PUNJAB SMALL INDUSTRIES CORPORATION
GOVERNMENT OF PUNJAB

DIAGNOSTIC STUDY FOR FARM AGRICULTURE MACHINERY/IMPLEMENTS CLUSTER, DASKA

FINAL REPORT
2015-16

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Building a better working world

ACKNOWLEDGEMENTS

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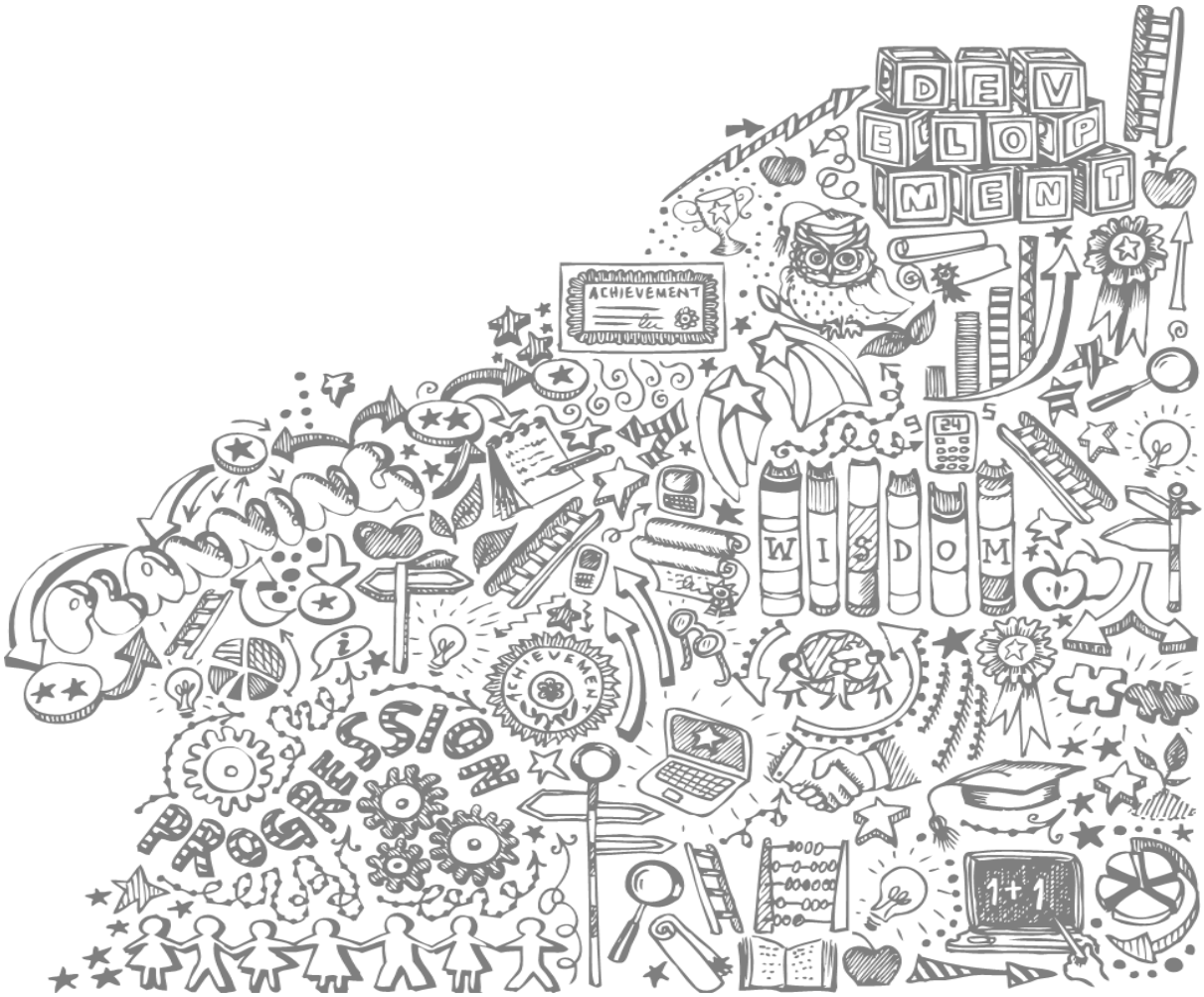

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ACRONYMS

AMRI	Agriculture Machinery Research Institute
BDSP	Business Development Services Providers
CDC	Cluster Development Center
CFC	Common Facility Center
EY	Ernst & Young Ford Rhodes Sidat Hyder
DEIA	Daska Engineering & Industrial Association
GDP	Gross Domestic Product
FMI	Farm Machinery Institute
HR	Human Resource
HSIDC	Haryana State Industrial Development Corporation
MOIP	Ministry of Industries & Production
PAMIMA	Pakistan Agriculture Machinery & Implements Manufacturing Association
PARC	Pakistan Agriculture Research Council
PCSIR	Pakistan Council of Scientific & Industrial Research
PITAC	Pakistan Industrial Technical Assistance Centre
PIDC	Punjab Industrial Development Corporation
PIM	Punjab Institute of Management
PSIC	Punjab Small Industries Cluster
PSQCA	Pakistan Standards & Quality Control Authority
R&D	Research & Development
QA	Quality Assurance
QC	Quality Control
SIE	Small Industries Estate
SME	Small & Medium Enterprise
SMEDA	Small & Medium Enterprise Development Authority
SOP	Standard Operating Procedures
SCCI	Sialkot Chamber of Commerce & Industry
SWOT	Strengths Weaknesses Opportunities & Threats
TDAP	Trade Development Authority of Pakistan
TUSDEC	Technology Up-gradation and Skill Development Company
TEVTA	Technical Education and Vocational Training Authority
UAF	University of Agriculture Faisalabad

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 July1973. 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 Farm Agriculture Machinery/Implements cluster in Daska.

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 40 industries as per then available list, the sample size of 22 has been selected. The association carried out 28 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. More than 3000 industries can be categorized in the above mentioned 12 clusters.

1.4. Daska Overview

Daska is a growing industrial city of Punjab Province in Pakistan. Daska is one of the four tehsils of District Sialkot. Sialkot is the 12th most populous District of Pakistan.

As per 1998 census, the total population of Daska is 102,883 which is currently estimated to be over 126,000

From industrial point of view, Daska is famous and had a special repute in producing the agricultural inputs with traditional techniques. It is working without any government support and catering the needs of domestic farmers and cultivators. Moreover, agriculture tools are also exported to South Africa, Afghanistan, Middle East, Sudan and Zimbabwe. These markets use old technology and techniques of farming hence, cluster in Daska can cater for their requirements.

According to available information there are 96 small and big agri-tools manufacturing units are functioning successfully in and close to Daska. 65 units are producing complete machinery while remaining 31 units are producing components of the agriculture machinery.

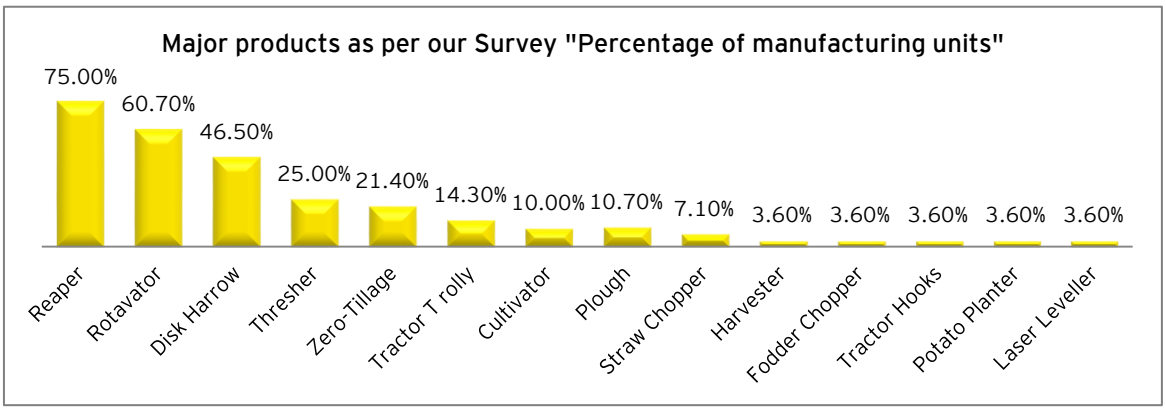
The industry is manufacturing fully automotive tools and catering the needs and requirements of farmers of Punjab easily. Machines including wheat reaper, wheat thrashers, multipurpose reaper machines and land laser levelers besides fodder cutters and wheat sowing machines are being manufactured in this area.

2. Cluster Profile

2.1. About Agriculture Implements in Daska

Daska is a hub and famous for manufacturing numerous types of agricultural tools with traditional technology, catering the demands and requirements of farmer community since long. The farm and agriculture implements industry in Daska is mostly situated on Circular Road. The major products are reapers, threshers, harvesters, cultivators, harrows, rotavator, fodder choppers, zero tillage seed drills, wheat straw chopper and rice stubble chopper, plough, hooks and land laser levelers. Whereas, Daska is famed for reapers, pioneer for wheat straw chopper and rice stubble chopper. The cluster is currently catering the local demands with only a limited range of products. However, agriculture tools and implements are also exported to South Africa, Afghanistan, Middle East, Sudan and Zimbabwe but these are limited due to financial and technological issues, also awareness about markets and exports channels available is limited.

Production of different types of agriculture implements in cluster are as follows:



In the process of geo-tagging of agriculture implements' industries, 65 agriculture implement industries excluding cottage industry had been identified. Out of these 65 units, around 61 units are operating on Circular Road and only 4 units are located near Fatima Hospital in Daska while currently no agriculture implement manufacturing unit is currently operating in Daska Industrial Estate.

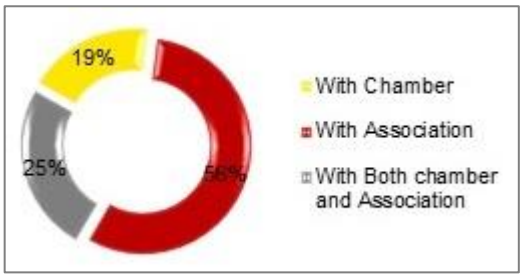
2.2. Supporting Agriculture Implement Institutes and Association

Following are the available institutes for support of the agriculture implement industries in Punjab:

- Center for Agriculture Research (Mian Channu)
- Farm Machinery Institute (Islamabad)
- Agriculture Machinery Research Institute (Multan)

For the support of agriculture implement cluster in Pakistan, following trade associations are functioning in Pakistan:

- Pakistan Agriculture Machinery & Implements Manufacturing Association (PAMIMA)
- Daska Engineering & Industrial Association (DEIA)



2.3. Annual Raw Material Requirement & Supply

Raw materials required for this cluster can be divided into three broad categories:

- Mild (structural) steel section, e.g. flats, bars, sheets, squares, pipes, plates, and round
- Casted products like bearing brackets, v-shape pulley, round circle weight, wheel hub, bush, bracket tikki, blades, harrow disc, cultivator shovel, cultivator tynes and springs etc.
- Other standard parts including bearings, gears, chains, paints, nut bolts etc.

The material used in manufacturing of agriculture implement is mostly local (90%) while only some parts like chains, blades, discs, bearings, are imported from importers which are mainly available in Lahore and Karachi.

2.4. Product Demand and Marketing

Currently, needs and requirements of Punjab for agriculture tools is mostly met by cluster whereas demand of other provinces for the same is also addressed by this industry. Survey results shows that 17.9% buyers for agriculture tools are from other provinces of Pakistan.

In this regard, survey results can be depicted below:

- 10.7% units sale their products within the district i.e., Sialkot
- 28.6% units sale their products within Punjab,
- While 39.3% units sell all over Pakistan while remaining were reluctant to disclose their sales market

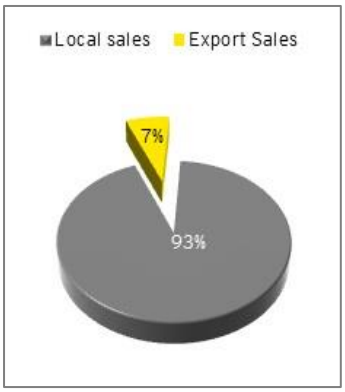
The small manufacturers produce implements only on confirmed orders, while the medium manufacturers produce few pieces of such implements in advance due to demand in crop season. Overall, production of agriculture implements depends upon the demand of the specific implement in the region.

Further, only large manufacturers have facility of informal network of dealers in various cities whereas SMEs has deprived of such facility. Based on the survey results, analysis of distribution channels is as under:

- 35.7% industries sell products directly from plant
- 42.9% industries sell products through distributors as well as directly from their plant
- 7.1% industries sell products directly from plant as well as through their own sales points
- 3.6% industries sell products through distributors only

The end consumer usually visits the manufacturer or dealers to buy the implements based on referrals due to non-availability of formal marketing mechanism for selling agriculture implement. However, agriculture implements are marketed through brochures, social media, website and newspapers. Survey results about percentage of usage of each mentioned marketing channel can be shown below:

- 30% marketing through brochures
- 3% marketing through social media
- 11.1% marketing using both brochures and social media
- 60% industries did not respond



Locally, the major markets for zero-tillage seed drills exist in Lahore, Pattoki, Okara, Multan and Khanewal while reapers, which are the famous product of this cluster, are largely sold on Chakwal and Rawalpindi side. These products being sold all over the Pakistan are made through distributors.

On the other hand, the export volume of agriculture implements is very low (7% of total sales) as can be depicted from the figure. Only few large manufacturers are targeting the export markets. Unavailability of direct distribution channels for accessing exports markets, high tariff of electricity, heavy taxes and non-availability of special financial support, not having economies of scale and facilities from government whereas in neighboring countries the governments are extending special concessions to facilitate their industrial sectors. Sometimes, customers also approach the manufacturer for export orders. Currently exports are being made to South Africa, Afghanistan, Middle East, Sudan and Zimbabwe.

2.5. Plant & Machinery

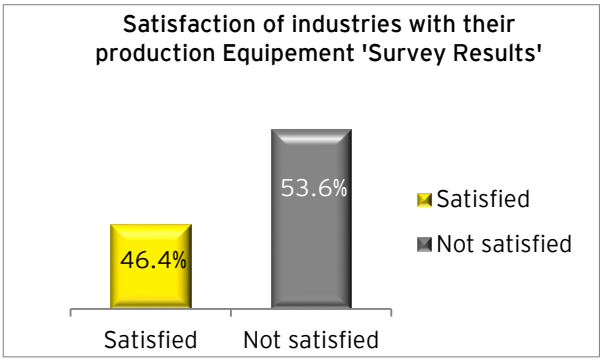
The technology and techniques employed by the cluster is traditional and old in totality. Further, mostly machinery used by cluster is fully depreciated. This results in increasing cost of production due to greater electricity consumption by outdated and fully depreciated machinery. Furher, survey results also shows that 54% industries were not satisfied with their machinery.

Cluster doesn't demand highly technical machinery nor require substantial amount of investment. Whereas only medium level of investment is required to upgrade technology in cluster. Most commonly used machines are:

- Shearing Machine
- Power Hacksaw
- Power Press
- Gas Cutter
- Lathe Milling Machine
- Shaper Machine
- Welding Machines
- Drilling Machine
- Grinding Machine

Some manufacturer outsources the customers' orders to other manufacturers in the industries due to limited production capacity of the existing machines.

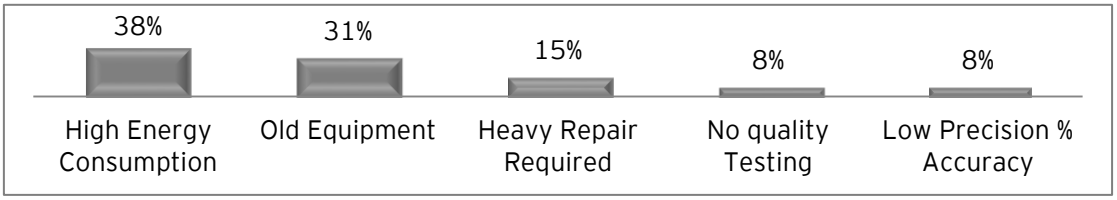
Machines required by cluster are available in the local market. Further, importers of parts also imports to meet the demand of manufacturers. It is pertinent to mention here that manufacturers in cluster prefer local machines over imported machines due to after sales services provided by the local suppliers whereas no such facility is available for imported machinery. In this regard, survey results shows:



- 89.3% of the industries procure equipment based on their in-house expertise, other use suppliers' advice and among these;
- 78.6% of the units use local machinery,
- 10.7% of the units use imported machinery while
- 10.7% of the units use both local and imported machinery.

It was identified in the survey that there is high energy consumption by the machines used in the manufacturing process due to age of the equipment. It also leads to requirement of heavy repair and maintenance. Further, there are no quality testing facilities and precision and accuracy of the machinery installed is not even close to the modern technology.

Responses of the industry regarding manufacturing equipment are presented in the table below:



2.6. Process Flow Chart

Raw Materials

Raw material for the industry includes different steel sections, casted products like bearing brackets, v-shape pulley, round circle weight, wheel hub, bush, bracket tikki, blades, discs, tynes, springs etc.

Cutting/Shearing

Shearing machines and Power Hacksaws are used for cutting the steel into different sections and lengths, e.g. flats, angles, channels, squares, pipes, plates, bars and rods.

Press Work

The process involves straightening, disassembling, pressing various materials using machines. Power Press are the most commonly used machinery in cluster for such purpose.

Turning/Drilling

Lathe, Milling and Drilling Machineries are used for cutting, turning and drilling of different sections of steel. The manufacturers are using old lathe machineries consuming a large amount of time of the workforce. The drilling machines used are also not calibrated, drilling holes on undesired areas.

Shaping

For desired shape and design of the implement, the material is processed through Shaper Machinery.

Grinding

For further refinement and removal of unwanted substances on material, grinding machines are used.

Welding

Minor parts like chains, blades, tynes, discs are brought together with the holders or the main body, and are assembled through Welding Plants. Most of the industries are using old welding plants which consume large units of electricity.

Checking

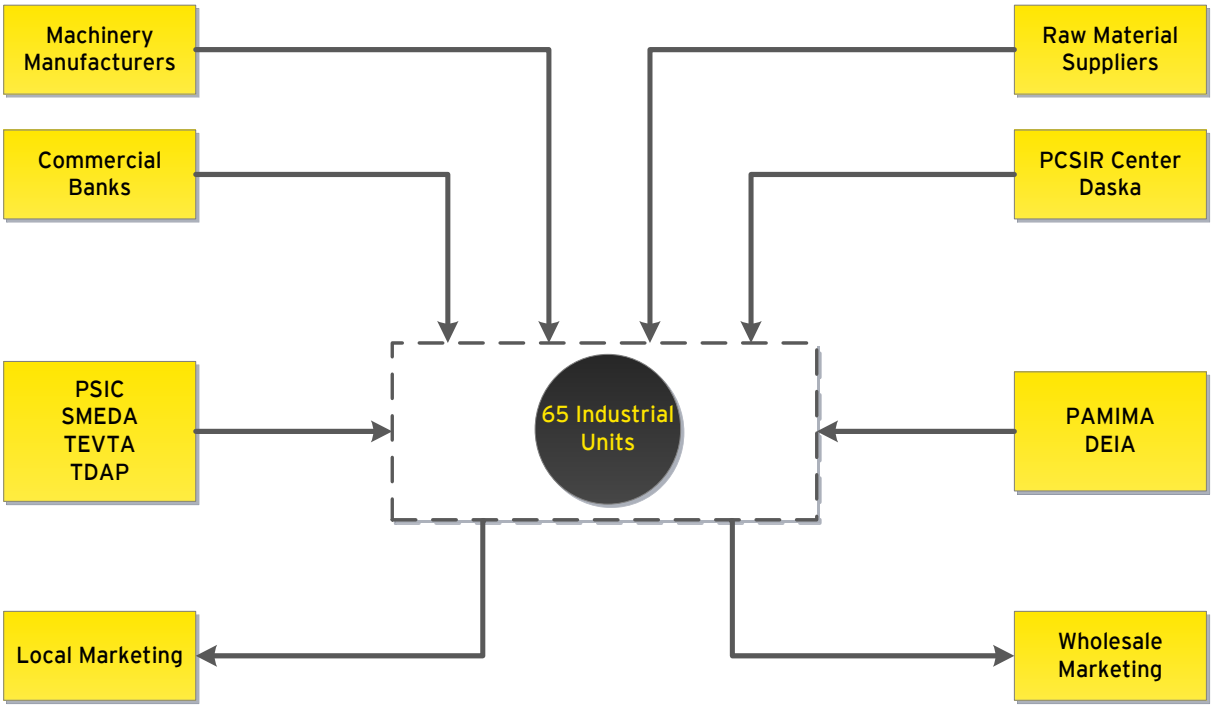
The product manufactured is now tested, the main testing performed is hardness and balance testing. The hardness of the product is determined through inaccurate digital meter.

Painting

The product is painted through local paint manufacturers. The painting techniques used are outdated and the customer often claims the product

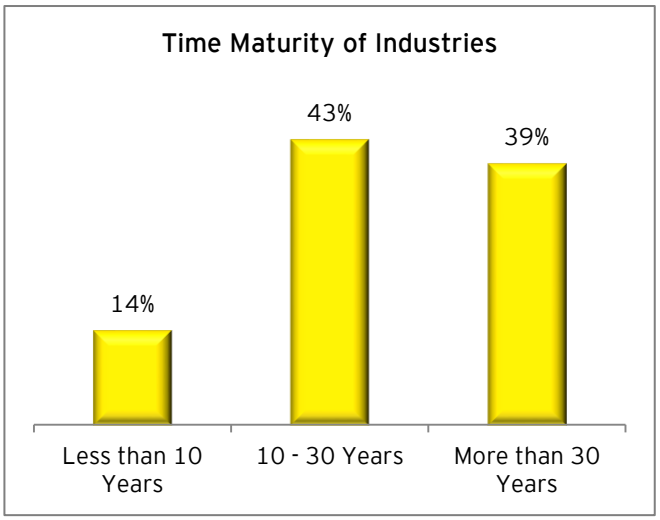
2.7. Core & Other Cluster Players

The core players include raw material suppliers, equipment suppliers, wholesale, dealers, retailers, Associations, Chamber of Commerce, Industries, SMEDA, TEVTA, PSIC, Commercial Banks and PCSIR Cast Metal and Foundry Center Daska.



a) **Manufacturers:**

Total number of production units in Daska is 65. All the 65 manufacturing units produce agriculture implements for the domestic market. Out of these 65 units, around 50 units are small units. Outsourcing is opted for manufacturing of products due to limited production capacity of outdated machines to meet the customers' orders.

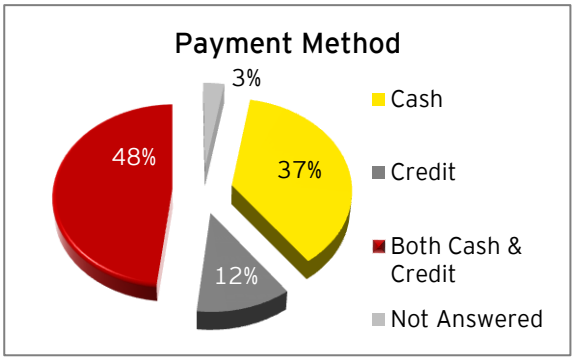


Based upon our survey results, there are 96.5% sole proprietor and 3.5% partnership concerns, working through their production facilities, which are 57 %, rented and 43% owned.

b) **Raw Material Suppliers:**

The raw materials required for the cluster include structural steel sections, standard products like bearings, chains, paints and casted products covering components of implements as well.

The suppliers of raw materials are available to the cluster. The raw material is mostly procured on 37% credit thus enhancing the bargaining power of the supplier persuading the buyers to accept whatever the quality of raw material is being provided.



More than 90% of the raw material is available and purchased locally, while only some standard parts like chains, blades, discs, bearings, are imported from importers available in Lahore and Karachi. The casted products are also available in the cluster but because of low quality, major manufacturers opt to procure casted products from Gujranwala due to bigger market and availability of better quality of casted products.

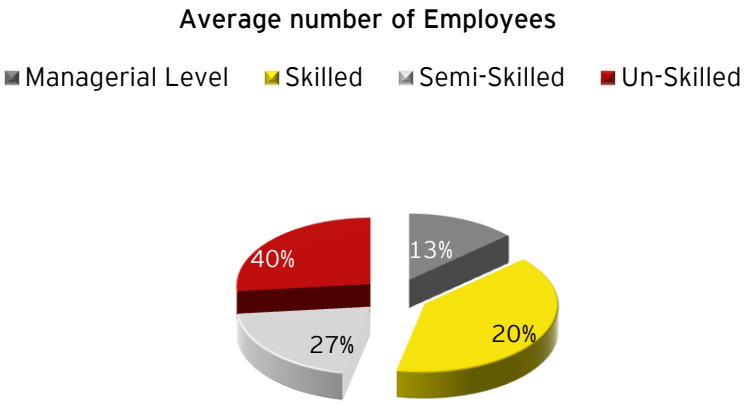
c) **Machinery Suppliers:**

Lathe millings, shaper, welding plant, gas cutter, power press, grinding and drilling machines is the main equipment involved in the manufacturing of implements. The supplies of these machines are available locally, only few imported machines are being used by major players purchased from local importers. The machines purchased from local importers include second-hand machines including scrap machines as well.

The suppliers of local machines also provide after sale services like technical consultancy and repairing. Therefore, manufacturer prefers to purchase local machines over imported one.

d) **Human Resource**

The average number of permanent and daily wages employees in the agriculture implement industries is 10 and 4 respectively. Further breakdown is provided in the chart below:



e) **Sialkot Chamber of Commerce and Industry (SCCI):**

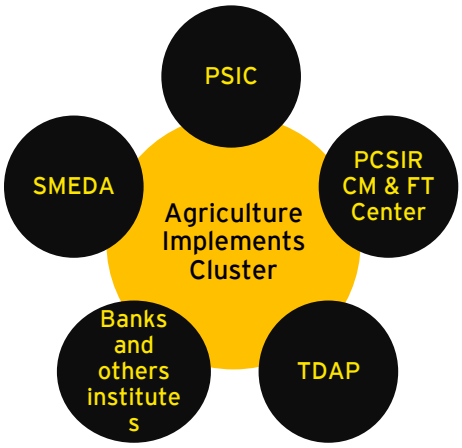
The Sialkot Chamber of Commerce and Industry, established in 1982, is the premier trade body representing the export oriented industry of Sialkot. Hardly four to five units are registered with this chamber. SCCI role includes provision of services as per following:

- 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 consider, support or oppose legislative or other government measures affecting the economic interest of businessmen and Industrialists,
- To consider, all questions connected with trade, industry and services and to initiate and / or support necessary action connected therewith,
- To collect and circulate statistics and other information relating to trade, industry and services,

2.8. 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 Pakistan 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 – PCSIR - Cast Metal & Foundry Technology Center, Daska**

PCSIR Center Daska, established under PSDP program, located in Small Industrial Estate has the following objectives for the industries all over the Pakistan.

- Utilizing raw material resources for the development of industrial processes,
- Providing R&D work on problems to broaden science & technology usage in the industry
- Human resource development through organized training sessions.

The center is currently offering three years diploma in Metal Casting & Foundry Technologies and also offering short courses in:

- CAD/CAM,
- Modern casting,
- Product designing and
- Mold/pattern development technology

Currently, the institute is not functional and technology installed in the institute is outdated and is not consistent with industry requirement and advance technology. The coordination between implement manufacturing industries and the center is minimum.

e) **Financial Institutions:**

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

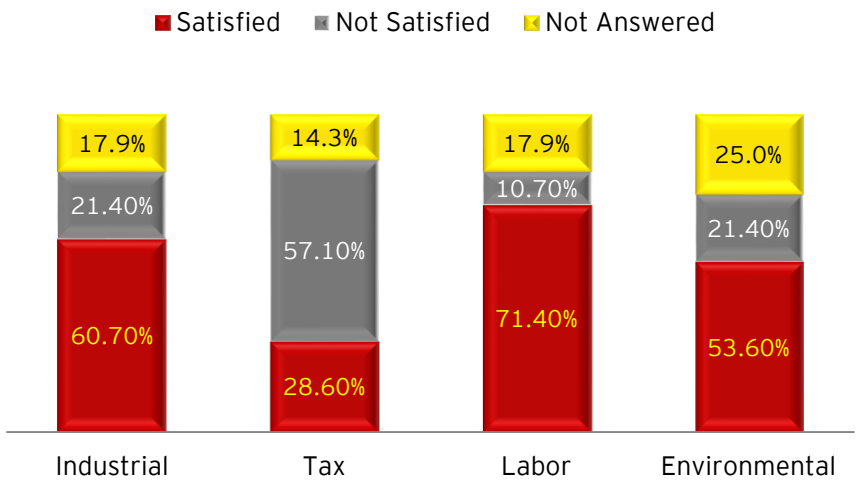
2.9. Other Feedbacks from Survey

a) Policies and Regulations

- 80% of the industries in agriculture implements' cluster were not satisfied with the support provided by Government or Semi-government organizations especially SMEDA, PSIC, and TDAP whereas only 8.6% industries were satisfied with the same. While 11.4% did not comment. The following suggestions/comments were provided for these three organizations:

Organization	Comments/Suggestions
SMEDA	Practically non-functional
	Should provide support to SMEs
	Conduct Seminars for awareness
PSIC	Should provide support to SMEs
	Not playing an active role
	Should provide training to industries related to latest technology
	Improve Small Industrial Estates (SIEs) including facilities and infrastructure
	Need to simplify procedures and provide quick results
TDAP	Does not provide support to SMEs

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

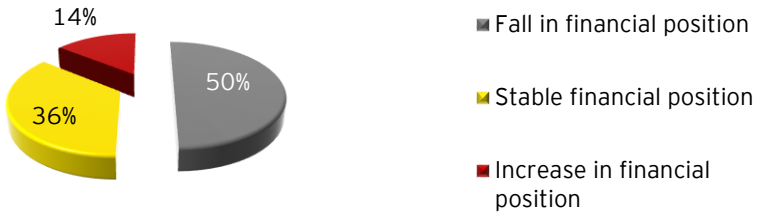


28.6% industries have highlighted their concerns pertaining to government policies and laws through chamber of commerce while 71.4% never highlighted their concerns. As per survey, 89.3% industries are not satisfied by the actions taken by the Chamber on the highlighted concerns.

b) Financial Position

- Based on the results of survey, it was noted that 50% of the participants experienced fall in their financial position while 36% of the participant's financial position remained stable whereas improvement in financial position has observed in 14% industries in cluster.

Changes in financial position of the agriculture implements industry in Daska over last three years are described below:



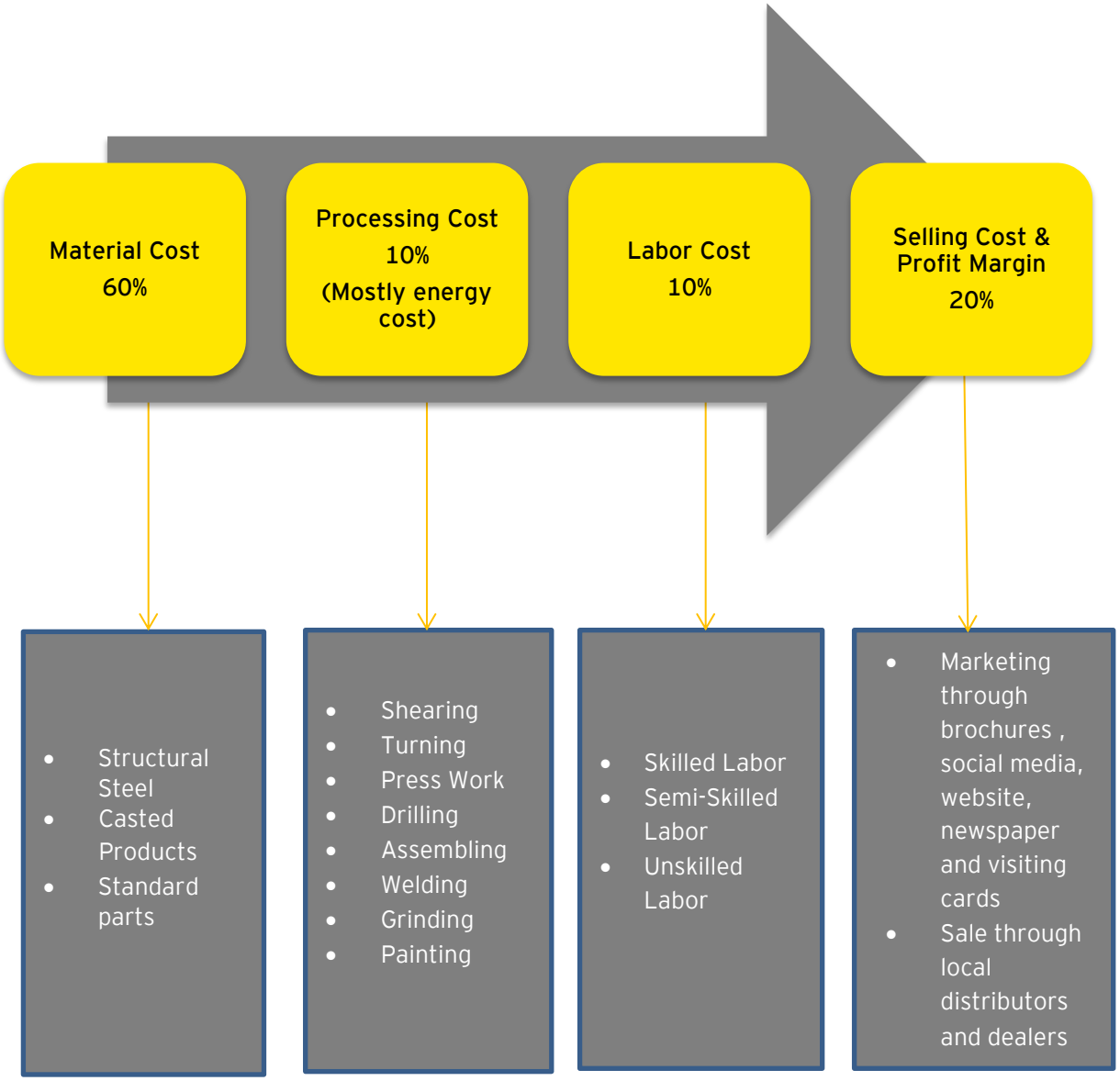
- Satisfaction level of the industry with their financial position.

Satisfaction Level	Percentage of industries
Satisfied	32%
Not satisfied	68%

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

Sr. No.	Suggestions	Frequency	%age
1	Govt. support in procurement of new machinery	8	12
2	Government should provide interest free loans	8	12
3	Electricity problem should be resolved, no unannounced load shedding, and lower tariff	7	10
4	Labor is not trained & ethical, should be trained	7	10
5	Standardized fixed rates for raw material and products	5	7
6	Trainings and delegation to international markets	5	7
7	Subsidies on raw material and imports of parts	5	7
8	Tax & duties need to be rationalized and there should be only one taxation authority	3	4
9	Govt. & Semi Govt. must participate to improve the cluster.	2	3
10	CD Center in Gujranwala need to be operational with technical staff	2	3
11	Tax free clusters or zones need to be established	2	3
12	Ban import of products which are manufactured in Pakistan	2	3
13	Quality testing labs should be established for raw material as well end product	2	3
14	Small land holding so provide land in SIEs at low rate or installments without interest	2	3
15	Agri related industry should be exempted from taxation	2	3
16	Rules & regulations for manufacturers must be established.	1	1
17	Socially security policies should be rectified and supportive	1	1
18	Compulsory internship for students at training centers	1	1
19	Quick loans (0.5 to 1 million) on association guarantee	1	1
20	Start trend of display centers for agri implements	1	1
	Total	67	100

3. Value Chain Diagnosis



3.1. Raw Material

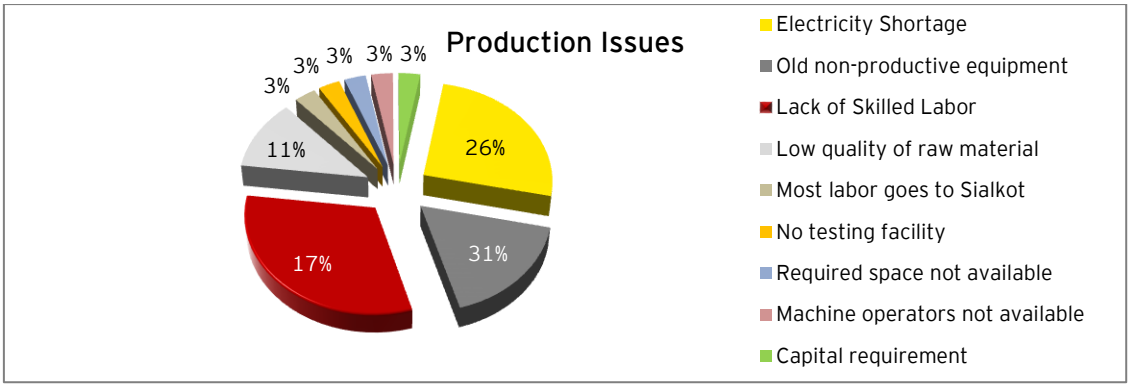
The value chain starts from the suppliers of major raw material providing steel (like metal bars, sheets and angles etc.) to standard parts and components' manufacturers. These components manufacturers serve as vendors for standard parts like bearings, chains, nut bolts, castings etc. to the implements manufacturing units. Steel is the major material used in the whole process while casting products constitute 40% of the total product. Subsequently, the finished part forwards to the assembling units for machining, fitting and painting purposes to yield the final product.

Most of the raw material required is available and purchased locally while only some standard parts like chains, blades, discs and bearings are imported from importers in Lahore and Karachi. The casted products are also available in the cluster but major manufacturers opt to

procure casted products from Gujranwala due to bigger market and availability of better quality of casted products there.

3.2. Processing

The manufacturing of implements does not involve any high-tech operations. Machining, Electric Welding, Fitting are the key operations involved in manufacturing of agriculture implement. These operations constitute more than 80% of the total production activities. However, some degree of specialization is required in the manufacturing of some components like harrows disc, cultivator tyne and springs/shovels. Majority of the manufacturers outsource these components to other vendors/suppliers.



The first step after procurement of raw materials from the vendors is cutting the steel into different sections/sheets using shearing machines and power hacksaws. After having desired size of the steel, the material is passed through various mechanical configurations or machining processes to meet the usage and purpose. The said operations involve operations like pressing, turning, shaping, drilling and grinding the material. Common machineries, used by cluster, are lathe miller, shaper, power press, grinding and drilling machines. Outdated techniques and technology is major hindrance to increase production capacity and also cause of increasing production cost due to greater consumption of electricity by outdated and fully depreciated machines.

The final step in processing of agriculture implement is assembling and fitting the parts with the aid of drilling and welding machines. After assembling, the products are inspected through balance checking, and hardness testing using digital meters. It is important to mention here that only few of the manufacturers of implements inspect the final product for quality and performance. After inspection, these are now ready for spray paint.

The major issues faced by industry in processing are energy crises, old non-productive equipment, lack of skilled labor, low quality raw material and non-availability of testing facility, proper place & capital requirement.

Now a days, the production is also being outsourced due to limited production capacity of existing outdated and low-tech machines, particularly when the manufacturer receives a bulk order from the market. Survey results shows that 82% industries in cluster outsource some production activities to CDC.

3.3. Labor

The industry of agriculture implement is labor intensive therefore requirement of skilled/semi-skilled workers exists in the cluster. However, manufacturing units in cluster are facing the severe problem of availability of skilled labor due to acute shortage of skilled workforce. Survey results shows that 78.6% industry face the same problem. Cluster is currently supported by only few number of semi-skilled and skilled labor. In this regard, survey results shows that 60.7% industries were not satisfied with the training provided by relevant institutions in cluster.

Moreover, The trained labor prefer to move to other cities and sectors due to tough working conditions involved in manufacturing of agri implements resulting in short supply of trained workforce.

Further, cost of production of agri implement increase due to wastage by unskilled labor. This also increases the rejection rates of final products.

3.4. Sales and Marketing

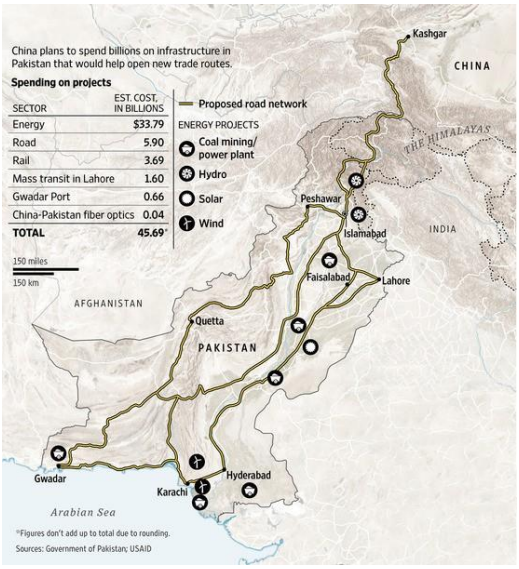
Currently, needs and requirements of Punjab for agriculture tools are mostly met by cluster whereas demand of other provinces for the same is also addressed by this cluster. Survey results shows that around 93% of the industrial units are supplying their products to local markets. The sales made to the end-consumers are generally made on cash basis.

For the publicity of the products, the manufacturers advertise mainly through brochures and visiting cards. Only the major players approach newspapers, websites and social media for products advertisements. Moreover, the large manufacturers also have informal dealer networks in other cities.

No manufacturer has its own structured marketing/sales departments. Due to these facts, the products are being sold by local distributors and dealers.

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

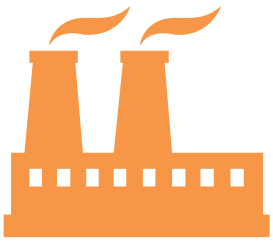
In persistence of CPEC, Pakistan and China signed an agreement to commence work on the estimated $45.6 billion agreement, highest foreign direct investment after 9/11. Out of $45.6 billion, $33.8 billion and $11.8 billion were embarked for energy and infrastructure sector respectively. It is also estimated 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.

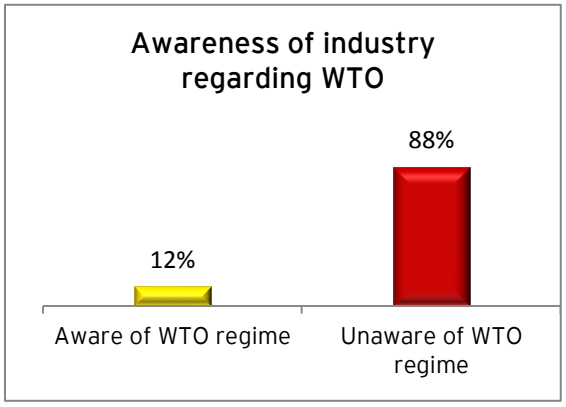
Thus CPEC is indeed a great 'game changer' which should complete its short term goals but for long-term trade goals, Pakistan shall really have to exploit opportunities from this corridor at full potential and also save interests of existing industries through their capacity building.

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 overseas 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 descried 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

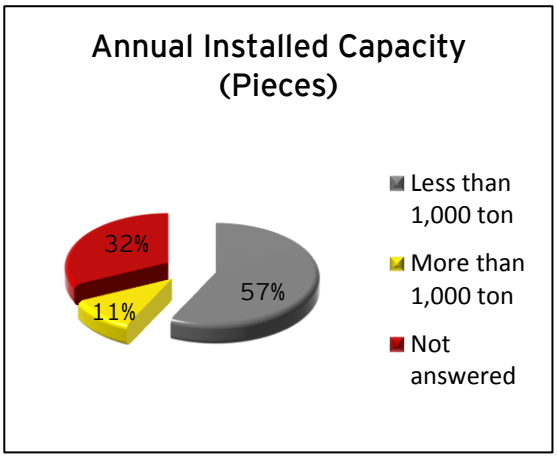
The issues and impediments have been identified through the analysis of secondary and primary data collected through the meetings with the stakeholders including Associations and industrial surveys in the cluster, and are provided in the subsequent section. Reader are encourage to go through all issues 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. Outdated Technology and Energy Inefficiencies:

a) Issue

The core issue in agriculture implements industry is the lower productivity and increased cost of production due to inadequate up-gradation of technology and outdated & primitive processes being followed. Through our survey, we observed that more than half of the industry participants are working below their installed capacity and are limited by the factor of outdated technology and energy shortages. On average, number of units produced by the units in a year can be seen from the chart. Around 32.1% industry was dissatisfied with their installed capacity.



Due to such limited production capacity, outsourcing operations to different units within the cluster is observed among 82% of the total units. Other results from the survey regarding satisfaction of existing technology used by industry participants are also given below:

- 53.6% of the industry participants are facing issues related to existing technology, 35.7% are satisfied with the use of existing technology, while 3.6% did not comment.
- 46.4% industry participants are satisfied with their plant and equipment, 53.6% are not satisfied usually because of the use of old plant and equipment, consequently these equipment provide inaccurate results. The remaining participants did not comment on this.

Major machineries involved in the operations include lathe milling machines, welding plants, power hacksaws, power press, grinding and drilling machines. Only few imported machines i.e. mostly second hand machinery are purchased from importers, the rest of the industries are using local outdated and scrap machinery which is hindering the production capacity. It is also important to mention here that the imported machineries are mostly second-hand machineries. However, manufacturers prefer to use local machinery due to after sale services provided by local suppliers. Around 78% of the industries use local machinery. Issues related to existing machinery used by the by the industry are hereunder:

- The alignment of most of the lather and drilling machineries is out by many millimeters, so one can verily expect the accuracy and standardization of the parts, being manufactured on these machines.

- Manual lathe machines and old DC welding plants are being used which are consuming more electricity resulting in energy inefficiencies and manufacturing of in competitive products.

Lesser productivity and reliability, increased wastages and more maintenance costs are some of the additional issues supported by the outdated technology and unawareness about energy conservations.

Furthermore, local agriculture implement industry cannot compete with international productivity due to usage of old/used machinery and weak production process flow management.

b) Recommendation

PSIC and TUSEDC should develop and implement a strategy to address issue of technology up gradation. It is pertinent to mention here that a lot of scope for technological up gradation exist in cluster, however there is need to create aware ness about the importance of the same among cluster enterprises by government institutions. Moreover, assessment study of existing technology in comparison with technology and techniques used by competitive countries (like America, Europe, China & India) and energy audit should be conducted by government institutions in assistance with implement industry in to identify improvement areas and it also provide aid in development of strategy. It is pertinent to mention here that America is highly innovative country and always strive to introduce new technology and products.

Following mentioned measured should be taken by industries in collaboration with government institutions present in cluster for improvement of processes and development of overall industry:

- Steps should be taken to upgrade fabrication process on immediate basis as it is the main operation performed by the implements manufacturing units.
- Obsolete arc/DC welding plants should be replaced with energy efficient DC welding plants. It is pertinent to mention here that replacement cost for proposed change is very low and capital cost can be recovered with only 700 hours usage through energy saving.
- Manual lathe machines need to be replaced with CNC machines which enable the manufacturers to cope up with the emerging challenges and needs of the global economy.
- Manufacture should develop policies and procedures to regularly check calibration and alignment errors in machines and remove the same on timely basis to reduce variation in production/assembling process.
- PCSIR should develop energy efficient and modernized energy efficient techniques for agriculture implement industry and provide assistance to industry to replace outdated techniques with new one.

To implement proposed changes in cluster, government role is very crucial. Therefore, some suggestions about government role are mentioned below:

- Latest machinery required by the industry (i.e. CNC machines and DC welding plants etc.) may be provided on the installment basis by the government or on cost-share basis by the government. or
- PSIC & TUSDEC can address technology challenges through theirs CDCs by providing CNC machining facilities to the industrial units on low rates.
- Government institutes like SMEDA and PISC may create awareness about latest technology among cluster enterprises.

Furthermore, trade delegations engaged through TDAP would also play an important role in observing the best practices around the world and implementing such practices and measures in Daska agricultural implement industry.

Other relevant suggestions from the entrepreneurs, revealed during our interaction, are described below:

Suggestions	Frequency
Govt. should support in procurement of new machinery	8
CDC Center need to operational with technical staff	2
Govt. & Semi-Govt. must participate to improve the cluster	2

6.2. Difficult Access to Financing Facilities

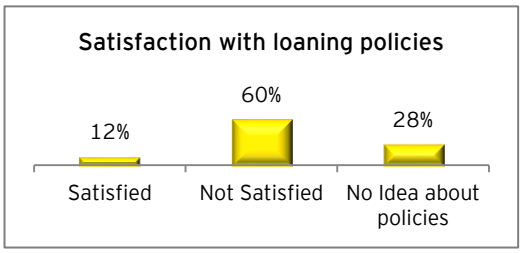
a) Issues

Access to capital is one of the key constraints for the growth and development of agricultural implement industry. Survey results regarding satisfaction with the financial position show that:

- 32.1% industries are satisfied
- 64.3% industries are not satisfied
- Others did not comment.

Further, decline trend was observed in financial position of agriculture implement industry while analyzing financial positions of firms for last few years due to different factors including usage of expensive imported raw material, adverse tax policies, non-availability of skilled labor, no research & development in industry, energy disruption and non-competitive prices of electricity. Survey results show that financial position of 50% industries has declined in past three years while financial position of 35.7% industries remains stable.

The industry has potential but is limited due to credit and loaning issues. Survey results shows that 67.9% of industries had been deprived of credit facility. Therefore, manufacturers have no sufficient capital to continue production during off season to have excess supply capacity during the peak seasons. During the survey, more than 28.6% industries stated that off season is December to February and July to August, while 21.4% reported off season from June to July.



Moreover, 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 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. Survey results show that 60.7% industries not taken loan. Further, results regarding awareness and satisfaction with loaning policies show that:

- 60% not satisfied with loaning policies

- 28% industries unaware from loaning policy
- Only 12% industries satisfied with loaning policy

b) Recommendations

The government should provide financial aids to the manufacturers. The industry has the potential needed, but is limited due to credit issues. Special financial schemes should be introduced by the Government through financial institutions to allow the manufacturers to obtain finance through subsidized interest rates with a very less amount of paperwork.

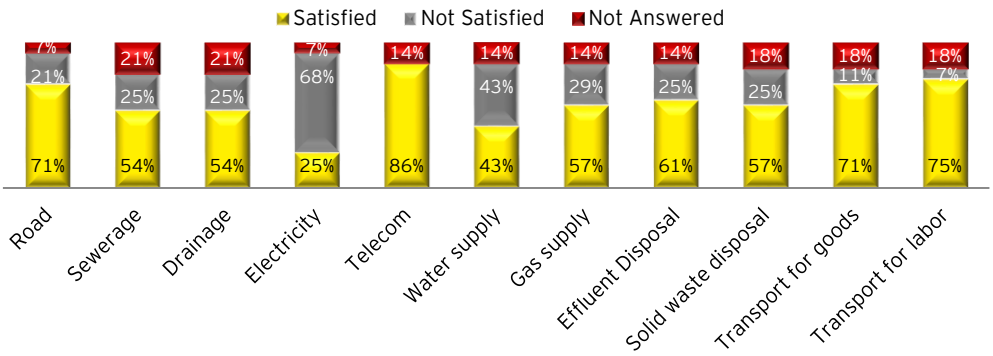
Among several institutions, PSIC offers loan to SMEs for their development and meeting the financial requirements of the industry. But the loan offered is of a very small amount which is not much entertained by the manufacturers as it is considered useless for even fulfilling their day to day activities. The amount of loan should be reconsidered by the management. The financial issues will resolve many other major impediments in its growth including outdated and low-tech machineries and other factors which contribute to the quality of the products manufactured.

It is proposed that the loaning procedures for the SMEs should be revisited and improved. In this regard, DEIA can play a role of bridge between industry participants and financial institutions to properly address the requirement of industry to financial institutions and to resolve conflicts, if any. 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.

6.3. Availability of Space for Production & Exhibitions:

a) Issue

Proper space with appropriate facilities is necessary for the production activities. Further, availability of space is indicated as one of the major issue for the SMEs. Without basic infrastructure and provision of facilities, cluster growth will remain stagnant. Survey results shows that cluster lacks of basic infrastructure facilities. The detailed results are as follows:



Manufacturers are bound to display their products on main road (i.e. Circular Road, Daska) due to non-availability of proper space for showrooms and warehouses. This may lead to legal consequences and fines as display of products on road side is clear violation of municipal rules. Around 71% industries highlighted during our survey that road facilities was a major infrastructural issue during our interaction with them.

To cater such problem of displaying products, no exhibitions or showrooms have been arranged by the relevant institutions nor TDAP have arranged any helpful visits for manufacturers to international markets for promoting the local agriculture implement industry.

Small Industrial Estate - Daska have sufficient land available for the industry participants of agriculture implement. However, industry participants discourage this available facility due to high rates and high interest rates on installment basis payment. This shows that the government departments are not willing to convince the manufacturers to shift towards SIE. In comparison with India, a government institute HSIDC provided additional land to manufacturers for the development of agriculture implement sector.

Moreover, environmental pollution in SIE, due to presence of large amount of furnaces, is also one of the causes to discourage the shifting from circular road to SIE.

b) Recommendation

PSIC should develop a plan to convince industry to shift their business units towards SIE by providing land on low rates or on easy installments with minimum markup rates, where they can avail basic infrastructural facilities.

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.
- Load shedding of electricity and gas to industry, should be scheduled and announced.
- Policies and procedures should be developed to reduce environmental pollution and to ensure strict compliance of the same.
- 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.

For addressing the exhibition problem, TDAP should be supervised and engaged responsibly in organizing trade fairs and exhibitions and also make arrangements to send delegations to other competitive and targeted countries to promote the Daska implements' cluster.

Other suggestion suggested by manufacturers during our visit to industry

Suggestions	Frequency
Providing land in SIEs at low rates or installments without interest	2
Start trend of display centers for Agriculture Implements	1

6.4. Issues pertaining to Raw Material

a) Issue

The suppliers of raw materials are available in Daska; however shortage of raw material arises only in peak season and therefore the same is purchased in black in that period. However, only some standard parts like chains, blades, discs, bearings, are imported from importers in Lahore and Karachi. The custom tariff imposed on bearings is 10%, levied under Customs Tariff Act which affects the cost of production.

As Steel and casted products (I.e. 40% of total product) are major raw material for agriculture implement, however industry participants face problems about available quality of steel sheets and casted products. Survey results show that about 50% industries dissatisfied with the availability and quality of raw material.

Varied quality of steel is available in market due to non-availability of any required grade and characteristics of steel. Further, quality of casted products also varies from implement to implement due to using of primitive sand based method of casting by casting units and unawareness about material properties like heating requirement.

Moreover, testing practice in cluster is also rare which leads to variation in quality of raw material. Now a days, only few manufacturers use digital meters for testing while competitive countries use metallurgy testing techniques. It is estimated that about 20-25% rejection rate prevails in industry despite of no proper testing facility. It is pertinent to mention here that institutes like PSCIR, TUSDEC, and PITAC have different metal/alloy testing facilities, however manufacturers don't prefer to use this facility due to cost competitiveness.

The use of low quality steel and casted products results in high rejection rate, loss of customer confidence, increased repair and maintenance and disposal cost. Due to stated reasons, manufacturers prefer to purchase material from Gujranwala due to availability of better quality there.

b) Recommendations

Raw material locally produced can be improved with the installation of new technology. Government should make policies to encourage the local raw material manufacturers to produce high quality steel sheets and casted products etc. Further, PCSIR (CM & FT Center) can play an important role by providing modern casting and foundry techniques to the casting units to improve the quality of the casted products.

Moreover, Government institution i.e. TDAP should arrange trade shows or send delegation to the international trade exhibitions where different materials for the agricultural implement manufacturing are available. This will results in cheap and quality supply of materials to the manufacturers.

Further, PCSIR, TUESDEC and PITAC should develop a plan to provide raw material testing facilities to ascertain the quality at low cost or on cost sharing basis. Also International donors can be contacted to set up modern testing facilities and to lessen the cost of testing facility and for procurement of the standards regime. As internationally, industry use Ultra-sound testing facilities for improving chemical and physical properties and corrosion resistance of product.

Conversely Government can setup a regulated material storage bank where local raw material and imports can be stored for the consistent supply to the industry at a consistent rate. This can be set up under the strict surveillance of the association.

Industrial standard Steel sheets are produced by Ayesha Steel Mills and International Steel Mill Karachi (ISL). These alternative suppliers should be considered by the local manufacturers in place of the local vendors.

Other suggestions from the manufacturers regarding raw material include:

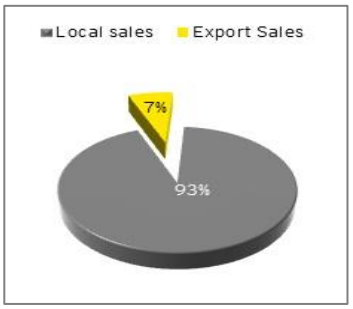
Issue	Frequency
Standardized fixed rates for raw material and products	5
Subsidies on raw material and imports of parts	5
Quality testing labs should be established for raw materials	2

6.5. Difficult Access to Markets

a) Issues

Currently, needs and requirements of Punjab for agriculture tools are mostly met by cluster whereas demand of other provinces for the same is also addressed by cluster. Survey results shows that around 93% of the industrial units are supplying their products to local markets.

None of the manufacturers have well defined marketing/sales department equipped with trained marketing/sales teams. Further, majority of the manufacturers lack awareness about international markets and current product trends of the global market. Currently agriculture products are mainly advertised through brochures, visiting cards. Only large manufacturers approach newspapers and social media to advertise their products.



36% of the industry sale their products directly to the retailers or clients. These retailers or the clients directly purchase from the factory. This identifies the lack of distribution channels which limits growth of industries through penetrating in other potential markets.

Further, no strategy was developed to access international market by any government or manufacturers. WTO is the global international organization whose primary purpose is to open trade for the benefit of all. The benefits of its membership include elimination of trade barriers like import tariffs and agreeing on international trade rules like anti-dumping, subsidies, product standards. Our competitive countries avail the membership of WTO and their respective industry is well aware of benefits of WTO, while about 90% industry in cluster is not aware about WTO regime. In this regard, survey results are hereunder:

- 10.7% of the industries are aware of WTO regime
- 32.1% stated that they require assistance in preparing for WTO

It shows that industry is currently unable to take advantage of international markets due to following reasons:

- No Linkage with the foreign market
- Financing issues to support the export related orders
- Lack of understanding of certification
- Lack of energy efficiency or star rating regime
- Lack of marketing channels for exports
- Lack of brand equity
- Energy crisis not letting the industry to calculate the delivery time in case of large export orders

Currently only 7% of the units are engaged in exporting their products due to such limitations.

b) Recommendations

Government should set up an export development fund. Further government should promote exports of agriculture implement by providing the manufacturers with the information regarding existing and potential export markets.

Further, 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 energy supply.

Moreover, Government of Pakistan should develop aggressive industrial policy to promote domestic manufacturing and export competitiveness at the expense of imports, as China and Brazil pose major challenges for U.S. exporters as a consequence of their aggressive industrial policies.

The industries also need to develop their production processes to comply with requirements of export markets. Moreover support from SCCI, DEIA, SMEDA and TDAP is also required in this aspect in:

- Creating awareness about export procedures through seminars and workshops,
- Creating awareness about certification and export standards by including ENERCON and other respective Government Departments and testing labs
- Creating awareness about loan policies and linkages with the major financial institutions
- Issuing certificate of origin for exports
- Invite foreign delegates and send industry delegations to foreign exhibitions
- Disseminating information regarding international trade fairs
- Explore additional market during off-season
- Organizing seminars about international trades and quality standards
- Make arrangement to create awareness about WTO among industry participants

Moreover, the manufacturers should also initiate steps to explore new marketing techniques and try to focus on specializing only few implements rather than targeting broad range of implements. Specialization should be based on the sales trend of different agriculture implements in local and international market, resulting in improved yield.

6.6. Cluster Development and Facilitation Center (CDFC)

a) Issues

PSIC had established a CDC in Daska to provide common service facilities for die making, machining, and testing facility for agriculture implements. Initially, the center was equipped with updated machinery, however it remained non-operational due to non-availability of technical staff capable to operate machines.

CDC is currently non-functional and machines have also become obsolete. Therefore, CDC is no more capable to provide any services to the cluster.

b) Recommendations

PSIC should take steps to make CDC operational and replace the obsolete machinery with latest technology. For the full utilization of CDCF, PSIC should provide following facilities along with proper technical and trained staff:

- Die and mold making
- CNC machining
- Metallurgy testing facilities for the materials
- Modern casting techniques

Further, SMEDA and PSIC can assist the industry to create a linkage between manufacturing units and CDC. In this way, agricultural implement manufacturing units can get better quality parts at competitive prices.

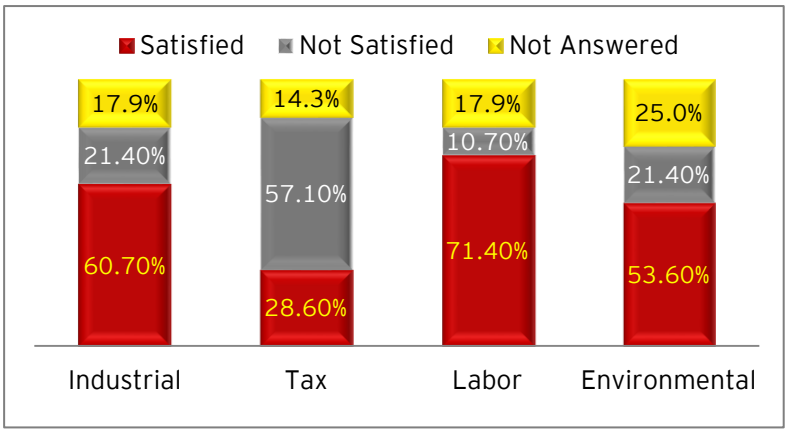
Moreover, a strong check on the performance of management and activities performed by the CDC is one of the pre requisite to improve its functionality.

6.7. Ineffective Government Support

a) Issues

As per survey, 75% of the industry is not satisfied with the role of Government and semi-government organizations especially PSIC, TDAP and SMEDA.

The level of satisfaction pertaining to government laws are provided below:



As seen in the chart, most of the industry is not satisfied with the laws. During the visits to the industry, it was also revealed that most of the entrepreneurs were unknown to the support, facilities and services provided by Government and Semi-Government established institutes due to illiteracy of entrepreneurs and lack of coordination with the institutes.

During our survey it was observed that 90% of the manufacturers have highlighted their uses with SCCI whereas only 10% of the industries were satisfied with the actions taken by SCCI. During our visit, manufacturers also stated that no meeting was conducted by SMEDA with industry participants to understand and resolve issues of

b) Recommendation

Government of Punjab and MOIP should observe strict compliance with missions and objectives of the institutions. Interactive session with the industry should be conducted to understand the concerns of the industry and further workshops and seminars should be conducted to guide the manufacturers regarding laws and regulations.

SCCI should conduct regular meetings with the manufacturers and should take concrete steps to resolve the issues highlighted by the industry. Further, PSIC may play an active role as a mediator between agricultural implement manufacturers and government departments. In short, institutions including SMEDA, TDAP and PSIC should serve as a

strategic engine for the region's development by arranging buyers and sellers, technicians and analysts meetings to develop the industry.

Other suggestions provided by manufacturers, during our visit to industry, are hereunder:

Organization	Comments/Suggestions
SMEDA	Should assist sector by conducting trainings & seminars
	Subsidize land cost
	Refresher courses for worker
PSIC	Establish Rules and Regulations for the manufacturers
	Provide support & training to industries
	Assist in procurement of machinery & raw material
	CDC should be operated by technical staff
TDAP	Exhibitions
	Delegations

6.8. Unprofessional Management & Inefficient Process Layouts

a) Issue

Mostly entrepreneur in agriculture implement Management is highly unaware of modern industrial engineering & manufacturing techniques & practices. This existing unprofessional management is a great impediment in overall growth and development of both the workforce as well as industry.

In our survey, we have observed that only 21.4% of the industries have developed organizational charts while the remaining are operating without any structured organizational chart. We have also noted that centralized management system is prevailing in industry due to which executive management is remained busy in micro issues which results in lack of attention over strategic and business development issues by executive management.

About 3.6% units in industry have production flow charts while other units are operating without any process flow which results in errors in production scheduling and inefficiency in managing production operations.

b) Recommendation

To enhance and improve the professional skills of entrepreneurs and to create awareness about international management methodologies, government institutes including PSIC and SMEDA should arrange trainings, professional management courses, workshops and seminar for entrepreneurs. This may lead to development of agriculture implement cluster in Daska.

It is therefore recommended that there should be decentralized organizational structure in the industry, with entrepreneur delegating operational responsibilities to other persons in the industry. This would enable the entrepreneur to focus on strategic levels rather than concentrating on minor issues of the industry.

6.9. Issues pertaining to Quality Standards

a) Issues

The basic concept of marketing is to address requirements and needs of users. The same concept is followed by cluster and involve in production of heavy weight agriculture implement to satisfy current needs of user as local users perceive that heavier the weight better will be the performance because of unawareness about quality standards and features of product. Further, the said products requires more material, energy, time and welding rods resulting in increased production cost and overdesigning of products.

Currently, no quality and design standards are followed by industry nor industry participants, other than major players, have any certification due to unawareness about pros and cons of quality and design standards. Further, industry doesn't have any formal QA & QC department equipped with technical staff. This results in varied products of same manufacturer with respect to design, product specifications material properties and functional performance.

ISO standards certification ensures the system of quality assurance and quality control. The ultimate purpose of certification is to assist the industry to achieve standardization in its production flows and operations. However, survey results shows that only 14.3% agriculture implement industry is ISO certified while others are not certified due to unawareness about available certifications.

Moreover, lack of quality & design standards and certification are major hindrance to access international market.

b) Recommendations

Government and industry should take steps to educate agriculture implement consumers about specifications and features of product. Awareness about products can be disbursed to audience through publishing special articles in agriculture related magazines, newspaper and other special campaigns.

Further, Government institutions including PSQCA and PCSIR should develop strategy to encourage industry to get ISO certification to achieve standardization in products which leads to avoidance of over designing and reduction in usage of steel, resulting in cost competitive products. Moreover, institutions should provide technical and financial support to industry to encounter prerequisite of certification and standardization of products.

Housekeeping standards like 5S Japanese Housekeeping Standards should be followed, which would significantly reduce the traceability period for tools, raw materials, semi-finished items and inspected items. By improving such process layouts, industry can minimize transportation cost and time which will enhance productivity and quality of products.

6.10. No Investments in R&D:

a) Issues

The industry has a massive scope for technology and innovation intervention. Further, it is pertinent to mention here that research & development has not only been limited on the engineering side but also on the design and product development. However, there is no research and development in the product development and design at present. Furthermore, agricultural implement industry is currently copying designs of the products from India and New Zealand.

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) Recommendations

CDFC must be equipped to cater for all these requirements of the industry as a one stop solution. PSIC needs to take this initiative for the robust growth of the cluster.

Government institute including Center for Agriculture Research (Mian Channu), Agriculture Machinery Research Institute (Multan), Farm Machinery Institute (Islamabad) and PCSIR Center Daska in collaboration with industry participants should invest in research and development to develop and strengthen innovative techniques and design instead of copycatting exercises. Industry should go for product diversification to capture national and international market by expanding their product range as products like silage machinery and maze planters have great potential in international market.

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
► Suppliers for raw materials are available in Daska. ► Labor intensive and not high-tech therefore requirement of semi-skilled workers exist. ► Medium investment required in machinery. ► Main components in manufacturing implements like tynes, springs and harrow disks are locally available. ► Persistent demand for the products. ► Less amount of technical knowledge required in the industry. ► Availability of Infrastructural facilities.	► Government should support innovation, investment in R&Ds as the industry has great potential to grow. ► The industry should adopt diversification in manufacturing products. Potential products of the industry are silage machinery, maze planter. The products have high demand in International Markets. ► Lot of scope for technology up-gradation by technological awareness. ► AMRI, PARC, and universities like UoAF can be potential partners to provide opportunities in design, technology and process improvement. ► Adequate level of marketing and promotion would able the manufacturers to promote their products at International level. ► The problem of off-season can be mitigated by adopting diversified range of products. ► Large export potential in Middle East, Africa and Central Asia.

Weaknesses	Threats
▶ Suppliers for casted products are available in the cluster but are of comparatively low quality. ▶ Lack of standardization in products and processes. ▶ Unavailability of skilled labor. ▶ Lack of coordination between government and semi-government institutes and the industries. ▶ Weak presence of BDSPs. ▶ Non-professional approach of management. ▶ The machineries used by the manufacturers are obsolete and production is outsourced due to limited capacity of the machineries. ▶ Entrepreneurs are not educated, proper accounts are not made for tracing the inventories. Also this hinders them in dealing with financial institutions. ▶ Centralized Organizational Structure, entrepreneur is involved in micro operations rather than focusing strategic planning. ▶ Incompetent end-user. ▶ Due to off-seasons, the labor employed is temporary. ▶ Lack of financial support and marketing awareness.	▶ Owing to the tough nature of the job, the labor prefers the job in other industries. ▶ No investment in R&Ds is leading the industry to manufacture ▶ Bargaining power of the suppliers of raw materials due to credit purchases. ▶ Unawareness about energy conservation and high utility costs resulting in increased cost of production. ▶ Sale is correlated to the sale of new tractors in the country. ▶ Metallurgy Testing Facilities are not available to the cluster compromising the quality of the products. ▶ Non-Availability of space resulting in production loss. ▶ No proper working environment provided to the workforce which could be a key factor in driving them away from the local industry. ▶ Cost effectiveness is essential along with modernization while innovation is required in every aspect of business operation. ▶ Domestic Instability. ▶ Uncertain Economic factors prevailing in market. ▶ Poor law and order situation.

8. Cluster Vision

"Introducing up-gradation in technology through process improvement and standardization with an eye on quality enhancement and value addition of the product."

8.1. Strategy

In the Agriculture Implements cluster at Daska there is an ample scope for strategic interventions in certain key areas as described here under:

Finance:

Due attention and financial aids should be provided by the Government to the SMEs. PSIC initiate the loan policies for the SMEs, but the said amount is highly insufficient for the manufacturers, therefore principal financial institution is required to be developed specifically for:

- Promotion;
- Financing;
- Development of small scale industries.

Following features are necessary to be incorporated in such institution as per the suggestions of the manufacturers:

- Less amount of paperwork should be involved
- Provide a satisfactory amount of loan,
- Quick processing and repayments on easy installments,

The institution should also spread awareness regarding procedures for loan, schemes introduced for SMEs, because of the literacy level of the entrepreneurs in the cluster.

Relocation to Small Industrial Estate:

The issues faced by the industrialist in relocating to SIE-Daska are high rates for plots and unpleasant installments processes. The PSIC should revise their plot allotment rates to such extent as may be affordable by the industrialists. Other recommendations regarding SIE-Daska include:

- Initiation action with PSIC-SIE for allotment of industrial plots to cluster member on subsidized rates,
- Easy installments for payment of plot,
- Providing basic infrastructural facilities like road, sewerage, emergency services, transport, electricity and gas etc.

Technological Up-gradation:

For such an intervention, a criteria can be developed by analyzing the production process and then evaluating the frequency, weightage and important various operations and then rank the respective machines and equipment for replacement/improvement. Pre requisites for this proposed change are:

- Detailed need assessment of machinery to be made in consultation with the individual unit,
- Workshop on needed technologies,
- Organizing exposure visit to developed cluster,
- Replacement of at least welding transformers in immediate time,
- Conduct energy audit and spread awareness about energy efficiency,
- Workshop/seminar to educate the enterprises about latest technology. (Chamber)

Up-gradation of skills of the workforce:

For the development of the skills of the workforce, vocational training institutes are essential. Currently CDC-Daska and PCSIR (CM & FT) Center are the only training and development institutes available in Daska. The institutes mentioned are not functional and are not providing services and trainings required for manufacturing implements. As per the suggestions from the industrialists, trainings on mechanical engineering including machining operations like lathe, welding, grinding, drilling should be initiated for the development of workforce.

Standardization & Design improvement:

The manufacturer should maintain standardization in design and performance parameters of each product. Over-designing of the implements should be avoided and would reduce usage of steel. Design Institutes should play a pivotal role in developing new designs of the products and to support the related industry. This ensures that the aesthetic appeal and quality performance of the product.
AMRI, PARC and Universities like UoAF can be potential partners to provide opportunities in design and process improvement. This can be managed at the association and government level with some actions like:

- Organizing 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,
- Introduction of new tools and dies, drawings instructions for the product to be manufactured,
- Development of BDS providers specialized in product design to ensure correct design of the assembled products.

It is also recommended that government may facilitate PSQCA and PCSIR to develop product and process standards to ensuring compliance by implement manufacturers.

Improvement in Quality of Products:

The products manufactured in the cluster need appropriate inspection and quality control system at every stage of production. The system of quality plan and testing can be developed so that the products are produced as per desired technical specifications. Introduction of metallurgy testing (ultrasonic testing) will help improve quality and efficiency of the final product. In depth intervention is required for awareness regarding

- Quality Standardization.
- Providing technical assistance to the units, so they can attain ISO-9000 in six-eight months.
- Promoting the importance of maintaining product quality for survival in the long run against competition.
- Awareness of testing in terms of chemical composition, hardness, finishing, geometrical dimensions through training/workshops.
- Development of inspection & test plan at all stages of production.
- Initiating action for establishing Metallurgy Testing Laboratory.

Product Range:

The manufacturers are currently copying the products through specifications mentioned of the product from countries like China and India that are not being manufactured in the cluster. Variety of silage machineries, maize planters, and many other similar products need to be introduced in the current cluster product range. The products mentioned have prospective future demand in the industry internationally. For this purpose following initiatives are recommended:

- Product development with the help and support for investment in research and development.

- Linking research institutes and universities with the industries.
- 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:

- Website development
- Public awareness campaign to sensitize the buyers about the quality parameters of agriculture implements
- Marketing through fair price shops and private stores, fairs, exhibitions and well-organized buyer seller meets would add to the marketing.
- Development of local and export sale linkages.
- Workshop(s) on export procedures & documentation.

Other activities/program 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.

8.2. Action Plan

Action Plan							
Category	**Sr. No.**	**Proposed Activities**	**Objectives of Proposed Activities**	**Expected Outcomes**	**Beneficiary**	**Implementers**	**Timelines (Completion Date)**
Financing support	1	Detailed need assessment of current financial needs of the industry	Special schemes for the development can be introduced	Financial needs can be addressed	Cluster Enterprises	▪ PSIC ▪ Chamber/Association ▪ SMEDA ▪ TDAP ▪ Financial Institutions	Within 1 year
	2	Introducing special schemes based on requirements assessed through study and achieving exports targets	- Financing for better technology resulting in increased productivity/quality. - Increased awareness among entrepreneurs	Development of the cluster	Cluster Enterprises		Within 1 year
	3	Creating awareness about policies and procedures for loan			Cluster Enterprises		Within 1 year
Technology Up gradation	1	Study of present manufacturing process & identifying scope for improvement	- Improvement in manufacturing process - Identification of best fit technology - Standardization	Technology improvement	Cluster enterprises	▪ PSIC ▪ Chamber/ Association ▪ Cluster ▪ SMEDA ▪ PITAC ▪ Energy audit institutions like (Cleaner Production Institute (CPI) or National Productivity Organization (NPO) ▪ Engineering	Replacement of old machinery(other than welding plants) till 2020
	2	Evaluating the weightage of various operations and ranking respective machines for replacement on cost-share basis	Up-gradation and improvement in machines/equipment	Energy efficient machineries /increased productivity	Cluster enterprises		

Action Plan							
Category	**Sr. No.**	**Proposed Activities**	**Objectives of Proposed Activities**	**Expected Outcomes**	**Beneficiary**	**Implementers**	**Timelines (Completion Date)**
	3	Replacement of at-least welding plants in first go	Improvement in machining operations	Productivity as well as quality of the material will be increased	Cluster enterprises	Development Board (EDB)	Within 1 year
	4	Conduct energy audit & spread awareness on energy conservation	- Reduction of fuel cost - Energy Savings - Power generation potential	Fuel economy/ payback period due to energy efficiency measures	Cluster enterprises		Within 1 year
	5	Workshops/seminars about latest and needed technology	Awareness about modern technology & techniques	Usage of modern techniques & tools rather than primitive processes.	Cluster enterprises		Within 1 year
Capacity Building	1	Exposure Visit to Developed Cluster	- Trust building - Better understanding	Awareness on better technologies	Cluster Enterprises	▪ PSIC ▪ TUSDEC ▪ PITAC ▪ TEVTA ▪ TDAP ▪ PCSIR ▪ Capacity building experts	Within 1 year
	2	Detailed assessment of training needs to the cluster	To increase the skill level of the workforce to meet changing requirements of the industry	Enhanced capability of the cluster players and improved problem solving mechanism	Cluster Enterprises		Within 1 year
	3	Initiation of trainings on machining operations in available PCSIR center		Networking with related parties	Cluster Enterprises		Within 1 year

Action Plan							
Category	**Sr. No.**	**Proposed Activities**	**Objectives of Proposed Activities**	**Expected Outcomes**	**Beneficiary**	**Implementers**	**Timelines (Completion Date)**
	4	Formation of Govt. Technical Training Institute	Capacity building	Skilled workforce would be available	Cluster Enterprises	▪ Consultants ▪ Financial Institutions ▪ Chamber/ Association	Within 2 years
	5	Appointing full-time trainer to provide on-job training and guidance	Training for trades such as welding, machining, fabrication	Enhancement of skills without production loss	Cluster Enterprises		Within 1 year
Standardization and design improvement	1	Meetings with the stakeholders to assess the product design requirement	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	▪ PSIC ▪ PCSIR ▪ PSQCA ▪ Chamber/ Association ▪ Cluster ▪ TEVTA ▪ SMEDA ▪ PITAC ▪ AMRI ▪ FMI	Within 1 year
	2	Workshop with supporting Institutes (Product Design)	Information on new design	Awareness on better design	Cluster Enterprises		Within 1 year
	3	Development of BDS providers	Ensuring correct design of the assembled products	Standardized product design	Cluster Enterprises		Within 1 year
	4	Designing efficient work and process layouts	Standardization of processes and product designs	Increased productivity	Cluster Enterprises		Within 1 year

Action Plan							
Category	**Sr. No.**	**Proposed Activities**	**Objectives of Proposed Activities**	**Expected Outcomes**	**Beneficiary**	**Implementers**	**Timelines (Completion Date)**
Quality Products	1	Awareness on the quality standards and maintenance for survival in the long term	- Quality standardization - Awareness of the ISO 9000 QMS - Trainings of the workers on quality issues	Awareness in the industry on quality standards	Cluster enterprises	▪ PSIC ▪ SMEDA ▪ PSQCA ▪ PCSIR ▪ Chamber/ Association ▪ Cluster ▪ PITAC ▪ PIM ▪ PIDC	Within 1 year
	2	Establish testing laboratories. (Metallurgy Testing)	To provide raw material and finished goods testing facility	Quality in raw material inputs and final product production	Cluster and other industries		Within 2 years
	3	Development of inspection and test plan	Quality of product is ensured at all stages of production	Increased quality, less rework/rejection costs	Cluster enterprises		Within 1 year
Product Range	1	Awareness program/seminar/workshops	Diversification in the product range/Introduction of new products	Awareness of diversification and potential for growth and sustainability	Cluster Enterprises	▪ PSIC ▪ Chamber/ Association ▪ Cluster ▪ UAF ▪ SMEDA ▪ TEVTA ▪ Expert for product development	Within 2 years
	2	Incentives for supporting R&Ds	Development in products/usage of alternative materials	Awareness about quality in production operations	Cluster Enterprises		Within 2 years

Action Plan							
Category	**Sr. No.**	**Proposed Activities**	**Objectives of Proposed Activities**	**Expected Outcomes**	**Beneficiary**	**Implementers**	**Timelines (Completion Date)**
Marketing	1	Establishing direct linkages between manufacturers and Pakistan Exporters or even directly with importers of Implements.	Increase in export volume/persistent demand for the product	Increased exports/increased quality of product and process	Cluster Enterprises		Within 2 years
	2	Appointing selling agent for untapped export markets	Exploration of new international markets	Export market information	Cluster Enterprises		Within 5 years
	3	Awareness program on marketing through internet	- Strategic Activity - Market awareness	Export inquiries	Cluster Enterprises		Within 3 years
	4	Forming sub-committee in association for market exploration	- Identifying markets for existing products	Extended market for products	Cluster Enterprises		Within 1 year
	5	Regular participation in National and International exhibitions	- Promote local products - Knowledge regarding latest development	Increased number of sales	Cluster Enterprises		Within 1 year
Common Facilities Centre (CFC)	1	Identification of parts that can be manufactured at CDC	Ensuring functionality of CDC	Feasibility	- Cluster - Association	PSIC	Within 1 year

Action Plan							
Category	**Sr. No.**	**Proposed Activities**	**Objectives of Proposed Activities**	**Expected Outcomes**	**Beneficiary**	**Implementers**	**Timelines (Completion Date)**
	2	Supervision of CFC & appointing competent staff for operational activities	Ensuring functionality of CFC	Problem solving mechanism	- Cluster - Association	PSIC	Within 2 years

9. Geo tagging Details of Agriculture Implements Cluster in Daska

Sr.	Name	Address	Phone Number	Products	Latitudes	Longitudes
1	Moon Agro	Circular Road	033382635634 - 03446114314	Agriculture Implements	32.328317	74.344594
2	Pakistan Agro	Circular Road	0526616786 - 03028716786	Agriculture Implements	32.328408	74.344676
3	Aimen sadaq Agro Engg	Circular Road		Agriculture Implements	32.329482	74.344813
4	Hamdard Agro Engg	Circular Road	9252-6611535	Agriculture Implements	32.329531	74.344829
5	Forward Agro Engg	Circular Road	9252-6610534	Agriculture Implements	32.329726	74.344990
6	Mughal Diamond Agro	Circular Road	526615729	Agriculture Implements	32.330071	74.345013
7	Gola Agro Engg	Circular Road		Agriculture Implements	32.330071	74.345013
8	King agro center	Circular Road	3000881083	Agriculture Implements	32.330081	74.344885
9	Mughal starzi industry	Circular Road	3006412699	Agriculture Implements	32.330672	74.345078
10	Mughal taimor industry	Circular Road	3006466850	Agriculture	32.330826	74.345133

Sr.	Name	Address	Phone Number	Products	Latitudes	Longitudes
				Implements		
11	Punjab agro industry	Circular Road	3348175519	Agriculture Implements	32.330826	74.345133
12	Newmillat agro engg	Circular Road	03006100115 - 0526612215	Agriculture Implements	32.330875	74.345132
13	Iman sijad agro engg	Circular Road	3006431145	Agriculture Implements	32.330944	74.345677
14	Fahad agro engg	Circular Road	3026698218	Agriculture Implements	32.330880	74.346040
15	Mughal batala engg	Circular Road	3009619118	Agriculture Implements	32.330174	74.345368
16	Shehzad Mughal argo engg	Circular Road	03006100442 - 0526610463	Agriculture Implements	32.331181	74.345164
17	Super mughal farm machine	Circular Road	3016433879	Agriculture Implements	32.331208	74.345169
18	New mughal farm machine	Circular Road	052600099 - 03009646457	Agriculture Implements	32.331272	74.345228
19	Abdullah Mughal agro engg	Circular Road	3007176328	Agriculture Implements	32.331272	74.345228
20	New golden agro engg	Circular Road	03136686057 -	Agriculture	32.331272	74.345228

Sr.	Name	Address	Phone Number	Products	Latitudes	Longitudes
			03016161099	Implements		
21	Super engg worker/ super united agro	Circular Road	03013180073 - 03128230864	Agriculture Implements	32.331412	74.345233
22	United comander agro engg	Circular Road	03006471171 - 03009648172	Agriculture Implements	32.331412	74.345233
23	Mughal agro center	Circular Road	03126568914 - 03466568914	Agriculture Implements	32.332045	74.345191
24	Afzal agro center	Circular Road	526614759	Agriculture Implements	32.332072	74.345099
25	Saba za agro and hardware store	Circular Road	3217129015	Agriculture Implements	32.332147	74.345207
26	New park china engg	Circular Road	3008742376	Agriculture Implements	32.332474	74.345410
27	Hafiz awami agro	Circular Road	3007448390	Agriculture Implements	32.335269	74.345577
28	Super awami agro engg	Circular Road	52610309	Agriculture Implements	32.335280	74.345915
29	Saeed brother agro engg	Circular Road	526614265	Agriculture Implements	32.335542	74.345984
30	Special agro engg	Circular Road	300495576	Agriculture	32.335537	74.345984

Sr.	Name	Address	Phone Number	Products	Latitudes	Longitudes
				Implements		
31	Amaar ameen agro engg	Circular Road	300643629	Agriculture Implements	32.335939	74.345974
32	Super shezad agro engg	Circular Road		Agriculture Implements	32.338471	74.347626
33	Green land engineers	Civil chowk, Circular road	526612864	Agriculture Implements	32.332506	74.347514
34	Mughal irfan agro engg	Civil chowk, Circular road	3007475933	Agriculture Implements	32.332459	74.34528
35	Mughal decent zarari industry	Civil chowk, Circular road	3008642379	Agriculture Implements	32.332320	74.345261
36	Mughal iuran industries	Civil chowk, Circular road	0526915049 - 03006111285	Agriculture Implements	32.332177	74.345238
37	Mughal sadiqui agro engg	Civil chowk, Circular road	03006100118 - 03227890006	Agriculture Implements	32.332177	74.345238
38	Green land zarari agr	Civil chowk, Circular road	9252-6611164	Agriculture Implements	32.332177	74.345238
39	Mughal shabbir industry	Civil chowk, Circular road	0526611439 - 03009643229	Agriculture Implements	32.332037	74.345061
40	A saddal mechanical	Civil chowk, Circular road	0526610521 -	Agriculture	32.331991	74.344884

Sr.	Name	Address	Phone Number	Products	Latitudes	Longitudes
			03006476811	Implements		
41	Nasir brothers agro	Civil chowk, Circular road	3006434716	Agriculture Implements	32.332506	74.347514
42	Pak farm industry	Civil chowk, Circular road	3006444302	Agriculture Implements	32.331460	74.344875
43	Aziz agro engg	Near Fatima Hospital	3004403304	Agriculture Implements	32.333283	74.348405
44	Prime agro engg	Near Fatima Hospital	3016410813	Agriculture Implements	32.333283	74.348108
45	Super king land engg	Near Fatima Hospital	3334339822	Agriculture Implements	32.335866	74.345878
46	Subi agro engg	Circular Road	3008616058	Agriculture Implements	32.337065	74.346498
47	Bhola trolly maker	Near Fatima Hospital	526614134	Agriculture Implements	32.336279	74.345643
48	Sattar & Brothers	Circular Road	3006118743	Agriculture Implements	32.328636	74.344426
49	Malhi agro engg	Circular Road	3006447674	Agriculture Implements	32.328775	74.344436
50	A.R Mughal brothers	Circular Road	3036611598	Agriculture	32.330847	74.344765

Sr.	Name	Address	Phone Number	Products	Latitudes	Longitudes
				Implements		
51	Khaliq engg	Circular Road	3006104808	Agriculture Implements	32.330861	74.344958
52	Shadab industry	Circular Road	3008710455	Agriculture Implements	32.330113	74.344626
53	Ali agro engg	Circular Road	3446486324	Agriculture Implements	32.330433	74.344787
54	Afzal agro engg	Circular Road	3344419753	Agriculture Implements	32.330861	74.344953
55	Mughal shahi agro center	Circular Road	3006107299	Agriculture Implements	32.330822	74.345111
56	Bismillah agro engg	Circular Road	526611423	Agriculture Implements	32.330873	74.344853
57	Bright agro engg	Circular Road	3026420417	Agriculture Implements	32.330656	74.344102
58	royal agro engg	Circular Road	526612735	Agriculture Implements	32.330263	74.343820
59	Farooq agro engg	Circular Road	3007794866	Agriculture Implements	33.330298	74.343613
60	Hassan agro	Circular Road	3316165234	Agriculture	32.330161	74.345042

Sr.	Name	Address	Phone Number	Products	Latitudes	Longitudes
				Implements		
61	Milat agro engg company	Circular Road	3009648293	Agriculture Implements	32.330873	74.344852
62	New punjab agro engg company	Circular Road	3006408218	Agriculture Implements	32.330707	74.345126
63	Mughal ittefaq agro engg	Circular Road	526613296	Agriculture Implements	32.330788	74.345047
64	Super fine mughal agro engg	Circular Road	3018144464	Agriculture Implements	32.330511	74.344960
65	Altus agro engg	Circular Road	052 6610716	Agriculture Implements	32.331564	74.345171