



Hand Tools-Mechanical

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Hand Tools - Mechanical

Nomenclature of the product - **Hand Tools -Mechanical**

1. HSN code of the product – 8.205

2. NIC code of the product – 25.933

3. Clusters already existing on the product if any

Hand tools are predominately produced in the small-scale sector in India. Some of the already existing Hand Tool clusters in India have been mentioned below¹:

S. No.	Name of Cluster	State
1.	Mumbai Hand Tool Cluster	Maharashtra
2.	Nagpur Hand Tool Cluster	Maharashtra
3.	Jalandhar Hand Tool Cluster	Punjab
4.	Ludhiana Hand Tool Cluster	Punjab
5.	Nagaur Hand Tool Cluster	Rajasthan
6.	Purulia Hand Tool Cluster	West Bengal

4. Possibility to create establish clusters on the product

Hand tools are the most omnipresent and indispensable instruments used almost every day in major industrial sectors like construction, automobile, aerospace, electronics etc. The manufacturing of hand tools involves forging operation and heat treatment operations primarily. Hence, major clusters having forging and heat treatment units can further be developed for manufacturing of hand tools in India.

5. Probable areas or districts where the products product manufacturing or project can be established

Some of the already existing industrial clusters in India having forging and heat treatment facilities are:

S. No.	Name of Cluster	State
1.	Pune Forging Cluster	Maharashtra
2.	Chennai Forging Cluster	Tamilnadu
3.	Rajkot Forging Cluster	Gujarat
4.	Faridabad Forging Cluster	Haryana

¹ <http://www.laghu-udyog.gov.in/clusters/clus/smelist.htm>

S. No.	Name of Cluster	State
5.	Coimbatore Forging Cluster	Tamilnadu
6.	Gadchiroli Forging Cluster	Maharashtra
7.	Ahmedabad Forging Cluster	Gujarat

6. Number of industries registered as MSME is available in the manufacturing of the product

Since there is no official database having details of number of hand tool MSMEs in the country, total number has been estimated basis the discussion with various stakeholders:

S. No.	Name of Cluster	State	No. of units
1.	Jalandhar Hand Tool Cluster	Punjab	1,200
2.	Ludhiana Hand Tool Cluster	Punjab	800
3.	Patiala Hand Tool Cluster	Punjab	400
4.	Other Hand Tool Units in Punjab		1,000
Total Hand Tool Units in Punjab			3,400

As per the information received from Jalandhar Hand Tools Manufacturers Association, nearly 40% of the hand tool manufacturing is carried out in Punjab alone in India.

Basis this information and calculation, total MSMEs in India are estimated at around 8,500 units in hand tool manufacturing.

7. Number of industries available in large scale industries

Some of the large industries involved in the hand tool manufacturing have been mentioned below:

Taparia Tools	Taparia Hand Tool Kits
Jainson Crimping Tools	Bosch Hand Tool Kits
Stanley Hand Tool	Taparia Spanner
JK Hand Files & Planers	Stanley Screwdriver & Screwdriver Set
Bosch Screwdriver & Screwdriver Set	Dowells Crimping Tool
Venus Professional Hand Tools	Apex Bench Vice
Klauke Crimping Tool	Hex Crimping Tool
Kangaro Scissor	

8. Data about the imports of this product for the past three years

As per the data received from Ministry of Commerce Export Import Data bank, import value for the hand tool products (HSN Code 8205) in last 3 years has been summarized below:

Imports (in Rs. Crore)	2017-18	2018-19	2019-20	2020-21 (April 2020 to February 2021)
Hand Tools of all types	321.07	388.32	378.64	312.32

Top three import HSN codes at 8-digit level having more than 10% share of the total hand tool import are:

HS Code	Commodity	2019-20 Imports (in INR Cr.)	% share of total hand tool imports
82055990	Other Hand Tool Incl. Glaziers Diamonds Nes.	142.67	38%
82057000	Vices, Clamps and The Like	42.19	11%
82059090	Other, Including Sets of Articles of Two or More Subheadings of this Heading	100.98	27%

9. Data available for exports well against this product for the past two years

As per the data received from Ministry of Commerce Export Import Data bank, export value for the hand tool products (HSN Code 8205) in last 3 years has been summarized below:

Exports (in Rs. Crore)	2017-18	2018-19	2019-20	2020-21 (April 2020 to February 2021)
Hand Tools of all types	746.98	834.69	799.45	816.13

Top four export HSN codes at 8-digit level having more than 10% share of the total hand tool exports are:

HS Code	Commodity	2019-20 Exports (in INR Cr.)	% share of total hand tool exports
82055990	Other Hand Tool Incl. Glaziers Diamonds Nes	186.50	23%
82057000	Vices, Clamps and The Like	179.27	22%
82052000	Hammers and Sledgehammers	105.61	13%

HS Code	Commodity	2019-20 Exports (in INR Cr.)	% share of total hand tool exports
82055910	Grease Guns (Excl. Compressed Air Type)	98.48	12%

Top export destinations of hand tool from India are:

S. No.	Country	2019-20 Exports (in INR Cr.)	% share of total hand tool exports
1.	United States of America	322.96	40.39%
2.	United Kingdom	59.69	7.46%
3.	France	42.20	5.28%
4.	Germany	34.29	4.30%
5.	United Arab Emirates	30.79	3.85%

10. Scope for the number of unit's number of years can be established further

Since hand tools are the essential tools for the used in various industrial sectors, sector has significant growth potential. Sector is also witnessing surge in exports with buyers' preference shifting from China to India due to currently ongoing pandemic scenario and hence India can capture greater market share in hand tool exports market.

11. The demand in the domestic market

Hand tools are used in construction, automobile, aerospace and DIY sectors for a variety of applications including drilling, hammering, sawing, and others. The professional market is bigger and has a stronger potential for the future.

As a result, Indian hand tools market is anticipated to grow at a CAGR of 3.8% during the forecast period of 2020-2026. India is expected to be one of the well-established markets for conventional hand tools market in the Asia-Pacific region alongside China. Despite the slow replacement of hand tools by power tools in the country due to the rising demands for more precision, efficiency, performance, and to improve the overall ergonomics, the hand tools are the more dominant tool type in the country².

The hand tools market in India is projected to reach a revenue share of \$1.60 billion by 2025 due to a steady demand from various Industrial Sectors³. Good quality hand tools manufacturers are now entering the Indian market because of the growing demand for brands, better quality and global reputation.

² Orion Market Research

³ Arizton Report

Technical Details

1. Sector in which the product is falling

Manufacturing of hand tools falls under the Engineering Sector. It can further be classified under the Light Engineering sector. The light engineering sector consists of a diverse set of sub-sectors including items such as medical instruments, sophisticated process control equipment, castings, forgings, fasteners, bearings, steel pipes and tubes. These sectors usually use medium to low end technology as compared to high-end technology used in the heavy engineering industry.

Further these had tools can also be classified according to their uses:

▪ Measuring tools	▪ Holding tools	▪ Cutting tools
▪ Driving tools	▪ Boring tools	▪ Electrical equipment
▪ Miscellaneous tools/instrument/equipment		

2. End users of the products/sectors

Although none of the sector is untouched from the day-to-day use of the hand tool equipment. However, automobile, aerospace, construction, electronics, and shipbuilding sectors are the major end-users of these tools.

These hand tools not only play an important role in manufacturing of products under above mentioned sector but also play a significant role in repair and maintenance of products like vehicles, electronic equipment etc.

3. Governing Indian specification

Indian specifications for the hand tools in India are defined and governed by Bureau of Indian Standards (BIS). Standards related to hand tools are defined by technical committee (PGD 34) under Production and General Engineering Department (PGD) of BIS. There are around 200 published standards related to various hand tools under PGD34 program of work.

Standards used for some of the majorly used hand tools have been summarized below:

S. No.	IS No.	Standard Title
1.	IS 3552: 1989 ISO 5746: 2004	Pliers - Flat nose without cutter long
2.	IS 2027: 1992	Spanners and sockets - Widths across flats
3.	IS 844 (Part 3): 1979	Specification for screw drivers Part 3 dimensions for screw drivers for recessed head screws

S. No.	IS No.	Standard Title
4.	IS 16486: 2017	Method for calibration and classification of torque measuring devices including torque wrench tester
5.	IS 4915: 1968	Specification for welders chipping hammer
6.	IS 6837: 1973	Specification for three-wheel type pipe cutter
7.	IS 9181: 1988	Specification for C - Clamps
8.	IS 413: 1974	Specification for round punches
9.	IS 703: 1999	Axes
10.	IS 2586: 1986	Specification for bench vices

List of complete IS standards for Hand Tool components can be accessed at https://www.services.bis.gov.in:8071/php/BIS/bisconnect/pow/pow_details.

4. Governing International specification

Foreign buyers have very high focus on quality consistency and proven effectiveness of the products as per defined quality plans. While there are ISO certifications for products, there are country specific product specifications defined for the hand tools.

Major international standards have been summarized below:

i. Quality Management System (IATF 16949 : 2016):

IATF 16949:2016 is the International Standard for Automotive Quality Management Systems. IATF 16949 was jointly developed by The International Automotive Task Force (IATF) members and submitted to the International Organization for Standardization (ISO) for approval and publication.

The standard is applicable to any organization that manufactures components, assemblies and parts for supply to the automotive industry. In this context manufacturing is defined as:

'The process of making or fabricating production materials, production or service parts, assemblies or heat treatment, welding, painting, plating or other finishing services.'

ii. Quality Management System (IATF 9001: 2015):

ISO 9001:2015 specifies requirements for a quality management system when an organization:

- a) needs to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, and
- b) aims to enhance customer satisfaction through the effective application of the system, including processes for improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.

iii. Environmental Management System (ISO 14001 : 2015):

ISO 14001:2004 specifies requirements for an environmental management system to enable an organization to develop and implement a policy and objectives which take into account legal requirements and other requirements to which the organization subscribes, and information about significant environmental aspects.

iv. Occupational Health and Safety Management System (ISO 45001:2018)

ISO 45001:2018 specifies requirements for an occupational health and safety (OH&S) management system, and gives guidance for its use, to enable organizations to provide safe and healthy workplaces by preventing work-related injury and ill health, as well as by proactively improving its OH&S performance.

Country Specific Specifications:

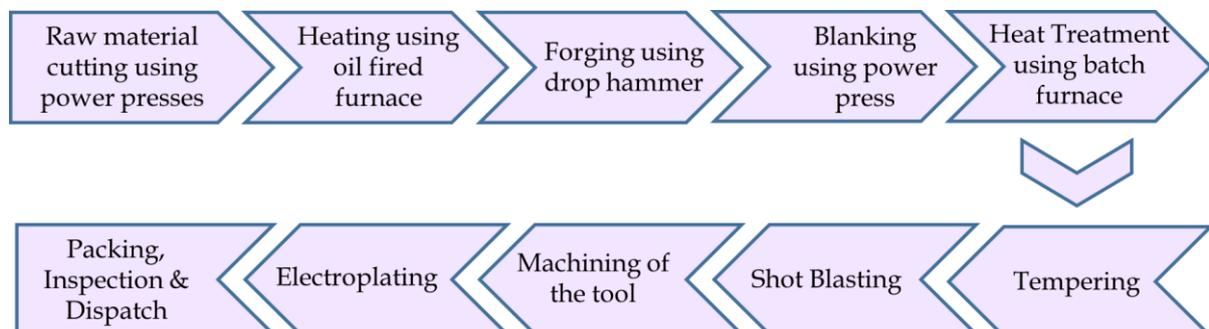
Since USA and European Countries like UK, France & Germany contribute 60% to the overall exports of hand tools from India, standards from these countries have been summarized below:

Country	Standardization Body	Standard Title
USA	American National Standards Institute (ANSI)	<ul style="list-style-type: none">- B107.4 - Driving & Spindle Ends for Portable Hand, Impact, Air, and Electric Tools (Percussion Tools Excluded)- B107 - Gages and Mandrels for Wrench Openings- B107.100 - Flat Wrenches- B107.110 - Socket Wrenches and Attachments- B107.300 - Torque Instruments- B107.400 - Striking Tools- B107.410 - Struck Tools- B107.500 - Pliers- B107.600 - Screwdrivers
Germany	DIN (Deutsches Institut für Normung)	<ul style="list-style-type: none">- DIN 612 Double Box Wrench- DIN 911LS Long Arm Hex Key Set- DIN 3030 Hex Nut Driver- DIN 6911 Hex Socket Screw Key with Pilot <p>More such standards can be accessed at https://www.fastenersclearinghouse.com/din-product-list=hand-tools-by-din-standard&Cat1=FL099407C53614.</p>
United Kingdom	UK National Standards Body (BSI)	<ul style="list-style-type: none">- BS ISO 9657:2004 - Pliers and nippers for electronics- BS ISO 7738:2015 - Combination wrenches

Country	Standardization Body	Standard Title
		<ul style="list-style-type: none"> - BS ISO 2725-3:2017 - Square drive sockets - BS EN ISO 6789-2:2017 - Hand Torque Tools <p>There are 44 BSI published standards for hand tools. More such standards can be accessed at https://standardsdevelopment.bsigroup.com/committees/50000882#5.</p>
France	AFNOR (Association Française de Normalisation)	<ul style="list-style-type: none"> - NF EN ISO 6789-1 - Hand torque tools - NF EN ISO 6789-2 - Hand torque tools <p>More such standards can be accessed at https://www.boutique.afnor.org/standard/nf-en-iso-6789/assembly-tools-for-screws-and-nuts-hand-torque-tools-requirements-and-test-methods-for-design-conformance-testing-quality-confor/article/765251/fa116349.</p>

5. Flow process chart of the manufacturing

Hand tools manufacturing units use the typical forging, hardening and baking process to manufacture hand tools. The flowchart of the production process used to manufacture spanners is given below⁴:



Furnace: The furnaces used by the forging units are locally made using clay brick and mud. The burner used in the furnace is also available locally. The day tank is around 2-3 meters height and a blower is used for supply of air. The design of the furnace is not scientifically designed leading to very high energy wastage from doors and other openings. There is no pre-heating system of the furnace oil as well as there is no waste heat recovery system installed.

Forging: Presently, there are three types of forging; (a) Drop forging (b) Spring forging and (c) hand forging. The forging units are using drop hammer in case they manufacture full forging pliers and / or hammers of more than 750 grams. In case the units have installed drop hammer they also manufacture half forging pliers and / or

⁴ Based on the discussions with entrepreneurs from Jalandhar

less grammage hammers. Spring hammers are mostly used for manufacturing half forging pliers and / or less than 750 grams hammers. The spring hammer is connected with belt and shaft arrangement. The spring hammer continuously hammers, whereas, the drop hammer is pulled once the job is placed.

Heat Treatment: The heat treatment operation is carried out by using the traditional technique i.e. heat the job and quenching the job in water. Often the heating is carried out in the furnace (by the artisans) but in case of the pliers the treatment is carried out by using oxy-acetylene flame.

Grinding and Finishing: The operation graining and finishing is carried out by using belt polishing machines. The individual jobs are taken and placed over a moving sand / emery belt. While performing this operation the operator uses a cloth to hold job as the job gets heated.



6. Qualitative parameters of the product

Using the wrong tool or using the right tool incorrectly can result in reduction of productivity as well as cause work-related musculoskeletal disorders (WMSDs). For this reason, including ergonomic guidelines in tool design has received considerable attention in the past few years. Some of the common areas requiring ergonomic considerations in manufacturing of hand tools have been provided below:

- i. **Tool Weight:** The weight of the tool and distribution of the load within the tool affect the way the operator holds the tool. The distribution of weight in the tool also should facilitate comfortable gripping in the orientation that helps align the tool's centre of gravity with the centre of the gripping hand.
- ii. **Handles:** Tools should be designed so they can be held using a power grip.
- iii. **Shape:** Handle shape is an important consideration affecting wrist and arm postures. Handle shape is determined after considering the type of task, orientation and layout of the task, and the workplace.
- iv. **Length:** A handle that is too short can cause unnecessary compression in the middle of the palm. It should extend across the entire breadth of the palm.
- v. **Span:** The preferred handle span for one-handed tools with two handles (for example, pliers) should be 3 inches (7.6 cm). Tools with larger or smaller spans will reduce the user's maximum grip strength.
- vi. **Material:** To ensure a good grip on a handle, sufficient friction must exist between the hand and the handle. Handle should be made of non-slip, non-conductive and compressible materials.

7. Details of the product Licenses to obtained

Since the hand tools manufacturing units generally use water/ oil for heat treatment. Since this water/ oil need treatment before their release, these units are generally categorized in 'Red Category' as per the notification of Central Pollution Control Board. Hence these units are required to take approvals from respective State Pollution Control Boards before and at the time of start of commercialization.

However, there is no product specific license which is required for manufacturing of hand tools.

8. Equipment required for the manufacturing of the product/ existing technology for the manufacturing of the product

Following equipment are generally used by hand tools manufacturing units:

- i. **Heating Furnace:** The Melting furnace is a Stationary / hydraulically tilting furnace that is used for the preparation and post-treatment of metals. Designed primarily as a Melting furnace, it can also be interpreted as a holding furnace. Heating is usually carried out via oil burners that are adequate to furnace capacity. Furnaces serve for melting Ingots, Foundry Returns and Scrap, Turning Chips etc.



- ii. **Drop Hammers:** Simply put, it is a fabrication method employing two dies, one on a stationary anvil and the other attached to a moving ram. Heated metal is placed onto the lower die. The ram brings the other die down, delivering a set number of blows to shape the hot metal. Number of blows needed varies depending upon the item being manufactured.



- iii. **Power Press:** Power Press is a functional sheet metal machine that is utilized for bending, cutting, pressing and blanking of workpiece. This multi-tasking equipment that involves a press mechanism applies pressure to compress and shape the required material.
- iv. **Heat Treatment Furnace:** The most common and basic heat treat furnace is the Box Furnace. It is a highly insulated steel box with a door on one end and one or several gas burners. Box furnaces are rated according to their physical size, the temperature rating and the pounds per hour.

- v. **Tempering Furnace:** A tempering furnace is a type of industrial oven designed to heat treat a ferrous metal product and increase its toughness.
- vi. **Machining Centres:** Machining Centre is a machine, typically enclosed and most often used for cutting metal. These machining centres are used for final finishing of the product.
- vii. **Electroplating Plant:** Plating is the deposition of an adherent metal onto the surface of a base metal. commonly used plating medium is electroplating, blackening and phos-plating.

9. Test facilities required for the product

Two type of testing facilities are required for testing of hand tools i.e. testing of physical properties and chemical properties. Following facilities are required for testing of physical properties:

- i. **Torque Testing Machine (Computerised):** Torque testing involves measuring the amount of torque being applied to an object.
- ii. **Magnetic Crack Detector:** Magnetic crack detection method is valuable for the detection of fine flaws and cracks present at the surface of a component made from a magnetic material.
- iii. **Salt Spray Machine:** A salt spray test is a corrosion testing method that uses high-saline environments to measure the corrosion resistance of products, paints and coatings over extended periods.
- iv. **Digital Hardness Tester:** Hardness tester, device that indicates the hardness of a material, usually by measuring the effect on its surface of a localized penetration by a standardized rounded or pointed indenter of diamond, carbide, or hard steel.
- v. **Abrasive Cutter:** Abrasive cutters are used for making test pieces of raw material for testing their characteristics.
- vi. **Plating Thickness Tester:** Testing facility for measuring the thickness as well as uniformity of the plating.
- vii. **Chemical Laboratory:** To analyse chemical composition of products as well as raw materials.

10. Suggested modern technology for implementation or available in the market

UNIDO and GEF collaborated with Bureau of Energy Efficiency to promote energy efficiency and renewable energy in selected micro, small and medium enterprises (MSME) clusters in India in 2010-11. Two hand tool clusters of Nagaur and Jalandhar were also studied under the programme to provide recommendations to enhance

energy efficiency of the hand tool units. Certain such recommendations related to technology upgradation have been summarized below:

Replacement of fossil fuel based forging furnace with induction Heater

This is a major technological recommendation for a hand tools unit which can result in reduced cost of production. Hot forging is a process deployed in hand tools industries, where the part is heated above the material recrystallization temperature before forging, typically 1100°C for steel. Hot forging allows a part to be formed with less pressure, creating products with reduced residual stress that are easier to machine or heat treat. Warm forging is forging a part below the recrystallization temperature, typically below 700°C.

As a superior alternative to furnace heating, induction heating provides faster, more efficient heat in forging applications. An induction heater consists of an electromagnet (coil), through which a high-frequency alternating current (AC) is passed. The frequency of AC used depends on the object size, material type, coupling (between the work coil and the object to be heated) and the penetration depth. The process relies on electrical currents to produce heat within the part that remains confined to precisely targeted areas. High power density means extremely rapid heating, with exacting control over the heated area.

Recent advances in solid-state technology have made induction heating a remarkably simple and cost-effective heating method. Benefits of using Induction heating for forging in hand tools units include the following:

- Rapid heating for improved productivity and higher volumes
- Precise, even heating of all or only a portion of the part
- A clean, non-contact method of heating
- Safe and reliable – instant on, instant off heating
- Cost-effective, reduces energy consumption compared to other heating methods through routine inspection and maintenance
- Easy to integrate into production cells and reduced scaling
- For units supplying hand tools to OEMs, the induction furnace helps in keeping key operating parameters within specified limits as prescribed by the OEMs



Conventional furnace in a hand tool unit



Induction heater

Replacement of conventional machines with high end CNC, VMC and Special Purpose Machines (SPM)

In a hand tools industry, there are several machining processes involved after a product is forged. These processes require a series of machines like lathe machines. These machines generally result in inconsistent product quality, loss of energy resource and loss of material. Replacing these machines with modern CNC and VMC machines will ensure that proper machining operations like trimming/drilling/finishing are performed on the semi-finished products. From a buyer perspective, several OEMs these days insist on the hand tool units to deploy CNC machines so that all products manufactured are consistent in quality and meet mandatory quality requirements.

These CNC, VMC/SPM are multi-tasking machine used for machining purpose. These can be used as a replacement to conventional machines like lathe, drilling or trimming machines in the hand tools industry. There are standard models of CNC and VMC machines available which can be deployed but the hand tools units depending upon the size of the unit.

A special purpose machine is designed based on the customized requirement of a unit and may be used for one or multiple task as per the design. For example, a conventional lathe machine takes 3 mins (say) to machine (turn) a metal piece. Thereafter it is transferred to another machine for facing and trimming operations. In some cases, a third machine is used for threading operations. A special purpose machine specifically designed can replace all the three machines with a single machine. The replaced special purpose machine can perform all the four activities i.e. turning, facing, trimming, and threading on sequential manner. The sequence of operation is pre-set using timers and sensors. The entire operation is maintained using pneumatic and mechanical control.

For ease of operation, each CNC/VMC/SPM is equipped with an automatic feeder. The modern machines are equipped with two or more machine tools fitted in different axis. The operations can be carried out in sequential manner. The axial motion of the machine tool is usually powered by a pneumatic control, whereas positioning of the tool is done using sensors. A particular operation e.g. turning operation in a metal piece of 400 mm is pre-set using timers. Once the operation is over, the sensor directs the next sequence of operations, which are also pre-fed programs in the machine. Thus, manual intervention in each operation can be prevented. Also, two or more operational can be performed simultaneously in a CNC/VMC/SPM.

Replacement of conventional machines with CNC/VMC/SPM usually increases machine productivity by 5 times, easing the life of the operators by avoiding manual intervention during each operation.



Conventional lathe machine



Special Purpose Machine



Conventional drilling machine
in a hand tool unit



Special Purpose Machine
(drilling) machine

Resource Efficient Hand Tools Unit

Besides the above-mentioned technology changes, a heat treatment unit can become more resource efficient and productive by ensuring optimum use of resources in production processes and minimizing the generation of wastes. Moreover, the industry may explore reuse and recycling of wastes generated to enhance resource utilization. The following steps may be undertaken for a hand tools unit to ensure efficient utilization of resources:

- i. Use consistent quality of raw materials to reduce rejections from the process.
- ii. Maintain appropriate temperatures in heat treatment processes to reduce rejections.
- iii. Utilise appropriate tools in finishing operations to improve product quality and reduce rejections.
- iv. Deploy suitable material handling and transport system for easy handling of materials to reduce processing time and fatigue.
- v. Plug leakages from compressed air lines to reduce power consumption.
- vi. Use compressed air only at required pressure to optimize energy consumption. Use of compressed air at high pressures would increase energy consumption.
- vii. Deploy air guns in place of compressed air for requirements of air at low pressures.

11. Raw material required and availability

Raw material required for manufacturing of tools is steel. All the types of steels as mentioned in the subsequent section are manufactured by the large steel makers like SAIL, JSW, TATA Steel, RINL etc. However, steel is not directly marketed by these manufacturers to the MSMEs. MSMEs buy steel sheets or rods as per their requirement from private third-party suppliers.

Challenges in availability of raw material:

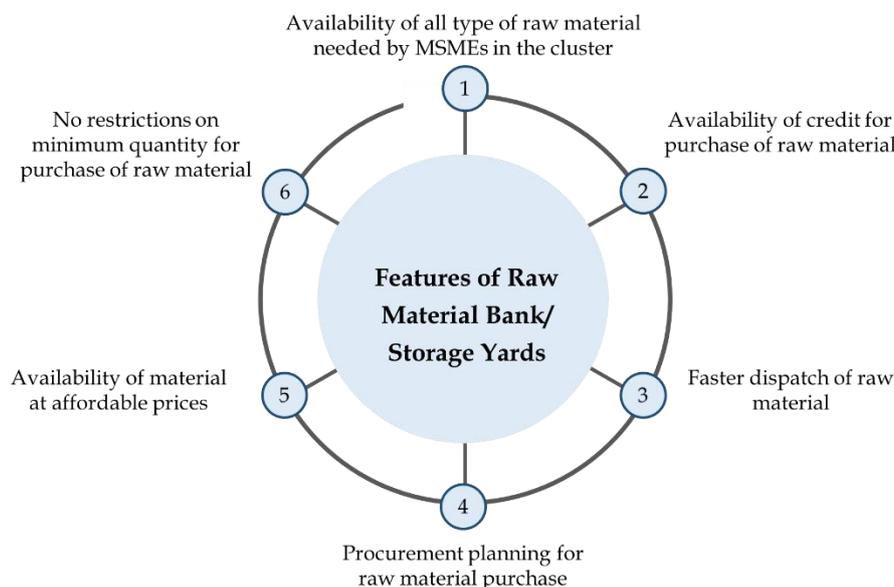
- i. Countries like China, Japan and Korea produce cheaper steel compared to India. Since steel is the major cost component for the manufacturing MSMEs, they lose their competitiveness in the export market to the manufacturers of these countries especially China which commands major share in hand tools exports market.
- ii. Third party service providers use monopolistic practices for better profit margins through hoarding of material to create artificial shortage of raw material. This results in high cost of raw material for such MSMEs making them less competitive especially in international markets.

Suggestion from Jalandhar MSMEs:

It was proposed by MSMEs to establish raw material depots with storage facility in major clusters with support from Government Agencies like NICSI to cater to the high prices of raw material. The government agency may purchase the raw material directly from the large manufacturers and store the material in storage yards/ raw material depots.

An external agency however is required for operationalization of these raw material depots as the material received from manufacturers requires processing in terms of their sizing and converting to sheets before it can be made available to MSMEs.

Proposed raw material depots/ storage yards will have following key features:



12. Covering Raw material standards Indian/International standards

Various types of steels are used for manufacturing of tools based on their quality requirement and functionality. Common steel grades required for manufacturing of hand tools have been listed below:

- i. **Carbon Steel (CS):** Carbon steel is categorized into low carbon steel, medium carbon steel and high carbon steel, depending on the carbon content. Hand tools are manufactured using high-carbon steel because it has high hardness and high strength. However, some of the tools which have risk of cracking (i.e. screwdrivers) are made of low carbon steel due to better toughness compared to high carbon steel. Typical steel grades used for manufacturing of tools are EN 8, EN 9, EN 19, EN 31 and EN 353.
- ii. **Chromium-vanadium steel (Cr-V):** Chromium vanadium steel is an alloy tool steel with chromium (Cr) and vanadium (V) alloy elements. It has better strength and toughness than carbon steel, so it is a great material for high quality tools. Commonly used tools like wrenches, screwdrivers, manual sleeves etc. generally use 50BV30 chrome vanadium steel. The material of most Hand Tool Pliers are Cr-V.
- iii. **Chrome molybdenum steel (Cr-Mo):** It is an alloy tool steel with chromium (Cr), molybdenum (Mo), iron (Fe) and carbon (C) alloy elements. It has excellent impact resistance, strength and toughness, in addition its performance is better than chromium vanadium steel. Suitable for top-grade screwdrivers and small hex wrenches. Overall, the material is more expensive than others.

13. Value chain analysis of a hand tool cluster

Several units were consulted from Jalandhar Hand Tool Cluster to map the value chain of the cluster units and identify major competitiveness constraints. An analysis of the value chain mapping has been presented below for Jalandhar Hand Tool Cluster:

Sr. No.	Value Chain of a typical cluster unit	Major Competitiveness Constraints Identified	Correction required to improve competitiveness
1.	Raw material Procurement	<ul style="list-style-type: none"> • Monopolistic practices of raw material suppliers • Inconsistent chemical composition leading to high rejection of final products and loss of cost competitiveness • Inability to cater to high value precision hand tools market • Fragmented orders 	<ul style="list-style-type: none"> • Testing of raw material • Setting up of common raw material bank • Consolidation of orders for bulk order discounts

Sr. No.	Value Chain of a typical cluster unit	Major Competitiveness Constraints Identified	Correction required to improve competitiveness
2.	Tools and Dies	<ul style="list-style-type: none"> • Most cluster firms use tools and dies manufactured on low precision machines (e.g. conventional lathe, milling, etc) • Manpower is not trained to simulate production or use drawings • High tolerance levels in the final product resulting in low value realization 	<ul style="list-style-type: none"> • Precision machine tool facility for manufacturing dies and tools • Software for simulation and die design • Training of existing operators
3.	Technical File	<ul style="list-style-type: none"> • Most cluster firms do not prepare technical file which defines standards for manufacturing process, material, product specifications, etc. 	<ul style="list-style-type: none"> • Training of supervisors and production managers
4.	Forging	<ul style="list-style-type: none"> • Cluster firms use drop hammer forging technology, which has low precision and high metal loss (20 to 50%). This technology is obsolete in other countries. • Limited product range due to non-availability of technology like forging presses with majority of MSEs • Low value realization • The technology is not environment friendly 	<ul style="list-style-type: none"> • Introduction of cold forging and hot forging press technologies • Assistance to cluster firms on adoption of these technologies for high end precision products • Common facility for job work and initial commercial trials • Training on use and adoption of new technologies • Awareness creation about benefits of these technologies to the environment
5.	Heat Treatment	<ul style="list-style-type: none"> • Cluster firms are using oil fired furnaces for heat treatment resulting in scaling and oxidation loss 	<ul style="list-style-type: none"> • Availability of common facility for heat treatment to achieve precise mechanical properties and improve strength

Sr. No.	Value Chain of a typical cluster unit	Major Competitiveness Constraints Identified	Correction required to improve competitiveness
		<ul style="list-style-type: none"> • Carbon potential is not maintained resulting in low strength • Non-uniform heating due to present shaker technology resulting in high tolerance 	
6	Plating and finishing	<ul style="list-style-type: none"> • Technology available in the cluster is manual resulting in non-uniform plating • Plating does not reach deeper areas of the workpiece resulting in poor finish 	<ul style="list-style-type: none"> • Availability of automatic nickel and chrome plating common facility
7.	Packaging	<ul style="list-style-type: none"> • Cluster firms are losing out to competition due to non-availability of latest packaging technology. • Internationally blow moulded cases are used for packaging – a technology not available to the cluster firms • Cluster lost its market share in products like pliers due to non-availability of double colour moulding technology 	<ul style="list-style-type: none"> • Common facility for blow moulding and double colour injection moulding
11.	Testing of final product	<ul style="list-style-type: none"> • Inaccurate strength and torque testing because of unavailability of specialized testing equipment 	<ul style="list-style-type: none"> • Common testing lab for cluster firms • Training on need and benefits of testing
12.	Marketing	<ul style="list-style-type: none"> • Most cluster firms do not have access to high end domestic and export markets 	<ul style="list-style-type: none"> • Collective marketing of made in Jalandhar brand (endorsed by testing lab at the CFC) • Use of information technology for marketing

Project Report

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1. Introduction

Hand Tools industry is one of the oldest and significant industries in the country and is predominately present in micro and small-scale sector. As a result of partition, skilled labour from across the border settled in States like Punjab and Rajasthan making them a hub of production of hand tools. The craft of manufacturing of hand tools spread to other states like Maharashtra as well. The industry peers into the past dating back 600 years. It is worth-seeing how iron is moulded & made use of for different sections of the society. About 800 types of hand-tools are manufactured catering to the requirements from goldsmiths to aircraft engineers. Though the iron industry has undergone drastic changes, the hand-tools industry remained unchallenged & unmatched. The demand of these handmade tools always witnessed growing trend. Some of the most commonly used hand tools are spanner set, screwdriver, nose pliers, bench vices, tyre levers and hammers etc.

With acceleration of industrialization nationally and globally in recent years, hand tool industry became the main source in hardware tool manufacturing throughout the world. Wide application and larger demands in hand tools are beyond imagination and as a result of this, hand tool industry is poised to grow at a steady rate.

2. Industry Vital Statistics:

As per the information received from Jalandhar Hand Tools Manufacturers Association, nearly 40% of the hand tool manufacturing is carried out in Punjab alone in India. It has been estimated that currently there are more than 8,500 MSMEs involved in hand tool manufacturing in the country with presence of around 10-15 large players.

Since Punjab is the major hub in hand tool manufacturing, Central Institute of Hand Tools (CIHT), Jalandhar was set up by government of India with the assistance of United Nations Development Programme (U.N.D.P) to develop of hand tools industry in Punjab and nearby states.

Major existing Hand Tool clusters in India have been tabulated below:

S. No.	Name of Cluster	State
1.	Jalandhar Hand Tool Cluster	Punjab
2.	Ludhiana Hand Tool Cluster	Punjab
3.	Mumbai Hand Tool Cluster	Maharashtra
4.	Nagpur Hand Tool Cluster	Maharashtra
5.	Nagaur Hand Tool Cluster	Rajasthan
6.	Purulia Hand Tool Cluster	West Bengal

However, hand tools are the most omnipresent and indispensable instruments used almost every day in major industrial sectors like construction, automobile, aerospace,

electronics etc. The manufacturing of hand tools involves forging operation and heat treatment operations primarily. Hence, major clusters having forging and heat treatment units can further be developed for manufacturing of hand tools in India. Some of the already existing industrial clusters in India having forging and heat treatment facilities are:

S. No.	Name of Cluster	State
1.	Pune Forging Cluster	Maharashtra
2.	Chennai Forging Cluster	Tamilnadu
3.	Rajkot Forging Cluster	Gujarat
4.	Faridabad Forging Cluster	Haryana
5.	Coimbatore Forging Cluster	Tamilnadu
6.	Gadchiroli Forging Cluster	Maharashtra
7.	Ahmedabad Forging Cluster	Gujarat

3. Project Description

The proposed project is that of setting up of a small sized hand tools manufacturing unit at suitable location.

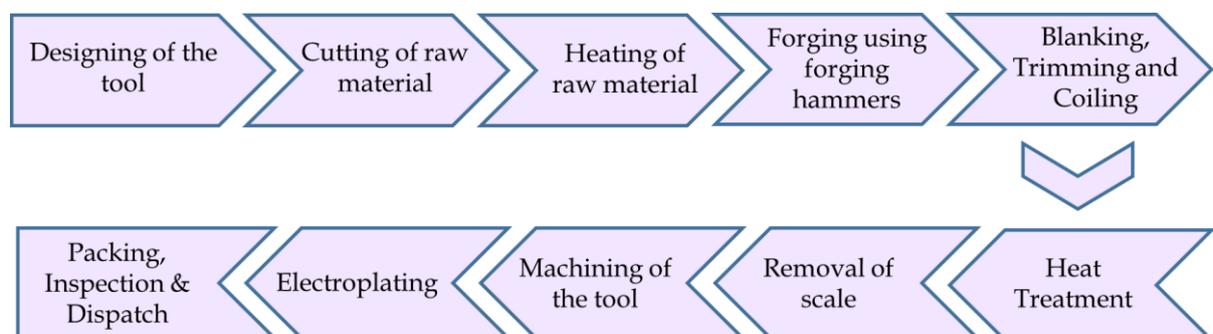
The key products of the proposed project are as follows:

- i. Wrench
- ii. Pliers
- iii. Screwdriver

The proposed project would procure the raw materials locally. After processing, the products would be supplied to the market through distributors/ wholesalers /retailers.

4. Technological process and technology to be deployed

Aim of the project report is to enable entrepreneurs to setup a technologically advanced facility to produce quality output. Technological process for manufacturing of the hand tools have been depicted below:



- A. Designing of the tool:** A designing software like Solidcam will be used for designing of the tool as per the client requirements. Designing operations will

also be utilized for operations of the Vertical Machining Centre for giving final finish to the product.

- B. Cutting of raw material:** While products like pliers and wrench are made from steel sheets, screw drivers are made from steel wires. To cut the raw material for further processing, plasma cutting machine and wire cut electro discharge machine will be deployed.
- C. Heating of raw material:** Raw material after cutting is heated in heating furnace to take it to a desired temperature for forging operations.
- D. Forging using forging hammers:** Forging hammers will be used to forge the raw material into desired shape. Different dies are used for forging hammers basis the desired shape and specifications of final product. Impressions are created in a steel tool die either in in-house tool room or outsourced.
- E. Blanking, trimming and coiling:** Blanking machine will be used to remove a metal piece from the forged product to create a blank. Trimming will be used to remove any extended material remaining after forging process. Coiling will be used to create stamps on the forged product to include brand name etc. on product.
- F. Heat Treatment:** If required, products will be heat treated in the heating furnace for increasing the strength and hardness.
- G. Removal of scale:** Forged and heat-treated products generally develop oxidized scales on the product. This scale is removed through shot blasting process.
- H. Machining of the tool:** Machining is the essential process for finishing of the product to the desired dimensions and to achieve surface finish by gradually removing the excess material. Machining of the tools will be done using Vertical Machining Centre (VMC) and Electro Discharge Machine. Further, products will be grinded and polished, if required.
- I. Electroplating:** Finished tool is then electroplated as per the requirements of the client to enhance finish of the final product.
- J. Inspection, packaging and dispatch:** Final product will then be inspected and tested. Unit will have spectrophotometer and crack testing machine installed to do the quality check of final products. After inspection, accepted products will be packaged and dispatched to the buyers.

Details of machinery suppliers:

S. No.	Machine Name	Suppliers
1.	Plasma Cutting Machine (3500 x 8500 mm)	<ul style="list-style-type: none"> ▪ Pro Arc Welding & Cutting Systems, Maharashtra ▪ Laser Science & Services Pvt Ltd. Maharashtra

S. No.	Machine Name	Suppliers
		<ul style="list-style-type: none"> ▪ System Engineers Cutting & Welding Private Limited, Faridabad ▪ Supercut Engineers, Faridabad ▪ Kwality Engineering Company, Ludhiana
2.	Vertical Machining Centre (1300x700) Fanuc system with 4 axis	<ul style="list-style-type: none"> ▪ Bharat Fritz Werner Ltd., Bengaluru ▪ Laxmi Machines Works. Coimbatore ▪ Micromatic Machine Tools Pvt Ltd. (ACE MICROMATIC GROUP), Ludhiana ▪ Lokesh Machines Ltd., Telangana ▪ Macpower CNC Machines Limited, Gujarat
3.	Electro Discharge Machine (EDM) (Main Travel: X, Y (400X300X250) mm)	<ul style="list-style-type: none"> ▪ Electronica Hitech Engineering Pvt Ltd., Gurugram ▪ Ratnaparkhi Electronics Ind Pvt Limited, Maharashtra ▪ Sparkonix (India) Pvt Ltd., Maharashtra ▪ J.K. Machines, Delhi
4.	Wire Cut Electro Discharge Machine (Main Travel: X, Y (400X300) mm)	<ul style="list-style-type: none"> ▪ Electronica Hitech Engineering Pvt Ltd., Gurugram ▪ Ratnaparkhi Electronics Ind Pvt Limited, Maharashtra ▪ Sparkonix (India) Pvt. Ltd., Maharashtra ▪ J.K. Machines, Delhi
5.	Heating Furnace	<ul style="list-style-type: none"> ▪ MD Enterprises, Ludhiana ▪ Super-tech Furnace, Faridabad ▪ Electrotherm India Pvt. Ltd. Ahmedabad
6.	Shaper	<ul style="list-style-type: none"> ▪ MSUI Machines Pvt. Ltd., Delhi ▪ Jagdeep Foundry, Amritsar
7.	Hydraulic Surface Grinder (400x800 mm)	<ul style="list-style-type: none"> ▪ MSUI Machines Pvt. Ltd., Delhi ▪ Technomech Machine Tool, Rajkot ▪ Kwality Machinery Export, Ludhiana ▪ Micromatic Grinding Technologies Pvt Ltd. Uttar Pradesh ▪ Hi-Life Machines Tool, Ahmedabad
8.	Lathe Machine (6 feet)	<ul style="list-style-type: none"> ▪ MSUI Machines Pvt. Ltd., Delhi ▪ Jagdeep Foundry, Amritsar ▪ Somnath Engineering, Rajkot

S. No.	Machine Name	Suppliers
		<ul style="list-style-type: none"> AMCO Industries, Ludhiana
9.	Cylindrical Grinding Machine (Internal Grinding Spindler Diameter 60x250 mm with RPM 11000)	<ul style="list-style-type: none"> MSUI Machines Pvt. Ltd., Delhi Micromatic Grinding Technologies Pvt Ltd. Uttar Pradesh Hi-Life Machines Tool, Ahmedabad Technomech Machine Tool, Rajkot Kwality Machinery Export, Ludhiana
10.	Forging Hammers (2 Ton)	<ul style="list-style-type: none"> Rattan Hammers, Ludhiana Fauji Hammers India, Ludhiana NKH Hammers, Ludhiana Bharat Steel Works, Ahmedabad
11.	Blanking Press Machine (100 Ton)	<ul style="list-style-type: none"> Rattan International, Ludhiana Parrytech Hydraulics, Delhi Hertz Controls (India) Pvt. Ltd. Ahmedabad
12.	Trimming Press Machine (150 Ton)	<ul style="list-style-type: none"> Rattan International, Ludhiana Parrytech Hydraulics, Delhi Hertz Controls (India) Pvt. Ltd. Ahmedabad
13.	Coiling Press (400 Ton)	<ul style="list-style-type: none"> Rattan International, Ludhiana Parrytech Hydraulics, Delhi Hertz Controls (India) Pvt. Ltd. Ahmedabad
14.	Grinding Machines (10)	<ul style="list-style-type: none"> MSUI Machines Pvt. Ltd., Delhi Technomech Machine Tool, Rajkot Kwality Machinery Export, Ludhiana Micromatic Grinding Technologies Pvt Ltd. Uttar Pradesh Hi-Life Machines Tool, Ahmedabad
15.	Polishing Machines (10)	<ul style="list-style-type: none"> MSUI Machines Pvt. Ltd., Delhi Technomech Machine Tool, Rajkot Kwality Machinery Export, Ludhiana Micromatic Grinding Technologies Pvt Ltd. Uttar Pradesh Hi-Life Machines Tool, Ahmedabad
16.	Designing Software (Solidcam)	<ul style="list-style-type: none"> SAM Automation Technologies, Pvt. Ltd. Solidcam Software Ltd., Pune
17.	Air Compressor (5HP)	<ul style="list-style-type: none"> Elgi Equipment, Coimbatore

S. No.	Machine Name	Suppliers
		<ul style="list-style-type: none"> ▪ Venus Engineers, Bengaluru ▪ Anest Iwata Motherson Limited, Ludhiana
18.	180 Kva 3 Phase Silent DG Set	<ul style="list-style-type: none"> ▪ Rishabh Engineering Company (Tata), UP ▪ Koel Green (Kirloskar), Chandigarh ▪ Sudhir Gensets, Delhi ▪ GPS Powercool (Mahindra, Delhi)
19.	Transformer with Panel (400 KVA)	<ul style="list-style-type: none"> ▪ Indian Transformers, Delhi ▪ Arora Electrical, UP ▪ Kirloskar Electric Company Ltd. Bengaluru ▪ Rishabh Engineering Company (Tata), UP ▪ Transformers and Rectifiers (India) Limited, Kolkata

5. Market Prospect:

Hand tools are used in construction, automobile, aerospace and DIY sectors for a variety of applications including drilling, hammering, sawing, and others. The professional market is bigger and has a stronger potential for the future.

As a result, Indian hand tools market is anticipated to grow at a CAGR of 3.8% during the forecast period of 2020-2026. India is expected to be one of the well-established markets for conventional hand tools market in the Asia-Pacific region alongside China. Despite the slow replacement of hand tools by power tools in the country due to the rising demands for more precision, efficiency, performance, and to improve the overall ergonomics, the hand tools are the more dominant tool type in the country.

The hand tools market in India is projected to reach a revenue share of \$1.60 billion by 2025 due to a steady demand from various Industrial Sectors.

Hand tool industry also has bright export prospects as well. As per the data received from Ministry of Commerce Export Import Data bank, exports value for the hand tool products (HSN Code 8205) in last 3 years has been summarized below:

Exports (in Rs. Crore)	2017-18	2018-19	2019-20	2020-21 (April 2020 to February 2021)
Hand Tools of all types	746.98	834.69	799.45	816.13

Top four import HSN codes at 8-digit level having more than 10% share of the total hand tool exports are:

HS Code	Commodity	2019-20 Exports (in INR Cr.)	% share of total hand tool exports
82055990	Other Hand Tool Incl. Glaziers Diamonds Nes	186.50	23%
82057000	Vices, Clamps and The Like	179.27	22%
82052000	Hammers and Sledgehammers	105.61	13%
82055910	Grease Guns (Excl. Compressed Air Type)	98.48	12%

Top export destinations of hand tool from India which contribute to almost 60% of the total hand tool exports are:

S. No.	Country	2019-20 Exports (in INR Cr.)	% share of total hand tool exports
1.	United States of America	322.96	40.39%
2.	United Kingdom	59.69	7.46%
3.	France	42.20	5.28%
4.	Germany	34.29	4.30%
5.	United Arab Emirates	30.79	3.85%

6. Quality Control and Standards

The hand tools manufactured should conform to the following Indian Standards Specification:

S. No.	IS No.	Standard Title
1.	IS 3552: 1989 ISO 5746: 2004	Pliers - Flat nose without cutter long
3.	IS 844 (Part 3): 1979	Specification for screw drivers Part 3 dimensions for screw drivers for recessed head screws
3.	IS 16486: 2017	Method for calibration and classification of torque measuring devices including torque wrench tester

In addition to the products standards, unit will also conform to the following process standard to ensure quality and occupational health safety:

i. Quality Management System (IATF 16949 : 2016):

IATF 16949:2016 is the International Standard for Automotive Quality Management Systems. IATF 16949 was jointly developed by The International Automotive Task

Force (IATF) members and submitted to the International Organization for Standardization (ISO) for approval and publication.

The standard is applicable to any organization that manufactures components, assemblies and parts for supply to the automotive industry. In this context manufacturing is defined as:

'The process of making or fabricating production materials, production or service parts, assemblies or heat treatment, welding, painting, plating or other finishing services.'

ii. Quality Management System (IATF 9001: 2015):

ISO 9001:2015 specifies requirements for a quality management system when an organization:

- a) needs to demonstrate its ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, and
- b) aims to enhance customer satisfaction through the effective application of the system, including processes for improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.

iii. Environmental Management System (ISO 14001 : 2015):

ISO 14001:2004 specifies requirements for an environmental management system to enable an organization to develop and implement a policy and objectives which take into account legal requirements and other requirements to which the organization subscribes, and information about significant environmental aspects.

iv. Occupational Health and Safety Management System (ISO 45001:2018)

ISO 45001:2018 specifies requirements for an occupational health and safety (OH&S) management system, and gives guidance for its use, to enable organizations to provide safe and healthy workplaces by preventing work-related injury and ill health, as well as by proactively improving its OH&S performance.

General finishing requirements:

Electroplating and packaging requirements of the products will be outsourced by the unit to focus on the core operations of hand tool production.

Pollution Control:

The unit will use oil/ water for heat treatment/ quenching. Since this water/ oil need treatment before their release, these unit will be categorized in 'Red or Orange Category' as per the notification of Central Pollution Control Board. Hence the promoter will take 'Consent to Establish (CTE)' and 'Consent to Operate (CTO)' permissions from their respective State Pollution Control Boards. Also, promoter will ensure proper treatment of the effluents before disposing of the effluents.

Energy Conservation:

Proper care will be taken in running the machineries and equipment to avoid over run and high electricity consumption. The machines selected for the plant are energy efficient for economical production.

7. Project at a glance:

S. No.	Particular	Description					
A. Project Description							
1.	Proposed Project	Manufacturing of hand tools (i.e. Pliers, Wrenches, Screwdrivers and another product as per market demand)					
2.	Capacity of the Plant/Unit (At 100% Capacity)	Pliers: 2500 Units/day Wrenches: 2000 Units/day Screwdrivers: 3000 Units/day Other products as per market demand: 2000 Units/day					
3.	Year-wise Capacity Utilisation	Y1 80%	Y2 85%	Y3 90%	Y4 90%	Y5 90%	Y6 90%
B. Project Cost							
1.	Land	INR 210.00 Lakhs					
2.	Land Development	INR 18.70 Lakhs					
3.	Building	INR 89.98 Lakhs					
4.	Plant & Machinery	INR 1014.02 Lakhs					
5.	Miscellaneous Fixed Assets	INR 13.85 Lakhs					
6.	Preliminary & Pre-Operative Expenses	INR 143.53 Lakhs					
7.	Margin Money for Working Capital	INR 176.38 Lakhs					
8.	Securities	INR 3.30 Lakhs					
Total Cost of Project		INR 1,669.76 Lakhs					
C. Means of Finance							
1.	Promoters Equity (28%)	INR 475.76 Lakhs					
2.	Term Loan from Bank (69%)	INR 1,144.00 Lakhs					
3.	Unsecured Loans - Promoters (Quasi Capital) (3%)	INR 50.00 Lakhs					
Total Means of Finance		INR 1,669.76 Lakhs					
D. Financial Benchmarks							
1.	Break Even Point (at Operating Capacity of 80% in first year)	32.92%					

S. No.	Particular	Description
2.	Average DSCR	1:2.33
3.	Internal Rate of Return	17.80%
4.	Debt/ Equity Ratio	2.27

8. Project Economics:

A. Land & Building

Cost of land:

Description	Amount (in INR Lakhs)
Cost of Land Measuring 10,000 Sq. Ft.	200
Registration & Other Charges	10
Total	210

Cost of Building:

Description	Covered Area (Per Sq. Feet)	Construction Rate (Per Sq. Feet)	Amount (in INR)
Production Shed (Including RCC Shed, RCC Columns, Flooring etc.)	5500	1200	66,00,000.00
Administration Block (Including RCC Shed, RCC Columns, Flooring etc.)	800	1400	11,20,000.00
Worker's rooms and toilets (Including RCC Shed, RCC Columns, Flooring etc.)	200	550	1,10,000.00
Open steel shed for transformer		Lump sum	3,00,000.00
Architect Fee		Lump sum	50,000.00
Miscellaneous Fee		Lump sum (@10%)	8,18,000.00
TOTAL (in INR Lakhs)			89.98

B. Plant & Machinery:

S. No.	Description	No.	Basic Price per Unit	Total Basic Price	GST and other applicable costs	In INR Lakhs
						Total Price with GST and other costs
1	Plasma Cutting Machine (3500 x 8500 mm)	1	30.00	30.00	5.40	35.40
2	Vertical Machining Centre (1300x700) Fanuc system with 4 axis	3	42.50	127.50	22.95	150.45

In INR Lakhs

S. No.	Description	No.	Basic Price per Unit	Total Basic Price	GST and other applicable costs	Total Price with GST and other costs
3	Electro Discharge Machine (EDM) (Main Travel: X, Y (400X300X250) mm	2	12.15	24.30	4.37	28.67
4	Wire Cut Electro Discharge Machine (Main Travel: X, Y (400X300) mm	2	30.20	60.40	10.87	71.27
5	Heating Furnace	2	20.00	40.00	7.20	47.20
6	Electric Coil Heater	3	20.00	60.00	10.80	70.80
7	Shaper	1	6.00	6.00	1.08	7.08
8	Hydraulic Surface Grinder (400x800 mm)	1	12.95	12.95	2.33	15.28
9	Lathe Machine (6 feet)	2	7.00	14.00	2.52	16.52
10	Cylindrical Grinding Machine (Internal Grinding Spindler Diameter 60x250 mm with RPM 11000)	1	14.95	14.95	2.69	17.64
11	Cylindrical Grinding Machine (External Grinding)	1	14.95	14.95	2.69	17.64
12	Forging Hammers (2 Ton)	2	110.00	220.00	39.60	259.60
13	Blanking Press Machine (100 Ton)	1	25.00	25.00	4.50	29.50
14	Trimming Press Machine (150 Ton)	1	40.00	40.00	7.20	47.20
15	Coiling Press (400 Ton)	1	65.00	65.00	11.70	76.70
16	Grinding Machines (10)	10	1.00	10.00	1.80	11.80
17	Polishing Machines (10)	10	1.00	10.00	1.80	11.80
18	Designing Software (Solidcam)	1	12.00	12.00	2.16	14.16
	Sub Total (A)	45	464.70	787.05	141.67	928.72
	Secondary Machinery					
1	Air Compressor (5HP)	2	4.28	8.56	1.54	10.10
2	250 KVA 3 Phase Silent DG Set	1	18.00	18.00	3.24	21.24
3	Transformer with Panel (400 KVA)	1	7.50	7.50	1.35	8.85
	Sub Total (B)	4	29.78	34.06	6.13	40.19
	Quality Check Facility					
1	Spectrophotometer	1	33.23	33.23	5.98	39.21
2	Crack Detector	1	5.00	5.00	0.90	5.90
	Sub Total (C)	2	38.23	38.23	6.88	45.11
Total Machine Price						1,014.02

C. Miscellaneous Fixed Assets:

S. No.	Description	Rate	Amount (in INR Lakhs)
1	Furniture & Fixtures Etc.	1,00,000.00	1.00
2	Fire Fighting Equipments	1,50,000.00	1.50
3	Factory Lighting & Misc. Elect. Fitting	2,50,000.00	2.50
4	ETP Plant	3,85,000.00	3.85
5	Lab & Quality Control Equipments	5,00,000.00	5.00
Total			13.85

D. Preliminary & Pre-operative Costs

S. No.	Description	Amount (in INR Lakhs)
1	Salary & Wages for Construction Period	3.00
2	Interest During Construction Period	137.28
3	Misc. Expenses - Telephone, Travelling	1.75
4	Pollution Control Board Consent Fee	1.50
Total		143.53

E. Provision for Contingencies

S. No.	Description	Cost (in INR Lakhs)	Contingencies @5% (in INR Lakhs)
1.	Plant & Machinery	1,014.02	50.70
2.	Misc. Fixed Assets	13.85	0.69
Total			51.39

F. Raw Material (RM)

Description	Qty (Kg/Day)	No. Of Days/Month	Qty (Kg/Month)	Rate/ Kg	Amount (In INR Lakhs)
Steel	4,000	26	1,04,000	65.00	67.60
RM Cost/ Month					67.60
RM Cost/ Anum					811.20

Years	Capacity Utilisation	RM Amount (In INR Lakhs)
1 st	80%	648.96
2 nd	85%	689.52
3 rd	90%	730.08

G. Sales Revenue

Products	Production per day	Price per piece (in INR)	No. of days/month	Annual Sales (in INR)
Pliers	2,500	60	26	4,68,00,000
Wrenches	2,000	70	26	4,36,80,000
Screwdrivers	3,000	45	26	4,21,20,000
Another product as per the market requirement	2,000	80	26	4,99,20,000
Total Yearly Sales (in INR Lakhs)				1,825.20

Years	Capacity Utilisation	Revenue (In INR Lakhs)
1 st	80%	1,460.16
2 nd	85%	1,551.42
3 rd	90%	1,642.68

H. Salary and Wages

Description	Nos.	Monthly Salary (in INR)	Salaries Per Annum (in INR Lakhs)
General Manager	1	50,000.00	6.00
Operators	18	12,500.00	27.00
Helper	20	9,500.00	22.80
Solid work Expert	1	25,000.00	3.00
Supervisor	2	30,000.00	7.20
Store In charge	2	15,000.00	3.60
Administrator	1	35,000.00	4.20
Labour Liaising Officer	2	25,000.00	6.00
Marketing Executive	1	20,000.00	2.40
Office Boy	3	9,500.00	3.42
Security Guard	2	10,000.00	2.40
Total			82.20
Add: Perquisites/Fringe Benefits @ 10%			8.22
Grand Total			90.42

Note: An increase in salary & wages @ 10% per annum shall be assumed from 2nd year onwards.

I. Working Capital

In INR Lakhs

S. No.	Description	Period	1st Year	2nd Year	3rd Year
1.	Raw Material	1 Month	54.08	57.46	60.84
2.	Stock in Progress	1 Month	81.12	86.19	91.26
3.	Finished Goods	7 Days	14.89	15.74	16.47
4.	Sundry Debtors	15 Days	60.84	64.64	68.45
5.	Overheads	15 Days	2.49	2.75	3.00
Total			213.42	226.79	240.01
Less: Trade Creditors		1 Month	27.04	28.73	30.42
Net Working Capital			186.38	198.06	209.59
Less: Margin			176.38	188.06	199.59
Working Capital Limits Required			10.00	10.00	10.00
Interest @ 12% Pa			1.20	1.20	1.20

J. Repayment of Term Loan and Interest thereon

In INR Lakhs

Year	Quarterly	Opening Balance	Repayment	Closing Balance	Interest @ 12.00% P.A.	Total Interest
1st	(i)	1,144.00	-	1,144.00	34.32	137.28
	(ii)	1,144.00	-	1,144.00	34.32	
	(iii)	1,144.00	-	1,144.00	34.32	
	(iv)	1,144.00	-	1,144.00	34.32	
2nd	(i)	1,144.00	57.20	1,086.80	34.32	126.98
	(ii)	1,086.80	57.20	1,029.60	32.60	
	(iii)	1,029.60	57.20	972.40	30.89	
	(iv)	972.40	57.20	915.20	29.17	
3rd	(i)	915.20	57.20	858.00	27.46	99.53
	(ii)	858.00	57.20	800.80	25.74	
	(iii)	800.80	57.20	743.60	24.02	
	(iv)	743.60	57.20	686.40	22.31	
4th	(i)	686.40	57.20	629.20	20.59	72.07
	(ii)	629.20	57.20	572.00	18.88	
	(iii)	572.00	57.20	514.80	17.16	
	(iv)	514.80	57.20	457.60	15.44	
5th	(i)	457.60	57.20	400.40	13.73	44.62
	(ii)	400.40	57.20	343.20	12.01	
	(iii)	343.20	57.20	286.00	10.30	
	(iv)	286.00	57.20	228.80	8.58	
6th	(i)	228.80	57.20	171.60	6.86	17.16
	(ii)	171.60	57.20	114.40	5.15	
	(iii)	114.40	57.20	57.20	3.43	
	(iv)	57.20	57.20	(0.00)	1.72	

K. Depreciation Estimates

(in INR Lakhs)

Description	Building	Plant & Mach.	Misc. Fixed Assets	Total
Rate of Depreciation	10%	15%	10%	
Cost	89.98	1,014.02	13.85	1,117.85
Less: Depreciation - 1st Year	9.00	152.10	1.39	162.49
Written Down Value (WDV)	80.98	861.92	12.47	955.37
Less: Depreciation - 2nd Year	8.10	129.29	1.25	138.63
WDV	72.88	732.63	11.22	816.73
Less: Depreciation - 3rd Year	7.29	109.89	1.12	118.30
WDV	65.60	622.74	10.10	698.43
Less: Depreciation - 4th Year	6.56	93.41	1.01	100.98
WDV	59.04	529.33	9.09	597.45
Less: Depreciation - 5th Year	5.90	79.40	0.91	86.21
WDV	53.13	449.93	8.18	511.24
Less: Depreciation - 6th Year	4.78	67.49	0.11	72.38
WDV	48.35	382.44	8.07	438.85

L. Statement of Profit & Loss

In INR Lakhs

Description	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Capacity Utilisation	0.80	0.85	0.90	0.90	0.90	0.90
Sales	1,460.16	1,551.42	1,642.68	1,642.68	1,642.68	1,642.68
Total	1,460.16	1,551.42	1,642.68	1,642.68	1,642.68	1,642.68
Expenditure						
Raw Material	648.96	689.52	730.08	730.08	730.08	730.08
Manufacturing overheads	32.45	34.48	36.50	36.50	36.50	36.50
Salary & Wages	90.42	99.46	109.41	109.41	109.41	109.41
Utilities	19.30	22.06	23.44	23.44	23.44	23.44

In INR Lakhs

Description	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Administration and other overheads	17.96	19.21	20.49	20.49	20.49	20.49
Interest on Term Loan	137.28	126.98	99.53	72.07	44.62	17.16
Interest on Working Capital	1.20	1.20	1.20	1.20	1.20	1.20
Total	947.57	992.91	1,020.65	993.19	965.74	938.28
Profit before depreciation	512.59	558.51	622.03	649.49	676.94	704.40
Less: Depreciation	162.49	138.63	118.30	100.98	86.21	72.38
Profit after depreciation (Before Tax)	350.10	419.88	503.73	548.51	590.73	632.02
Less: Income Tax	108.18	129.74	155.65	169.49	182.54	195.29
Profit after tax	241.92	290.14	348.08	379.02	408.20	436.72

M. Projected Balance Sheets

In INR Lakhs

Description	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Sources of Funds						
Share Capital	475.76	475.76	475.76	475.76	475.76	475.76
Reserves & Surplus	241.92	532.06	880.13	1,259.15	1,667.35	2,104.07
Term Loan	1,144.00	915.20	686.40	457.60	228.80	-
Bank Borrowings-WC	10.00	10.00	10.00	10.00	10.00	10.00
Unsecured Loans	50.00	50.00	50.00	50.00	50.00	50.00
Total	1,921.68	1,983.02	2,102.29	2,252.51	2,431.91	2,639.83
Application of Funds						
Fixed Assets	1,346.55	1,184.07	1,045.43	927.13	826.15	739.94
Less: Depreciation	162.49	138.63	118.30	100.98	86.21	72.38
Net Block	1,184.07	1,045.43	927.13	826.15	739.94	667.55
Current Assets						
Inventories	150.09	159.39	168.57	168.57	168.57	168.57

In INR Lakhs

Description	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Sundry Debtors	60.84	64.64	68.45	68.45	68.45	68.45
Other Current Assets	3.00	7.00	11.00	15.00	19.00	23.00
	213.93	231.04	248.01	252.01	256.01	260.01
Less: Sundry Creditors	27.04	28.73	30.42	30.42	30.42	30.42
Net Current Assets	186.89	202.31	217.59	221.59	225.59	229.59
Loans & Advances						
Cash & Bank	547.43	731.98	954.27	1,201.47	1,463.08	1,739.39
Securities	3.30	3.30	3.30	3.30	3.30	3.30
Total	1,921.68	1,983.02	2,102.29	2,252.51	2,431.91	2,639.83

N. Debt Service Coverage Ratio:

(in INR Lakhs)

Description	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Source of Funds						
PAT	241.92	290.14	348.08	379.02	408.20	632.02
Depreciation	162.49	138.63	118.30	100.98	86.21	72.38
Interest on Term Loan	137.28	126.98	99.53	72.07	44.62	17.16
Total	541.69	555.75	565.91	552.07	539.02	721.56
Application of Funds						
Interest on Term Loan	137.28	126.98	99.53	72.07	44.62	17.16
Repayment of Term Loan	0	228.80	228.80	228.80	228.80	228.80
Total	137.28	355.78	328.33	300.87	273.42	245.96
D.S.C.R.	3.95	1.56	1.72	1.83	1.97	2.93
Average D.S.C.R.	2.33					

O. Break Even Point & Internal Rate of Return

Break Even Point (BEP)			
Description		Amount (in INR Lakhs)	
[A]	Sales		1,460.16
[B]	Variable Cost		
	Raw Material	648.96	
	Manufacturing Overheads	32.45	
	Salary & Wages - 90 %	81.38	
	Utilities - 90 %	17.37	
	Interest on Working Capital	1.20	
	Administrative Overheads	17.96	799.32
[C]	Contribution		660.84
[D]	Fixed Overheads		
	Salary & Wages - 10 %	9.04	
	Utilities - 10 %	1.93	
	Interest on Term Loan	137.28	
	Depreciation	162.49	310.74
[E]	Break Even Point		32.92%

Years	Construction Period	1 st	2 nd	3 rd	4 th	5 th	6 th
Inflow/ Outflow	-1,669.80	404.41	428.77	466.38	480.00	494.41	704.40
Internal Rate of Return						17.80%	

P. Cash Flow Statement

PROJECTED CASH FLOW STATEMENT					(In INR Lakhs)	
Description	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year	6 th Year
Sources of Funds						
Profit Before Tax, Depreciation & Interest (Term Loan)	649.87	685.49	721.56	721.56	721.56	721.56
Share Capital	475.76	-	-	-	-	-

PROJECTED CASH FLOW STATEMENT					(In INR Lakhs)	
Description	1 st Year	2 nd Year	3 rd Year	4 th Year	5 th Year	6 th Year
Term Loan	1,144.00	-	-	-	-	-
Unsecured Loans	50.00					
Working Capital Limit	10.00	-	-	-	-	-
Sundry Creditors	27.04	1.69	1.69	-	-	-
Total	2,356.67	687.18	723.25	721.56	721.56	721.56
Application of Funds						
Capital Expenditure	1,346.55	0	0	0	0	
Current Assets						
Inventories	150.09	9.31	9.17	0	0	0
Sundry Debtors	60.84	3.80	3.80	0	0	0
Loans & Advances						
Other Current Assets	3.00	4.00	4.00	4.00	4.00	4.00
Securities	3.30	-	-	-	-	-
Repayment for Term Loan	-	228.80	228.80	228.80	228.80	228.80
Interest	137.28	126.98	99.53	72.07	44.62	17.16
Income Tax	108.18	129.74	155.65	169.49	182.54	195.29
Total	1,809.24	502.64	500.95	474.36	459.95	445.25
Opening Balance	-	547.43	731.98	954.27	1,201.47	1,463.08
Surplus [Deficit]	547.43	184.55	222.30	247.20	261.61	276.31
Closing Balance	547.43	731.98	954.27	1,201.47	1,463.08	1,739.39

Schemes and consultancy services

1. Existing schemes available and their details

With the growing demand, and influx of high-quality hand tool brands in India, the MSMEs increasingly find themselves competing with renowned and established brands, not just from India but also leading global players. This has led to renewed emphasis on the quality of these products. This need is further fuelled by the fact that the hand tools are used in sectors like defence, railways, automobiles, and aerospace which require sophisticated tools and equipment. To cater to the quality conscious market, and stay afloat the competition, it is imperative that MSMEs focus on adoption/upgradation of technology, and testing process to manufacture high-quality hand tools with zero error.

Another critical factor driving the growth and competitiveness of the hand tools industries is the raw material, i.e. steel. Procurement of high-quality steel at competitive rates is a major challenge for MSMEs.

Thus, based on the above considerations, few areas of interventions have been identified with relevant Government of India schemes, incentives and consultancy services, which can be leveraged by MSMEs to overcome various gap areas and enhance their competitiveness.

- Technology Adoption/Upgradation
- Testing & Quality Assurance
- Raw Material Procurement

I. Technology Adoption/Upgradation

i. Credit Linked Capital Subsidy for Technology Upgradation (CLCSS)

Ministry	Ministry of Micro, Small and Medium Enterprises (MSME)
Objective	<ul style="list-style-type: none"> • The objective of the scheme is to facilitate technology up-gradation in MSEs for induction of well-established and improved technology in the specified 51 sub-sectors/products approved. • Forging & Hand Tools is a part of the approved 51 Sectors/ Sub-sectors under CLCSS.
Nature of assistance	<ol style="list-style-type: none"> a. Upfront subsidy of 15% on institutional credit up to Rs. 1.00 Cr. (i.e. a subsidy cap of Rs. 15.00 lakhs) for identified sectors/subsectors/technologies b. For SC/ST, women entrepreneurs and entrepreneurs from NER, Hill states (Jammu & Kashmir, Himachal Pradesh & Uttarakhand) island territories (Andaman & Nicobar and Lakshadweep) and Aspirational Districts/ Left-wing Extremism (LWE) Districts: Subsidy shall also be

	<p>admissible for investment in acquisition/replacement of plant & machinery / Equipments & technology up-gradation of any kind.</p> <p>b. Special Credit Linked Capital Subsidy Scheme (SCLCSS):</p> <ul style="list-style-type: none"> • Additional subsidy for SC/ST owned enterprises under National SC-ST Hub • 25% capital subsidy with an overall investment ceiling of Rs. 1.00 Cr. without any restriction on the sectors or machinery & technology
Who can apply?	<ul style="list-style-type: none"> • Any micro and small enterprise (MSE) having valid Udyam Registration and availing institutional credit to buy new plant & machinery approved under the scheme. • Special benefits are applicable in case of SC/ST, Women, NER / Hill States / Aspirational Districts /LWE Districts. • Benefits will be extended only if the eligible benchmarked machinery is purchased by availing term loan from a notified lending agency. • Fabricated and second-hand plant and machinery shall not be eligible for consideration for subsidy under this component • MSEs availing subsidy under this component of the scheme shall not be eligible to avail any other subsidy for technology up-gradation from the Central/State/UT Government for the same purpose and vice versa. • The beneficiary unit will have to remain in commercial production for a period of three years after installation & commissioning of the plant & machinery, on which subsidy under the CLCS-TUS has been availed.
How to apply?	<ul style="list-style-type: none"> • To claim subsidy under CLCSS, eligible MSEs may apply online through Primary Lending Institutions (PLIs), from where the MSEs avail term loan. • The completed application is uploaded by the PLI through Online Application and Tracking System to the attached Nodal Agency which, in turn, recommends the application online to Office of DC (MSME) for release of subsidy. • After processing of application and subject to availability of funds, approval may be accorded, after which funds are released to Nodal Agencies. • Funds are then transferred by the Nodal Agencies to the PLIs where the account of the MSE is operated.
Download scheme guidelines here: https://clcss.dcmsme.gov.in/	

ii. Micro & Small Enterprises Cluster Development (MSE-CDP)

Ministry	Ministry of Micro, Small and Medium Enterprises (MSME)
<p>Description</p>	<ul style="list-style-type: none"> • The scheme aims to support the sustainability and growth of MSEs by addressing common issues such as improvement of technology, skills & quality, market access, etc. • To build capacity of MSEs for common supportive action through formation of Self-Help Groups, consortia, upgradation of associations, etc. • To create/upgrade infrastructural facilities in the new/existing industrial areas/clusters of MSEs • To set up Common Facility Centres (for testing, training, raw material depot, effluent treatment, complementing production processes, etc.) • Promotion of green & sustainable manufacturing technology for the clusters so as to enable units switch to sustainable and green production processes and products
<p>Nature of Assistance</p>	<p>a. Common Facility Centers: Creation of “tangible assets” such as common production/processing Centre, design centers, testing facilities including plug & play Facilities</p> <ul style="list-style-type: none"> • Government of India assistance: upto 70% of the maximum project cost of Rs. 20.00 Cr. • For North East (NE) & Hill States, Island territories, Aspirational Districts/LWE affected Districts, Clusters with more than 50% micro/village/women owned/SC/ST unit: upto 90% of the project cost <p>b. Infrastructure Development: Development of land, roads, drainage, power distribution etc. in new / existing industrial (multi-product) areas / estates / Flatted Factory Complex</p> <ul style="list-style-type: none"> • Government of India assistance: upto 60% of the maximum project cost of Rs. 10.00 Cr for Industrial Estate and Rs. 15.00 Cr. for Flatted Factory Complex • For NE & Hill States, Island territories, Aspirational Districts/LWE affected Districts, Clusters with more than 50% micro/ village/women owned/SC/ST unit: upto 80% of the maximum project cost <p>c. Marketing Hubs / Exhibition Centres by Associations: Establishing marketing hubs/exhibition centres at central places for display and sale of products</p> <ul style="list-style-type: none"> • Government of India assistance for Product Specific Associations with BMO rating of Gold Category and above from NABET (QCI): upto 60% of the maximum project cost of Rs. 10.00 Cr.

	<ul style="list-style-type: none"> Government of India assistance for Associations of Women Entrepreneurs: upto 80% of the maximum project cost <p>d. Thematic Interventions: Activities such as training programmes, exposure visits, BDS provisioning etc. for approved/ completed CFCs</p> <ul style="list-style-type: none"> Government of India assistance: 50% of total cost of maximum 5 activities; Rs. 2.00 lakhs for each activity in approved/completed CFC, maximum Rs. 10.00 lakhs per CFC <p>e. State Innovative Cluster Development Programme: Co-funding of the CFC projects of State Cluster Development Programme on matching share basis</p> <ul style="list-style-type: none"> Government of India assistance: GoI fund would be limited to State Government share or Rs. 5.00 Cr. whichever is lower For NE & Hill States, Island territories, Aspirational Districts/LWE affected Districts, SC/ST/women owned unit: upto 90% of project cost, as per the scheme guidelines of State Cluster Development Programme
Who can apply	Clusters comprising of micro & small enterprises units with Udyam Registration, Industrial associations/Consortia
How to apply	Eligible units may submit online applications at https://cluster.dcmsme.gov.in and share the hard copy of applications through State Governments or their Autonomous Bodies or field institutes of the Ministry of MSME i.e., MSME DIs.
Download scheme guidelines here: http://www.dcmsme.gov.in/mse-cdprog.htm	

iii. Technology Centres (Tool Rooms) & Technology Development Centres

Ministry	Ministry of Micro, Small and Medium Enterprises (MSME)
Description	<ul style="list-style-type: none"> With the objective of assisting the MSMEs with integrated development, Technology Centres (TCs) have been set up by the Ministry of MSME across the country, by providing quality tool, industry ready manpower, consultancy in tooling & related areas and processes & products development The TCs cater to a plethora of sectors such as Tooling, Mould, Dies, Foundry & Forging, Electronics, Electrical Measuring Instruments, Fragrance & Flavour, Glass, Sport Goods and Footwear designing sectors across the country.
Nature of assistance	<p>Assistance provided by the Technology Centres to the MSMEs, include:</p> <ul style="list-style-type: none"> Access to tooling facilities for enhancement of their efficiency Process & product development in relevant sector Consultancy and job work in relevant sector Skill development
Who can apply?	<ul style="list-style-type: none"> MSME units desirous of availing tooling and dies facilities and consultancy services having Udyam Registration can apply for the assistance from the Technology Centres

How to apply?	<ul style="list-style-type: none"> MSMEs can avail the assistance for tooling and consultancy services by visiting the relevant Technology Centres.
Access more details here: https://www.nsic.co.in/NTSC/MaterialTestingLabs	

iv. Design Clinic for Design Expertise to MSMEs

Ministry	Ministry of Micro, Small and Medium Enterprises (MSME)
Description	The scheme aims to enhance the competitiveness of MSMEs by providing expert advice and cost-effective solution on real time design problems, resulting in new product development, continuous improvement and value addition for existing products including new products.
Nature of assistance	<p>Funding support to facilitate MSMEs to develop new design strategies or design related products and services through project interventions and consultancy.</p> <ul style="list-style-type: none"> Government of India contribution: 75% for micro and 60% for SMEs for the project range Rs. 15 lakhs to Rs. 40 lakhs
Who can apply?	All MSMEs with Udyam Registration can apply for assistance under the scheme
How to apply?	MSMEs can apply by themselves or along with a design company or a design consultant/academic institute for design projects by submission of a proposal to the Design Clinic Centre or through online application.
Download scheme guidelines here: http://www.dcmsme.gov.in/schemes/Design-Guidelines-CLCS-TUS-2019-2020.pdf	

v. Entrepreneurial and Managerial Development of SMEs through Incubators

Ministry	Ministry of Micro, Small and Medium Enterprises (MSME)
Description	The scheme aims to promote adoption of latest technologies in manufacturing as well as knowledge based innovative MSMEs to help them validate their ideas at the proof of concept level.
Nature of Assistance	<ul style="list-style-type: none"> Up to 15 lakh per idea shall be provided to Host Institute (HI) for developing and nurturing of ideas. Up to Rs. 1.00 crore for procurement and installation of relevant plant and machines including hardware and software etc., in Business Incubator (BI). Up to Rs. 1.00 Crore as seed capital support to appropriate Incubates in the form of soft loan, interest free loan, equity participation, grant or combination of these etc.
Who can apply?	<ul style="list-style-type: none"> Any individual or Udyam Registered MSMEs with innovative ideas ready for commercialisation can apply to the host institution in order to obtain fund support. Technical colleges, Universities Colleges other professional Colleges/ Institutes, R&D institutes, NGO involved in relevant activities etc.,

	EDCs of DC (MSME), MSME-DIs/TCs /DICs or any institute/organization of Central/State Govt. may apply to register as Host Institute.
How to apply?	Proposals to be submitted to Implementing Agencies (IA) and after initial scrutiny; same may be put up to the Project Monitoring and Advisory Committee (PMAC) through National Monitoring & Implementation Unit (NMIU) for consideration and approval on MIS portal for availing the benefit of the schemes.
Download scheme guidelines here: http://my.msme.gov.in/MyMsme/Reg/COM_IncubationForm.aspx	

II. Testing & Quality Assurance

i. ZED Certification Scheme

Ministry	Ministry of Micro, Small and Medium Enterprises (MSME)
Description	<ul style="list-style-type: none"> • The objective of the scheme is promotion of ZED manufacturing amongst MSMEs and ZED Assessment for their certification to: <ul style="list-style-type: none"> ▪ Encourage and enable MSMEs to manufacture quality products using latest technology tools & to constantly upgrade their processes for achievement of high productivity and high quality with the least effect on the environment ▪ Develop a Zero Defect Zero Effect manufacturing ecosystem for MSMEs, for enhancing competitiveness and enabling exports. ▪ Promote adoption of quality and recognizing the efforts of successful MSMEs ▪ Increase public awareness on demanding Zero Defect and Zero Effect Products through the ZED Rating and Grievance Redressal Portal
Nature of assistance	<ul style="list-style-type: none"> • Reimbursement of 80% for Micro, 60 % for Small and 50% for Medium for ZED Certification <ul style="list-style-type: none"> ▪ This can be claimed only once each for National and International Standards. ▪ For MSMEs supplying for Defence, reimbursement shall be admissible additionally on Defence related certificates/Standards only once. ▪ An additional subsidy of 5% for MSMEs owned SC/ST/women and MSMEs located in NER and J&K.
Who can apply?	Manufacturing micro, small and medium enterprises with Udyam Registration can apply for assistance under the scheme.
How to apply?	MSMEs may submit their applications online, which will be e-processed by Implementing Agency (IA). The other activities such as e-learning, training, consultancy, etc. are also be a part of the e-platform.
Download scheme guidelines here: https://msme.gov.in/sites/default/files/guidelines-zed-final.pdf	

ii. Lean Manufacturing Competitiveness Scheme (LMCS)

Ministry	Ministry of Micro, Small and Medium Enterprises (MSME)
Description	<ul style="list-style-type: none"> To enhance the firm level manufacturing competitiveness of MSMEs through the application of various Lean Manufacturing (LM) techniques. The scheme envisages the use of LM techniques to: <ul style="list-style-type: none"> Increase in Productivity Improved quality, cost and delivery time of product & services Outstanding customer service Movement towards zero waste
Nature of assistance	<ul style="list-style-type: none"> Financial assistance is provided for implementation of lean manufacturing techniques, primarily the cost of lean manufacturing consultant (80% by Government of India and 20% by beneficiaries).
Who can apply?	<ul style="list-style-type: none"> The scheme is open to all manufacturing MSEs having Udyam Registration The units are required to form Mini Cluster of 10 units (minimum 4)
How to apply?	<ul style="list-style-type: none"> A group of SMEs can apply for the scheme. Either a recognised SPV can apply on its own, or a mini cluster can be formed by a group of 10 or more such units. The SPV can apply to the National Monitoring and Implementing Unit (National Productivity Council for the Scheme) in the prescribed format.
Download scheme guidelines here: http://www.dcmsme.gov.in/schemes/clcstus/LEAN-Operational-Guidelines.pdf	

iii. Material Testing Labs

Department	National Small Industries Corporation
Description	<ul style="list-style-type: none"> NSIC provides various NABL/BIS accredited testing laboratories accredited for material and product testing, energy audit, facilities.
Nature of assistance	<ul style="list-style-type: none"> Adhering to national and international standards significantly enhance the overall competitiveness of MSMEs. NSIC's state of the art testing centres across-country are equipped with facilities for carrying out performance and acceptance tests in the fields of chemical, material, electrical, motor & pumps, metallurgical etc.
Who can apply?	<ul style="list-style-type: none"> Any manufacturing MSME having Udyam Registration can apply for the assistance under the scheme if their product of testing falls under the ambit of the testing service being offered by the testing lab.

How to apply?	Interested MSMEs can refer to the centre wise testing details on NSIC's website. The centres are currently available at: <ul style="list-style-type: none"> • Chennai • Howrah (West Bengal) • Hyderabad • Okhla (New Delhi) • Rajkot
Access more details here: https://www.nsic.co.in/NTSC/MaterialTestingLabs	

iv. Trade Infrastructure for Export schemes (TIES)

Ministry	Ministry of Commerce and Industries
Description	The objective of the scheme is to enhance export competitiveness by providing export infrastructure, creating focused export infrastructure, first mile and last mile connectivity for export-oriented projects and addressing quality and certification measures.
Nature of assistance	<ul style="list-style-type: none"> • Financial assistance is provided for setting up and upgradation of infrastructure projects which are relevant for exports, such as quality testing and certification labs, trade promotion centres, export warehousing and packaging, etc. • Government of India support of 50% of project cost (excluding land) subject to ceiling of Rs.20.00 Crore • For NE States and Himalayan States including J&K: 80% of the total equity in the project with ceiling of Rs 20.00 Crore
Who can apply?	The Central and state government agencies, including Export Promotion Councils, Commodities Boards, SEZ Authorities and Apex Trade Bodies recognized under the EXIM policy of Government of India; are eligible for financial support under this scheme.
How to apply?	The details of approved projects under TIES is available on the website of Department of Commerce, Ministry of Commerce and Industries. Interested units may visit the relevant facility for availing assistance.
Access more details here: https://commerce.gov.in/?	

III. Raw Material Procurement

i. Raw Material Assistance

Organization	National Small Industries Corporation
Description	<ul style="list-style-type: none"> • The scheme objective is to help MSEs by way of financing the purchase of raw material (both indigenous & imported)

	<ul style="list-style-type: none"> This gives an opportunity to MSEs to focus better on manufacturing quality products.
Nature of assistance	<ul style="list-style-type: none"> Assistance is provided towards the following: <ul style="list-style-type: none"> Procurement of raw materials and other inputs viz., Aluminium, Zinc, Copper, Iron & Steel, Paraffin wax, Coal, Polymer products etc., by signing Memorandum of Understanding with the bulk manufacturers. Godown operation of bulk manufacturers. Procurement of other Raw Materials and other inputs from the suppliers / manufacturers (other than those listed above) on the specific request of MSME. The maximum assistance is provided upto 95% of the Bank Guarantee value.
Who can apply?	Any manufacturing MSME having Udyam Registration Certificate can apply for the assistance under the scheme.
How to apply?	The entrepreneurs can apply for Raw Material Assistance by submitting their application in prescribed forms on NSIC's website. The application forms downloaded from the link given below may be filled and can be submitted to the nearest Branch Office. The blank forms are also available free of charge from the Branch offices.
Download scheme guidelines here: https://www.nsic.co.in/Schemes/Raw-Material-Against-BG	

2. Proposed scheme (if existing is not suitable)

It was proposed by MSMEs to establish raw material depots with storage facility in major clusters with support from Government Agencies like NICSI to cater to the high prices of raw material. The government agency may purchase the raw material directly from the large manufacturers and store the material in storage yards/ raw material depots.

An external agency however is required for operationalization of these raw material depots as the material received from manufacturers requires processing in terms of their sizing and converting to sheets before it can be made available to MSMEs.

Currently no scheme has provision for such technical agency to operate such raw material banks. A technical agency may be created to create and operate such raw material banks.

3. Details of agencies who can provide guidance (CSIR), MSME TCs, Sector councils, etc.

Following are the major supporting institutes which can assist entrepreneurs in the field of hand tools:

i. Central Institute of Hand Tool, Jalandhar:

Central Institute of Hand Tools (MSME Tool Room, Jalandhar) is a premier organization responsible for the development of Hand Tool Industry in the country. Government of India has set up Central Institute of Hand Tools as a National Institute in Jalandhar (Punjab) as an autonomous organization with the assistance of U.N.D.P. and Govt. of Punjab in the year 1983, with a view to provide trained manpower and technology support services to engineering industry in general & the hand tools industries in particular. The institute is ISO-9001:2008, ISO-14001:2004 certified and having NABL accredited Lab.

CIHT, Jalandhar imparting Engineering Education in various skill development courses which has greater demand in the industries in the field of Product Design & Development, CAD/CAM, CNC Programming & Machining, Mechatronics/Automation with PLC, Welding, Electrician and Quality Control etc. and providing services to the Engineering industries in various areas such as Tool Room, Heat Treatment, Testing & Quality Control.

ii. Bureau of Energy Efficiency (BEE)

Bureau of Energy Efficiency (BEE) was setup by the Government of India on 1st March 2002 under the provision of the Energy Conservation Act, 2001. The mission of Bureau of Energy Efficiency is to assist in developing policies and strategies with a thrust on self-regulation and market principles with the primary objective of reducing energy intensity of the Indian economy within the overall framework of the Energy Conservation Act, 2001. This will be achieved with active participation of all stakeholders, resulting into accelerated and sustained adoption of energy efficiency in all sectors.

BEE has already conducted several programmes to identify initiative to enhance energy efficiency of MSMEs. Some of the studies have been done by BEE in hand tool clusters also. Finding of BEE can be implemented through collaboration of Ministry of MSME to get the benefits of studies on ground.

iii. Engineering Exports Promotion Council (EEPC)

EEPC India is the premier trade and investment promotion organisation in India. It is sponsored by the Ministry of Commerce & Industry, Government of India, and caters to the Indian engineering sector. As an advisory body it actively contributes to the policies of the Government of India and acts as an interface between the engineering industry and the government. Set up in 1955, EEPC India now has a membership base of over 12,000 out of whom 60% are SMEs.

EEPC can play a very important role in promoting exports of hand tools especially from MSME segment through awareness creation and sensitization.

iv. Council of Scientific & Industrial Research (CSIR):

The Council of Scientific & Industrial Research (CSIR), known for its cutting-edge R&D knowledgebase in diverse S&T areas, is a contemporary R&D organization.

Having a pan-India presence, CSIR has a dynamic network of 38 national laboratories, 39 outreach centres, 3 Innovation Complexes and 5 units. CSIR's R&D expertise and experience is embodied in about 4600 active scientists supported by about 8000 scientific and technical personnel.

CSIR, through its outreach centres and national laboratories, can support hand tool MSMEs in R&D for development of energy efficient technologies and Special Purpose Machines to address challenges faced by entrepreneurs.
