to cater for the product design requirement
- ▶ Workshop with the industry to connect the institutes with the association
- ▶ Monetary or other Incentives for the design institutes from the industry

Product Range:

Diversification increases the business either to the existing customers or through penetration into new markets.

Variety of wash basin, commode, water closet, and other similar products need to be introduced in the current cluster product range. For this purpose following initiatives are recommended:

- ▶ Product development with the help of expert
- ▶ Awareness programs to guide the industry on techniques for the new product development
- ▶ Workshops to identify the manufacturing potential of the products in high demands locally and internationally
- ▶ Seminars to identify the potential benefit of the diversified product range

New Marketing Techniques:

The marketing activities are envisaged to be attentively undertaken. In this regard following steps are proposed:

- ▶ Marketing through fair price shops and private stores, fairs, exhibitions and well-organized buyer seller meets would add to the marketing through the present channel of Gujranwala Traders.
- ▶ Promotion of Gujranwala as the ceramics sanitary ware cluster.
- ▶ Exploration of the new international markets and strategic entry into those markets

Other activities/Programme to be undertaken to achieve the vision evolved:

- ▶ Joint participation in national/international exhibitions/fairs.
- ▶ Workshop(s) on export procedures & documentation.
- ▶ Personal counseling for solving technical problems.
- ▶ Networking with supporting Institutions.
- ▶ Workshop on importance of observing better health and safety measure.
- ▶ Initiative for cluster newsletter.
- ▶ Strengthening the association by having a secretariat, Magazine/ Newsletter, Library, Website & linkage with other associations, NGOs, Govt. institutions.
- ▶ Delegation to international markets

8.2. Action Plan

Action Plan							
Category	Sr. No.	Proposed Activities	Objectives of Proposed Activities	Expected Outcomes	Beneficiary	Implementers	Timelines (Completion Date)
Imports from International markets	1	Increase in the import tariff and regulatory duty	<ul style="list-style-type: none"> Meetings with FBR with Association 	Decrease in the import of Sanitary Ware	Sanitary Ware Cluster	<ul style="list-style-type: none"> PSIC Chamber/ Association 	1 year
Interventions in supporting centers	1	New strategy development	<ul style="list-style-type: none"> To change the vision of the center from self-sustenance to industry facilitation 	Common facilities to be provided at one stop	Sanitary Ware cluster	<ul style="list-style-type: none"> CDTC PSIC Consultant 	1 Year
	2	Installation of new machinery (Kiln and High pressure molds)	<ul style="list-style-type: none"> Facilitation of the industry and provide benchmark for re-engineering of Kiln 	Industrial technological up-gradation	Industry	<ul style="list-style-type: none"> CDTC PSIC Chamber / Association 	1 year
	3	Technical trainings and capacity building	<ul style="list-style-type: none"> CNC trained labor Trainings of the master trainers for industrial staff trainings and capacity building of the entrepreneurs 	<ul style="list-style-type: none"> Provision of skilled labor for the industry on CNC machines Provisions of trainings and capacity building exercise 	Sanitary Ware Cluster	<ul style="list-style-type: none"> CDTC PSIC Chamber / Association TEVTA GTDMC 	1 year

Action Plan							
Category	Sr. No.	Proposed Activities	Objectives of Proposed Activities	Expected Outcomes	Beneficiary	Implementers	Timelines (Completion Date)
	4	Start product development & design, set up research and development team	<ul style="list-style-type: none"> Linkage with the institutes especially for product development and design. Also to bring in new technology and develop new markets. 	Coordination of industry with TDAP, NCA, University of Punjab, LUMS etc.	Sanitary ware cluster	<ul style="list-style-type: none"> CDTC PSIC Chamber / Association Institutes 	2 years
Technology Up gradation	1	Study of present manufacturing process & identifying scope for improvement	<ul style="list-style-type: none"> Improvement in manufacturing process Identification of best fit technology (Kiln and high pressure Molds) Standardization 	Technology improvement leading to increased production and lower rejection rate	Cluster enterprises	<ul style="list-style-type: none"> PSIC Chamber/ Association Cluster CDTC Energy audit institutions like (Cleaner Production Institute (CPI) or National Productivity Organization (NPO) Consultant 	Replacement of old machinery till 2018
	2	Energy Audit	<ul style="list-style-type: none"> Reduction of fuel cost Energy Savings Power generation potential 	Fuel economy/ payback period due to energy efficiency measures	Cluster enterprises		Within 1 year
	3	Awareness Programme on Energy Conservation	<ul style="list-style-type: none"> Seminars on Energy conservation and cleaner production 	Awareness in the key cluster players	Cluster enterprises		Within 1 year
	4	Waiver on import duties on import of new technology and other tax benefits	<ul style="list-style-type: none"> Meetings with FBR and Government departments to bring in the new schemes 	Facilitate the cluster as a whole to become cost competitive	Cluster enterprises		<ul style="list-style-type: none"> PSIC Chamber/ Association FBR

Action Plan							
Category	Sr. No.	Proposed Activities	Objectives of Proposed Activities	Expected Outcomes	Beneficiary	Implementers	Timelines (Completion Date)
Energy	1	Study for alternate fuel and its applicability	<ul style="list-style-type: none"> To prepare feasibility of investment in the alternate fuel 	Conversion of some units on alternate fuel in the off season	Cluster enterprises and Government departments	<ul style="list-style-type: none"> PSIC Consultants 	Within 1 year
Trainings of Labor	1	Training and development of labor for: <ul style="list-style-type: none"> CNC machines operator training Kiln loading and firing techniques, Mold preparation Casting in ceramics 	<ul style="list-style-type: none"> To train the labor in mentioned skills 	Skilled labor	Cluster enterprises	<ul style="list-style-type: none"> PSIC CDTC Chamber / Association 	Within 2 years
Improvement in Quality of Products	1	Awareness on the Quality standards and maintenance for survival in the long term	<ul style="list-style-type: none"> Quality standardization Awareness of the ISO 9000 QMS Trainings of the workers on quality issues 	Awareness in the industry on quality standards	Cluster enterprises	<ul style="list-style-type: none"> PSIC Chamber/ Association Cluster CDTC Consultant 	Within 1 year
	2	Establishment of quality standards organization	<ul style="list-style-type: none"> To provide quality approval organization 	Quality products that meet export requirement	Cluster enterprises	<ul style="list-style-type: none"> PSIC Chamber/ Association 	Within 2 years
	3	Establish testing labs	<ul style="list-style-type: none"> To provide raw material and finished goods testing facility 	Quality in raw material inputs and final product production	Cluster and other industries	<ul style="list-style-type: none"> PSIC Chamber/ Association Cluster 	Within 2 years

Action Plan							
Category	Sr. No.	Proposed Activities	Objectives of Proposed Activities	Expected Outcomes	Beneficiary	Implementers	Timelines (Completion Date)
Standardization and design improvement	1	Meetings with the stakeholders to assess the product design requirement	<ul style="list-style-type: none"> Assessment of the capacity of the institutes to cater for design requirement of the industry 	Understanding of the product design and development process	Cluster and institutes	<ul style="list-style-type: none"> PSIC Chamber/ Association Cluster TEVTA UET NCA CDTC Consultant 	Within 1 year
	2	Workshop with supporting Institutes (Product Design)	<ul style="list-style-type: none"> Information on new design 	Awareness on better design	Cluster Enterprises		Within 1 year
Product Range	1	Awareness program/seminar/workshops	<ul style="list-style-type: none"> Diversification in the product range 	Awareness of diversification and potential for growth and sustainability	Cluster enterprises	<ul style="list-style-type: none"> PSIC Chamber/ Association Cluster Expert for product development 	Within 2 years
New Marketing Techniques	1	Training Programme on Marketing challenges	<ul style="list-style-type: none"> Developing Marketing Skills and techniques Market awareness 	Better understanding of market and improved sale	Cluster Enterprises	<ul style="list-style-type: none"> PSIC Chamber/ Association TDAP Consultant 	Within 1 year
	2	Appointing Selling Agent for untapped export markets	<ul style="list-style-type: none"> Exploration of new international markets 	Export market information	Cluster Enterprises		Within 5 years
	3	Awareness Programme on marketing through internet	<ul style="list-style-type: none"> Developing Marketing Skills and techniques Market awareness 	Export inquiries and improved sale	Cluster Enterprises		Within 3 years
	4	Branding the industries	<ul style="list-style-type: none"> To sell products under a brand name 	Increase in revenue and exposure to	Cluster Enterprises and Country		Within 3 years

Action Plan							
Category	Sr. No.	Proposed Activities	Objectives of Proposed Activities	Expected Outcomes	Beneficiary	Implementers	Timelines (Completion Date)
				foreign market			
Other Activities / Programme	1	Exposure Visit to Developed Cluster	<ul style="list-style-type: none"> ▪ Trust building ▪ Better understanding 	Awareness on better technologies	Cluster Enterprises	<ul style="list-style-type: none"> ▪ PSIC ▪ Capacity building experts ▪ Chamber/ Association 	Within 1 year
	2	Seminars/ Workshops on export procedures, networking and institutional linkages, health and safety and newsletter etc.	<ul style="list-style-type: none"> ▪ Capacity building in different sectors for cluster growth and promotion 	Enhancing capability of the cluster players and improved problem solving mechanism	Cluster Enterprises		Within 2 years
	3	Seminar on benefits of consortia approach & meeting with RM suppliers	<ul style="list-style-type: none"> ▪ Trust building 	Networking with related parties	Cluster Enterprises		Within 2 year

9. Geo tagging Details of Ceramic Sanitary ware in Gujranwala

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
1	Lone Impex	Chandaqila 9-10 Km G.T Road.	Gujranwala	055-4290261	Ceramics Sanitary Wares	32.089370	74.20203
2	City Master Ceramics	Near Attawa Restaurant, G.T Road.	Gujranwala	0333-8128214	Ceramics Sanitary Wares	32.08348	74.20564
3	ACL Porcelina	Darbar wala gala, G.T Road, Grw	Gujranwala	055-263832-34	Ceramics Sanitary Wares	32.07955	74.20388
4	City Master Sanitary Ware	Near Attawa Restaurant, G.T Road.	Gujranwala	0300-9646541	Ceramics Sanitary Wares	32.083460	74.2063
5	Ceramics Factory	Darbar wala gala, G.T Road, Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.07831	74.20447
6	Ceramics Factory	Near Attawa Restaurant, G.T Road.	Gujranwala	Not Available	Ceramics Sanitary Wares	32.07884	74.20623
7	Irshad Ceramics	Near Attawa Road, G.T Road, Grw.	Gujranwala	0345-8398695	Ceramics Sanitary Wares	32.07621	74.20664
8	Bilal Ceramics	Near Attawa G.T Road, Grw.	Gujranwala	0312-7419097	Ceramics Sanitary Wares	32.075830	74.20737
9	Asian Ceramics	Near Attawa G.T Road, Grw.	Gujranwala	055-3407266	Ceramics Sanitary Wares	32.075760	74.20754
10	Kundan Ceramics	Near Attawa G.T Road, Grw.	Gujranwala	055-4003565	Ceramics Sanitary Wares	32.07568	74.20753
11	Krusmill Ceramics	Darbar wala gala, G.T Road, Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.08022	74.20361
12	Master Asia Ceramics	Near Attawa G.T Road, Grw.	Gujranwala	055-3407148	Ceramics Sanitary Wares	32.07338	74.20732

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
13	Zahid Ceramics	Near Attawa G.T Road, Grw.	Gujranwala	Not Available	Ceramics Sanitary Wares	32.07275	74.206190
14	Super Master Ceramics	Near Attawa G.T Road, Mor Eminabad, Grw.	Gujranwala	055-4264199	Ceramics Sanitary Wares	32.05626	74.20765
15	Ameen Ceramics	Attawa G.T Road, Grw.	Gujranwala	055-3263584	Ceramics Sanitary Wares	32.076260	74.20781
16	Commander Ceramics	G.T Road, Mor Eminabaad, Grw.	Gujranwala	055-3407147	Ceramics Sanitary Wares	32.0682	74.20571
17	Sh-Ceramics	G.T Road, Mor Eminabaad, Grw.	Gujranwala	Not Available	Ceramics Sanitary Wares	32.06477	74.20412
18	Ejaz Ceramics	G.T Road, Mor Eminabaad, Grw.	Gujranwala	0322-5080814	Ceramics Sanitary Wares	32.06718	74.20442
19	Star Ceramics	Opposite super star petrol pump. 11 Km Lahore Side G.T Road, Grw	Gujranwala	055-3407039-41	Ceramics Sanitary Wares	32.06468	74.20281
20	Capital Ceramics	Mor Eminabad, Grw	Gujranwala	055-3407040	Ceramics Sanitary Wares	32.06468	74.20281
21	Look Master	Mor Eminabad, Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.06484	74.20818
22	Crystal Ceramics	Mor Eminabad, Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.06466	74.19822
23	Power Plastic	Mor Eminabad, G.T Road, Grw	Gujranwala	0300-6433656	Ceramics Sanitary Wares	32.06469	74.20012
24	Capital Ceramics	Mor Eminabad, G.T Road, Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.06454	74.1991

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
25	A1 Ceramics Factory	Mor Eminabad, G.T Road, Grw	Gujranwala	0346-0412171	Ceramics Sanitary Wares	32.06468	74.19818
26	Irshad Ceramics	Mor Eminabad, G.T Road, Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.06452	74.19749
27	General Asia Ceramics	Mor Eminabad, G.T Road, Grw	Gujranwala	055-3264406	Ceramics Sanitary Wares	32.069790	74.20493
28	Asad ullah Ceramics	Mor Eminabad, G.T Road, Grw	Gujranwala	055-3262808	Ceramics Sanitary Wares	32.06975	74.20389
29	Best Asia Ceramics	Mor Eminabad, G.T Road, Grw	Gujranwala	0321-9644883	Ceramics Sanitary Wares	32.06957	74.20381
30	Supreme Asia Ceramics	Mor Eminabad, G.T Road, Grw	Gujranwala	0301-6657739	Ceramics Sanitary Wares	32.071080	74.20459
31	lak Ceramics	Mor Eminabad, G.T Road, Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.07127	74.20384
32	Sun Rise Ceramics	Mor Eminabad, G.T Road, Grw	Gujranwala	0307-2500649	Ceramics Sanitary Wares	32.07149	74.20271
33	Honour Ceramics	Attawa G.T Road, Grw.	Gujranwala	0305-6079062	Ceramics Sanitary Wares	32.071470	74.20251
34	Top Asia Ceramics	Attawa G.T Road, Grw.	Gujranwala	0321-9600559	Ceramics Sanitary Wares	32.071350	74.20163
35	Rizwan Ceramics Industry	Attawa G.T Road, Grw.	Gujranwala	0310-7266536	Ceramics Sanitary Wares	32.07254	74.2046
36	Bilal Ceramics	Attawa G.T Road, Grw.	Gujranwala	0321-7419097	Ceramics Sanitary Wares	32.0802	74.20362

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
37	Hilal Water Tank	Kacha Eminabad Road, Grw	Gujranwala	0300-0450023	Ceramics Sanitary Wares	31.13741	74.19929
38	Mughal Ceramics Industry	Chandaqila	Gujranwala	0300-4849504	Ceramics Sanitary Wares	32.09625	74.20099
39	Standard Ceramics	Chandaqila	Gujranwala	0306-6673063	Ceramics Sanitary Wares	32.09636	74.20079
40	Idiol Mughal	Industrial Estate - II	Gujranwala	0321-6464655	Ceramics Sanitary Wares	32.10513	74.184180
41	Bolan Standardized Bathroom Fitting	Shahran St.Gonokanwale	Gujranwala	052-4222405	Ceramics Sanitary Wares	32.16764	74.17674
42	Mohsin Sanitry	Behari Colony, Kacha Eminabad Road	Gujranwala	0323-6284011	Ceramics Sanitary Wares	32.12843	74.20551
43	Swiss Sanitory Fitting	Shadman Colony, Kacha Eminabad Road	Gujranwala	0342-4909001	Ceramics Sanitary Wares	32.12828	74.20488
44	Rizwan	Kacha Eminabad Road	Gujranwala	0300-7478161	Ceramics Sanitary Wares	32.12788	74.20504
45	Mehran Sanitory	Kacha Eminabad Road	Gujranwala	0321-1655252	Ceramics Sanitary Wares	32.12753	74.20419
46	Bao Arif	Kacha Eminabad Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.127640	74.20388
47	UP & UP Sanitory Fittings	Kacha Eminabad Road	Gujranwala	0348-4241748	Ceramics Sanitary Wares	32.12797	74.2035
48	Farhan Industries	Ghalla Tameer Ikhlaq Road	Gujranwala	0301-8748500	Ceramics Sanitary Wares	32.15419	74.16895

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
49	Junjua Pipe	Hafizabad Road	Gujranwala	0331-7015847	Ceramics Sanitary Wares	32.17812	74.18296
50	Waqas Powder Coating	Hafizabad Road	Gujranwala	0300-9642546	Ceramics Sanitary Wares	32.15484	74.16873
51	Dar Ceramics PVT LTD	G.T Road Rahwaali Cantt	Gujranwala	3884425	Ceramics Sanitary Wares	32.27123	74.15356
52	Hassan Yousaf	Bank Street No.2 Mian Sansi Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.13984	74.18358
53	Nadeem Plastics	ShaheenAbad	Gujranwala	0300-9642432	Ceramics Sanitary Wares	32.19248	74.18062
54	Pco Plastics	Climaxabad G.T Road	Gujranwala	055-3733393	Ceramics Sanitary Wares	32.19522	74.1789
55	Super Master Industries	Khacha Khaili Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.14088	74.18019
56	Gold Star Ceramics	Mian Sansi Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.13887	74.18401
57	Ideal Ceramics	Attawa G.T Road	Gujranwala	055-3404177	Ceramics Sanitary Wares	32.0783	74.19876
58	Waseem Ceramics	Attawa G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.07829	74.19889
59	K.R industries	Attawa G.T Road	Gujranwala	0321-740336	Ceramics Sanitary Wares	32.07844	74.20023
60	Total Ceramics	Attawa G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.07857	74.20032

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
61	Falak Ceramics	Attawa Darbar Gala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.08751	74.20221
62	Saga Ceramics	Attawa Darbar Gala G.T Road	Gujranwala	0333-0248500	Ceramics Sanitary Wares	32.07911	74.20178
63	Super Ceramics	Attawa Darbar Gala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.08003	74.20068
64	Asia Ceramics	Attawa Darbar Gala G.T Road	Gujranwala	0300-7478200	Ceramics Sanitary Wares	32.07992	74.20142
65	Golden Ceramics	Attawa Darbar Gala G.T Road	Gujranwala	0321-6423600	Ceramics Sanitary Wares	32.08039	74.20314
66	Shell Ceramics	Attawa Darbar Gala G.T Road	Gujranwala	0300-7420828	Ceramics Sanitary Wares	32.08008	74.20373
67	Adnan Ceramics	Darbar gala GT Road Gujranwala	Gujranwala	0321-5534385	Ceramics Sanitary Wares	32.087243	74.201713
68	New Top Asia Ceramics	Darbar gala wala GT Road Gujranwala	Gujranwala	0300-6403863 0322-6403863	Ceramics Sanitary Wares	32.087382	74.201862
69	New Dawn Asia Ceramics	Steet # 1 gujranwala Pakistan	Gujranwala	0321-9770100	Ceramics Sanitary Wares	32.087666	74.201396
70	Al Karam Ceramics	Darbar gala wala GT Road Gujranwala	Gujranwala	0300-6489588	Ceramics Sanitary Wares	32.087058	74.200760
71	Nozaish Ceramics	Darbar gala wala GT Road Gujranwala	Gujranwala	0300-7606295	Ceramics Sanitary Wares	32.088047	74.201934
72	Sunny Ceramics	GT road More Eminabad Gujranwala	Gujranwala	055-3262211 0300-8645512	Ceramics Sanitary Wares	32.064867	74.206390

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
73	Muneer Ceramics	GT road More Eminabad Gujranwala	Gujranwala	055-3263172	Ceramics Sanitary Wares	32.064049	74.206678
74	Nawaz Ceramics	GT road More Eminabad Gujranwala	Gujranwala	Not Available	Ceramics Sanitary Wares	32.060417	74.205748
75	Mughal High Tech Ceramics	GT road More Eminabad Gujranwala	Gujranwala	055-4282903 055-6442040	Ceramics Sanitary Wares	32.060474	74.204562
76	Zahid Ceramics	GT road More Eminabad Gujranwala	Gujranwala	0345-6556322	Ceramics Sanitary Wares	32.060308	74.204596
77	Yousif Ceramics	GT road More Eminabad Gujranwala	Gujranwala	0305-924506	Ceramics Sanitary Wares	32.060624	74.204196
78	Khan Ceramics	GT road More Eminabad Gujranwala	Gujranwala	0300-7407574	Ceramics Sanitary Wares	32.060544	74.204117
79	Commandor Sanitoryware LTD	GT road More Eminabad Gujranwala	Gujranwala	0345-8248700	Ceramics Sanitary Wares	32.060456	74.203370
80	Soresco Ceramics	GT road More Eminabad Gujranwala	Gujranwala	0301-6466103	Ceramics Sanitary Wares	32.060508	74.203165
81	Supreme Asia Ceramics Pvt. Ltd.	GT road More Eminabad Gujranwala	Gujranwala	055-3262887	Ceramics Sanitary Wares	32.060605	74.202774
82	Megma Ceramics	GT road More Eminabad Gujranwala	Gujranwala	055-3264786	Ceramics Sanitary Wares	32.062617	74.206130
83	Kiran Ceramics	GT road More Eminabad Gujranwala	Gujranwala	Not Available	Ceramics Sanitary Wares	32.058885	74.207998
84	Poineer Industries	GT road More Eminabad Gujranwala	Gujranwala	055-111-000-055	Ceramics Sanitary Wares	32.062569	74.206220

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
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85	Star China Ceramics	GT road More Eminabad Gujranwala	Gujranwala	0301-8645135	Ceramics Sanitary Wares	32.062940	74.203203
86	New Gold Star Ceramics	GT road More Eminabad Gujranwala	Gujranwala	Not Available	Ceramics Sanitary Wares	32.062730	74.200969
87	Dream Tiles	119 B Model Town Opp. General Bike Stand, Gujranwala	Gujranwala	055-3733132	Ceramics Sanitary Wares	32.170570	74.184002
88	Prince Interior Kitchen Ware	Small Industrial Estate, Gujranwala	Gujranwala	055-3253632	Ceramics Sanitary Wares	32.177463	74.177633
89	Khan Brothers	Sheikhupura Road	Gujranwala	0304-7086215	Ceramics Sanitary Wares	32.132927	74.178778
90	Muslim Industries	Sheikhupura Road	Gujranwala	0321-7516213	Ceramics Sanitary Wares	32.132825	74.178529
91	Fazal Group	Sheikhupura Road	Gujranwala	0307-7277616	Ceramics Sanitary Wares	32.132867	74.179490
92	Chauhdary Brother	Sheikhupura Road	Gujranwala	0334-7004969	Ceramics Sanitary Wares	32.132915	74.178722
93	Syed Industry	Sheikhupura Road	Gujranwala	0322-6401500	Ceramics Sanitary Wares	32.133004	74.177945
94	3 Star Ceramics	Kangniawala	Gujranwala	055-4275454	Ceramics Sanitary Wares	32.126447	74.195562
95	Super Ceramics	Kangniawala	Gujranwala	055-4272830	Ceramics Sanitary Wares	32.127623	74.194413
96	Nizam Ceramics	Kangniawala	Gujranwala	055-4291088 0321-0300-6435822	Ceramics Sanitary Wares	32.128143	74.195233

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
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97	Ali Ceramics	Kangniawala	Gujranwala	055-3216333 055-3221193	Ceramics Sanitary Wares	32.121379	74.196010
98	Qamar Ceramics	Kangniawala	Gujranwala	Not Available	Ceramics Sanitary Wares	32.124848	74.196700
99	Naveed Khan	Nowshera Road	Gujranwala	055-3212408	Ceramics Sanitary Wares	32.132873	74.181121
100	Umar & Sons	Nowshera Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132384	74.181307
101	Majeed Industries	Nowshera Road	Gujranwala	0335-7581818	Ceramics Sanitary Wares	32.132873	74.181121
102	Mashallah Industries	Nowshera Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.178013	74.182329
103	Aslam Ceramics	Eminabad Road Grw	Gujranwala	03018645085	Ceramics Sanitary Wares	32.06285	74.202700
104	Pakistan Ceramics	Eminabad Road Grw	Gujranwala	0553407188	Ceramics Sanitary Wares	32.062683	74.202224
105	Vital Ceramics	Eminabad Road Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.062672	74.201574
106	Muna Ceramics	Eminabad Road Grw	Gujranwala	0553263306	Ceramics Sanitary Wares	32.062673	74.200498
107	Goor Ceramics	Eminabad Road Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.062782	74.197831
108	New Mehkama Ceramics	Eminabad Road Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.063768	74.202657

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
109	Star Cirmacis	Eminabad Road Grw	Gujranwala	03008564405	Ceramics Sanitary Wares	32.063819	74.202387
110	New Eleven star Ciramics	Eminabad Road Grw	Gujranwala	Not Available	Ceramics Sanitary Wares	32.059456	74.207524
111	Master Sanitary Ciramics	GT Road 19 km, Kamoki	Gujranwala	055-4272770-79	Ceramics Sanitary Wares	32.01889	74.214462
112	Minhas Industry	Opp Wakeel Khan Road, GT Road, Kamoki	Gujranwala	03009425116	Ceramics Sanitary Wares	31.998782	74.218216
113	MS Faiz Sanitary	Regent cinema road, GT Road Gujrawala	Gujranwala	0553205282	Ceramics Sanitary Wares	32.165774	74.186789
114	Diamond Houseware	Sheikhupura Road	Gujranwala	03219401206	Ceramics Sanitary Wares	32.132498	74.182030
115	Crown Houseware	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.138013	74.182329
116	Malik Qassir Industry	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.139358	74.180327
117	Ali akbar ceramics	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132688	74.184997
118	Zeen ceramics	Sheikhupura Road	Gujranwala	0300420687	Ceramics Sanitary Wares	32.13657	74.185299
119	Vital tiles and houseware	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132670	74.185077
120	New asia ware	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132662	74.185009

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
121	Supreme Industry	Sheikhupura Road	Gujranwala	03068634617	Ceramics Sanitary Wares	32.132632	74.184788
122	Devan Ceramics	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132632	74.184788
123	Super asia houseware	Sheikhupura Road	Gujranwala	03334301512	Ceramics Sanitary Wares	32.132642	74.183304
124	National ceramics	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.133227	74.182840
125	Universal ceramics	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132447	74.177435
126	Pak house ware	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132407	74.178154
127	Nobel ceramics	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132405	74.178318
128	Chip Houseware	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132425	74.178825
129	Asia houseware	Sheikhupura Road	Gujranwala	055526641	Ceramics Sanitary Wares	32.132429	74.178947
130	Super fine house ware	Sheikhupura Road	Gujranwala	0300622413	Ceramics Sanitary Wares	32.132449	74.174214
131	Quality industries	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132439	74.179333
132	Super star ceramics	Sheikhupura Road	Gujranwala	055-4552062	Ceramics Sanitary Wares	32.132384	32.132384

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
133	Hussain trader & manufacturers	Kangniwala	Gujranwala	Not Available	Ceramics Sanitary Wares	32.118357	74.199455
134	Crescent ceramics	Kangniwala	Gujranwala	055-551606 055-552992-93	Ceramics Sanitary Wares	32.119412	74.198757
135	Mushtaq ceramics	Kangniwala	Gujranwala	03455506839	Ceramics Sanitary Wares	32.119787	74.197857
136	Shahid brothers	Kangniwala	Gujranwala	03016133070	Ceramics Sanitary Wares	32.119787	74.197857
137	Saleem	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.129358	74.180327
138	Taimoor sons	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.132169	74.183639
139	Bilal wahid	Sheikhupura Road	Gujranwala	055-3263339	Ceramics Sanitary Wares	32.130564	74.184363
140	zaman	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.131674	74.184993
141	Abdul rehman	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.131623	74.184525
142	Mashallah industries	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.131623	74.184525
143	Akbar group	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.131617	74.183776
144	Mubarak industries	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.131517	74.183563

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
145	Ahmed jahanzaib	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.131566	74.183401
146	Zohaib	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.131498	74.182576
147	Kashif ceramics (trader& manufacturer)	Kangniwala	Gujranwala	03217450935	Ceramics Sanitary Wares	32.117647	74.198463
148	Fine Asia	Kangniwala	Gujranwala	03216442948	Ceramics Sanitary Wares	32.117513	74.198403
149	Saleem ceramics	Kangniwala Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.117965	74.199512
150	Ismail Ceramic Pvt Ltd	GT Road	Gujranwala	03226810902	Ceramics Sanitary Wares	32.021338	74.213542
151	Three Star Ceramics	Sheikhupura Road	Gujranwala	055-4271397	Ceramics Sanitary Wares	32.141076	74.187265
152	Stalco Ceramics	Sheikhupura Road	Gujranwala	03222820009	Ceramics Sanitary Wares	32.134808	74.185097
153	Atif Khan House Wares	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.141683	74.188575
154	PVC House Wares	Sheikhupura Road	Gujranwala	03417063337	Ceramics Sanitary Wares	32.142145	74.188492
155	Kazmi Tiles & Ceramics	Sheikhupura Road	Gujranwala	03330482107	Ceramics Sanitary Wares	32.141980	74.188730
156	Moonsoon Ceramic Works	Sheikhupura Road	Gujranwala	03347037185	Ceramics Sanitary Wares	32.141900	74.189212

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
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157	Ahmed Hassan	Sheikhupura Road	Gujranwala	03126027347	Ceramics Sanitary Wares	32.141873	74.189380
158	Binars House Wares	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.141832	74.189455
159	Asia	Sheikhupura Road	Gujranwala	055-3262298 0321-9644883	Ceramics Sanitary Wares	32.143389	74.189241
160	Faheem Nasir	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.143307	74.189369
161	Ejaz	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.143307	74.189369
162	Umair Ahmed	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.144033	74.186931
163	Malik Ahmed	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.143233	74.188248
164	Shamas Ahmed	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.143058	74.188243
165	Chaudhary	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.192740	74.188524
166	Qazim Rabeel	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.192740	74.188524
167	Ilams Sanitary Ware	Rana Colony ,Gt Road	Gujranwala	055-4241610	Ceramics Sanitary Wares	32.130075	74.198464
168	3-Star Airomic	Gt Road Near Kongniwala	Gujranwala	055-4271394 055-4273030	Ceramics Sanitary Wares	32.126505	74.195568

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
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169	Moqra Sanitory	Gt Road Near Kongniwala	Gujranwala	Not Available	Ceramics Sanitary Wares	32.124040	74.195712
170	Goray Ciramics	Gt Road Near Kangniwala Gujranwala	Gujranwala	0301-8312121	Ceramics Sanitary Wares	32.129752	74.195004
171	Nizamciramics	Gt Road Near Kangniwala Gujranwala	Gujranwala	0321-6435822 055-4291088	Ceramics Sanitary Wares	32.127247	74.196370
172	3-Star One Ciramic	Gt Road Near Kangniwala Gujranwala	Gujranwala	055-4271394	Ceramics Sanitary Wares	32.128325	74.196387
173	M.Nawaz Industry	3 Star Street , Gujranwal Kangniwala	Gujranwala	0321-61440025	Ceramics Sanitary Wares	32.124060	74.198572
174	Aero Sanitory	3 Star Street , Gujranwal Kangniwala	Gujranwala	055-4273288	Ceramics Sanitary Wares	32.123970	74.197968
175	Kiran Housewares	Sheikhpura road	Gujranwala	0321-6455240	Ceramics Sanitary Wares	32.142577	74.184644
176	Super Syramics	Sheikhupura Road	Gujranwala	0345-8578081	Ceramics Sanitary Wares	32.141842	74.189818
177	Saleem Plastics	Sheikhupura Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.142324	74.188670
178	Haider Ali Iron Works	Nowshera Sansi Road Gujranwala	Gujranwala	0346-6150326	Ceramics Sanitary Wares	32.148542	74.178605
179	Qadeer Ciramics	Muslim Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.130899	74.194214
180	Sabir Hussain Pottery	Sheikhupura Road	Gujranwala	0300-7499457	Ceramics Sanitary Wares	32.128099	74.177272

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
181	Ashraf Sanitary	Jinnah Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.14564	74.17343
182	Gujranwala Ceramics	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.11781	74.19639
183	Muneer Ceramics	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.119	74.19615
184	New Best Asia Ceramics	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.11939	74.19603
185	Yousuf And Sons	Kangniwala G.T Road	Gujranwala	0320-6092970	Ceramics Sanitary Wares	32.11969	74.19595
186	Shahid Sons	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.12163	74.19586
187	Karim Sanitary Ware	Kangniwala G.T Road	Gujranwala	0300-6402031	Ceramics Sanitary Wares	32.11635	74.19609
188	Usama Ceramics	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.12526	74.1918
189	Pervaiz Ceramics	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.12518	74.18944
190	Azmat Ceramics	Markaz E Sanat Road	Gujranwala	0306-8142928	Ceramics Sanitary Wares	32.12706	74.18635
191	Liaquat Ceramics	Kangniwala G.T Road	Gujranwala	0301-6823375	Ceramics Sanitary Wares	32.12695	74.19167
192	Faisal Sanitary	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.12932	74.19456

Sr.No.	Name	Address	District	Phone Number	Cluster	Coordinates	
						Latitudes	Longitudes
193	Hafeez Ceramics	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.12701	74.19405
194	Mian Ceramics	Sarfraz Colony G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.12554	74.18742
195	Tahir Enterprises	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.12696	74.19326
196	Alkhair	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.12695	74.19478
197	Ashraf Sanitary Unit 1	Jinnah Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.14713	74.17918
198	Ashraf Sanitary Unit 2	Jinnah Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.14725	74.17923
199	Grrromiay Sanitary Ceramics	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.110995	74.197334
200	Usman Ceramics	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32..111010	74.197457
201	Rehmat Ceramics	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.113993	74.197171
202	Anwar Ceramics	Kangniwala G.T Road	Gujranwala	Not Available	Ceramics Sanitary Wares	32.112458	74.196144