Draft Detailed Project Report

Ambala Electronics Cluster

Submitted to,

Department of Industries and Commerce
Government of Haryana
(for assistance under Mini Cluster Scheme)

Report No. 2018-Chandigarh-0018

May 2018

Submitted by,
Ambala Electronic CFC Private Limited

Prepared by,
Ernst & Young LLP
Under the project: MSME Ecosystem Transformation in Haryana

15 May 2018

Director
Department of Industries & Commerce,
Government of Haryana
1st Floor, 30 Bays Building,
Sector 17, Chandigarh

Dear Sir/Madam,

As part of our engagement for providing consulting services for 'MSME Ecosystem Transformation in the State of Haryana', we hereby submit the Draft Detailed Project Report (DPR) for setting up of Centre for Surface Mount Technology (SMT) as a Common Facility Centre (CFC) in the Electronics Cluster in Ambala for your kind perusal. The deliverable has been prepared in accordance with our engagement agreement with Directorate of Industries, Govt. of Haryana dated 03 January 2017, and our procedures were limited to those described in that agreement.

This Diagnostic Study Report is based on studies of and discussions with:

- Directorate of Industries, Govt. of Haryana
- DIC Ambala
- Electronics related units located in Ambala
- Industry experts
- Secondary research

Our work has been limited in scope and time and we stress that more detailed procedures may reveal other issues not captured here. The procedures summarized in our Draft Detailed Project Report do not constitute an audit, a review or other form of assurance in accordance with any generally accepted auditing, review or other assurance standards, and accordingly we do not express any form of assurance. This Draft Detailed Project Report is intended solely for the information and use of the Office of Director Industries- Haryana and is not intended to be used by anyone other than specified party.

We appreciate the cooperation and assistance provided to us during the preparation of this report. If you have any questions, please contact the undersigned.

Sincerely,

Amar Shankar, Partner – Advisory Services

Disclaimer

This Draft Detailed Project Report for setting up of Centre for Surface Mount Technology (SMT) as a Common Facility Centre (CFC) at Electronic Cluster in Ambala has been prepared by Ernst & Young LLP (hereinafter referred to as 'EY' or 'Ernst & Young' or 'Us') and delivered to the 'Office of Director of Industries & Commerce – Government of Haryana (O/o of DI-HR)' (hereinafter referred to as 'the Client').

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Acknowledgement

We would like to express our sincere gratitude to Department of Industries & Commerce - Haryana and its officials for their involvement and valuable inputs during the preparation of this DSR. We are thankful to **Mr Devender Singh, IAS,** Additional Chief Secretary, Industries & Commerce and **Mr Ashok Sangwan, IAS,** Director Industries & Commerce, Government of Haryana for sharing their insights about the **'Enterprises Promotion Policy 2015'** and their vision about the Mini Cluster Scheme. Special thanks to **Mr R C Dahra, Consultant (Clusters), Department of Industries and Commerce and Mr S N Singh, Joint Director, DIC Ambala** for their proactive support and guidance to the team during the entire process.

We would like to convey our sincere thanks to members of **Ambala Scientific Instruments Manufacturer's Association (ASIMA)**, Ambala for their assistance in facilitating stakeholder discussions. Further, we would also like to thank officials of DIC, Ambala for providing support and information related to electronic units in Ambala.

Also, we must extend our sincere thanks to Electronic Manufacturing SME entrepreneurs in Ambala and other key stakeholders who gave us their valuable time and insights with respect to various dimensions of the Electronics industry and its support requirements. Without their help, capturing of the industry insights would not have been possible.

Abbreviations

ASIMA	Ambala Scientific Instruments Manufacturers' Association
BDS	Business Development Services
CAGR	Compound Annual Growth Rate
CSIO	Central Scientific Instrumentation Organisation
CFC	Common Facility Centre
CAD	Computer Aided Design
CAE	Computer Aided Engineering
CAGR	Compound Annual Growth Rate
CAM	Computer Aided Manufacturing
DIC	District Industries Centre
GDP	Gross Domestic Product
GSDP	Gross State Domestic Product
EPP	Enterprise Promotion Policy
ELCIA	Electronics City Industries' Association
ELCINA	Electronic Industries Association of India
EMC	Electronic Manufacturing Cluster
EMS	Electronic Manufacturing Services
ESDM	Electronic System Design and Manufacturing
GOI	Government of India
HSIIDC	Haryana State Industrial & Infrastructure Development Corporation Limited
HUDA	Haryana Urban Development Centre
HCCI	**Haryana** Chamber of Commerce & Industry
ISTC	Indo-Swiss Training Center
LED	Light Emitting Diode
MSME	Micro, Small and Medium Enterprises
MSME-DI	MSME – Development Institute
NSIC	National Small Industries Corporation
NIT	National Institute of Technology
PCB	Printed Circuit Board
PNB	Punjab National Bank
PTH	Plated-Through Hole
SMD	Surface Mounted Device
SMT	Surface Mount Technology

SIDBI	Small Industries Development Bank of India
SMPS	Switched Mode Power Supply
SWOT	Strength, Weaknesses, Opportunities and Threats
THT	Thru Hole Mounting/Technology
TU	Thapar University
UAM	Udyog Aadhar Memorandum
USA	United States of America
YOY	Year on Year

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Executive Summary

Executive summary

The Government of Haryana through the Department of Industries and Commerce intends to transform the MSME sector of the state and put it on a growth path. Several incentives have been offered under the state's ambitious 'Enterprise Promotion Policy (EPP) 2015' to provide an impetus to growth of the MSME sector. Towards this, the state aims to strengthen the technology infrastructure as well as enhance productivity and competitiveness of various MSME clusters across the state by leveraging funding under the State Mini Cluster Scheme providing grant under its EPP 2015.

In this context, this Draft Detailed Project Report (DPR) has been prepared to seek grant-in-aid assistance under the State Mini Cluster Scheme to set up a state-of-the art Common Facility Centre (CFC) for the Electronic Cluster at Ambala District, Haryana through a SPV under the name and style of **'Midas Mechatronics LLP'.**

About the Ambala Electronic Cluster

There are about 100 micro and small electronic manufacturing units in Ambala district, Haryana with 10 units formed a Special Purpose Vehicle (SPV) to set up a Common Facility Centre (CFC) to address common technological infrastructure gap of the cluster i.e. absence of Surface Mount Technology. The Ambala Electronic cluster is a mix of units that produce various electronic products. These units produce products such as LED lights, SMPS, electronic medical devices, electronics sensors, defence equipments, and automation equipment etc.

The annual turnover of the cluster is about INR 25 Cr. Several micro and small level electronic manufacturing units face the challenge of using the dated technology, which in turn manifests into costs overheads, production related delays, higher rejection rate and may affect the survival of the cluster in coming times.

Diagnostic Study and Interventions

A diagnostic study was undertaken by cluster members in November 2017 to map the existing business processes in the cluster, identify the gaps, and understand the requirements of the cluster. It was observed that most units require next level of technology i.e. Surface Mount Technology, which caters to the increased demand for greater functionality, smaller product size, and added utility. Presently, they are availing these services from external service providers at higher prices.These units also face production delays. Moreover, absence of new technololology restrains them from innovation. In this context, the units decided to establish a CFC that will provide the new technology to the cluster.

SMT (**Surface Mount Technology)** caters to the increased demand for greater functionality. SMT brings the scope for R&D, evolving products as per current demand and also explore new markets. The new technology is an imperative solution for the cluster units to enhance productivity. In this context, the units decided to establish a CFC.

A Stakeholders validation meeting of DSR was conducted with SPV and cluster members on **21st December 2017.** The DSR was presented to the state government and was subsequently approved on the **25th January 2018 vide Memo no. Mini Cluster/Electronics/Ambala/1090-A.** The SPV was granted permission to go ahead with preparation of Detailed Project Report (DRP) for the cluster. EY subsequently prepared the DPR. The letter has been added as Annexure 1.

Proposed Common Facility Centre

The cluster would require the following common infrastructure facility to improve the competitiveness of the micro and small electronic manufacturing units and enable them to move up the value chain:

- **SMT(Surface Mount Technology)**

The members of the proposed SPV with support from the state government are willing to set up a dedicated Common Facility Centre, which shall have state-of-the-art SMT facility. This facility shall provide a much needed technological impetus to the cluster units and will enable them to become more competitive and innovative and expand the horizon of its market. The proposed CFC will facilitate job work for the cluster units with state-of-the-art **Surface Mount Technology** for manufactring electonic products that have greater functionality, and added utility.

The proposed common facilities will be utilized by the SPV members and will also be available to non-members units within and outside the cluster. The facility will provide a much needed technological push to the cluster units and will enable them to become more competitive.

Special Purpose Vehicle for Project Implementation

The cluster units have come together and formed a Special Purpose Vehicle (SPV) by the name and style of **'Midas Mechatronics LLP'**. The SPV has been set up as a Limited Libality Company under LLP Act 2008 . DIC, Ambala has played an important role in SPV formation by cluster stakeholders. The SPV includes 10 electronic manufacturing units as members who are subscribing to the necessary equity base of the company.

SPV members are also members of prominent industry **association 'Ambala Scientific Instruments Manufacturers' Association'** (ASIMA). Cluster members have been undertaking several soft interventions to enhance knowledge and exposure of the cluster units on new trends in electronic industry and enhancing productivity of their units. This includes exposure visits to Technology fairs, programs on new trends in electronic technologies. These programs were conducted in collaboration with State Government and BDS providers.

Project Parameters, Viability and Sustainability

The Ambala electronics cluster with support from State Government (under the Mini Cluster Scheme) is planning to set up a common facility centre under the SPV name – **'Midas Mechatronics LLP'** having state-of-the-art Electronic manufactruing facilities with a total

project cost of about **INR 255.34 lakhs**. The SPV members have proposed to contribute entire amount beyond INR 180 lakhs, taking their overall contribution to about **30% of the total project cost.** The total contribution of SPV members will amount to **INR 75.34 lakhs.** Support from State Government is envisaged for **INR 180.00 Lakhs.** The cost of the project and proposed means of finances is tabulated below:

PROJECT COST (INR lakhs)				
S. No.	Particulars	Total Project Cost	Amount as per Guidelines	Remarks
1	**Land & Building**			
	a. Land Value	0.00	0.00	Eligible (Max 25% of total of L&B, P&M, and Misc. F.A.)
	b. Land Development	0.00		
	c. Building & Other Civil Works	0.00		
	d. Building Value	0.00		
	Sub Total (A)	**0.00**	**0.00**	
2	**Plant & Machinery**			
	a. Indigenous	12.54	200.00	Eligible
	b. Imports	190.15		
	c. Secondary Machines	11.99		
	Sub Total (B)	**214.69**	**200.00**	
3	**Miscellaneous fixed assets (C)**	**3.45**	**0.00**	
4	**Preliminary & Preoperative Expenses (D)**	**7.16**	**0.00**	Not eligible for grant
5	**Contingency**			
	a. Building @ 2%	0.00	0.00	
	b. Plant & Machinery @ 5%	10.73	0.00	
	Sub Total (E)	**10.73**	**0.00**	
6	**Margin money for working capital @ 75% C.U. (F)**	**19.31**	**0.00**	
	Grand Total (A+B+C+D+E+F)	**255.34**	**200.00**	

The actual total project cost is estimated to be **INR 255.34 lakhs**. As indicated above, assistance to the project from the Govt. of Haryana is envisaged to the tune of **INR 180 lakhs.** SPV contribution is to the tune of **INR 75.34 lakhs** (around 30%) of the total project cost. The means of financing are presented below:

Means of Finance		
S. No.	Source of finance	Total Amount (INR In Lakh)
1	Grant-in-aid under State Mini Cluster Development Scheme (Govt. of Haryana)	180.00
2	Contribution of SPV	75.34
	Total	**255.34**

Detailed Means Of Finance							
S. No.	Source of finance	Project cost up to INR 200 lakh		Project cost over INR 200 lakh			Remarks
		Percentage Contribution	Amount (INR in lakh)	Percentage Contribution	Amount (INR in lakh)	Total Amount (INR in lakh)	
1	Grant-in-aid under State Mini Cluster Development Scheme (Govt. of Haryana)	90%	180.00	0%	0.00	180.00	As per EPP, 2015 GoH contribution is max 90% (Including soft intervention expenses)
2	Contribution of SPV	10%	20.00	100%	55.34	75.34	
	Total	**100%**	**200.00**	**100%**	**55.34**	**255.34**	

The viability and sustainability of the project is evident from the project economics as well as the cooperative spirit and profile of the SPV. Some indicators of the viability are as follows:

Project's financial indicators

FEASIBILITY		
S. No.	Particulars	Estimates
1	BEP (cash BEP at initial operating capacity of 75%)	54.05%
2	Av. ROCE (PAT/CE)	28.51%
3	Internal Rate of Return (IRR)	22.73%
4	Net Present Value (at a discount rate of 10 per cent) - incorporating viability gap funding (grant) by GoH	NPV is positive and high (INR 157.79 lacs) at a conservative project life of 10 years
5	Payback period	5.14 years with Grant-in-aid assistance from GOH
6	DSCR	Not Applicable (non-availment of term loan in this project)

As evident from the financials above, with viability gap funding under Mini Cluster Scheme of GoH, the project is viable and sustainable. The project is expected to generate surplus from the fourth year of operation. Risk and sensitivity analysis considering a decline in user charge/ capacity utilization also validates the project sustainability.

Project Implementation

Project implementation is envisaged to involve a time-frame of about 6 months upon receipt of approval of grant-in-aid assistance from the Government of Haryana under State Mini

Cluster Scheme. The project will be implemented by the SPV in close association with DIC, Ambala.

The potential for the Ambala Electronic cluster to grow is enormous, with an ever increasing demand for minaturiesd electronic products. The strengths of the Ambala electronic cluster lie in its location (both geographically & industrially), with access to thriving industrial markets.

This cluster has the ability to increase its output and market share by manufacturing high quality and catering to the trending technology products. The proposed facility will be open to all cluster firms to enable them to get job work done in order to cater to the Electronic product requirements of the market. The facility will provide a major technological push to the units reeling under high competition. The CFC will also enhance the co-operation and joint action among cluster stakeholders to improve their competitiveness to meet the demands of the domestic as well as international markets.

Introduction

1. Introduction

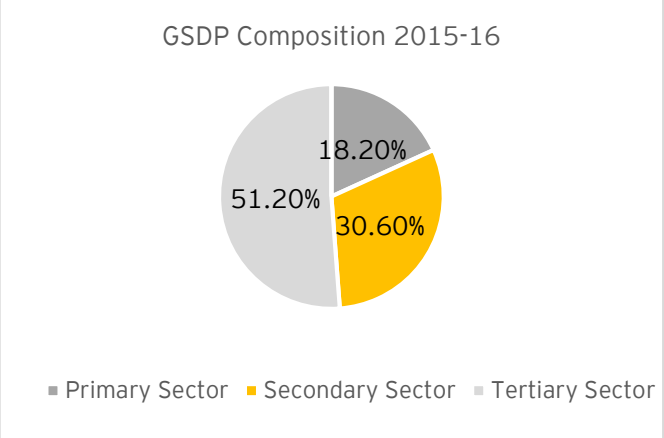
1.1 Overview of the cluster

The Ambala electronics cluster has about 100 units with 90% of it comprising of micro and 10% small units across the value chain. The cluster is located at various industrial estates in Ambala (Saha, Ambala City, Ambala Cantt) and manufacture medical instruments, LED lights, power supplies, electronic sensors, power supplies, electronic assemblies for the domestic market, defense forces and International markets. The cumulative annual turnover of this cluster is estimated to be around INR 25 Cr. The average annual turnover of micro units is approximately INR 30 lakh, of small units is approximately INR 100 lakh

However, there is an enormous potential of increase in the production capacity from cluster units by reducing the outsourcing of activities to private players. This would also result in opening vistas of innovation, which was not possible earlier due to technology constrains. Recommendations around these have been provided in the DSR.

1.2 Geographic and Economic Traits

Figure 1: GSDP Composition 2015-16



The state of Haryana was formed on 01 November 1966. It is situated in the northwest of India with the capital of Chandigarh as a Union Territory. The state is surrounded by Delhi, Rajasthan, & Uttar Pradesh with around 30% of the total area of the state falling under National Capital Region (NCR). The state stands 21st in terms of its area. According to the Census of India 2011, the state is 18th largest by the population. Over the last 5 decades since its formation in 1966, Haryana has transformed and matured into a diversified economy with a thriving secondary and tertiary sector. Although Haryana has an area covering just 1.3 per cent of the country, Haryana contributes nearly 3.63 per cent to India's GSDP. During 2004-16, the state's GSDP grew at a compound annual growth rate (CAGR) of 12.12 per cent.

1.3 Economic Scenario of the State

Haryana is 11th state in the country in terms of GSDP, with growth rate of around 6.5%. With just 1.3% of the total area of the country, Haryana contributes to nearly 3.4% of India's GDP. Haryana, with just 1.37% of the country's geographical area and 1.97% of country's total population, is counted among the first few states with the highest per capita income. The state economy is predominantly agricultural.

The industry sector contributes about 18% of the total GSDP of the state. Haryana is fast emerging as one of the most favoured investment destinations in India. The globalization of markets and a resilient economy have given an incredible drive to the industrial sector in

Haryana, which already has a competitive advantage in terms of strategic location, basic infrastructure as well as large skilled, educated and young workforce. Besides, the State has investor-friendly policies and regulatory environment as outlined in its recent EPP 2015. It is one of the leading states in terms of industrial production, especially passenger cars, mobile cranes, two-wheelers & tractors. It is the 2nd largest contributor of food grains to India's central pool, accounts for more than 60% of the export of basmati rice in the country and is 3rd largest exporter of software.

The state is in transition from agrarian to manufacturing sector. The state is gradually transforming from an agrarian economy to an industrial economy. To boost the growth rate further and make Haryana a favourable investment destination, the State has developed the Enterprise Promotion Policy in 2015. With the Enterprise Promotion Policy-2015, the state has envisaged a sustainable industrial spectrum in the state with a special focus on MSMEs in its endeavour for effecting a balanced regional and sustainable development. In order to accelerate the industrial growth in the state, the focus of the government is on holistic development, i.e., by encompassing initiatives for resource efficiency improvement, smarter technology, and environment friendly methods which reduce resource consumption.

1.4 Demographic Trends of Ambala

Ambala is also known as the manufacturing hub for scientific instruments and also boasts of a cluster for home appliances. It's strategically located on the National Highway (NH-1) that provides accessibility to markets of Uttar Pradesh, Punjab, Delhi, and Himachal Pradesh. The district is well connected by road and railway as Ambala is a prominent junction. The total population of the district as per 2011 census is 1,136,784. The district has a population density of 711 per square kilometre. At present, Ambala has become a major industrial hub with the presence of scientific instruments, kitchen appliances and electronics industries across various segments

Figure 2: District Map of Ambala

Sector Overview

2 Sector Overview

The market definition of electronics industry for this report includes electronic products and intermediate electronic components, and does not include design services. Industries in the Electronics Manufacturing sector has following sub-sectors:

- Consumer Electronics
- Medical Devices
- Industrial Electronics
- Mobile devices
- Automotive Electronics

2.1 Brief Global Scenario

The global electronics manufacturing industry, valued at US$1.86 trillion, is the largest and fastest growing manufacturing industry in the world, according to the Indian Ministry of Communications and Information Technology, and the industry is expected to reach US$2.4 trillion by 2020. The global electronics manufacturing business, consisting of electronics manufacturing services (EMS) and original design manufacturing (ODM) firms. Amid a weak global economy, the demand for electronic products such as smartphones, tablets and PCs was subdued compared to the growth observed between 2012 and 2014.This forced manufacturers to cut output and compelled major semiconductor vendors to stay cautious on their capital investment plans. As a result, the global semiconductor sales declined 0.2% YoY in 2015, after posting record sales growth at 9 .9 % in 2014. Global economic growth is projected at 3.4% in 2016, compared to 3.1 in 2015, the global economic outlook is influenced by three factors:

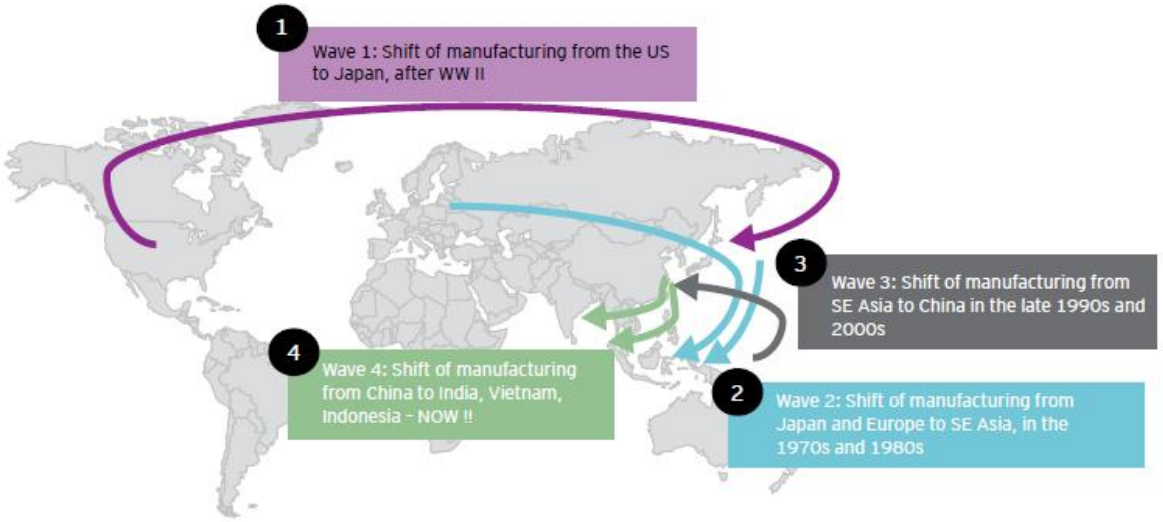
(a) Gradual slowdown in China's economy,

(b) Reduced prices for energy and other commodities (such as metals),

(c) Gradual tightening in the US monetary policy as central banks of several other major advanced countries continue to ease monetary policy.

Although growth in advanced countries is projected at around 2% in 2016, emerging markets are expected to witness growth at 4.3%. This improvement in global economy is expected to revive the demand for electronics. In the last decade, China has been the focal point for electronics production for high volume products, in the computing, consumer and communications segments, due to cost advantages and economies of scale. However, the country is now facing increasing pressure due to rising labour costs. Hence, major global OEMs and Electronics Manufacturing Services (EMS) providers are looking to relocate production to alternate locations.

Figure 3: The Manufacturing Wave – India poised to become a manufacturing destination



Source: EY analysis

2.2 India Scenario

According to an **ASSOCHAM-Ernst & Young (E&Y) study**, the Indian electronics and hardware industry is expected to grow at a CAGR of 13 to 16 per cent during 2013-18, and to reach US$ 112 to US$ 130 billion by 2018 from the previous year's level of US$ 75 billion. The Indian electronics and hardware market grew by 8.6% YoY to reach US$75 billion in 2015. The growth is driven by rising local demand with consistent growth in disposable incomes. Also, adoption of high-end technology devices, roll out of 4G/LTE networks and the Internet of Things (IoT) has further accelerated adoption of electronic products. The demand for Smart phones has increased manifold. Moreover, the announcements made by Government of India (GoI) that are related to Electronics space; programs like Digital India, Smart Cities, Cloud Initiative, Solar Power and UIDAI projects and National Knowledge Network Initiative will further provide impetus to domestic consumption of electronics.

However, India's local production of electronics products lags behind its overall demand. Currently the electronics demand is largely being met through imports. Moreover the GOI has realised that unless electronic manufacturing is provided an impetus in the country, the import bill on account of electronic items will exceed the expenditure on petroleum import. Hence, the GoI is identified that creating a robust ecosystem for the electronics manufacturing in India will kick up local manufacturing. The GoI has treated the electronics sector as a priority under its "Make in India" program, and also announced several policy initiatives (such as EDF, PMA, skill development and MEIS) and incentives (such as MSIPS), which will act as drivers to boost domestic supply. The GoI has also taken several steps towards increasing the ease of doing business, which has resulted in increased manufacturing setups by multiple foreign manufacturers in the country. All these efforts are expected to enable India to meet its local electronics demand and also cater to overseas demand in the coming years, by positioning India as a global electronics manufacturing hub.

As per the NITI AYOG Report of May 2016, India's total Electronics Hardware Production in 2014-15 is estimated at US$ 32.46 billion. This represents a share of about 1.5 percent in world electronic hardware production. The domestic consumption of Electronic Hardware in 2014-15 was $63.6 billion out of which 58% was fulfilled with Imports. With Demonetization adding to the demand for POS devices and mobile phones, this demand is going to increase manifolds. According to a study by Associated Chambers of Commerce of India (ASSOCHAM) and EY, the Indian electronics and hardware industry is expected to reach US$ 112-130 billion by 2018 as electronics and hardware manufacturers are looking to increase their manufacturing base in India to cater to the domestic market as well as the Middle East, Africa and SAARC countries.

India is one the largest growing Electronics market in the world. The Indian electronics and hardware industry is expected to grow at a CAGR of 41.7% during 2015–20 as illustrated in figure 4. However, India's local production of electronics products is not sufficient to meet the overall demand in the country. The LED market in India is expected to expand to USD 35 Billion by 2020. The other growth driver would be the DTH Market as the DTH subscriber base is expected to rise to 200 million by 2018.

Figure 4: CAGR Projection of Indian Electronic Market

Figure 5: Indian electronic products revenues by verticals

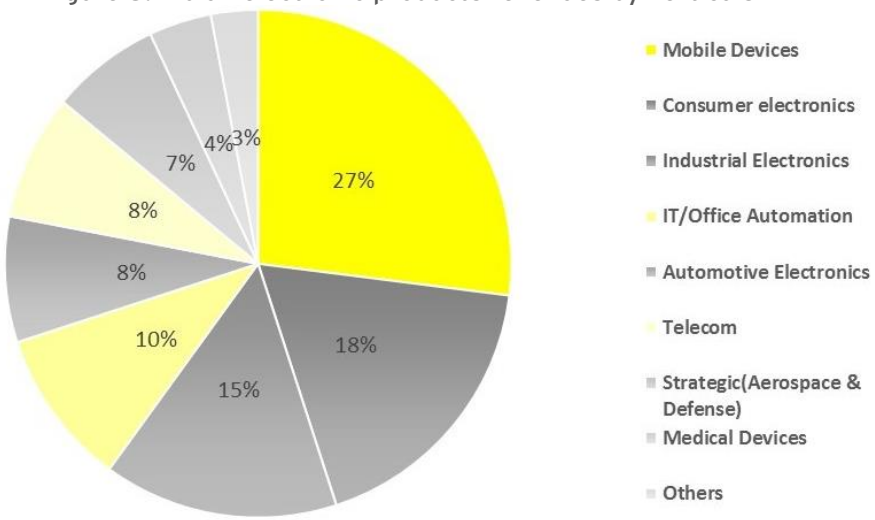
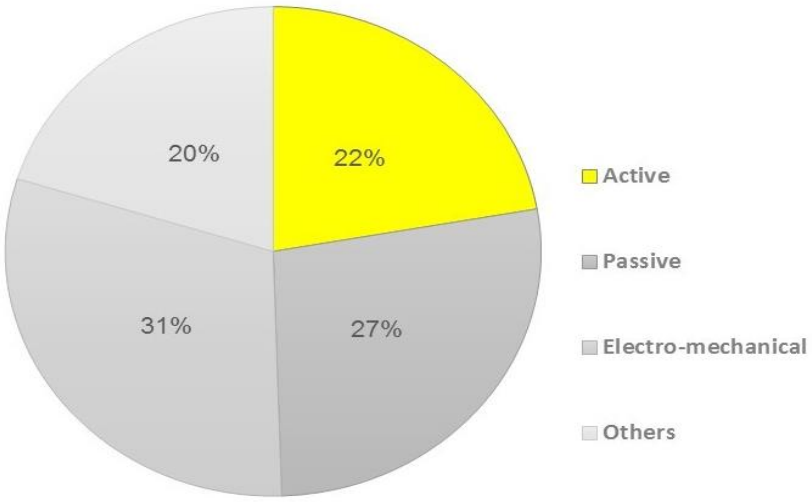


Figure 6: Indian electronic components revenues by sub-segments



2.3 Electronics Sector in Haryana

The electronics industry in Haryana is poised for major uptrend in coming years. With the lucrative policies of the Central and State government, Multinationals are looking at setting up their plant in Haryana. Panasonic Corporation, a leader in electronics, plans to set up a new plant at Jhajjar in Haryana, which will manufacture refrigerators for the Indian market, along with setting up a research and development (R&D) centre for appliances consisting of two technical divisions to strengthen the product development in the country today and will provides employment potential to approximately 1 million people. Also, auto-electronics units in NCR area of Haryana have witnessed augmented growth which is resultant of increased automation in the auto sector both in manufacturing and the final product. Similarly, the Medical Equipment Clusters in Haryana are adapting the new age technology to compete with countries like China, Taiwan and South Korea that are considered the Electronics Manufacturing Hub.

2.4 Products of the Cluster

The cluster products include medical instruments, LED lights, power supplies, electronic sensors, battery chargers, and electronic assemblies, transformers which caters to domestic and international market. The units undertake a range of activities such as manufacturing complete product, innovation and value addition, testing and finishing.
A few of the products manufactured by the cluster are presented in figure 11:

Figure 7: Products of the Electronic Manufacturing Units

LED Lights	Haemoglobin Meter	Products for Indian Navy

Diagnostic Study Findings

3 Diagnostic Study Findings

The diagnostic study was undertaken by the cluster members during September 2017 to map the existing business processes in the cluster, identify the gaps, and understand the requirements of the cluster. The diagnostic study report (DSR) was compiled with inputs from cluster SPV members in close coordination with the DIC, Ambala. The awareness level of the cluster units (on trending technologies, cluster development initiatives, etc.) was found to be good. Additionally, it was observed that most of the cluster units deploy dated technologies and are unable to meet the latest requirements of the market due to lack of availability of latest technology and equipment. The finishing of products is ordinary due to dependence on Through Hole Technology whereas the latest Surface Mount Technology gives the room for product innovation with higher productivity and lowers input cost.

The DSR was approved in the validation meeting by the SPV members on 21st December 2017 and was subsequently approved by the department of Industries & Commerce and permission to undertake the Detailed Project Report (DPR) was granted (as provided in Annexure 1. The SPV was granted permission to go ahead with preparation of DPR for the cluster. The major findings of the DSR are presented in the following sections.

3.1 Cluster Actors and their role

The primary stakeholders in the cluster are the MSME units based in Ambala District. Many support institutions and agencies such as industry associations, government agencies, academic/ R&D institutes, financial institutions, BDS providers etc. situated within and outside the cluster play a key role in developing the cluster as well in complementing initiatives of the cluster SPV.

The key stakeholders of Ambala Electronic Cluster are:

- **Government Bodies**
  - **District Industries Centre (DIC)**
    DIC is the most important government stakeholder for the cluster. The office of DIC comes under the Dept. of Industries and is headed by the General Manager who is assisted by functional managers and technical field officers. DIC promotes and routes subsidy to micro and small enterprises in the region. The Mini Cluster Scheme under which the SMEs manufacturing electronic components and items want to set up a CFC will also be implemented through the DIC office. DIC is actively promoting cluster development in the district and also helps the local units register under Unique Aadhar Memorandum (UAM). It would play a key role in formulation of the Electronic units SPV.
  - **MSME-Development Institute (MSME-DI), Karnal**
    MSME-Development Institute, Karmal is a field office of the Development Commissioner (MSME), Ministry of MSME, GOI, which is an apex body for formulating, coordinating and monitoring the policies and programmes for promotion and development of MSMEs in the country. MSME-DI provides a wide range of extension / support services to the MSMEs in the state.

- **Haryana State Infrastructure & Industrial Development Corporation (HSIIDC)**
  HSIIDC is an autonomous body set up by the Government of Haryana in 1967, headquartered at Panchkula. HSIIDC has been playing a progressive role in the industrial development of various districts of Haryana. Over the years, it has greatly accelerated the pace of its activities by facilitating land allocation to industries, creating industrial areas and developing required infrastructure. Entrusted fundamentally with the task of establishing industrial areas, HSIIDC has also taken the responsibility of providing continued assistance to the units which come up in these industrial areas. HSIIDC provides a total package of assistance at a single point to the entrepreneurs and disburses incentives of behalf of State Government.

- **Industry Associations**
  - **Ambala Scientific Instruments Manufacturers Association(ASIMA)**

    The major association and the key stakeholder of Scientific Instruments and Electronic manufacturers in Ambala is ASIMA. The association comprising over 800 manufacturing units as members is undertaking several development activities in Ambala region. The association addresses issues of the local industry and takes up members' grievances with relevant government authorities. A SPV with 10 members shall be created to set up the CFC under the Mini Cluster scheme.
  - **Haryana Chamber of Commerce & Industries, Ambala Chapter (HCCI)**

    HCCI is the apex industry association of the MSMEs of Haryana and has presence in all major industrial districts of Haryana. HCCI raises and addresses the problems faced by industries in the state in a coordinated manner through its chapters. It also liaisons closely with the State and the Central Government to raise its concerns for development of industries in the state in a collective manner. It has a chapter in Ambala district that takes care of the interest of MSMEs of Ambala.
  - **Electronic Industries Association of India (ELCINA)**

    Established in 1967, Electronic Industries Association of India as the first industry association supporting electronics hardware, when India's Electronics industry was still in its infancy. Since then, Electronic Industries Association of India has established itself as an interactive forum for electronics and IT manufacturers. Electronic Industries Association of India actively interacts with the government and advises it on policy and business environment issues. It networks with technical institutions and business support organisations in India and abroad to enable business expansion and information dissemination on technical developments. With greater liberalisation, Electronic Industries Association of India's focus has shifted to professional and value-added services to the Electronics Community.

- **Educational Institutes**
  - **National Institute of Technology (NIT), Kurukshetra**

    The institute was established in 1963 in Kurukshetra as a joint enterprise of the Government of India and the Government of Haryana as the Regional Engineering

College, Kurukshetra (REC Kurukshetra). In December 2008, it was accredited with the status of Institute of National Importance (INI). It is one of the 30 National Institutes of Technology established and administered by Government of India. It provides undergraduate and postgraduate programme in Engineering and Doctor of Philosophy programme in Engineering, Sciences and Humanities.

The institute has established Institute-Industry interfaces like an MOU with Hewlett Packard (HP) India under this MOU. The Institute offers consultancy services on the design and development problems referred to it by various Govt. and other Industrial Organizations. It also organises Institute-Industry interaction which has participation of leading industry and academia. Altair Engineering India plan to set up of a Centre of Excellence (CoE) in the field of computer Aided Engineering (CAE).

- **National Institute of Electronics & Information Technology (NIELIT) Chandigarh**

  This is an autonomous scientific society under the Ministry of Electronics & Information Technology (MoE&IT), Government of India, is engaged the area of IECT besides development of industry oriented quality education and training programmes. The basket of activities of NIELIT is further augmented by the wide range of projects that it undertakes. NIELIT has demonstrated its capability and capacity to undertake R&D projects, consultancy services, turnkey projects in office automation, software development, website development etc.

- **Central Scientific Instruments Organisation (CSIO), Chandigarh**

  This is a national laboratory dedicated to research, design and development of scientific and industrial instruments. It is one of the constituent laboratories of the Council of Scientific & Industrial Research (CSIR) India, an industrial research and development organisation of the country.

  With a view to meet the demand for instrument technologists, Indo-Swiss Training Centre (ISTC) was started in December 1963 with the co-operation of Swiss Foundation for Technical Assistance, Zurich, Switzerland. A large number of instruments have been developed by the Institute and their know-how have been passed on to the industry for commercial exploitation.

- **Banks / FIs**
- **Haryana Financial Corporation (HFC)**

  Haryana Financial Corporation, based in Chandigarh was promoted jointly by the Government of Haryana and the Industrial Development Bank of India (IDBI). HFC has been approved by SEBI as a category-I merchant banker. The corporation's activities include merchant banking, trade finance, lease finance and term lending. The corporation has diversified its range of financial services to include no-fund-based assistance in the form of guarantees, letter of credit and forex services. The DPR for the project shall be appraised by HFC.

- **Small Industries Development Bank of India (SIDBI)**

  SIDBI is the apex financial institution responsible for the growth and development of the MSME sector. Almost all the government subsidy schemes and bilateral lines of credit are implemented through SIDBI. The business strategy of SIDBI is to address the financial and non-financial gaps in MSME eco-system. Financial support

to MSMEs is provided by way of (a) Indirect / refinance to banks / Financial Institutions for onward lending to MSMEs and (b) direct finance in the niche areas like risk capital, sustainable finance, receivable financing, service sector financing, etc.

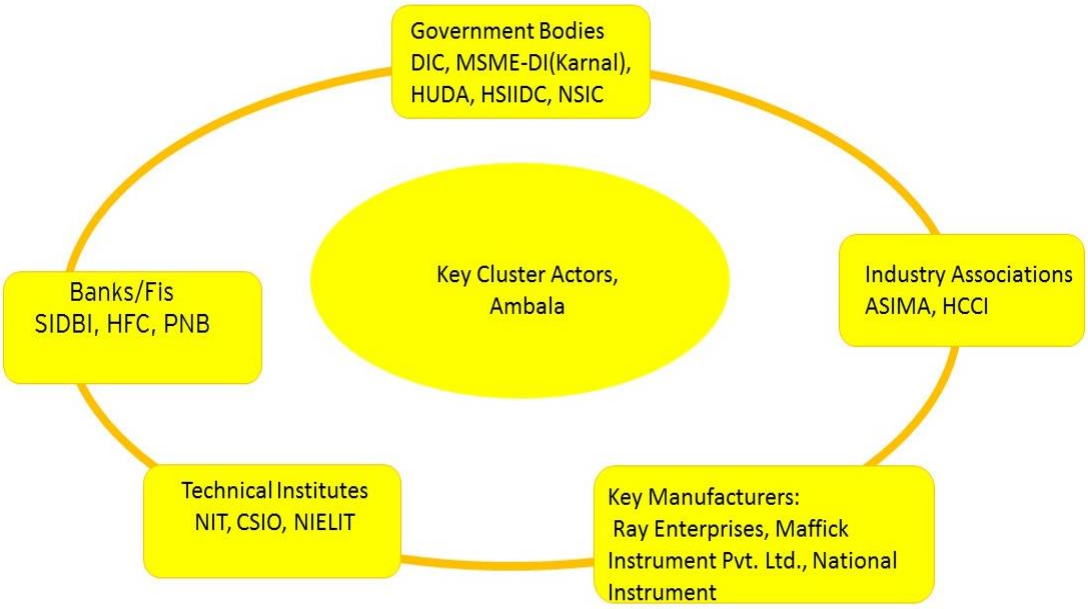
- **Punjab National Bank, Ambala**

  Punjab National Bank is the lead bank of the Ambala district and many local manufacturing units have a banking relationship with PNB.

- **Leading Manufacturers**

Some of the leading electronic manufacturers in Ambala include Ray Enterprises, Maffick Instrument Pvt.. Ltd., National Instrument etc. Key stakeholders of Ambala cluster are presented in figure 7:

Figure 8: Key Cluster Actors

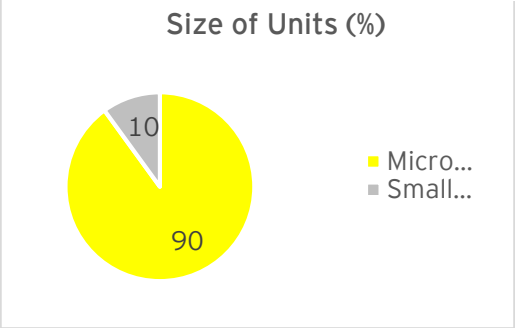


3.2 Cluster Turnover, Market and Employment

The Ambala electronics cluster has about 100 units across the value chain. The cluster is located at various industrial estates in Ambala, and manufactures medical instruments, LED lights, power supplies, electronic sensors, SMPS (Switched Mode Power Supply), electronic assemblies for the domestic market, defence forces and International markets.

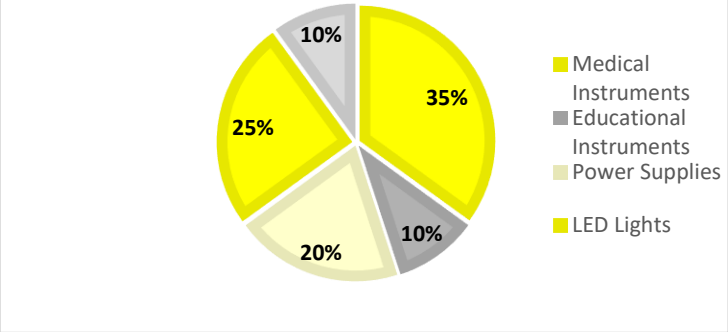
Approximately 90% of the units, i.e. 90 units in the cluster are micro enterprises, and the remaining 10%, i.e. 10 units are small enterprises. Of the total units, approximately 35% are engaged in medical equipment; 25% are engaged in LED Lighting; 20% in power supplies and 10% in educational Instruments and 10% in others.

Figure 8: size of units in cluster



The nature of operation of cluster units are provided in figure 10:

Figure 9: Nature of Units



Presently, this cluster provides employment to 1500 people directly & around 5000 indirectly. On an average, micro units employ approximately 15 persons, and small units in the cluster employ approximately 40 persons.

The owners of units in the cluster are Graduate, Post Graduates in engineering or business. The mangers and the man force is also technically qualified, having B. Tech/ Diploma/ITI. The industry workforce in the electronic industry is skilled manpower and technically competent in electronics and post-training may earn more than INR 3 lakh per annum.

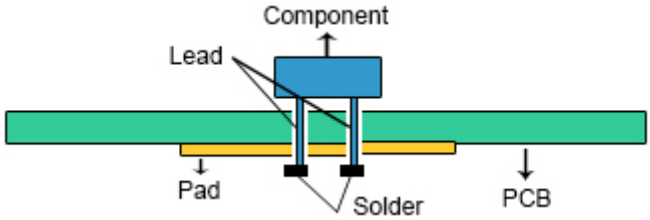
The annual turnover of this cluster is estimated to be around INR 25 crores. The average annual turnover of micro and small units is around INR 30 lakh and INR 100 lakh respectively.

However, there is an enormous potential of increasing the production from cluster units by reducing the outsourcing of activities by units to private players. These electronics manufacturing units do not have the latest technology i.e. *Surface Mount Technology* (SMT). Although, *through-hole mounting or Technology* (THM) was a predominant option for developing printed circuit boards (PCBs) for decades, today's consumer demands information rich devices. The new Technology allows PC boards to be manufactured in much smaller sizes but with a higher component density.

3.3 Production Process

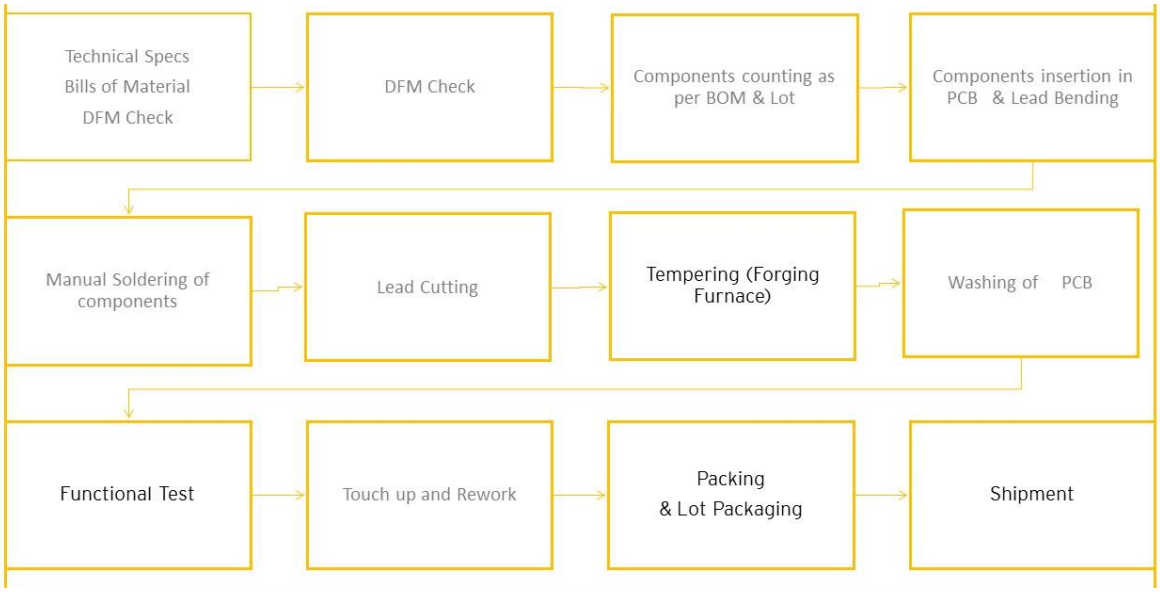
The units in the cluster are engaged in production of various products. The major process involved in Through Hole Technology is the assembly (placing) of components on the PCB. It works well on components with leads or wires that have to be mounted on board by plugging them through holes on board. The extra lead part has to be soldered on the other side of the board. This technology is applied on large components such as capacitors, coils

Figure 10: Manual through-hole insertion



Manual through-hole insertion is a straightforward process. Typically, one person at a single station will be tasked with inserting of a component into a designated PTH (Plated Through Hole). Once they're finished, the board is transferred to the next station, where another person is working on inserting a different component. The cycle continues for each PTH that needs to be outfitted. This can be a lengthy process, depending on how many PTH components need to be inserted. Most companies specifically try to avoid designing with PTH components for this very purpose, but PTH components are still common among PCB designs.

Figure 11: Flow Chart of Production Process for PCB Assembly and Soldering Process



As detailed in figure 12, Production Process for PCB Assembly and Soldering Process involves the following steps:

1. Sample Creation:

i. **Receipt of Technical Specs:** Units receive a Technical Specifications detailing out the specifications of the components to be immersed on the PCB from the buyer

ii. **DFM Check:** Most PCB assembly companies need the design file of the PCB to start out, along with any other design notes and specific requirements. This is so that the assembly company can check the PCB file for any issues that may affect the PCB's functionality or manufacturability. This is a design for manufacturability check, or DFM check,

iii. **Sample:** A Technical Design (Tech sheet) and a sample PCB is provided by the buyer. Alternatively, the Design engineers prepares a sample on the specifications provided by the buyer.

2. PCB Manufacturing Process

iv. **Lot size:** A lot size is prepared in consideration of the process and delivery time.

v. **Bills of Material :** A BOM is prepared for the lot size and procured form the Vendor

vi. **Components insertion in PCB:** As per the Tech sheet, various components are immersed in the PCB specification. A plated through-hole (PTH) is a hole in the PCB that's plated all the way through the board. PCB components use these holes to pass a signal from one side of the board to the other.

vii. **Soldering:** Manual through-hole insertion is a straightforward process. Typically, one person at a single station will be tasked with inserting one component into a designated PTH. Once they're finished, the board is transferred to the next station, where another person is working on inserting a different component. The cycle continues for each PTH that needs to be outfitted.

viii. **Lead Cutting:** The extra lead is cut from the components and then residues are brushed off.

ix. **Washing:** After months of remaining on a PCB, flux residue starts to smell and feel sticky. It also becomes somewhat acidic, which can damage solder joints over time. Additionally, customer satisfaction tends to suffer when shipments of new PCBs are covered in residue and fingerprints. For these reasons, washing the product after finishing all the soldering steps is important. A stainless-steel, high-pressure washing apparatus using deionized water is the best tool for removing residue from PCBs. Washing PCBs in deionized water poses no threat to the device. This is because it's the ions in regular water that do damage to a circuit, not the water itself. Deionized water, therefore, is harmless to PCBs as they undergo a wash cycle

x. **Functional Test:** This inspection test puts the PCB through its paces, simulating the normal circumstances in which the PCB will operate. Power and simulated signals run through the PCB in this test while testers monitor the PCB's electrical characteristics.

xi. **Packaging:** After washing, a quick drying cycle with compressed air leaves the finished PCBs ready for packaging and shipment

Product Quality & Testing

The incoming electronic components and PCBs are tested for the required specification. In the assembly line electronic components such as resistor, capacitor, coils, diodes, transistors, ICs, SCRs etc. are fitted on the PCB at their appropriate location at different stages. These PCBs then passed over the heat wave soldering bath for soldering of component to the PCB. In the next stage, unwanted leads of the components are removed and proper soldering of the components is checked with the help visual inspection magnifier.

3.4 Value Chain Analysis

Value chain analysis of the most commonly produced cluster products have been conducted to ascertain the major cost areas and identify suitable interventions. The value chain analysis of digital Haemoglobin Meter is provided in table 1:

Table 1: Value Chain Analysis of **Haemoglobin Meter** [1]

Value Chain Analysis of Haemoglobin Meter							
Lot Size: 50 Pcs.							
		Traditional method			After SMT		
S No	Particulars	Value added (INR)	Total Value (INR)	% of cost of production	Value added (INR)	Total Value (INR)	% of cost of production after SMT
1	Components Cost @Rs900/pc		45000	65.75		45000	87.91
2	Components Counting as per BOM & Lot size (Man Hr=3, @Rs 40/Hr)	120	45120	0.18	34	45034	0.07
3	Components Insertion & Lead Bending (Man Hr=150, @Rs 40/Hr)	6000	51120	8.77	1026	46060	2.00
4	Components Soldering (Man Hr=150, @Rs 40/Hr)	6000	57120	8.77	1368	47428	2.67
5	Lead Cutting (Man Hr=40, @Rs 40/Hr)	1600	58720	2.34	342	47770	0.67
6	Washing of PCBs (Man Hr=3, @Rs 40/Hr)	120	58840	0.18	342	48112	0.67
7	Touch up & Rework (Man Hr=80,@Rs 40/Hr)	3200	62040	4.67	342	48454	0.67
8	Overheads (10%)	6400	68440	9.35	2737	51191	5.35
		Traditional method		**100.00**	**After SMT**		**100.00**
		Total Production Cost		68440	Total Production Cost		51191
		Profit Margin (20%)		13688	Profit Margin (20%)		10238
		Selling Price		**82128**	**Selling Price**		**61429**

[1] Source: Stakeholder Consultation inputs

The value chain analysis has been prepared based on the stakeholder consultation. It is quite discernible that the manufacturing cost will be reduced by around 25%. Moreover, the competitiveness of the cluster units will be increased manifold in terms of cost inputs, delivery efficiency and the option to innovate.

3.4 Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis

A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of the SME electronic manufacturing units in the cluster has been carried out keeping in mind the technology, marketing, product quality, skills, inputs, innovation, business environment and energy/environment compliance of the units. The SWOT analysis is provided in table 2:

Table 2: SWOT Analysis of the Cluster

Area	Current situation		Future	
	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Market	► Steady local and international demand for cluster products ► Cluster units located in Ambala area, which is well connected to markets ► Cluster has proximity to suppliers ► Presence of a large number of buyers in the region ► Can manufacture customised products for B2B clients like Hotels, Industries, Medical Electronics, Defence forces &OEMs	► Presence of other large players to whom bulk orders are made ► Units are unable to price their products competitively due to higher cost than products imported from China ► Due to low level of sophistication, cannot charge premium	► Rising income levels and increasing urbanisation are driving growth of the domestic market ► Potential to price products competitively with acquisition of new technology, in order to compete effectively with imported products	► Intense competition from global markets ► Competition from other major players like HAVELLs, Jaguar is imminent with technology phasing
Technology/ Product Quality	► Raw Material can be inspected upon delivery ► Each unit undertakes inspection of pieces at each stage in their manufacturing process ► Products are made as per 'tech packs' and are thus made-to-order	► Lack of high end technology for SMT results in units having to obtain these from private service providers at higher costs. ► Absence of SMT restrains them from innovation ► Inability to manufacture new products to challenge the new imported products	► Setting up of CFC with SMT will results in units in reducing input costs and increased production ► Develop new products as per the latest demand for more compact products	► Competition from vendors manufacturing products at lower costs with similar machines ► Faster technology obsolescence
Skill/ Manpower	► Skills acquired on-the-job ► Presence of technical institutes such Indo-Swiss Training Centre, Chandigarh	► High manpower costs ► Lack of interaction between SMEs and technical institutes for providing technical training ► Absence of any mechanism to mobilize youth from the	► Customized training programs on required skills (operations, soft skills etc.) ► Engage technical institutes for skill development programs	► Youth keen to work in other lucrative sectors like BPO ► Attraction to shift to big cities like Gurgaon, Chandigarh

Area	Current situation		Future	
	Strengths	Weaknesses	Opportunities	Threats
		region for training in this sector	▶ Increased labour cost in China is an opportunity for Indian industry	
Inputs	▶ Availability of raw materials from local dealers ▶ Buyers sometimes specify the materials suppliers	▶ No web portal displaying prices and sources of raw materials ▶ Absence of cluster buying	▶ Potential to develop a portal displaying information (price, suppliers) of raw materials	▶ Cost of power in India is, on average, higher than key competing countries like China, Taiwan, Korea
Innovation	▶ Ability to manufacture customised products as per client specifications	▶ Low capability in Research & Development due to lack of financial capacity ▶ Lack of process automation	▶ Units may innovate in products by doing reverse engineering of imported products and develop them at lesser cost	▶ Could lose business to other more price competitive manufacturers from other countries if units do not innovate
Business Environment	▶ Steady growth in domestic demand ▶ Conducive policy and regulatory initiatives ▶ Active State Govt. and schemes for development of MSE	▶ Lack of knowledge of regulatory frameworks and government schemes among micro units ▶ High cost of industrial land in the cluster ▶ Lack of common infrastructure/CFC facilities	▶ Establish CFC with latest technologies for computer embroidery and digital sublimation printing ▶ Create better awareness of government schemes and regulations	▶ Change in policies and regulatory environment ▶ Increase in land rates
Energy/ Environment	▶ Progressive and positive attitude on environment	▶ Low focus on energy efficiency resulting in higher energy consumption	▶ Potential to reduce energy costs by energy auditing	▶ Increase in power tariff ▶ Increased focus on environment standards

3.5 Major Issues / Problem Areas of the Cluster

The key problems cluster related problems identified are:

- **Absence of modern electronic manufacturing technology:** Most of the machinery used by the units is outdated that has limited levels of production and the products manufactured are not smart as per the current market demand of functionally rich and sleeker products.
- **Lack of training facilities to train workers:** Presently, there is no facility to train workers for the Surface Mount Technology, and a dedicated institute for the latest technology for the Electronic industry is required. Moreover, the availability of manpower is also a challenge and a system of mobilisation of candidates is desired.
- **Limited access to markets:** The cluster units are small in size with lower production capacity. Individually, they have not been able to garner bulk orders. Moreover, they have been unable to diversify their products due to lack of technological capacities, which has led to limited access to market. In order to increase the production capacity as well as produce new products, units require modern efficient machinery. Lack of capital to purchase these machines has limited the production capacity of these units.
- **Absence of Material testing lab:** Testing is a key aspects in the electronics industry as electronic component quality is crucial for the final product in which it is embedded. No major company buys products without certification of quality parameters. This is one of the major impediments for the Electronic cluster as they are facing challenges in expanding their market without testing certificates. As per the law, various tests need to be conducted by the Electronic units. The lack of testing labs also results in production delays and waste of materials.
- **Production inefficiencies:** Deployment of near obsolete technologies and dependency on manual operation leads to operational inefficiencies and increased cost of production. This has hindered the ability of micro and small firms to obtain bulk orders from anchor units. Consequently, the units are witnessing declining market shares and affecting sustainability.
- **Lack of standardization of processes & products**: Electronic products of the cluster are not consistent due to lack of adequate efforts and modern technology required for standardization. The cluster is presently catering to the local market due to inability to meet the standards set by larger firms/ MNCs. This has been a hindrance to expanding the market.

Due to inexistence of these facilities, cluster units face frequent production delays, cost inefficiencies, rejections, material wastages and declining market shares. These facilities, if provided through a CFC in the cluster with government support, will help the units become more competitive and enable them to dramatically move up the value chain.

3.6 Key technologies missing

The technological gaps on various fronts that the CFC proposes to target, along with scope and illustration of major facilities is provided in table 3.

Table 3: Rationale for hard interventions

S.No.	Facility/ Equipment	Technology Gaps Identified	Technology Interventions
1.	SMT Assembly Line	► Absence of latest technology ► SMT is a key requirement for a R&D ► This is currently outsourced, and comprises a major component of the manufacturing cost ► Units are currently dependent on private service providers, resulting in high costs and production delays ► This leads to reduced competitiveness of the units	► Acquisition of SMT Assembly Line

3.7 Cluster growth potential

The growth potential for the Ambala Electronic cluster is enormous, owing to the ever increasing demand of electronics. Today, the market demand has witnessed exponential growth in miniaturised electronic products and with the adoption of SM Technology by the cluster members it will drive cluster growth.

The Haryana government has also undertaken several initiatives to promote industrial development in the region. The state has ensured creation of massive infrastructure in terms of complete electrification, provision of road transport, expansion of administrative, educational and health facilities in small towns, and establishment of many new industrial townships and urban estates. Consequently, Ambala became a major industrial hub with the presence of a large number of micro and small industries across various segments and industrial sectors such as Scientific Instruments, Electronics, Kitchen appliances, etc. However, the Electronics cluster units are unable to effectively cater to latest demands due to lack of advanced technological capacities, low production scales.

Against this backdrop, if modern job work Electronic manufacturing facilities are provided to micro-units of the cluster under CFC mode, their production costs will reduce and they will be able to serve the latest demand of the products.

Diagnostic Study Recommendations

4 Diagnostic Study Recommendations

Based upon the diagnostic study report and subsequent discussions with various cluster stakeholders and members of 'Midas Mechatronics LLP' during formulation of this Detailed Project Report (DPR), the hard interventions were proposed to enhance the competitiveness of the cluster units. Also, the cluster members shared the various soft interventions they had undertaken to ensure the survival and growth of the electronic units in Ambala. The recommendations for hard interventions have been elaborated in subsequent sections.

Cluster enterprises have undertaken several soft interventions (before, during and after the DSR) on their own and have been active in enhancing their awareness and exposure. The units have conducted several awareness programs and trainings in collaboration with DIC, Ambala, BDS providers. They have also conducted exposure visits participated in national electronics exhibitions, meetings with latest machine manufacturers, electronic domain experts and facilitated UAM registrations.

4.1 Soft Interventions Recommended and Action Taken

- **Capacity Building and Awareness Generation:** One of the primary recommendations for soft interventions was to build the capacities of cluster units and generate awareness among stakeholders regarding cluster development (collective approach to address their issues) and benefits available to them in the form of cluster. Also, in the DSR validation meeting, it was shared with the SPV members that Cooperation and trust building among members is foremost condition for smooth functioning of the cluster. SPV members informed that they organised regular meeting and have formed an exclusive whatsapp group to share all the updates on technologies and other developments in the SPV members of the cluster were informed about the registration of company for the cluster and identification of building for the CFC. Members of the cluster raised their concerns during the meeting which were resolved by other members of the cluster. For finalization of machinery, user charges and financial aspects for the Detailed Project Report, there were joint discussions with the SPV members.

- **Meetings with Vendors:** The members of the cluster have held meetings with multiple vendors for procuring modern technology. The members had interactions with the machinery suppliers like FUJI, JUKI, Panasonic to understand the working, specifications of the machines. In addition, the members have also conducted on-site visit of machines at work.

- **Member meetings with domain expert:** A meeting was also organized with an expert on electronic manufacturing and another expert from Panasonic, technology supplier was organised for the cluster members and helped in resolving their concerns on the new technology.

- **Exposure Visits and Participation in Trade Fairs:** In order to enhance the exposure of cluster units on new and emerging technologies, the Electronic cluster aimed to gather technical knowledge and expertise required for developing the cluster like '**Productronica India 2017**'

4.2 Hard Interventions (Machines / Technology in the proposed CFC)

All the SPV members agreed to the urgent need to have the latest technology by having an SMT assembly line in the proposed CFC that would enhance competitiveness of SPV members and ensure future survival and growth. It was agreed upon the units are reeling under bitter competition and low margins, hence require a modern high capacity SMT line and other related equipment for job work that would ensure not only higher production rate at reduced production costs but also provide scope for innovations. This facility will be also used for creating a training facility that will also be a constant supplier of workforce in electronic industry.

The following common infrastructural facilities are being proposed for the CFC, with support from the state industry department.

- **Solder Paste Printing Machine**

The first machine to setup in the manufacturing process is the solder paste printer which is designed to apply solder paste using a stencil and squeegees to the appropriate pads on the PCB. This is the most widely used method for applying solder paste but jet printing is becoming more popular, especially in the sub-contract sector as there is no need for stencils and modifications are easier to make.

- **SMT Component Pick and Placement Machine**

Once the printed PCB has been confirmed to have the correct amount of solder paste applied it moves into the next part of the manufacturing process which is component placement. Each component is picked from its packaging using either a vacuum or gripper nozzle, checked by the vision system and placed in the programed location at high speed.

- **8-Zone Reflow Oven**

The eight-zone reflow oven from can accommodate up to three cooling zones within the footprint of a conventional seven-zone oven. Its heating chamber's plenums provide overlapping cones of heat with turbulent gas flow for high impingement velocities without disturbing components on the board.

- **Wave Soldering Machine**

Wave soldering is a large-scale soldering process by which electronic components are soldered to a printed circuit board (PCB) to form an electronic assembly. The name is derived from the use of waves of molten solder to attach metal components to the PCB.

Wave soldering is used for both through-hole printed circuit assemblies, and surface mount. In the latter case, the components are glued onto surface of PCB by placement equipment, before being run through the molten solder wave.

- **Visual Inspection Magnifiers**

With the increase of PCB production and decrease of trace spacing and components volume, manual visual inspection become more and more impractical in PCB industry. And other advanced inspection methods generally take its place.

The new era magnifiers integrates a high-definition camera that offers a sharp images on a LCD monitor at all magnification levels. It can be carried to wherever it is needed to instantly inspect items from almost any angle without eyestrain.

- Other equipment like Hot Air Oven, Soldering/De-soldering stations, conveyer belts would be part of the SMT Assembly line

4.3 Expected Outcome after Intervention

The project will be beneficial both for Electronic units and the cluster as a whole. The setting up of the CFC is expected to generate the following benefits for the cluster units:

- Enhanced value addition for cluster products
- Significant reduction in cost of production and higher capacity utilization by each unit
- Higher degree of competitiveness of cluster enterprises

- Scope for the cluster to target new market segments by developing new and improved products
- The requirements of SPV members are adequate to utilize the capacity of the CFC. Nevertheless all cluster firms shall be encouraged to use the facility. Many micro unit entrepreneurs who could not afford to significantly contribute by way of necessary investment to the equity base of the project have also been accommodated even with low equity contribution
- The CFC will generate more job opportunities both at the cluster and individual unit level due to enhanced capacity utilization
- The CFC is also expected to enhance the levels of cooperation and joint-action amongst cluster stakeholders and SPV members to cooperate in other areas such as joint marketing initiatives, common raw material procurement and so on.
- It will also complement the efforts of state government in promoting clusters in the state and serve as a model for upgrading micro enterprise clusters.

Table 4: Expected Outcome of CFC

Area	Current Scenario	Expected Outcomes
Production Units	About 100 Micro units	About 115 Micro units
Markets	Mostly micro and small electronic units in Ambala manufacturing components and items for OEMs or Tier 1	Produce new items for OEMs in National and International markets
Employment	About 1500	About 2000
Technology	• No high quality machinery for electronics items • No training facility for workers	• Availability of high quality set up for manufacturing items high on functionality and demand • Training centre for latest Electronic Technology
Production	• Small batch size • Material wastage • Innovation missing • Delays • High costs • Unskilled workforce • On-the-job training	• Bulk Production • Material wastage less • Innovation in products • High quality • Quicker production • Competitive prices • Trained workforce
Turn Over	About 25 crores	Will increase to about 40 crores in the first year, and is expected to subsequently increase by 10% each year

Special Purpose Vehicle (SPV) for Project Implementation

5 SPV for Project Implementation

The micro units at Ambala Electronic Cluster came together to form a Special Purpose Vehicle (SPV) that has been set up as a Limited Liability Partnership Company under LLP Act 2008 . The Special Purpose Vehicle (SPV) by the name and style of '**Midas Mechatronics LLP**'. The SPV was registered on 15th February 2018. The company has an authorized paid up capital of INR 5.00 Lakh which shall be enhanced in the near future. The members are micro-sized firms (registered units) involved in Electronic related activities, predominately based in Ambala Cantt and Ambala City and Saha area of Ambala.

DIC, Ambala played an important role in SPV formation by cluster stakeholders. The SPV includes about 10 members who are subscribing to the necessary equity base of the company. The SPV shall be open for new members to join and for the existing members to leave while maintaining a minimum member base of at least 10 at all times. The proposed CFC will be implemented on public-private partnership basis through SPV by availing support from Government of Haryana (under EPP 2015) state mini cluster scheme.

The SPV members have a strong track record of cooperative initiatives. SPV members are also members of prominent cluster associations. Cluster members have been autonomously undertaking several soft interventions to enhance knowledge and exposure of the cluster units on new trends in Electronic industry and enhancing productivity of their units as mentioned in the previous sections. These include exposure to new technology through visits to International Exhibition of Electronics Technology like '**Productrinica India'**, and awareness programs on new trends in Electronic industry.

The SPV has conducted a series of stakeholder consultations (with various members, DIC, Ambala and EY experts) during finalization of project components, selection of technologies and development of Detailed Project Report. The SPV has been instrumental in spreading awareness about cluster development under state mini-cluster scheme in Ambala and has also helped in validation of findings and recommendations. It has kept the state government and the DIC Ambala engaged during the entire period of development of DSR and DPR.

5.1 Shareholder profile and Shareholding mix

List of Directors: The SPV has ten directors. The details of the directors are furnished in the table 6. Other than these directors, the SPV will have provision of having one director each from the state government. The SPV comprises members from micro Electronic manufacturing units. It is homogeneous in nature due to similar products and activities performed by the cluster units.

Table 5: List of designated partners

S No	Contact Person	Company Name	Contact No.
1	Mr Pranay Choudhary	Ray Bright Technologies	9813968007
2	Mr. Vishal Bhandari	Medizinn	7087063094
3	Mrs Kulwinder Kaur	National Controlling Equipment Industries	9416020078
4	Mr Dinesh Kumar Chaudhary	Ray Enterprises	9416069399
5	Mr Amarjit Bansare	National Instrument Industries	9215720078
6	Mr Amol Bhardwaj	Walnut Medical Pvt. Ltd.	9650622772
7	Mr. Vipan Sarin	Maffick Instruments	9416020888
8	Mr. Ajai Malhotra	Maffick Instrument Pvt. Ltd.	9416020888
9	Mr Manoj Gupta	K.C. Engineers P. Ltd	9416210328
10	Mr Vijay Kumar	Muster International	9466428269

The lead promoters/ shareholders have several years of successful experience in production of Electronic products and are also well versed with the benefits of cluster development initiatives. These units are financially viable in nature.

Members of the SPV have been engaged in production of Electronic products in Ambala for several years. SPV directors/ members of the SPV also have considerable experience in marketing and manufacturing of Electronic products. Directors/members have been in close interactions with technical experts, government institutions and machinery suppliers. Post the DSR validation, the DIC Ambala also acknowledged the genuineness and enthusiasm of the SPV members to undertake project initiatives under state mini cluster scheme as well as verified the existence of the SPV members. The verified list is provided in **Annexure 3**.

The SPV was formed with the objective of taking up cluster level activity in a joint and coordinated manner, wherein all units have equal say. The shareholding pattern of members of the registered SPV includes the contribution from every member of SPV and no individual shareholder holds more than 10% equity stake in the capital of the company. Details of SPV members along with their contact persons, unit details, UAM numbers and products manufactured are provided in table 6.

Table 6: Details of SPV Members of Ambala Electronic Cluster

S No	Contact Person	Company Name	Contact No.	UAM No	Products
1	Mr Pranay Choudhary	Ray Bright Technologies	9813968007	HR01A0000788	LED Lights.
2	Mr. Vishal Bhandari	Medizinn	7087063094	HR01A0001807	Medical Equipment.
3	Mrs Kulwinder Kaur	National Controlling Equipment Industries	9416020078	HR01A0000096	Power Supplies.
4	Mr Dinesh Kumar Chaudhary	Ray Enterprises	9416069399	HR01B0000330	Lights & Associated Equipment for defence.
5	Mr Amarjit Bansare	National Instrument Industries	9215720078	HR01A0000097	SMPS
6	Mr Amol Bhardwaj	Walnut Medical Pvt. Ltd.	9650622772	HR01A0000374	Medical Equipment for Rehabilitation
7	Mr. Vipan Sarin	Maffick Instruments	9416020888	HR01A0001815	Power Supply & Electronic Assembly, Defence Data acquisition Systems.
8	Mr. Ajai Malhotra	Maffick Instrument Pvt. Ltd.	9416020888	HR01A0000174	Electronics Sensors & Transformer.
9	Mr Manoj Gupta	K.C. Engineers P. Ltd	9416210328	HR01A0001397	Educational Equipment.
10	Mr Vijay Kumar	Muster International	9466428269	HR01D0000176	Manufacturing of Electronics Assemblies.

5.2 Initiatives undertaken by the SPV

As mentioned in detail in section 4.1, the SPV members have proactively undertaken a lot of capacity building initiatives to promote the cooperation among cluster units and enhance knowledge and exposure of the units. The major initiatives are:

- Regular member meetings for discussion on the CFC as well as technologies, marketing, discussion on incentives available to MSMEs,
- Participation in various programs for capacity building, awareness generation and technological advancement in the cluster.
- Identification of building to be taken on lease for the SPV.

5.3 SPV Roles and Responsibilities

The SPV will play an important guiding role in the overall management and operations of the CFC. It will provide direction to the management of the CFC and will monitor usage and performance of the CFC. The SPV will constantly report to the state government about the performance of the CFC. The major roles and responsibilities that are envisaged to be performed by the SPV post the submission of this DPR are mentioned below:

- Coordinating with the state industry department for DPR approvals in the SLSC
- Accompanying EY experts to various meetings at the state government departments
- Execution of building lease in SPV name
- Garnering the SPV project contribution from the members
- Formation of purchase committees for procurement of goods and services
- Establishing, operating and maintaining all common facilities as mentioned in the DPR
- Obtain any statutory approvals/clearances from various government departments
- Recruit appropriate professionals to ensure smooth execution of the CFC
- Collection of user charges from members and other users of the facilities as per the decided rates so as to meet the recurring expenses and future expansions of the CFC. While various estimates on user charges / service fee are presented in this DPR, all decisions including usage priority of facilities by members will be made on the basis of decision by members of SPV.
- Preparation and submission of progress reports to state industries department

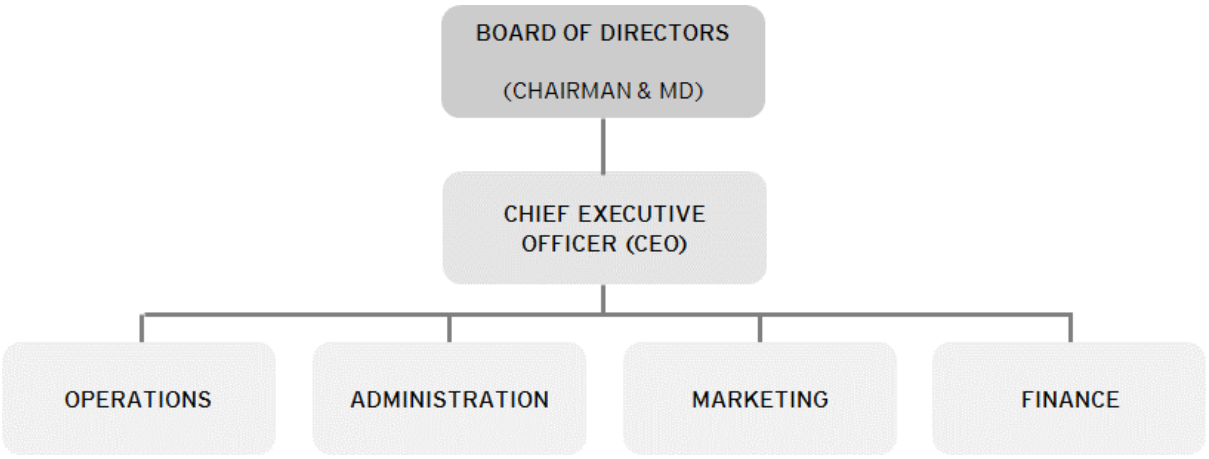
The Memorandum and by-laws of the Cluster SPV indicates the democratic process in terms of decision making on the basis of votes. All members of SPV will meet once every fortnight/month to discuss/resolve operational issues. The management of the CFC will be a two tier structure for smooth and uninterrupted functioning. The executive body i.e. Board of Directors (BoD) will include office bearers elected/nominated from time to time, including one nominee of State Government (DIC). They will also remain present during meetings.

While various estimates on user charges/ service fees are presented in this DPR, all decisions including usage priority of facilities by members will be made by unanimous decision of the members. The CFC will seek direction and guidance from the SPV BoD, and the day-to-day administration will be taken care of by the management that shall be appointed by the SPV BoD. Their role is detailed below:

1. **Board of Directors**: The BoD will be the main governing body and will oversee the operations of the CFC. They will have the decision making power in terms of fixing user fees (for members and non-members) and usage of reserves etc. for future expansion. The Managing Director will oversee the entire operations; each Director will be entrusted with specific responsibility like marketing, technical, finance, public relations etc. based on their interests and experience.

2. **Managerial, Technical and Administrative staff**: A competent and well qualified professional with a background in the Electronic industry will be appointed as the Chief Executive Officer (CEO), who will look after day-to-day operations of the CFC and shall be directly reporting to the Board of Directors. The details of manpower and other requirements are already mentioned in the DPR in the Project Economics section. There shall be provisions for administrative staff such as accounts personnel, marketing professional, store-keepers etc. to ensure effective functioning of the CFC. The proposed organizational structure of the CFC is given in figure 7:

Figure 12: Organisational Structure of Proposed CFC



Project Economics

6 Project Economics

6.1 Project Cost

The actual total cost of setting up a CFC Electronic Cluster, Ambala has estimated calculations is **INR 255.34 Lakh**

The total cost estimation includes the following project components:

1. Building and civil works
2. Machinery and equipment
3. Miscellaneous fixed assets
4. Preliminary & Pre-operative expenses
5. Contingency
6. Margin money for working capital

The detail of each project component is provided below:

6.2 Land and Building

Building

The SPV shall lease one floor of a building on a 10 year irrevocable lease. The SPV has identified the building and obtained a letter establishing the availability of the building. The building is located **at Plot 95, HSIIDC Industrial Estate, Ambala Cantt, Haryana**. The available area is 2000 square feet and the monthly rent for the first year would be INR 30,000 with an annual increase at the market rate (estimated at 10%).

6.3 Plant and Machinery

As detailed in section 4.2 (Hard interventions) Surface Mount Technology, as well as attachments have been recommended to enable cluster units enhance their competitiveness. The machines have been categorized as primary and secondary. The machines that shall be used primarily for job work have been categorized as primary, whereas, the auxiliary/supporting machines have been categorized as secondary machines. The major facilities proposed at the CFC are for Surface Mount Technology (SMT) for electronic manufacturing and training facility. The total cost of plant and machinery has been estimated at INR 255.34 lakhs including taxes and installation fees, and contingency works.

The details of the proposed machinery items are presented in the table below. The detailed specifications and quotations of the machines are provided in Annexure. The SPV has considered quotations for machinery from suppliers based on the manufacturer's reputation, service support, price and quality. However, an open online tendering system shall be followed for procurement of these machines during project execution, and selected vendors will be further invited to negotiate.

Table 7: List of Proposed Plant & Machinery

PLANT & MACHINERY																			
S. No.	Machine Name	Quantity		Basic Price		Total Basic Price		Custom Duty as Applicable*		GST as Applicable*		Freight, Transit Insurance, Packing & Forwarding Charges		Total Price		Grand Total	Supplier Options	Model / Specifications	Power Requirement (kW)
		Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported				
A	**Primary Machinery**																		
1	SMT Unit																		
a	Multi-Function SMD Pick & Place Machine		1	-	101.26	-	101.26	-	12.15	-	20.41	-	5.06	-	138.89	138.89	Innotronics Technologies Pvt Ltd	Panaasonic AM 100 Modular Placement Machine	2.00
b	Paste Printing machine semi-automatic		1	-	5.53	-	5.53	-	0.66	-	1.11	-	0.28	-	7.58	7.58	NMTRONICS, SDFC-2&E17, NSEZ, Phase II, Noida	DC SP-3040L	0.10
c	Reflow oven 8 zone		1	-	28.60	-	28.60	-	3.43	-	5.77	-	1.43	-	39.23	39.23	NMTronics India Pvt Ltd., Noida	JT RS-800II Reflow	7.00
d	MI Conveyor belt 4 meter		1		3.25	-	3.25		0.39	-	0.66	-	0.16	-	4.46	4.46	NMTronics India Pvt Ltd., Noida	ACC-100Y (Link Conveyor, 1000 mm)	0.20

PLANT & MACHINERY																		
S. No.	Machine Name	Quantity		Basic Price		Total Basic Price		Custom Duty as Applicable*		GST as Applicable*		Freight, Transit Insurance, Packing & Forwarding Charges		Total Price		Grand Total	Supplier Options	Model / Specifications	Power Requirement (kW)
		Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported				
e	Wave Soldering machine	1		7.80	-	7.80	-	-	-	1.40	-	0.39	-	9.20	-	9.20	ALLIED MACHINES & TOOLINGS, #165 Patel Shamanna Layout, Bangalore	SMD Wave Soldering Machine (ROHS	3.00
2	Visual Inspection magnifiers	3		0.05	-	0.15	-	-	-	0.03	-	-	-	0.18	-	0.18	MK Traders . Kolkotta		0.20
3	Hot Air Oven for storage	1		0.75	-	0.75	-	-	-	0.14	-	-	-	0.89	-	0.89	B D Instruments , Ambala	Digital SS - 60 Liters	0.01
4	Soldering/ Desoldering Station (3 stations)	1		1.35	-	1.35	-	-	-	0.24	-	-	-	1.59	-	1.59	MK Traders . Kolkotta	XYTRONICS IR860 & LF39913	2.00
5	Refrigerator for instrument storage	1		0.40	-	0.40	-	-	-	0.07	-	-	-	0.47	-	0.47	LASER CUT	Haier 350L	0.10

PLANT & MACHINERY																			
S. No.	Machine Name	Quantity		Basic Price		Total Basic Price		Custom Duty as Applicable*		GST as Applicable*		Freight, Transit Insurance, Packing & Forwarding Charges		Total Price		Grand Total	Supplier Options	Model / Specifications	Power Requirement (kW)
		Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported	Indigenous	Imported				
6	Stencil Printing	2		0.09	-	0.18	-	-	-	0.03	-	-	-	0.21	-	0.21	Laser cut	SS Steel	
	Sub Total (A)	**9**	**4**	**10.44**	**138.64**	**10.63**	**138.64**	**-**	**16.64**	**1.91**	**27.95**	**0.39**	**6.93**	**12.54**	**190.15**	**202.70**			**14.61**
B	**Secondary Machinery**																		
1	AC Plant 15 Ton	1		4.41	-	4.41	-	-	-	0.79	-	0.23	-	5.43	-	5.43	DN Cooling Appliances	Blue Star	18.00
2	UPS	1		4.78	-	4.78	-	-	-	0.86	-	-	-	5.64	-	5.64	Computer Hut	30 KVA	0.50
3	Dryer	1		0.78	-	0.78	-	-	-	0.14	-	-	-	0.92	-	0.92	Mechatronics Technologies	Commercial Air Dryer(Nippydry 45)	1.50
	Sub Total (B)	**3**	**0**	**9.97**	**-**	**9.97**	**-**	**-**	**-**	**1.79**	**-**	**0.23**	**-**	**11.99**	**-**	**11.99**			**20.00**
	Grand Total	**12**	**4**	**20.41**		**20.60**	**138.64**	**-**	**16.64**	**3.71**	**27.95**	**0.62**	**6.93**	**24.54**	**190.15**	**214.69**			**34.61**

Note-

1. Custom duty & GST rates are tentative
2. Conversion rate:
   a) Multi-Function SMD Pick & Place Machine JPY 16600000/- @ INR 0.61/JPY
   b) Paste Printing machine semi-automatic $8500/- @ INR 65/USD
   Reflow oven 8 zone $44000/- @ INR 65/USD and MI Conveyor belt 4 meter $5000/- @ INR 65/USD

6.4 Miscellaneous Fixed Assets

The CFC would also require fixed assets such as furniture, fixtures, computer, etc. for smooth running of operations. The total estimated capital expenditure for purchase of miscellaneous fixed assets is estimated to be INR 3.45 Lakhs. Details in the table below.

Table 8: Miscellaneous Fixed Assets

(Rs in Lakh)

MISCELLANEOUS FIXED ASSETS		
S. No.	**Particulars**	**Amount**
1	Office computer-3	1.20
2	LED TV-1 (for Training centre)	0.40
3	Furniture (tables & chairs)	0.75
4	Office items and allied items	0.50
5	Power Back up (UPS-3)	0.10
6	Firefighting equipment	0.50
	Total	**3.45**

6.5 Preliminary and Pre-operative Expenses

Another major component of the project cost is the preliminary and pre-operative expenses. The preliminary expenses are envisaged as expenses incurred for registration of SPV, legal and administrative expenses, tendering forms, tendering cost, etc.

Pre-operative expenses include expenses for electricity connection charges, refurbishment of the building, administrative establishment, travelling, bank charges, stationery, telephone and overhead expenses during machinery testing period such as salaries, machine testing cost, bank charges, traveling, etc. The total expenditure for preliminary and pre-operative expenses are estimated at INR 7.16 lakhs (details provided in the table below).

Table 9: Preliminary and Pre-Operative Expenses

(INR In Lakh)

PRELIMINARY & PRE OPERATIVE EXPENSES		
S. No.	**Particulars**	**Amount**
1	Company Formation Charges (Authorised capital 75 lakh)	2.50
2	Tender forms & tendering cost	1.00
3	Project Report Preparation (DSR & DPR)	Nil
4	Project Management Charges	Nil
5	Travelling Cost	0.20
6	Machine testing cost	0.50
7	Pre-operative salaries	0.50
8	Cost of Refurbishment, electricity fittings, plumbing	1.00
9	Lease deed registration charges	0.86
10	Bank Appraisal Charges	0.60
	Total	**7.16**

*Electricity Connection will be provided by the building owner.

6.5.1 Provision for Contingencies

As per the guidelines of state-mini cluster scheme a provision for contingencies has to be made on plant/machinery and building (not applicable in this case as the building is being taken on a lease basis). Contingencies on plant and machinery have been estimated at 5% that amounts to INR 10.73 lakhs.

6.5.2 Margin Money for Working Capital

The total working capital requirement during the first year of operation at 75% capacity utilization is estimated at INR 29.31 lakh. The corresponding loan for working capital, if required, is calculated at INR 10 lakh with margin money requirement of INR 19.31 lakh (being more than 25% of working capital requirement). The working capital requirement has been calculated based on requirement of one month of operational expenses & 3 months' debtor collection period. The loan amount has been taken at a minimum requirement basis. The calculation has been provided in the subsequent section.

6.5.3 Summary Project Cost

A summary of total estimated project cost as per actuals and as per mini cluster scheme is presented in the table 12.

Table 10: Total Project Cost

(INR in Lakh)

PROJECT COST				
S. No.	Particulars	Total Project Cost	Amount as per Guidelines	Remarks
1	**Land & Building**			
	a. Land Value	0.00	0.00	Eligible (Max 25% of total of L&B, P&M, and Misc. F.A.)
	b. Land Development	0.00		
	c. Building & Other Civil Works	0.00		
	d. Building Value	0.00		
	Sub Total (A)	**0.00**	**0.00**	
2	**Plant & Machinery**			
	a. Indigenous	12.54	200.00	Eligible
	b. Imports	190.15		
	c. Secondary Machines	11.99		
	Sub Total (B)	**214.69**	**200.00**	
3	**Miscellaneous fixed assets (C)**	**3.45**	**0.00**	
4	**Preliminary & Preoperative Expenses (D)**	**7.16**	**0.00**	Not eligible for grant
5	**Contingency**			
	a. Building @ 2%	0.00	0.00	
	b. Plant & Machinery @ 5%	10.73	0.00	
	Sub Total (E)	**10.73**	**0.00**	
6	**Margin money for working capital @ 75% C.U. (F)**	**19.31**	**0.00**	
	Grand Total (A+B+C+D+E+F)	**255.34**	**200.00**	

6.6 Means of Finance

The project will be financed from two sources: equity from SPV, and grant-in-aid from Govt. of Haryana (under State Mini Cluster Development Scheme, Haryana EPP-2015). Working capital loan, if required, will be secured from a preferred bank. The assistance to the project from Govt. of Haryana under State Mini Cluster Development Scheme is envisaged to the tune of 90% of the project cost for project up to INR 200 lakhs. SPV will be required to contribute 10% of project cost for project cost up to INR 200 lakh. Hence, the SPV members have proposed to contribute the entire amount beyond INR 180 lakhs, taking their overall contribution to about 30% of the total project cost. The total contribution of SPV members will amount to INR 75.34 lakhs. Support from the State Government is envisaged for INR 180 Lakhs.

Details of the means of finance are provided in the table below:

Table 11: Means of Finance

Means of Finance		
S. No.	Source of finance	Total Amount (INR In Lakhs)
1	Grant-in-aid under State Mini Cluster Development Scheme (Govt. of Haryana)	180.00
2	Contribution of SPV	75.34
	Total	255.34

Detailed Means Of Finance							
S. No.	Source of finance	Project cost up to INR 200 lakh		Project cost over INR 200 lakh			Remarks
		Percentage Contribution	Amount (INR in lakh)	Percentage Contribution	Amount (INR in lakh)	Total Amount (INR in lakh)	
1	Grant-in-aid under State Mini Cluster Development Scheme (Govt. of Haryana)	90%	180.00	0%	0.00	180.00	As per EPP, 2015 GoH contribution is max 90% (Including soft intervention expenses)
2	Contribution of SPV	10%	20.00	100%	55.34	75.34	
	Total	100%	200.00	100%	55.34	255.34	

6.6.1 Share Capital

The contribution of the SPV members will be by way of capital contribution in the SPV registered as a Limited Liability Partnership. The total obligation of contribution would be INR 75.34 lakh contributed by the cluster SPV.

The extent of capital contribution by each member will be restricted to a maximum of 10% of total contribution to the capital of the LLP.

6.6.2 Grant-in-Aid

Grant-in-aid of INR 180 lakh is expected from the Government of Haryana. The amount received by the way of grant under state mini cluster scheme will be utilized towards construction of building and to procure plant and machinery for the project.

6.7 Expenditure Estimates

In this section, a detailed estimate of expenditure of the CFC has been given on eight hour single shift operation basis. This has been estimated based upon extensive inputs by the cluster members and the prevalent rates of consumables, utilities and manpower in the cluster. This section considers annual cost of undertaking job work and expenditure estimates. The critical components related to expenditure comprise consumables, manpower, electricity and also expenditure on repair and maintenance of assets, insurance and administrative overheads.

Other elements comprise expenditures by the way of interest toward working capital loans, miscellaneous expenses and non-cash depreciation expenditure.

6.7.1 Consumables

Machines installed in the CFC shall require consumables during operations and completion of the job work. Consumables are critical components of project facilities and may be understood in terms of diesel, hydraulic oil, flux, solder, filters, cleaning, and others etc.

Table 12: Consumables

CONSUMABLES REQUIRED FOR MACHINES												
S. No.	Machine Name	No. Of Machines	Particulars	Monthly Amount per Machine (INR)	Total monthly Amt (INR)	Consumables required annually (INR in Lakh)	Amount (INR in Lakh)	Amount (INR in Lakh)	Amount (INR in Lakh)	Amount (INR in Lakh)	Amount (INR in Lakh)	Amount (INR in Lakh)
							Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
							75%	80%	85%	90%	95%	100%
1	Paste Printing machine	1	Flux, Solder Plate, Filters, Belt, Cleaning	7500	7500	0.90	0.68	0.72	0.77	0.81	0.86	0.90
2	Multi-Function SMD Pick & Place Machine	1	Flux, Filters, Belt, Cleaning	7500	7500	0.90	0.68	0.72	0.77	0.81	0.86	0.90
3	Reflow oven 8 zone	1	Cleaning	1000	1000	0.12	0.09	0.10	0.10	0.11	0.11	0.12
4	Refrigerator	1	Cleaning	200	200	0.02	0.02	0.02	0.02	0.02	0.02	0.02
5	Wave Soldering machine	1	Flux, Cleaning	4000	4000	0.48	0.36	0.38	0.41	0.43	0.46	0.48
6	MI Conveyor 4 meter	2	Cleaning	1000	2000	0.24	0.18	0.19	0.20	0.22	0.23	0.24
7	Visual Inspection magnifiers	3	Cleaning	200	600	0.07	0.05	0.06	0.06	0.06	0.07	0.07
8	Humidity chamber for storage	1	Cleaning	500	500	0.06	0.05	0.05	0.05	0.05	0.06	0.06
9	Soldering/De-soldering stations	3	Cleaning	1500	4500	0.54	0.41	0.43	0.46	0.49	0.51	0.54

CONSUMABLES REQUIRED FOR MACHINES												
S. No.	Machine Name	No. Of Machines	Particulars	Monthly Amount per Machine (INR)	Total monthly Amt (INR)	Consumables required annually (INR in Lakh)	Amount (INR in Lakh)	Amount (INR in Lakh)	Amount (INR in Lakh)	Amount (INR in Lakh)	Amount (INR in Lakh)	Amount (INR in Lakh)
B.	**Secondary Machines**											
1	D.G. SET 125 KVA	1	Fuel	5500	5500	0.66	0.50	0.53	0.56	0.59	0.63	0.66
2	Ac Plant 15 Ton	1	Service	500	500	0.06	0.05	0.05	0.05	0.05	0.06	0.06
3	Dryer	1	Service	300	300	0.04	0.03	0.03	0.03	0.03	0.03	0.04
	Total				**34100**	**4.09**	**3.07**	**3.27**	**3.48**	**3.68**	**3.89**	**4.09**
	Consumables per month					**0.34**	**0.26**	**0.27**	**0.29**	**0.31**	**0.32**	**0.34**

6.7.2 Manpower Requirement

Another major expenditure head is the manpower. Facilities installed at CFC will require manpower to function effectively. The total manpower requirement for the project would be about 9 persons. The manpower required under project has been divided under two categories: Direct & Indirect. Direct manpower is required for operation of machines while indirect manpower is required for administrative purposes. The annual expenditure on salary component for direct manpower is estimated at INR 10.82 lakh and for indirect at INR 5.74 lakhs. The total expense on manpower is projected at INR 1.38 lakh per month or INR 16.57 lakh per annum.

The details of monthly and yearly expenses for manpower required for running the project is provided in table below:

Table 13: Expenditure related to salary (direct manpower)

DIRECT MANPOWER				
Category	No. of Manpower Required	Salary per month per person (INR)	Total Salary Per Month (INR)	Total salary & wages per Year (INR lakh)
SMD Operator	1	15,000.00	15,000.00	1.80
SMD Assistant	1	12,000.00	12,000.00	1.44
Helper	2	9,000.00	18,000.00	2.16
Programmer	1	15,000.00	15,000.00	1.80
Faculty	1	22,000.00	22,000.00	2.64
	6	**73,000.00**	**82,000.00**	**9.84**
Add: Perquisites/Fringe Benefits @ 10%				**0.98**
Total				**10.82**

Table 14: Expenditure related to salary (indirect manpower-administrative and support staff)

INDIRECT MANPOWER				
Category	No. of Manpower Required	Salary per month per person (INR)	Total Salary Per Month (INR)	Total salary & wages per Year (INR lakh)
Cluster Development Executive	1	25,000.00	25,000.00	3.00
Accountant	1	10,000.00	10,000.00	1.20
Office boy	1	8,500.00	8,500.00	1.02
	3	**43,500.00**	**43,500.00**	**5.22**
Add: Perquisites/Fringe Benefits @ 10%				**0.52**
Total				**5.74**

***Security Guard will be provided by the Building owner**

6.7.3 Utilities

The most important utilities required in the project is power supply. Proposed CFC requires power for operation of machinery as well as other supporting equipment for smooth operations. The total connected load requirement has been estimated at 40 kW. The table below depicts the machine and equipment wise power requirement in the CFC. The drawn power is conservatively assumed at @60% of the connected load.

Table 15: Machine & Equipment (facility) wise power requirement

UTILITIES			
S. No.	Machine & Equipment	Power Requirement (kW)/ Connected Load	Total power requirement (60% of drawn power) kWh
	Primary Machines		
1	Multi-Function SMD Pick & Place Machine	2.00	1.20
2	Paste Printing machine semi-automatic	0.10	0.06
3	Reflow oven 8 zone	7.00	4.20
4	MI Conveyor 4 meter	0.20	0.12
5	Wave Soldering machine	3.00	1.80
6	Visual Inspection magnifiers	0.20	0.12
7	Hot Air Oven for storage	0.01	0.01
8	Soldering/De-soldering Station (3 stations)	2.00	1.20
9	Refrigerator for instrument storage	0.10	0.06
	Secondary Machines		
10	AC Plant 15 Ton	18.00	10.80
11	Dryer	1.50	0.90
12	**Administrative Facilities**	1.50	0.90
	Total Connected load for CFC	**35.61**	21.37
	Buffer Connected Load (10% of Total Connected Load)	**3.56**	
	Total	**39.17**	

The power requirement for operation of core machinery and equipment, and administrative facilities is 40 kW. Electricity required for shop floor activities in terms of operation of core machinery and equipment is 4273 units per month. The facility is heavily based on electricity for operations and will also require additional 10% connected load as a buffer to get the electricity connection.

Fixed charges for connection of 40 kW @ INR 173 per kW = INR 6777/- and monthly consumption of 4723 units @ INR 7 per unit amounts to INR 29,912/-. This has been calculated based on the prevalent rates of the power provider.

6.7.4 Annual Repairs & Maintenance and Insurance Expenses

The annual repair and maintenance expenses have been estimated to be INR 6.54 lakh. The details are presented in the table below:

Table 16: Annual Repairs and Maintenance Expenditure

ANNUAL REPAIR AND MAINTENANCE EXPENSES	
Repair & Maintenance of Building	0.10
Repair & Maintenance of Plant and Machineries @ 3%	6.44
Total	**6.54**

6.7.5 Insurance and Miscellaneous Administrative Expenses

Insurance is a critical component of asset protection at the CFC. Insurance is computed on the basis of 0.5 % on the fixed assets. Cost of insurance shall remain as a fixed cost. Miscellaneous administrative expenses are estimated at a lump-sum of INR 1.20 lakh per year. The cost of miscellaneous expenses is considered to be fixed irrespective of the scale of operations. The details are presented in the table below:

Table 177: Insurance and Miscellaneous Administrative Expenses

OTHER EXPENSES	
Insurance Charges (Estimate @ 0.5% on fixed assets (such as buildings, civil works, and Plant & machinery, including related contingency expenses of approx. INR 10.75 Lakh)	1.13
Miscellaneous Expenses (Stationery, communication, travelling, and other misc. overheads)	1.20
Sub Total B	**2.33**

6.8 Working Capital Requirements

Working capital has been calculated in terms of one month's operating expenses and three months' debtor collection period for the CFC. The operating expenses include consumables, salaries and utilities.

The SPV will contribute the margin money for working capital and rest of working capital will be borrowed from local bank. While calculating the project cost, minimum 25% of working capital is shown as margin for working capital and the remaining will be borne by SPV as borrowings. The working capital is estimated to INR 29.31 lakh during the first year of operation (75% C.U.). Further, total working capital required at an operating capacity of 80% comes out to INR 30.72 lakh. The corresponding margin money for working capital requirement at 75% & 80% capacity utilization amounts to INR 19.31 lakh and INR 20.72 lakh respectively, and the corresponding loan amounts at INR 10 lakh. The loan amount has been considered at a minimum requirement. The details are presented in the table below.

Table 18: Calculation of Working capital requirement

(INR In Lakh)

WORKING CAPITAL											
S. No.	Particulars	Period	As per Capacity Utilisation								
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
			75%	80%	85%	90%	95%	100%	100%	100%	100%	100%
1	Consumables	1 month	0.26	0.27	0.29	0.31	0.32	0.34	0.34	0.34	0.34	0.34
2	Utilities (Power)	1 month	0.29	0.31	0.32	0.34	0.35	0.37	0.37	0.37	0.37	0.37
3	Working Expenses (Manpower)	1 month	1.16	1.20	1.25	1.29	1.34	1.38	1.38	1.38	1.38	1.38
4	Sundry Debtors (Sales Value)	3 months	27.60	28.94	30.28	31.62	32.96	34.31	34.31	34.31	34.31	34.31
5	Working capital (Total expenses)		29.31	30.72	32.14	33.56	34.98	36.39	36.39	36.39	36.39	36.39
6	Working Capital Margin		19.31	20.72	22.14	23.56	24.98	26.39	26.39	26.39	26.39	26.39
7	Working Capital Loan		10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
8	Interest on Working capital loan @11% p.a.		1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10

6.9 Depreciation Estimates

Estimates of depreciation are non-cash expenditure and presented in this section on the basis of Written down Value (WDV) methods. Accounting for depreciation would facilitate sustainability of operations in terms of developing a fund for replacement of assets. The relevant fund that is accumulated could facilitate the replacement of such assets toward the end of the envisaged asset life of 10 years. Depreciation of plant and machinery is considered at 15% a year (envisaged project life of 10 years prior to replacement of assets), depreciation of computers is considered at 60% per year, depreciation of furniture at 10% per year, and depreciation of miscellaneous fixed assets at the rate of 15% a year. The computation of depreciation as per WDV method is provided in the tables below.

Table 19: Depreciation

(INR In lakh)

DEPRECIATION (WRITTEN DOWN VALUE METHOD)										
Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Land										
Opening Balance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Less : Depreciation	-	-	-	-	-	-	-	-	-	-
Closing Balance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building and Civilwork										
Opening Balance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Less: Depreciation @ 10%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Closing Balance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plant & Machinery										
Opening Balance	225.42	191.61	162.87	138.44	117.67	100.02	85.02	72.27	61.43	52.21
Less: Depreciation @ 15%	33.81	28.74	24.43	20.77	17.65	15.00	12.75	10.84	9.21	7.83
Closing Balance	191.61	162.87	138.44	117.67	100.02	85.02	72.27	61.43	52.21	44.38
Computers										
Opening Balance	1.60	0.64	0.26	0.10	0.04	0.02	0.01	0.00	0.00	0.00
Less: Depreciation @ 60%	0.96	0.38	0.15	0.06	0.02	0.01	0.00	0.00	0.00	0.00
Closing Balance	0.64	0.26	0.10	0.04	0.02	0.01	0.00	0.00	0.00	0.00
Furniture										
Opening Balance	0.75	0.68	0.61	0.55	0.49	0.44	0.40	0.36	0.32	0.29
Less: Depreciation @ 10%	0.08	0.07	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03
Closing Balance	0.68	0.61	0.55	0.49	0.44	0.40	0.36	0.32	0.29	0.26
Other Misc. Fixed Assets										
Opening Balance	1.10	0.94	0.84	0.76	0.68	0.61	0.55	0.50	0.45	0.40
Less: Depreciation @ 15%	0.17	0.09	0.08	0.08	0.07	0.06	0.06	0.05	0.04	0.04

(INR In lakh)

DEPRECIATION (WRITTEN DOWN VALUE METHOD)										
Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Closing Balance	0.94	0.84	0.76	0.68	0.61	0.55	0.50	0.45	0.40	0.36
Total Depreciation	35.01	29.29	24.73	20.96	17.79	15.12	12.85	10.93	9.29	7.90
Depreciated value	193.86	164.57	139.85	118.89	101.09	85.98	73.12	62.20	52.91	45.00

6.10 Income/Revenue estimates

The CFC is expected to generate revenue by way of user charges that shall be levied based upon the hours a machine is operated for a particular job. The user charges shall vary based upon the user i.e. the SPV members and non SPV members. The user charges will be less for the SPV members as compared to non SPV members. Firms based outside Ambala shall be charged a premium for availing the CFC services.

The user charges have been estimated based upon the operational expenses of the CFC and the prevalent market rates in Ambala. User charges for secondary machineries have not been considered as a part of revenue. Estimation of user charges for availing services at CFC has been done on a conservative basis.

The relevance and appropriateness of user charges is also evident from the fact that the rates fixed help meet operating expenditures and provide sustainable replacement of assets. It is also envisaged that the CFC will generate enough income to sustain and grow, making it an absolutely viable project.

The estimated user charges for various machineries are presented in table below:

Table 20: User Charges for Machinery

REVENUE GENERATION AT CFC																
S. No.	Machine Name	Production per day (units)	Job work rate per unit	Total Revenue per day (INR)	Revenue per month (INR in lakh)	Annual Revenue generation (INR in lakh)	Amount INR in Lakh)	Amount INR in Lakh)	Amount INR in Lakh)	Amount INR in Lakh)	Amount INR in Lakh)	Amount INR in Lakh)	Amount INR in Lakh)	Amount INR in Lakh)	Amount INR in Lakh)	Amount INR in Lakh)
							Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	SMT Unit						75%	80%	85%	90%	95%	100%	100%	100%	100%	100%
A	SMPS units	42	210	8820	2.21	26.46	19.85	21.17	22.49	23.81	25.14	26.46	26.46	26.46	26.46	26.46
B	Medical units	36	530	19080	4.77	57.24	42.93	45.79	48.65	51.52	54.38	57.24	57.24	57.24	57.24	57.24
C	LED Unit	80	98	7840	1.96	23.52	17.64	18.82	19.99	21.17	22.34	23.52	23.52	23.52	23.52	23.52
D	SMT Training Centre(@ 25K per student for 10 students per month)				2.50	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
	Total				**11.44**	**137.22**	**110.42**	**115.78**	**121.14**	**126.50**	**131.86**	**137.22**	**137.22**	**137.22**	**137.22**	**137.22**

6.11 Income/Revenue estimates

The CFC is expected to generate revenue by way of user charges that shall be levied based upon the hours a machine is operated for a particular job. The user charges shall vary based upon the user i.e- the SPV members and non SPV members. The user charges will be less for the SPV members as compared to non SPV members. Firms based outside Ambala shall be charged a premium for availing the CFC services. The other income source envisaged for the CFC is providing training facilities to aspirant in this area.

The user charges have been estimated based upon the operational expenses of the CFC and the prevalent market rates in Ambala. User charges for service machineries have not been considered as a part of revenue. Estimation of user charges for availing services at CFC has been done on a conservative basis.

The relevance and appropriateness of user charges is also evident form the fact that the rates fixed help meet operating expenditures and provide sustainable replacement of assets. It is also envisaged that the CFC will generate enough income to sustain and grow, making it an absolutely viable project.

The estimated user charges for various machineries are presented in table below:

Total gross revenue in-flow is estimated to INR 96.58 lakhs per annum on an operating capacity of 80%. For projection purposes, operating capacity of 80% is considered during first year, 85% during next two years and 100% capacity from 4th year onwards.

Table 21: Income and Expenditure Statement

Particulars	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
Number of working days	300	300	300	300	300	300	300	300	300	300
Number of shift	1	1	1	1	1	1	1	1	1	1
Capacity Utilization in %	80%	85%	85%	100%	100%	100%	100%	100%	100%	100%
A. Income										
(User/ Service Charge)	**96.58**	**102.61**	**102.61**	**120.72**	**120.72**	**120.72**	**120.72**	**120.72**	**120.72**	**120.72**
B. Cost of Production :										
1. Utilities Power (Fixed +Variable)	15.22	16.03	16.03	18.45	18.45	18.45	18.45	18.45	18.45	18.45

Particulars	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
2. Direct labour and wages	15.96	15.96	15.96	15.96	15.96	15.96	15.96	15.96	15.96	15.96
3 Consumable	1.60	1.70	1.70	2.00	2.00	2.00	2.00	2.00	2.00	2.00
4. Repair and Maintenance	4.64	4.93	4.93	5.80	5.80	5.80	5.80	5.80	5.80	5.80
5. Depreciation	30.47	26.25	22.62	19.50	16.82	14.52	12.55	10.85	9.38	8.12
Total Cost of production	**67.89**	**64.86**	**61.23**	**61.71**	**59.03**	**56.73**	**54.76**	**53.06**	**51.59**	**50.33**
C. Administrative expenses :										
7. Manpower (Indirect)	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**
8. Insurance	**1.13**	**0.98**	**0.85**	**0.73**	**0.64**	**0.55**	**0.48**	**0.42**	**0.36**	**0.31**
9. Misc Expense	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
Total Administrative Expenses	**13.53**	**13.38**	**13.25**	**13.13**	**13.04**	**12.95**	**12.88**	**12.82**	**12.76**	**12.71**
D. Financial expenses :										
10. Interest on Working capital loan @ 11% per annum	**0.97**	**1.02**	**1.02**	**1.16**	**1.16**	**1.16**	**1.16**	**1.16**	**1.16**	**1.16**
Total Financial Expenses										
E. Total Expenses B+C+D	**82.39**	**79.25**	**75.49**	**76.00**	**73.23**	**70.84**	**68.79**	**67.03**	**65.51**	**64.21**
F. Profit A - E	14.19	23.36	27.12	44.72	47.49	49.88	51.93	53.69	55.21	56.51
G. P&P Expenses written off	1.18	1.18	1.18	1.18	1.18	0.00	0.00	0.00	0.00	0.00
H. Income before Tax (F-G)	13.01	22.18	25.94	43.54	46.31	49.88	51.93	53.69	55.21	56.51
I. Income Tax (Provision @ 25.90%)	**0.16**	**3.61**	**5.52**	**10.85**	**12.25**	**14.07**	**15.10**	**16.00**	**16.76**	**17.43**

Particulars	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
J. Net Profit for the year	12.84	18.57	20.42	32.69	34.06	35.81	36.82	37.69	38.44	39.09
K. Cumulative Surplus	12.84	31.41	51.83	84.52	118.58	154.39	191.21	228.90	267.35	306.44

6.12 Estimation of profitability: Income and Expenditure statement

The projection for income and expenditures of the CFC has been conducted for ten years. The projections have been undertaken based upon the income and expenditure heads mentioned in previous sections. The projected statements highlight income, expenses, profits earned, income tax and net profit etc. The details are presented in the table below:

The total gross revenue is estimated to be INR 110.42 lakhs for first year at an operating capacity of 75%. For projection purposes, operating capacity of 75% is considered during first year, 80% during next year and 100% capacity from 6th year onwards.

The income tax rates have been considered as per rates applicable to a company according to the Income Tax Act, 1961. Income tax has been considered at 26% per cent on taxable profit inclusive of all the tax components. The incidence of tax ranges from INR 12.98 lakhs in the first year to INR 27.04 lakhs in Year 10.

As evident from the table below, the project is financially viable. A cumulative surplus of about INR 493.34 lakh shall be earned by the SPV even after accounting for taxation and depreciation at the end of ten years. This surplus generated shall be used for further addition in the machinery or improvement and up-gradation of facilities. Additionally, the SPV intends to conduct a lot of other development activities in the cluster that shall be funded through the surplus earned at the CFC.

Table 22: Income and Expenditure Statement

(INR In Lakh)

PROFIT & LOSS ACCOUNT										
Particulars	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
Number of working days	300	300	300	300	300	300	300	300	300	300
Number of shift	1	1	1	1	1	1	1	1	1	1
Capacity Utilisation in %	**75%**	**80%**	**85%**	**90%**	**95%**	**100%**	**100%**	**100%**	**100%**	**100%**
A. Income										
(User/ Service Charge)	**110.42**	**115.78**	**121.14**	**126.50**	**131.86**	**137.22**	**137.22**	**137.22**	**137.22**	**137.22**
B. Cost of Production :										
1. Utilities Power (Fixed + Variable)	3.51	3.68	3.86	4.04	4.22	4.40	4.40	4.40	4.40	4.40
2. Direct labour and wages	8.12	8.66	9.20	9.74	10.28	10.82	10.82	10.82	10.82	10.82
3. Consumable	3.07	3.27	3.48	3.68	3.89	4.09	4.09	4.09	4.09	4.09
4. Repair and Maintenance	4.91	5.23	5.56	5.89	6.21	6.54	6.54	6.54	6.54	6.54
5. Depreciation	35.01	29.29	24.73	20.96	17.79	15.12	12.85	10.93	9.29	7.90
Total Cost of production	**54.61**	**50.14**	**46.83**	**44.31**	**42.40**	**40.98**	**38.71**	**36.79**	**35.15**	**33.76**
C. Administrative expenses :										
6. Manpower (Indirect)	5.74	5.74	5.74	5.74	5.74	5.74	5.74	5.74	5.74	5.74
7. Rent	3.60	3.96	4.36	4.79	5.27	5.80	6.38	7.02	7.72	8.49
8. Insurance	1.13	0.97	0.82	0.70	0.59	0.51	0.43	0.37	0.31	0.26
9. Misc Expense	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Total Administrative Expenses	**11.67**	**11.87**	**12.12**	**12.43**	**12.81**	**13.25**	**13.75**	**14.32**	**14.97**	**15.70**
D. Financial expenses :										
10. Interest on Working capital loan @ 11% per annum	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Total Financial Expenses	**1.10**	**1.10**	**1.10**	**1.10**	**1.10**	**1.10**	**1.10**	**1.10**	**1.10**	**1.10**
E. Total Expenses B+C+D	**67.38**	**63.11**	**60.05**	**57.85**	**56.31**	**55.32**	**53.56**	**52.21**	**51.22**	**50.56**
F. Profit A - E	**43.03**	**52.67**	**61.08**	**68.65**	**75.55**	**81.90**	**83.66**	**85.01**	**86.00**	**86.66**

(INR In Lakh)

PROFIT & LOSS ACCOUNT										
Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
G. P&P Expenses written off	1.43	1.43	1.43	1.43	1.43	0.00	0.00	0.00	0.00	0.00
H. Income before Tax (F-G)	41.60	51.24	59.65	67.22	74.12	81.90	83.66	85.01	86.00	86.66
I. Adjustment of Loss	-	-	-	-	-	-	-	-	-	-
J. Income Tax (@31.20% for LLP)	12.98	15.99	18.61	20.97	23.13	25.55	26.10	26.52	26.83	27.04
K. Net Profit /Loss for the year	28.62	35.25	41.04	46.25	50.99	56.34	57.56	58.49	59.17	59.62
L. Cumulative Surplus	28.62	63.87	104.91	151.16	202.16	258.50	316.06	374.55	433.71	493.34

6.13 Cash flow statement

Cash flow statement indicates the cash balance and the liquidity position of the project over the years. The table below presents the sources and disposal/uses of funds statement of the project.

Table 23: Cash Flow Statement

(INR in Lakh)

CASH FLOW STATEMENT											
Particulars	Construction Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
A. Source Funds :											
1. Cash Accurals (Profit Before Tax + Interest Paid)		44.13	53.77	62.18	69.75	76.65	83.00	84.76	86.11	87.10	87.76
2. Increase in capital	75.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3. Depreciation		35.01	29.29	24.73	20.96	17.79	15.12	12.85	10.93	9.29	7.90
4. Increase in WC Loan		10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5. Increase in Grant-in-aid from GoH	180.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(INR in Lakh)

CASH FLOW STATEMENT											
Particulars	Construction Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Sources of Funds	255.34	89.15	83.05	86.91	90.71	94.44	98.12	97.61	97.04	96.39	95.67
B. Use of Funds :											
1. P&P Expenses	7.16	-	-	-	-	-	-	-	-	-	-
2. Increase in fixed assets	228.87	-	-	-	-	-	-	-	-	-	-
3. Increase in Loans & Advances		34.80	6.96	8.35	10.02	12.03	14.43	17.32	20.78	24.94	29.93
4. Increase in Sundry Debtors		27.60	1.34	1.34	1.34	1.34	1.34	0.00	0.00	0.00	0.00
5. Increase in Stock of Consumables		0.26	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00
6. Interest paid		1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
7. Taxes paid		12.33	15.84	18.48	20.85	23.02	25.43	26.07	26.50	26.82	27.03
Total Use of Funds	236.03	76.09	25.25	29.29	33.33	37.50	42.32	44.49	48.38	52.86	58.06
C. Net Surplus (A -B)	19.31	13.06	57.80	57.62	57.38	56.94	55.80	53.12	48.65	43.54	37.61
D. Cummulative Surplus	19.31	32.36	90.17	147.79	205.17	262.11	317.90	371.02	419.68	463.21	500.82

The cash flow statement showcases the available net surplus for 10 years of the CFC operations. Depreciation is also considered on a higher side on the Written Down Value method for cash flow calculations along with adjusted preliminary expenses. As most of the capital expenditure is being supported as grant under the State Mini Cluster Development Scheme, EPP-2015, therefore it does not have any negative effect on the Cash flow, in terms of interest, etc.

6.14 Projected Balance Sheets

The annual balance sheets for the CFC have been projected based upon estimates in the earlier sub-sections with regard to various current and fixed liabilities and also current and fixed assets. As evident from the projections, a considerable amount of reserves and surplus gets accumulated. These shall also be utilized for expansion of the CFC and undertaking other cluster development activities. Decision on deployment of reserves and surplus accumulated will be based on the performance of the project and requirements of cluster firms and members of the SPV. The projected balance sheets are provided in the table below:

Table 24: Balance Sheet

(Rs in lakh)

PROJECTED BALANCE SHEET											
Particulars	At the end of impl. Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1. Fixed Assets :											
Gross Block	228.87	228.87	193.86	164.57	139.85	118.89	101.09	85.98	73.12	62.20	52.91
Less : Depreciation (WDV)		35.01	29.29	24.73	20.96	17.79	15.12	12.85	10.93	9.29	7.90
Net Block	228.87	193.86	164.57	139.85	118.89	101.09	85.98	73.12	62.20	52.91	45.00
Total Fixed Assets (A)	**228.87**	**193.86**	**164.57**	**139.85**	**118.89**	**101.09**	**85.98**	**73.12**	**62.20**	**52.91**	**45.00**
2. Current Assets :											
Cash & bank Surplus (B.F)	19.31	32.36	90.17	147.79	205.17	262.11	317.90	371.02	419.68	463.21	500.82
Sundry Debtors		27.60	28.94	30.28	31.62	32.96	34.31	34.31	34.31	34.31	34.31
Stock of consumables		0.26	0.27	0.29	0.31	0.32	0.34	0.34	0.34	0.34	0.34
Advance Tax		12.33	15.19	17.68	19.92	21.97	24.27	24.80	25.20	25.49	25.69
Other Current Assets		34.80	41.76	50.11	60.13	72.16	86.59	103.91	124.69	149.63	179.56
P&P Exp	7.16	5.73	4.30	2.86	1.43	0.00	0.00	0.00	0.00	0.00	0.00
Total current Assets (B)	**26.47**	**113.08**	**180.63**	**249.02**	**318.59**	**389.53**	**463.42**	**534.38**	**604.21**	**672.98**	**740.71**
Total Assets (A+B)	**255.34**	**306.94**	**345.20**	**388.87**	**437.48**	**490.62**	**549.39**	**607.50**	**666.41**	**725.89**	**785.72**
3. Current Liabilities :											
Working Capital Loan		10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00

(Rs in lakh)

PROJECTED BALANCE SHEET											
Particulars	At the end of impl. Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Provision for Taxation		12.98	15.99	18.61	20.97	23.13	25.55	26.10	26.52	26.83	27.04
Total Current Liabilities (C)		**22.98**	**25.99**	**28.61**	**30.97**	**33.13**	**35.55**	**36.10**	**36.52**	**36.83**	**37.04**
4. Fixed Liabilities											
Shareholders' Contribution	75.34	75.34	75.34	75.34	75.34	75.34	75.34	75.34	75.34	75.34	75.34
Grant from GoH	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00
Reserves and Surplus		28.62	63.87	104.91	151.16	202.16	258.50	316.06	374.55	433.71	493.34
Total Fixed Liabilities (D)	**255.34**	**283.96**	**319.21**	**360.26**	**406.50**	**457.50**	**513.84**	**571.40**	**629.89**	**689.05**	**748.68**
Total Liabilities (C+D)	**255.34**	**306.94**	**345.20**	**388.87**	**437.48**	**490.62**	**549.39**	**607.50**	**666.41**	**725.89**	**785.72**

6.15 Break-even analysis

The break-even (BE) estimates of the project indicate the level of activity at which the total revenues of the project equal the total costs. The Break even percentage indicates whether the fixed costs are being covered by the revenue generated from the operations, as well as profits are being generated after paying for such fixed costs. As per the calculations, the CFC achieves break even in the first year itself as no major interest costs are being incurred. Hence, BE estimates at level of activity relevant to the first year and subsequent years of activity are provided in the table below:

Table 25: Break Even Estimates

(INR In Lakh)

	BREAKEVEN POINT AT VARIOUS C.U.									
Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Capacity Utilization	75%	80%	85%	90%	95%	100%	100%	100%	100%	100%
A. Total Earning by way of user charges	110.42	115.78	121.14	126.50	131.86	137.22	137.22	137.22	137.22	137.22

(INR In Lakh)

BREAKEVEN POINT AT VARIOUS C.U.										
Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
B. Variable costs										
Consumables	3.07	3.27	3.48	3.68	3.89	4.09	4.09	4.09	4.09	4.09
Utilities (power- variable charge)	2.69	2.87	3.05	3.23	3.41	3.59	3.59	3.59	3.59	3.59
Interest on WC Loan	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Repair & Maintenance	4.91	5.23	5.56	5.89	6.21	6.54	6.54	6.54	6.54	6.54
Manpower (Direct)	8.12	8.66	9.20	9.74	10.28	10.82	10.82	10.82	10.82	10.82
Total Variable Cost (B)	**19.88**	**21.14**	**22.39**	**23.64**	**24.89**	**26.15**	**26.15**	**26.15**	**26.15**	**26.15**
C. Contribution (A-B)	**90.53**	**94.64**	**98.75**	**102.86**	**106.97**	**111.07**	**111.07**	**111.07**	**111.07**	**111.07**
D. Fixed Overheads (Cash)										
Manpower (Indirect)	5.74	5.74	5.74	5.74	5.74	5.74	5.74	5.74	5.74	5.74
Utilities (Power - fixed charges)	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Rent	3.60	3.96	4.36	4.79	5.27	5.80	6.38	7.02	7.72	8.49
Insurance	1.13	0.97	0.82	0.70	0.59	0.51	0.43	0.37	0.31	0.26
Misc. Expenditure (10% fixed)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Sub-total (D)	**12.48**	**12.68**	**12.93**	**13.25**	**13.62**	**14.06**	**14.56**	**15.14**	**15.78**	**16.51**
E. Fixed Overheads (Non-cash)										
Depreciation	35.01	29.29	24.73	20.96	17.79	15.12	12.85	10.93	9.29	7.90
Preliminary & Pre-operative expenses written off	1.43	1.43	1.43	1.43	1.43	0.00	0.00	0.00	0.00	0.00
Sub-total (E)	**36.45**	**30.72**	**26.16**	**22.39**	**19.22**	**15.12**	**12.85**	**10.93**	**9.29**	**7.90**
F. Total Fixed Overheads (D+E)	**48.93**	**43.40**	**39.10**	**35.64**	**32.85**	**29.18**	**27.41**	**26.06**	**25.07**	**24.41**
Break even point (F/C)	**54.05%**	**45.86%**	**39.59%**	**34.65%**	**30.71%**	**26.27%**	**24.68%**	**23.46%**	**22.57%**	**21.98%**

Book break-even is achieved at 54.05% (of operational capacity at 75 per cent) and at 45.86% (of operational capacity at 80 percent). The operation of the CFC is expected to break-even and realizes profit from 1st year of operations. Therefore, very low risk is involved in the project.

Moreover, the SPV members have the potential to run the facility for longer than one shift resulting in enhanced capacity utilization and generation of more revenues. In that case, project will break even earlier than estimated. Additionally, the approach has been to develop projections based upon conservative estimates (costs on a higher side and user charge/ revenues on a lower side) whereas, in real the revenues may be far higher.

6.16 Feasibility analysis summary and sustainability indicators

A summary of the financial analysis in terms of key financial indicators such as Return on Capital Employed (ROCE), Net Present Value (NPV), Break Even Point (BEP) and the Internal Rate of Return (IRR) is presented in the table below. The indicators validate the financial viability and sustainability potential of the proposed project.

Table 26: Financial Analysis

FEASIBILITY		
S. No.	Particulars	Estimates
1	BEP (cash BEP at initial operating capacity of 75%)	54.05%
2	Av. ROCE (PAT/CE)	28.51%
3	Internal Rate of Return (IRR)	22.73%
4	Net Present Value (at a discount rate of 10 per cent) - incorporating viability gap funding (grant) by GoH	NPV is positive and high (INR 157.79 lacs) at a conservative project life of 10 years
5	Payback period	5.14 years with Grant-in-aid assistance from GOH
6	DSCR	Not Applicable (non-availment of term loan in this project)

The annual estimates in the context of ROCE are presented in the table below:

Table 27: Calculation of Return on Capital Employed

RETURN ON CAPITAL EMPLOYED (ROCE)											
Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	AVERAGE
ROCE	16.72%	20.50%	23.79%	26.76%	29.46%	32.50%	33.19%	33.72%	34.11%	34.37%	28.51%

The average value of ROCE is 28.51%. This indicates the high techno-economic viability of the project should the government contribute a significant portion of the project cost as grant. Capital employed considered includes SPV contribution as well as Grant-in-aid.

The Net Present Value is estimated at INR 157.79 lakhs at a discount rate of 10%.However, as reflected from the high values of NPV, it is positive at even 10%, the rate at which bank offers debt capital facility and even at higher discount rates. Project IRR is high at over 22.73% (at a conservative project life of 10 years). This substantiates the viability of the project.

6.17 Additional revenue sources

Additional sources of revenue shall also be explored by the SPV by offering procurement and marketing services in future to more enterprises. The SPV members are strong believers of the cluster concept and would like to explore the potential of undertaking cluster initiatives to improve the backward and forward linkages of the cluster units.

However, in order to ensure conservativeness in income estimates, in the initial years, the income earning possibilities of such revenues are not captured in this DPR.

6.18 Risk Analysis & Sensitivities

Risk in the project is relatively low in the context of the following:

- **Promoters are experienced**: Risk in the project is quite low given the strength and profile of the SPV members. They have considerable experience not only in the electronics industry but also in undertaking cluster developmental initiatives.
- **Facility is pre-marketed:** Evidently, complete capacity of the core facility to be established in terms of various facilities may be easily availed by members of the SPV themselves, thus the facility would already have a captive market.
- **Sustainability indicators in terms of the strength of the SPV and the economics of the project:** Evidence of cooperative initiatives of SPV members as articulated in previous chapters; for instance, in terms of pursuing several joint efforts, registering the SPV and securing commitment from members, vis-à-vis progressively mobilizing necessary paid up capital, all reflect the strength of the SPV.

High economic viability indicators upon considering the benefits of grant-in-aid under the state mini cluster scheme and EPP 2015 also serve as evidence of techno-economic viability and sustainability of the project. A sensitivity analysis has been carried out to ascertain the impact on the project, should there be any loss of revenue. This has been calculated assuming drop in user charges. Major financial parameters are still attractive. The important parameters related to the sensitivity analysis are presented in the table below:

Table 28: Sensitivity Analysis

SENSTIVITY ANALYSIS					
S. No.	Particulars	Base case	With 5% decline in user charge	With 10% decline in user charge	With 15% decline in user charge
1	BEP (cash BEP at operating capacity of 75%)	54.05%	56.56%	59.31%	62.35%
2	Internal Rate of Return (IRR)	22.73%	21.34%	19.92%	18.45%
3	Av. ROCE (PAT/CE) (with Grant)	28.51%	26.68%	24.82%	22.96%
4	Net Present Value (at a discount rate of 10 per cent) - incorporating viability gap funding (grant) GoH	157.79	138.37	118.94	99.51

Even assuming a fall in user charge, ROCE is favourable. From the above it is evident that the project is very viable even under (unlikely) risky environment circumstances.

6.19 Assumptions for financial calculations:

The financial statements and project profitability estimates in this DPR are based on the following assumptions:

1. The total project cost is pegged at INR 255.34 Lakh on the basis of estimates and quotations.

2. To finance the project, a total of INR 255.34 Lakhs is required. The financing will consist of grant from Government of Haryana and contribution by SPV.

In the financial projections and analysis, year 2018 is the envisaged period of project implementation also involving obtaining building on lease and installation of plant, machinery and other equipment. This period will commence from the date of final approval by the State Level Steering Committee under the State Mini Cluster Development Scheme. The financial projections thereafter are prepared for 10 years of operation starting 2019.

4. The Registered SPV will manage CFC, and these services are to be used by the SPV to member as well as non-member units. The common facility will benefit registered SPV as well as non-member firms who (in some cases) may not afford to contribute to necessary equity capital.

5. The CFC will operate for 25 days a month, that is, for 300 days a year on an eight hour single shift basis. Operation on single shift basis is assumed for purposes of projecting income estimates.

6. Capacity utilization is assumed at 75% in the first year; 80% for second,85% for third, and 100% thereafter. This is a conservative estimate for first 5 years as SPV members alone could avail of over 100 per cent of the installed capacity on single-shift basis.

7. The workings with regard to expenses related to the project have been tabulated and categorized in terms of those related to consumables, manpower, electricity, and miscellaneous administrative expenditures.

8. Repairs and maintenance is provided @ 3% of plant and machinery cost at varying capacity utilization.

9. Insurance is provided @ 0.5% on fixed assets including building & civil works, machinery, contingency as fixed cost at all capacity utilization.

10. Electricity connection will be provided by the landlord.

11. Fixed charges per kW of electric connection shall be charged @ INR 173 and variable charges @ INR 7 per unit consumed.

12. Income estimates have been projected most conservatively. The prescribed user charges are competitive vis-à-vis charges for similar services in other regions.

13. Depreciation on fixed assets is calculated on Written Down Value (WDV) method.

14. Provision for income tax has been made @ 31.20% for LLP (30% plus 4% cess).

15. Profitability estimates in terms of ROCE, NPV, and IRR are computed considering operating results for first 10 years of operation.

Project Implementation and Monitoring

7.1 Envisaged Implementation Framework

1. **Time frame:** Project implementation is envisaged to involve a time-frame of about 12 months upon receipt of final approval of grant-in-aid assistance from the Government of Haryana under mini cluster scheme.

2. **User Base:** The facilities may be used by SPV members and non-members. However, the charges will vary. The SPV will also be open for new entrants subject to them subscribing to the shareholding of the SPV, and them being genuinely pro-active and interested in cluster initiatives. The BoD of the SPV can decide on same or differential user charges for both members and non-members or based upon the volume of the output.

3. **Project implementation schedule:** The project implementation schedule envisaged over a period of 6 months involves several activities. The schedule is elaborated in the table below:

Table 29: Project Implementation Schedule

Activity/Month	1	2	3	4	5	6
Collecting Contribution from SPV members						
Land agreement for rent						
Formation of purchase committee						
Inviting E tenders for purchase of equipment						
Purchase of machinery and equipment						
Installation and trial run of machinery and equipment						
Arrangement of working capital						
Monitoring of the project by BoD						
Monitoring of the project by PMC						
Commencement of operations of the facility						

4. **Contractual agreements/ MoU with member units:** Agreements have been indicatively finalized in terms of utilization of assets in respect of shareholders. A total of 10 units are participating in the SPV and all these units have agreed to contribute towards the SPV share of the project cost. The utilization of the common facility will be in line with the proposed shareholding pattern. The consent letter wherein the member units agree for payments of 10% share of cost of CFC will be submitted in due course of time and as per final approval from Government of Haryana.

5. **LLP agreement:** LLP deed and bye laws are indicative of the management and decision making structure of the SPV. All the members of SPV have paid an advance and are members of the LLP. Few other units are also willing to be members of the SPV and once the CFC is approved and sanctioned from government of Haryana, many more members will be interested to subscribe to the shares of the SPV.

6. **Availability of Building**: The SPV has identified a building for the proposed CFC at Plot 95, HSIIDC Industrial Estate, Ambala Cantt, Haryana that covers 2000 sqft and shall be taken on a 10 years lease by SPV soon.

7. **O & M Plan:** The revenue stream for O&M is dependent on realization of user charges from the SPV members and other users/MSMEs in the case of various facilities. As detailed in the financial section, the cash incomes are sufficient to meet operating expenditures, overheads as well as depreciation for sustainable replacement of assets. The SPV will also have to keep a track of maintenance of assets through collection of user charges from the members/ users.

7.2 Monitoring Mechanism

As mentioned in the implementation schedule, the following key activities shall be conducted during establishment of the CFC:

- Purchase of machinery & commissioning
- Trial production
- Commercial production

The successful implementation of above activities will depend on the following aspects:

- Implementation of above within the time frame
- Supervising and overseeing the implementation of the proposals and fine tuning and advocating more measures if needed, depending on the site conditions
- Project level monitoring indicators to evaluate the implementation of the CFC proposal at recommended intervals
- Suitable purchase mechanisms for proposed plant & machinery
- Periodical reporting of the status of implementation and monitoring of the results of key performance indicators, and
- Constant evaluation of the measures implemented based on the data available from project level monitoring and status reports and providing directions accordingly.

It is proposed to constitute a governance mechanism in the form of a **Cluster Development Co-ordination Committee (CDCC) under the chairmanship of Director of Industries, Government of Haryana** to oversee all cluster development projects in Haryana. The CDCC will look after the project under Mini Cluster Scheme to be implemented under the state's Enterprise Promotion Policy 2015.

The committee may operate under the overall monitoring of the State Level Project Steering Committee (SLPSC). Other key stakeholders such as representatives of cluster SPV, related government departments, support institutions, cluster level industry associations and consultants may be inducted as members under the committee.

The members may comprise the following:

i. Director, Industries and Commerce, Government of Haryana (Chairman)
ii. GM, DIC Ambala
iii. HSIIDC state officer
iv. Directors of related SPV
v. EY Cluster Development Expert under MSME project

The meeting of CDCC may be held on a quarterly basis to review performance of the clusters. The CDCC will guide monitoring and implementation of the project.

The project will be implemented through SPV and PMC will report progress of implementation to the CDCC as well as State Level Steering Committee and DIC Ambala.

Conclusion

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8 Conclusion

The micro Electronic units in Ambala are dependent on external service providers and dated technology that employed is manual, low in capacity on account of the units are barely surviving due to intense competition from large firms and Chinese imports. Job-work providers often do not accept low-volume orders from SMEs, or charge high prices for this and often delay MSE orders. The increasing costs of raw materials coupled with higher production costs is driving many micro players out of the market. The micro units do not have these machines and hence are unable to procure orders from MNCs.

Against this backdrop, the Electronic units in Ambala require support to advanced electronics technology facilities for various types of electronic components. This will reduce their costs, increase efficiency and enable them to be more competitive in the market.

The future of Electronic industry is bright. Electronic segment is poised to grow at a steady rate with major applications being in food, beverage and consumer goods. Several factors are enhancing the demand and supply of electronics products in India such as high growth of end-user industry, dynamically changing lifestyles, etc. Particularly in the Ambala region, the market possibility for high quality Electronic products is promising. The only constraint is the lack of technologies and related infrastructure which can be removed by setting up a CFC. The cluster firms have not been able to obtain bulk orders from large customers due to lack of quality, production capacity and poor quality of produce. The technologies required for upgradation are extremely expensive and the same cannot be adopted by any individual units in the cluster. Hence, the following facilities have been proposed in the CFC:

- Value added SMT facilities
- Value added R&D Facilities
- Advanced Electronic Training Facilities

The total project cost (including plant/machinery and buildings) is estimated to be INR 255.34 Lakh. The project shall be implemented by the SPV **'MIDAS Mechatronics LLP'** which has been constituted by SPV members. A number of capacity building programs and exposure visits have been organised by the SPV for the benefit for its members.

The CFC will be set up with support from DIC and the state government (Department of Industries) under PPP mode. The existing building shall be taken on lease upon in final approval by State Government. The buildings has already been identified by the SPV. The state industry department is envisaged to provide grant for setting up of the modern machines under the Mini-Cluster scheme, Haryana EPP 2015. The SPV members have proposed to contribute INR 75.34 lakh of the project cost. Support from Mini Cluster Scheme of the State Government of Haryana is envisaged for INR 180 lakh. Working capital requirement for the project will be provided by Corporation Bank. The project is financially viable and is expected to generate enough revenue to ensure its sustainability.

Annexures

9 Annexures

Letter of approval of DSR and directions for preparation of DPR

From

The Director of Industries & Commerce, Haryana,
Chandigarh.

To

M/s Ernst & Young LLP,
SCO-166-167, 1st Floor, Sector 9-C, Madhya Marg,
Chandigarh.
Email :- upinder.dhingra@in.ey.com

Memo No. Mini Cluster/Electronics/Ambala/ 1090-A
Dated:- 25/01/18

Subject: **Approval of Diagnostic Study Report (DSR) and directions for preparation of Detailed Project Report (DPR) of Ambala Electronics Cluster.**

Kindly refer to the subject cited above.

It is informed that the Diagnostic Study Report (DSR) of Ambala Electronics Cluster has been approved by Director of Industries and Commerce under the state mini cluster scheme.

Therefore, EY LLP is directed to initiate steps for preparation of Detailed Project Report (DPR) of the cluster.

(R.C Dahra)
Consultant (Cluster)
for Director of Industries & Commerce, Haryana

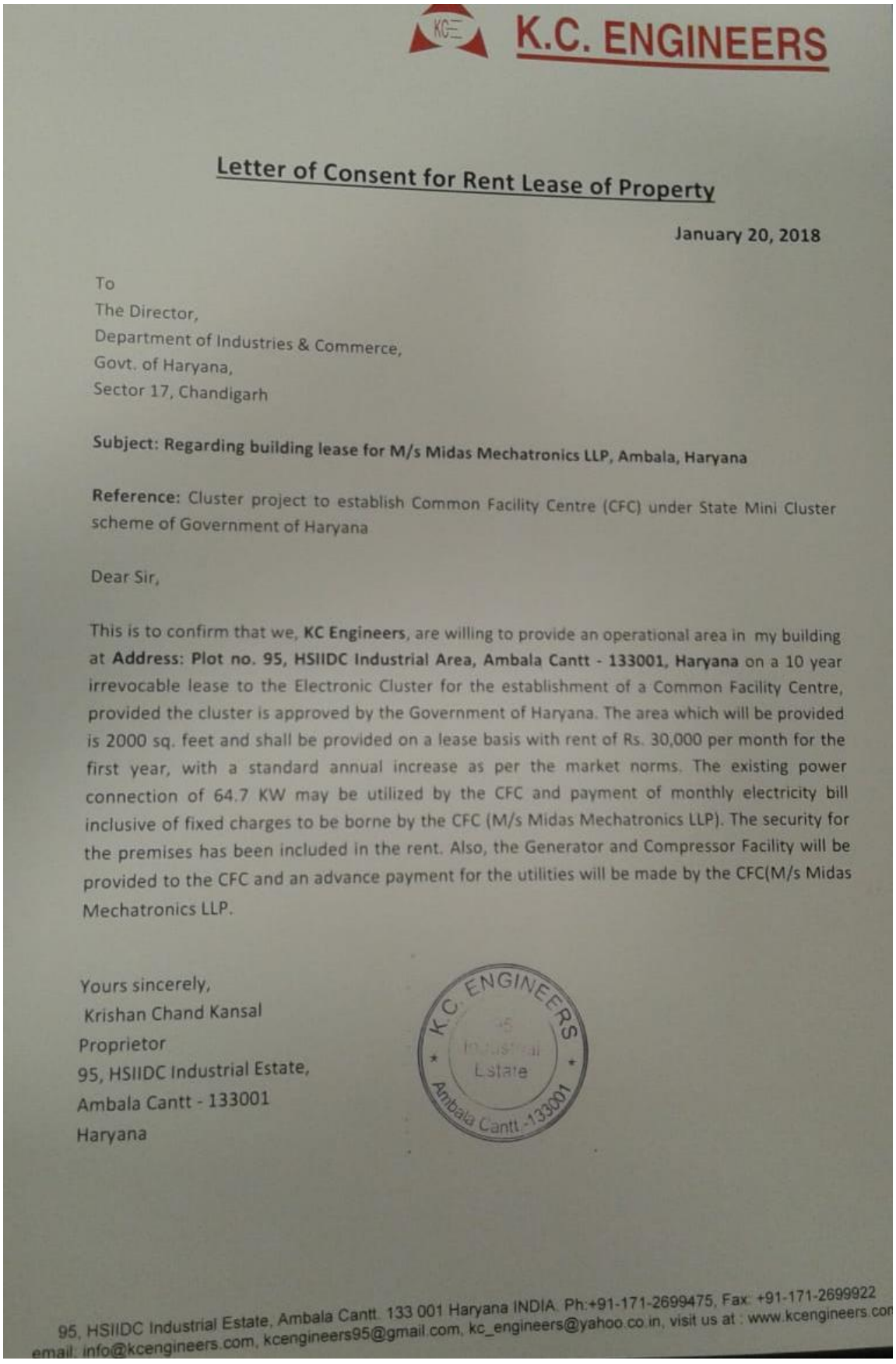
Endst. No. Mini Cluster/Electronics/Ambala/ 1091-A Dated:- 25/01/18

A copy of the above is forwarded to

1. SPV, Electronics Cluster Ambala for Information. They are directed to provide the requisite information desired by EY so as to enable them to prepare the DPR at the earliest. raybrighttech@gmail.com amol0172@medicaid.co.in
2. Joint Director, DIC, Ambala.

Consultant (Cluster)
for Director of Industries & Commerce, Haryana

Annexure 1: Letter of Consent for lease



K.C. ENGINEERS

Letter of Consent for Rent Lease of Property

January 20, 2018

To
The Director,
Department of Industries & Commerce,
Govt. of Haryana,
Sector 17, Chandigarh

Subject: Regarding building lease for M/s Midas Mechatronics LLP, Ambala, Haryana

Reference: Cluster project to establish Common Facility Centre (CFC) under State Mini Cluster scheme of Government of Haryana

Dear Sir,

This is to confirm that we, **KC Engineers**, are willing to provide an operational area in my building at **Address: Plot no. 95, HSIIDC Industrial Area, Ambala Cantt - 133001, Haryana** on a 10 year irrevocable lease to the Electronic Cluster for the establishment of a Common Facility Centre, provided the cluster is approved by the Government of Haryana. The area which will be provided is 2000 sq. feet and shall be provided on a lease basis with rent of Rs. 30,000 per month for the first year, with a standard annual increase as per the market norms. The existing power connection of 64.7 KW may be utilized by the CFC and payment of monthly electricity bill inclusive of fixed charges to be borne by the CFC (M/s Midas Mechatronics LLP). The security for the premises has been included in the rent. Also, the Generator and Compressor Facility will be provided to the CFC and an advance payment for the utilities will be made by the CFC(M/s Midas Mechatronics LLP.

Yours sincerely,
Krishan Chand Kansal
Proprietor
95, HSIIDC Industrial Estate,
Ambala Cantt - 133001
Haryana

K.C. ENGINEERS 95 Industrial Estate Ambala Cantt.-133001

95, HSIIDC Industrial Estate, Ambala Cantt. 133 001 Haryana INDIA. Ph:+91-171-2699475, Fax: +91-171-2699922
email: info@kcengineers.com, kcengineers95@gmail.com, kc_engineers@yahoo.co.in, visit us at : www.kcengineers.com

Annexure 2: SPV Certificate of Incorporation

GOVERNMENT OF INDIA

MINISTRY OF CORPORATE AFFAIRS

Registrar, Delhi

4th Floor, IFCI Tower 61, New Delhi, Delhi, 110019, India

FORM 16

[Refer Section 12(1)(b) of the LLP Act, 2008]

CERTIFICATE OF INCORPORATION

LLP Identification Number: AAM-0160

It is hereby certified that MIDAS MECHATRONICS LLP is incorporated pursuant to section 12(1) of the Limited Liability Partnership Act, 2008.

Given at Delhi this Fifteenth day of February Two thousand eighteen.

DS Ministry of Corporate Affairs (Govt of India) 23

Registrar, Delhi

Note: The corresponding form has been approved by AKSHAYA KUMAR SAHOO, Deputy Registrar of Companies and this certificate has been digitally signed by the Registrar through a system generated digital signature under rule 36(3)(ii) of the Limited Liability Partnership Rules, 2009.

The digitally signed certificate can be verified at the Ministry website (www.mca.gov.in).

Mailing Address as per record available in Registrar office:
MIDAS MECHATRONICS LLP
95, INDUSTRIAL ESTATE,
AMBALA CANTT, Ambala,
Haryana, 133006, India.

95

Page 1 of 1

Annexure 2(b): Copy of LLP Deed

Affidavit

Indian-Non Judicial Stamp
Haryana Government

Certificate No. AAZ2018B89

Date : 28/02/2018

GRN No. 33687041

Stamp Duty Paid : ₹ 101

Penalty : ₹ 0

Deponent

Name : Midas Mechatronics Llp
H.No/Floor : 95
Sector/Ward : X
Landmark : Industrial estate
City/Village : Ambala cantt
District : Ambala
State : Haryana
Phone : 0

Purpose : Partnersheep Deed Purchase byRaj Kumar Adhar no 6998 3529 5753 to be submitted at Concerned

The authenticity of this document can be verified by scanning this QrCode Through smart phone or on the website https://egrashry.nic.in

SUNITA THAKUR
Sub Tehsil, Ambala Cantt

LIMITED LIABILITY PARTNERSHIP DEED

This Deed of Partnership is made on ________ day of March, 2018 entered between the followings:

1. Pranay Choudhary, S/o Sh. Dinesh Choudhary, resident of H-12-P, Mahesh Nagar, Ambala Cantt (Haryana) Is Hereinafter Called The Party of The 1st part. And

2. Vishal Bhandari, S/o Sh. Shyam Sunder Bhandari, resident of Near Shiv Mandir, Village Dosarka, P.O Dheen, Ambala (Haryana) Is Hereinafter Called The Party of The 2nd part and

3. Kulwinder Kaur, D/o Sh. Sajjan Singh, resident of 899, Sector 9, Ambala City (Haryana) is Hereinafter Called The Party of The 3rd part. And

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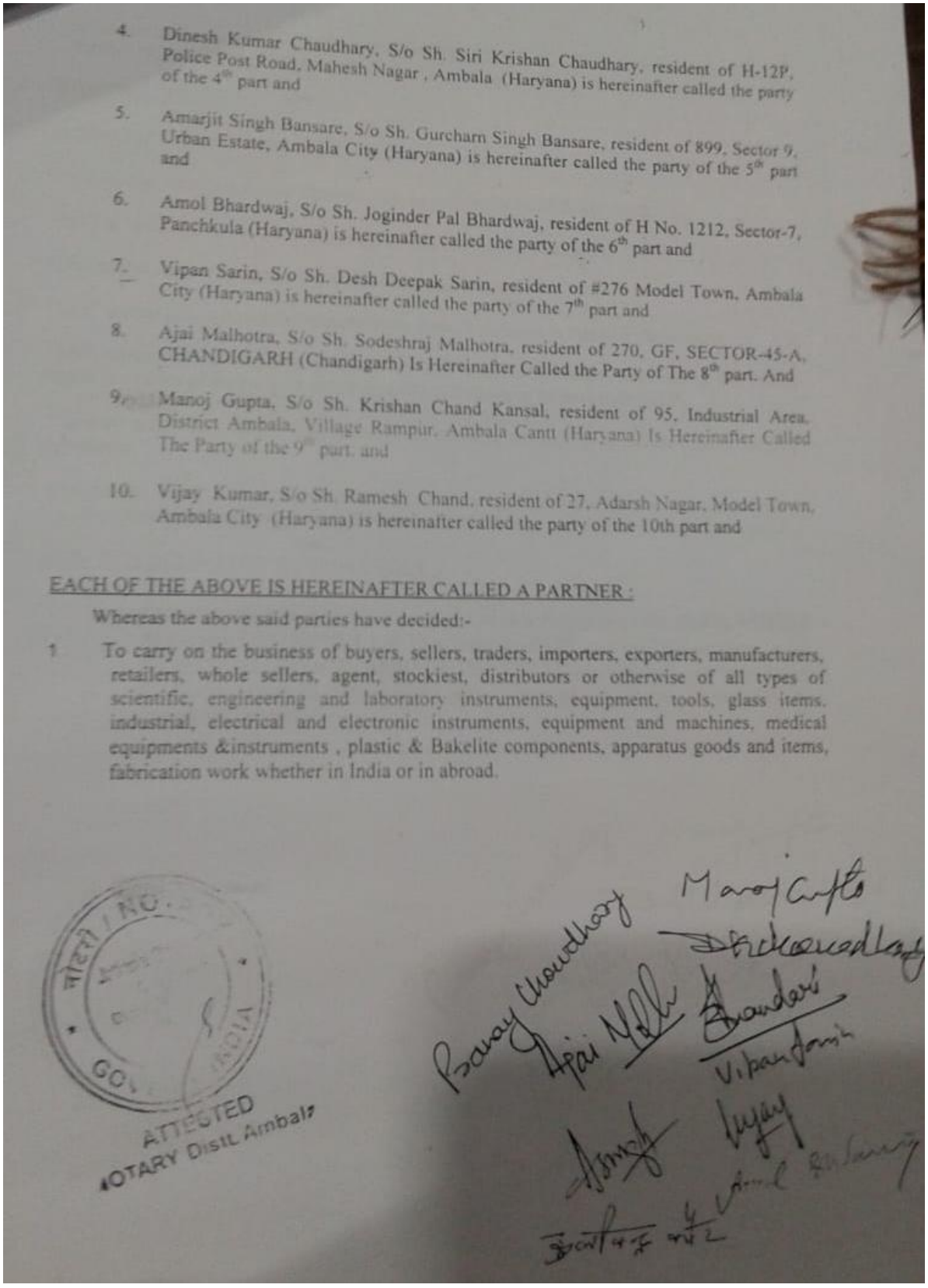

4. Dinesh Kumar Chaudhary, S/o Sh. Siri Krishan Chaudhary, resident of H-12P, Police Post Road, Mahesh Nagar , Ambala (Haryana) is hereinafter called the party of the 4th part and

5. Amarjit Singh Bansare, S/o Sh. Gurcharn Singh Bansare, resident of 899, Sector 9, Urban Estate, Ambala City (Haryana) is hereinafter called the party of the 5th part and

6. Amol Bhardwaj, S/o Sh. Joginder Pal Bhardwaj, resident of H No. 1212, Sector-7, Panchkula (Haryana) is hereinafter called the party of the 6th part and

7. Vipan Sarin, S/o Sh. Desh Deepak Sarin, resident of #276 Model Town, Ambala City (Haryana) is hereinafter called the party of the 7th part and

8. Ajai Malhotra, S/o Sh. Sodeshraj Malhotra, resident of 270, GF, SECTOR-45-A, CHANDIGARH (Chandigarh) Is Hereinafter Called the Party of The 8th part. And

9. Manoj Gupta, S/o Sh. Krishan Chand Kansal, resident of 95, Industrial Area, District Ambala, Village Rampur, Ambala Cantt (Haryana) Is Hereinafter Called The Party of the 9th part. and

10. Vijay Kumar, S/o Sh. Ramesh Chand, resident of 27, Adarsh Nagar, Model Town, Ambala City (Haryana) is hereinafter called the party of the 10th part and

EACH OF THE ABOVE IS HEREINAFTER CALLED A PARTNER :

Whereas the above said parties have decided:-

1 To carry on the business of buyers, sellers, traders, importers, exporters, manufacturers, retailers, whole sellers, agent, stockiest, distributors or otherwise of all types of scientific, engineering and laboratory instruments, equipment, tools, glass items, industrial, electrical and electronic instruments, equipment and machines, medical equipments &instruments , plastic & Bakelite components, apparatus goods and items, fabrication work whether in India or in abroad.

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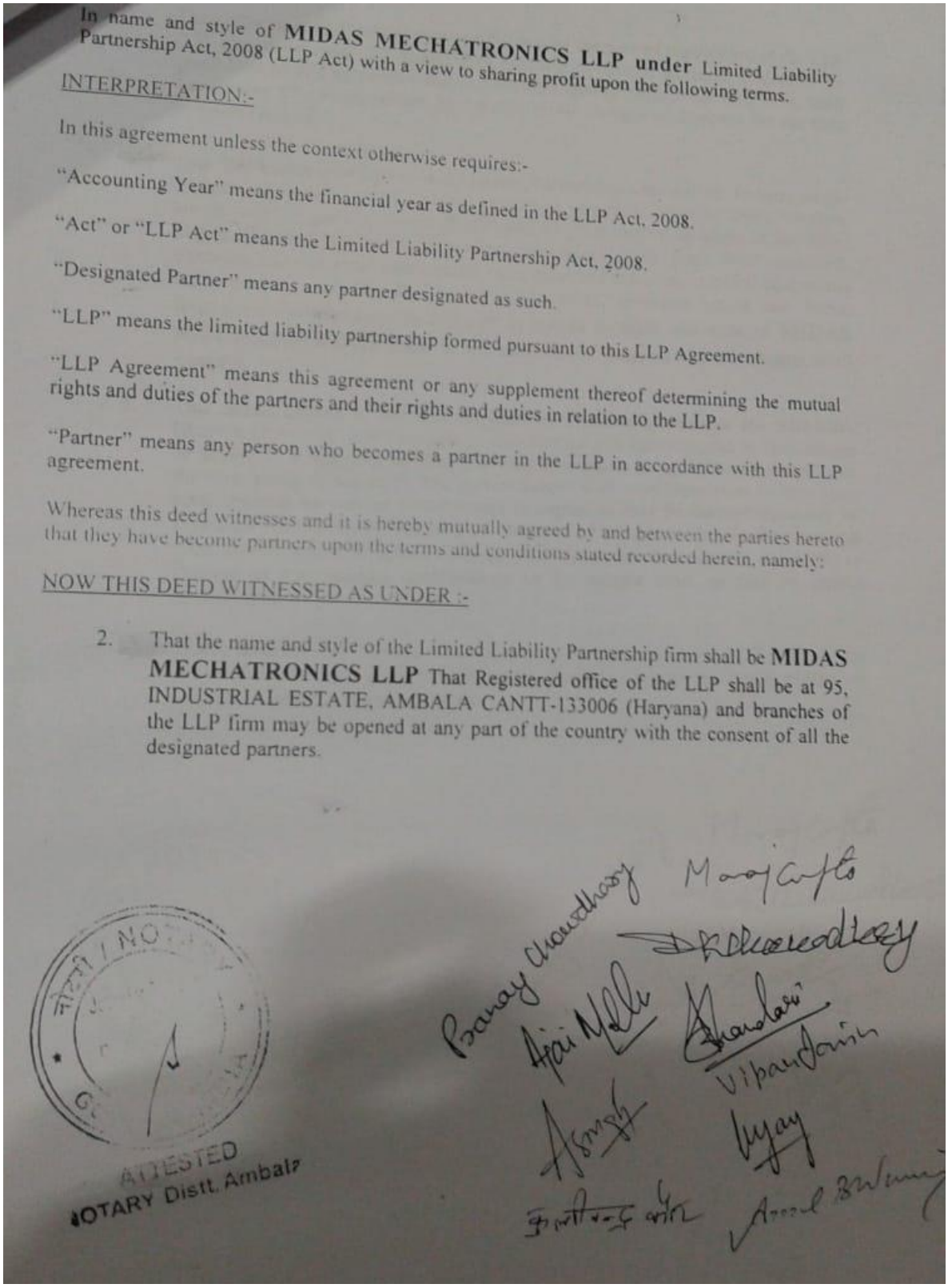

In name and style of **MIDAS MECHATRONICS LLP under** Limited Liability Partnership Act, 2008 (LLP Act) with a view to sharing profit upon the following terms.

INTERPRETATION:-

In this agreement unless the context otherwise requires:-

"Accounting Year" means the financial year as defined in the LLP Act, 2008.

"Act" or "LLP Act" means the Limited Liability Partnership Act, 2008.

"Designated Partner" means any partner designated as such.

"LLP" means the limited liability partnership formed pursuant to this LLP Agreement.

"LLP Agreement" means this agreement or any supplement thereof determining the mutual rights and duties of the partners and their rights and duties in relation to the LLP.

"Partner" means any person who becomes a partner in the LLP in accordance with this LLP agreement.

Whereas this deed witnesses and it is hereby mutually agreed by and between the parties hereto that they have become partners upon the terms and conditions stated recorded herein, namely:

NOW THIS DEED WITNESSED AS UNDER :-

2. That the name and style of the Limited Liability Partnership firm shall be **MIDAS MECHATRONICS LLP** That Registered office of the LLP shall be at 95, INDUSTRIAL ESTATE, AMBALA CANTT-133006 (Haryana) and branches of the LLP firm may be opened at any part of the country with the consent of all the designated partners.

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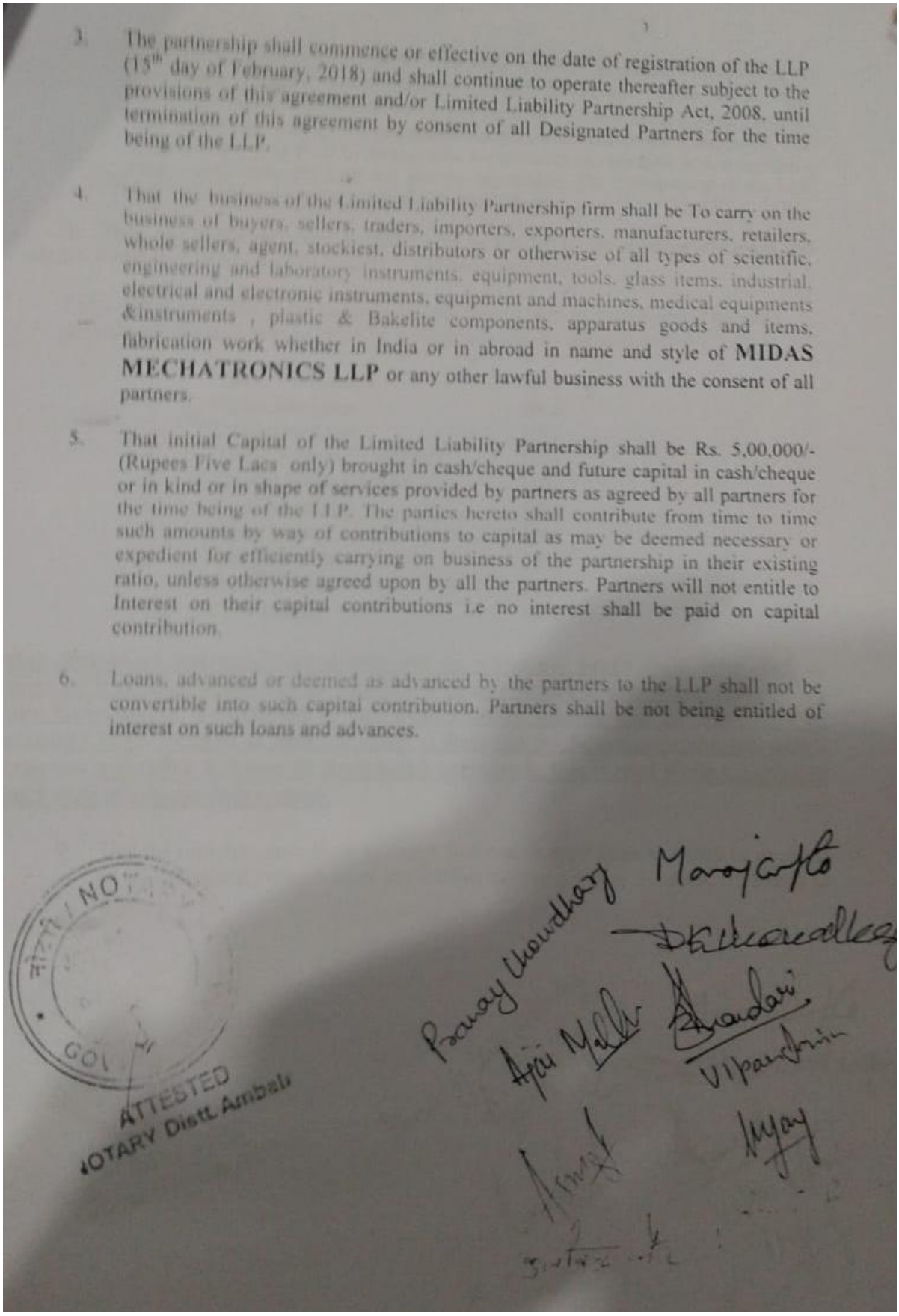

3. The partnership shall commence or effective on the date of registration of the LLP (15th day of February, 2018) and shall continue to operate thereafter subject to the provisions of this agreement and/or Limited Liability Partnership Act, 2008, until termination of this agreement by consent of all Designated Partners for the time being of the LLP.

4. That the business of the Limited Liability Partnership firm shall be To carry on the business of buyers, sellers, traders, importers, exporters, manufacturers, retailers, whole sellers, agent, stockiest, distributors or otherwise of all types of scientific, engineering and laboratory instruments, equipment, tools, glass items, industrial, electrical and electronic instruments, equipment and machines, medical equipments &instruments , plastic & Bakelite components, apparatus goods and items, fabrication work whether in India or in abroad in name and style of **MIDAS MECHATRONICS LLP** or any other lawful business with the consent of all partners.

5. That initial Capital of the Limited Liability Partnership shall be Rs. 5,00,000/- (Rupees Five Lacs only) brought in cash/cheque and future capital in cash/cheque or in kind or in shape of services provided by partners as agreed by all partners for the time being of the LLP. The parties hereto shall contribute from time to time such amounts by way of contributions to capital as may be deemed necessary or expedient for efficiently carrying on business of the partnership in their existing ratio, unless otherwise agreed upon by all the partners. Partners will not entitle to Interest on their capital contributions i.e no interest shall be paid on capital contribution.

6. Loans, advanced or deemed as advanced by the partners to the LLP shall not be convertible into such capital contribution. Partners shall be not being entitled of interest on such loans and advances.

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7. That Pranay Choudhary, Vishal Bhandari, Kulwinder Kaur, Dinesh Kumar Chaudhary, Amarjit Singh Bansare, Amol Bhardwaj, Vipan Sarin, Ajai Malhotra, Manoj Gupta and Vijay Kumar will be the first designated Partners. That partners can change the designated partners with unanimous at any point. The designated partners shall be responsible for business management and compliance management under the LLP Act and this agreement. The management of the LLP shall be carried on jointly by the designated partners.

8. That the Designated partners shall be not be entitled for the working allowance and salaries. It means no salary shall be payable to any designated partner.

8 (A). That the profits or the losses as the case may be shall be determined at the end of each financial year and shall be divided amongst the partners as under :-

1.	Pranay Choudhary	10%
2.	Vishal Bhandari	10%
3.	Kulwinder Kaur	10%
4.	Dinesh Kumar Choudhary	10%
5.	Amarjit Singh Bansare	10%
6.	Amol Bhardwaj	10%
7.	Vipan Sarin	10%
8.	Ajai Malhotra	10%
9.	Manoj Gupta	10%
10.	Vijay Kumar	10%

But designated partners may decide not to withdraw profit from firm and to reinvest it in LLP again due to restriction of any future contract/agreement with any Government Department to any avail subsidy scheme and all profit shall be ploughed in the business & added to reserves &surplus for future use/expansion and a separate resolution will pass by designated partners in this regard while entering in such type of contract/agreement.

9. That the firm may open Bank accounts with one or more Bank and shall be operated by all designated partners or as per the instructions given to the Bank from time to time.

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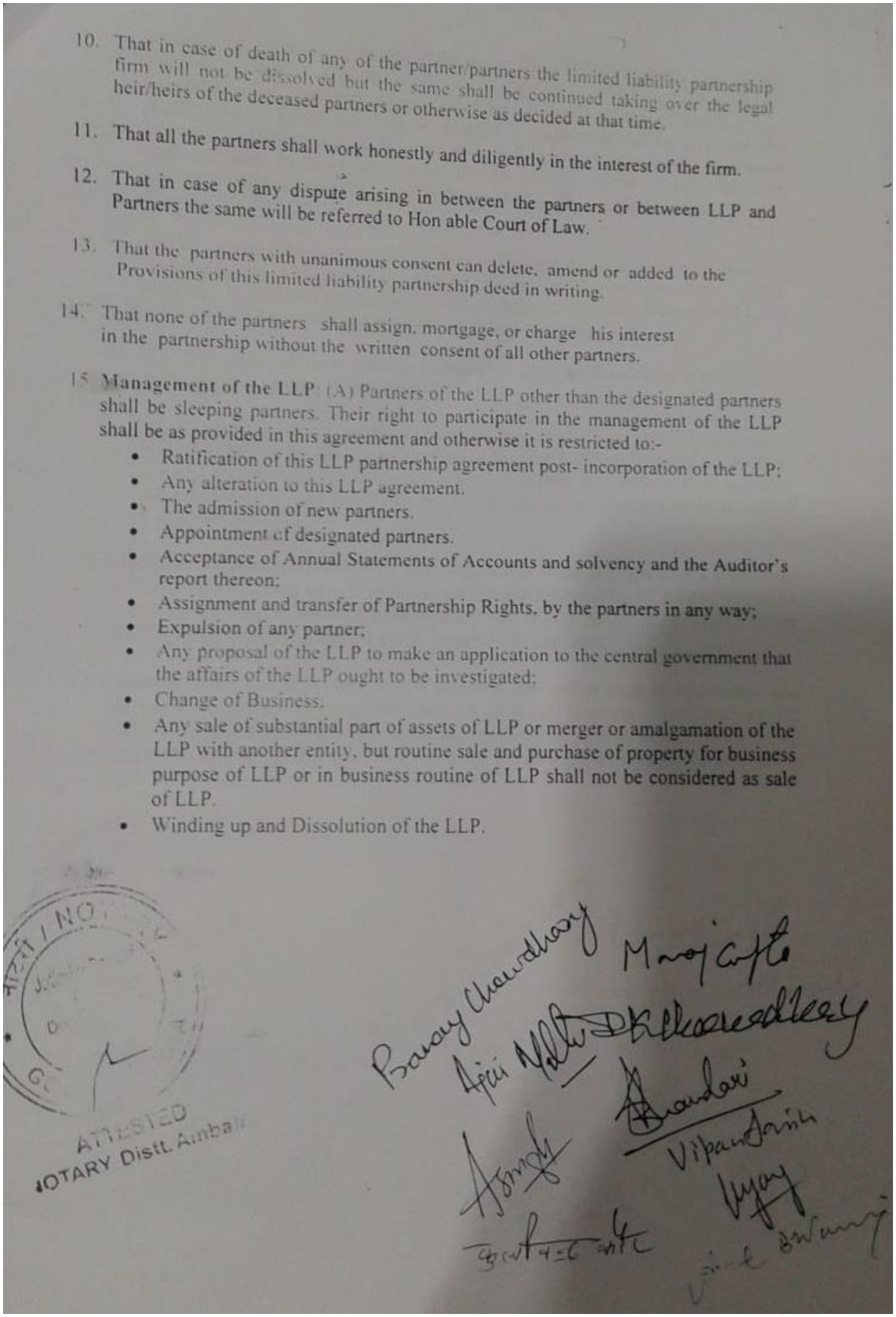

10. That in case of death of any of the partner/partners the limited liability partnership firm will not be dissolved but the same shall be continued taking over the legal heir/heirs of the deceased partners or otherwise as decided at that time.

11. That all the partners shall work honestly and diligently in the interest of the firm.

12. That in case of any dispute arising in between the partners or between LLP and Partners the same will be referred to Hon able Court of Law.

13. That the partners with unanimous consent can delete, amend or added to the Provisions of this limited liability partnership deed in writing.

14. That none of the partners shall assign, mortgage, or charge his interest in the partnership without the written consent of all other partners.

15 **Management of the LLP**: (A) Partners of the LLP other than the designated partners shall be sleeping partners. Their right to participate in the management of the LLP shall be as provided in this agreement and otherwise it is restricted to:-

- Ratification of this LLP partnership agreement post- incorporation of the LLP;
- Any alteration to this LLP agreement.
- The admission of new partners.
- Appointment of designated partners.
- Acceptance of Annual Statements of Accounts and solvency and the Auditor's report thereon;
- Assignment and transfer of Partnership Rights, by the partners in any way;
- Expulsion of any partner;
- Any proposal of the LLP to make an application to the central government that the affairs of the LLP ought to be investigated;
- Change of Business.
- Any sale of substantial part of assets of LLP or merger or amalgamation of the LLP with another entity, but routine sale and purchase of property for business purpose of LLP or in business routine of LLP shall not be considered as sale of LLP.
- Winding up and Dissolution of the LLP.

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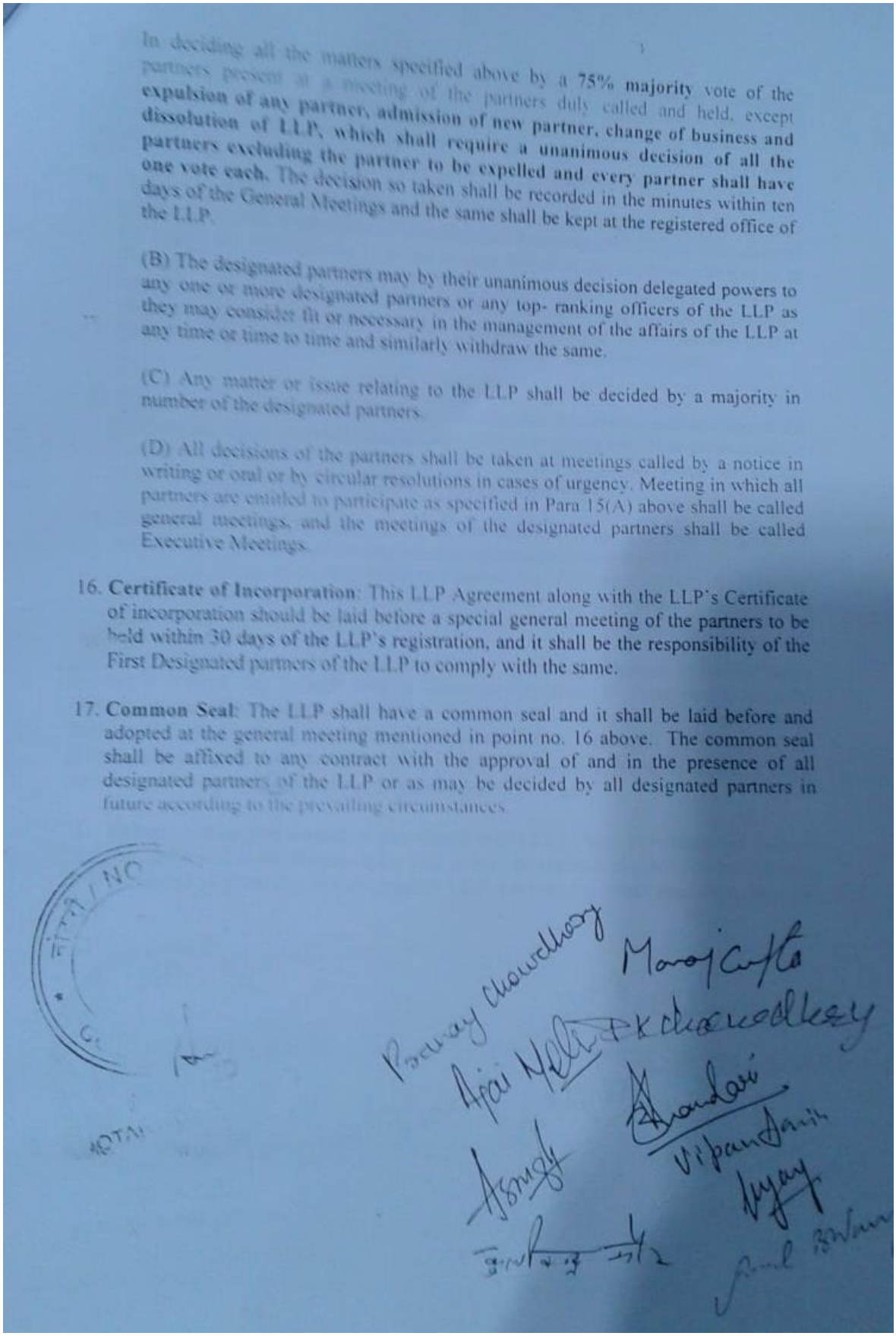

In deciding all the matters specified above by a **75% majority** vote of the partners present at a meeting of the partners duly called and held, except **expulsion of any partner, admission of new partner, change of business and dissolution of LLP, which shall require a unanimous decision of all the partners excluding the partner to be expelled and every partner shall have one vote each.** The decision so taken shall be recorded in the minutes within ten days of the General Meetings and the same shall be kept at the registered office of the LLP.

(B) The designated partners may by their unanimous decision delegated powers to any one or more designated partners or any top- ranking officers of the LLP as they may consider fit or necessary in the management of the affairs of the LLP at any time or time to time and similarly withdraw the same.

(C) Any matter or issue relating to the LLP shall be decided by a majority in number of the designated partners.

(D) All decisions of the partners shall be taken at meetings called by a notice in writing or oral or by circular resolutions in cases of urgency. Meeting in which all partners are entitled to participate as specified in Para 15(A) above shall be called general meetings, and the meetings of the designated partners shall be called Executive Meetings.

16. **Certificate of Incorporation**: This LLP Agreement along with the LLP's Certificate of incorporation should be laid before a special general meeting of the partners to be held within 30 days of the LLP's registration, and it shall be the responsibility of the First Designated partners of the LLP to comply with the same.

17. **Common Seal**: The LLP shall have a common seal and it shall be laid before and adopted at the general meeting mentioned in point no. 16 above. The common seal shall be affixed to any contract with the approval of and in the presence of all designated partners of the LLP or as may be decided by all designated partners in future according to the prevailing circumstances.

18. **Book of Accounts**: All necessary books of accounts and other papers relating the affairs of the LLP as prescribed under Rule 24 of LLP Rules and Forms, 2008 pursuant to section 34 (1) of the LLP Act, 2008 shall be ensured by the designated partners for the time being, to be kept at the principal place of business or at other place/s as mutually agreed upon by majority of the designated partners.

19. **Voluntary retirement or death of a partner:** If any partner shall die or have voluntarily retired, a statement of accounts shall be taken and made out of his share of the capital and effects of the LLP and all unpaid interest and profits due to him up to the time of his demise or retirement and the paid at the earliest as may be decided by the designated partners. The said statement of accounts shall include the partner's share of profit and loss for the period from the beginning of the financial year in which his death or retirement occurs till the date of any of the above event.

20. **Expulsion of partner:** A partner may be expelled by a unanimous decision of the partners and in the interest of the business, only after giving him show cause notice in writing and giving him 7 days time for his response and in that event the partner expelled shall be entitled to the benefits of a retiring partner.

21. **Notice:** 1) To the LLP- Any notice by the partners to the LLP may be given by addressing to the LLP and leaving it at the registered office of the LLP.

2) To a partner- Any notice to a partner shall have been sufficiently given by the LLP by leaving it addressed to the Partner at the registered office of the LLP and by sending the same by registered post of his usual or last known address.

22. **Borrowing Powers**:- Designated partners are authorized to borrow or receive loan/s in such a manner and at such time or times as they think fit from banks, financial institutions and other persons or entities and to secure the payment of any money borrowed raised or owing by mortgage, hypothecation or lien upon all or any of the properties or assets or revenues and profits of the LLP (Sapphire Woods (India) LLP) both present and future, and to create mortgage on properties of LLP

23. **Others**: - In case of absence of any clause in this LLP Deed, provisions and rules of LLP Act, 2008 will automatically apply and in case of absence of provision in LLP Act, 2008 in regard to particular matter, general Civil Law or any other applicable law will apply.

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IN WITNESS WHEREOF THE ABOVE PARTIES HAVE SET THEIR HANDS ON THIS DATE AND MONTH OF THE YEAR MENTIONED ABOVE.

WITNESSES: -

1. H.S. GILL
9, Jeewan Nagar, Model Town, Ambala City

2. Nandini Sarkar
3574/1, Nahan house
Ambala City.

EXECUTANTS:-

1. PRANAY CHOUDHARY
2. VISHAL BHANDARI
3. KULWINDER KAUR
4. DINESH KUMAR CHAUDHARY
5. AMARJIT SINGH BANSARE
6. AMOL BHARDWAJ
7. VIPAN SARIN
8. AJAI MALHOTRA
9. MANOJ GUPTA
10. VIJAY KUMAR

NOTARY

Sworn & ... before me
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(HR)

Annexure 3: Machinery Quotations

Wave soldering Machine

ALLIED MACHINES AND TOOLINGS.
#165 Patel Shamanna Layout, Horamavu,
Bangalore – 560043.
Mobile No – 8147012891.

Walnut Medical Pvt. Ltd.
277 Model Town, Circular Road,
Ambala City - 134003
Haryana, India

KIND ATTN : MR. Amol Bhardwaj,
SUB : QUOTATION FOR WAVE SOLDERING MACHINE.

DEAR SIR,
WE THANKYOU FOR YOUR ENQUIRY,DATED 2-01-18, AND AS DESIRED BY YOURSELVES PLEASE FIND BELOW OUR LOWEST OFFER.

Design, Manufacture And Supply Of SMD Wave Soldering Machine(ROHS),
With Following Features
PLC Based Circuit With HMI Display, Indication With All Features,
Of the Machine Displayed On the Screen
Fully Titanium Solder Pot For ROHS Compliant Inclusive OF
Dual Wave With Electronic Wave Height Adjustment.
Complete Conveyor Made Of titanium Fingers With Width Adjustable,
From 25mm – 500mm. Conveyor Angle Adjustment From 4-8Deg.
2Stage PRE Heating System with Top And Bottom Platens.
Stainless Steel Fluxer Unit With All Standard Features Built In.
vent Hood System Built In With Front Doors Adjustable.
All Electricals As Per CE Certified With Safety Features Built In.
Inclusive Of All Features As Mentioned Below.

Automatic wave solder system	YES
Best value through cutting-edge technology	YES
Ready-to-go fluxing, preheating and wave modules	YES
Exceptional accuracy and repeatability	YES
Lead or Lead-Free solder compatibility	YES
Easy to use	YES
Low maintenance	YES
Titanium Finger Conveying System	YES
Single or dual wave capability	DUAL ONLY

DESCRIPTION	YOUR SPECS	OUR SPECS
Wave Width:	18" (460mm)	480mm
Max Wave Height:	0-3/8"/0-10mm	10mm
Solder Pot Capacity:	1000 lbs (450 kg)	350kg
Solder Pot Power:	7.5 kW	6KW
Max Conveyor Speed:	8 ft/min (2.5 m/min)	3m/min
Foam Fluxer Tank:	1.5 gal (6 ltr)	6ltr
Compressed Air:	10 CFM @ 60 PSI (17 m^3/hr @ 4 bar)	10cfm

Approx Warm-up Time:	90 minutes	90min
Max Preheat 1 Temp:	356 ° F/180 °C	200deg.c
Preheat 1 Power:	4.8 kW	5KW
Max Preheat 3 Temp:	428 °F (220 °C)	250deg.c
Preheat 2 Power:	N/A	
Preheat 3 Power:	2.0 kW	3KW

Terms and Conditions.

Price :Rs 7,80,000.00 (Rupees Seven Lakhs Eighty Thousand Only) Ex-Works

Payment : 50% against Proforma invoice(NEFT). Balance 40% against Inspection At our Works And Before Dispatch

10% against installation and commissioning.

Delivery : Within 60 days upon receipt of your Purchase Order.

Taxes : GST 18% .

Validity : 30 days from the date of this offer.

Packing Forwarding Freight And Insurance Extra At Actuals

Wish our offer is in line with your requirements and look forward to receive your valued Purchase order .
A Make In India Unit Since 1996
Our GST No 29AAFPV4638Q1ZO

Thanking You,
Yours Truly.
For Allied Machines And Toolings
M.B Vinod Kumar.

Multi-Function SMD Pick & Place Machine

NMTRONICS
NMTRONICS (INDIA) PVT. LTD.
CIN : U74899DL1999PTC100086
info@nmtronics.com | www.nmtronics.com

SDF No. C-2 & E-17, [NSEZ]
Noida Special Economic Zone,
Noida-Dadri Road, Phase-II,
Noida 201 305 U.P. INDIA
+91 120 4603 500
+91 120 4603 535

Our Ref: NMT/SMT/Midas/25112017
Date: 25th November 2017

Midas EMS
Ambala, Haryana
India

Kind Atten: Mr. Amol Bhardwaj

Dear Sir,

At the outset, thank you very much for your enquiry for the SMT line equipment requirement. Based on our discussion, we are submitting our proposal for your consideration,

- **FUJI's** - Inline Automatic printer – **GPX-C**
- **Option-1: FUJI's** - High Speed Modular Placement Machine – **AIMEXIIIc (1 Gantry)**
- **Option-2: FUJI's** - High Speed Flexible Placement Machine – **XPF-L**
- **JT's** – Lead Free Reflow Oven- **RS- 600 II**
- **JT's** – Wave Soldering Machine- **WS 350**
- **YJ LINK's** – Board Handling Equipment
- **HT's** – Manual Insertion Conveyor

Kindly, evaluate the given proposal and let us know if you need any further clarifications. We will be glad to come and meet your technical and commercial team for further discussion,

Yours Truly,
For **NMTronics India Pvt. Ltd,**

SMD Placement Unit

Panasonic

Panasonic Factory Solutions Asia Pacific(197803317D)
285 Jalan Ahmad Ibrahim Singapore 639931
Tel: (65) 6860 5326 / Fax: (65) 6861 2027; Website : http://www.pfsap.panasonic.com.sg

2/16/20118

QUOTATION

To : **Innotronics Technologies Pvt Ltd for MIDAS Ambala**
Attention : **Mr. S P Arora**
Copy :

Dear Sir,
Thank you for your support to Panasonic. We are pleased to offer you as follows :

Product offered : **"Panasonic" BRAND SMD PLACEMENT MACHINE**

DESCRIPTION	QTY	UNIT PRICE (JPY)	TOTAL PRICE(JPY)
Panasonic AM100	1	32,838,000	32,838,000
- Modular Placement Machine			
Specifications include :			
- PCB flow : left to right			
- Single conveyor			
- Reference rail : front fixed, rear adjust			
- 14 nozzle head	1		
- Front Camera	1		
- Nozzle Changer(front)	1		
- Fixed Feeder base(front side) x 2	1		
- Fixed feeder base: Rear left side	1		
- Fixed feeder base: Rear right side	1		
- PCB Support Block w suppor pin	1		
- Reel Holder	2		
- Rear Opertional Panel	1		
- DGS Licence	1		
- Side lighting: Front side	1		
- 0402(01005) placemnet support	1		
- Manually setting tray & support unit: Rear right side	1		
Nozzle Type:			
- Standard Nozzles	15		
- Standard Nozzles	5		
- Nozzles for QFP/SOP	2		
Others :			
- Lubrication set	1		
- Maintenance set	1		
Feeders :			
- 8mm Double feeder	30		
- 12/16mm feeder	10		
- 24/32 feeder	3		
- Vibratory stick feeder: 3-row KXFW1KSRA00	1		
		Total List Price:	**32,838,000**
		Special Discount:	**16,238,000**
		Price After Discount:	**16,600,000**

Semi-automatic Paste Printer

INNOTRONICS — INNOTRONICS TECHNOLOGIES PVT. LTD.

Offer No: ITPL/Vanstron/Vprint600/MIDAS/060318 — Date: March 06, 2018

Semi Automatic Paste Printer Vprint 600

Customer	**MIDAS Mechatronics LLP** 95, Industrial Estate, Ambala Cantt. 133006 [Haryana]
Kind Attn.	**Mr. Amol Bhardwaj** **Mr. Pranay Choudhary**
Principal	**Vanstron Automation Co.Ltd** Haobao industrial park, No.43, Xin Er Hong Road, Shajing, Shenzhen, China
Currency	USD
Country of Origin/Shipment	China
Price Basis	Ex Works, Shenzhen, China
Validity	60 days
Payment Terms	100% advance through TT
Delivery Schedule	Estimated delivery shall be 4-6 weeks from the date of confirmed Purchase order and payment
Warranty	12 months from date of installation or 13 months from date of shipment, whichever is earlier. Manufacturer's standard warranty apply on parts.
Installation, Commissioning & Training	Installation, Commissioning & Training of machine will be provided free of cost for maximum upto 4 working days.

INNOTRONICS TECHNOLOGIES PVT. LTD.

Semi Automatic Paste Printer

Sr. No	Part No.	Description	Unit price [USD]	Qty.	Total price [USD]
1.		**Semi Automatic Paste Printer Vprint 600**	8,500.-	1	8,500.-
		•Controller: Employ Panasonic Programmable PLC and human-computer interface screen; •Apply to Korea rolling high-speed guide-rail and scraper; •Honeycomb board, magnetic thimble; •Emergency alarm of clean steel mesh; •Adjustable the angle, pressure, stroke of scraper; •Floated scraper system make printing faster, scraper can float up or down freely and self-regulation into horizontal position with steel mesh; •Scraper can slide back and forth to choose printing position. Specifications:- - Dimension: 1200 (L) x 680(W) x 1500 (H) mm - Weight: Approx. 310 Kgs -Max.PCB Size: 300mm(W) * 600mm(L) -PCB Thickness: 0 -100mm -Printing precision: +/-0.1mm -Repeatable precision: +/-0.05mm - PCB Positioning method: Side -Standard Power : 220VAC 50/60Hz - Power consumption: 150 kw, -Air supply: 4 – 6Kg/m3-			
		Total Ex Works Shenzhen in USD			8,500.-

8 zone Reflow Oven

INNOTRONICS **INNOTRONICS TECHNOLOGIES PVT. LTD.**

Offer No: ITPL/Vanstron/Explorflow/MIDAS/060318 Date: March 06, 2018

Explorflow Reflow Soldering Machine 0802

Customer	**MIDAS Mechatronics LLP** 95, Industrial Estate, Ambala Cantt. 133006 [Haryana]
Kind Attn.	**Mr. Amol Bhardwaj** **Mr. Pranay Choudhary**
Principal	**Vanstron Automation Co.Ltd** Haobao industrial park, No.43, Xin Er Hong Road, Shajing, Shenzhen, China
Currency	USD
Country of Origin/Shipment	China
Price Basis	Ex Works, Shenzhen, China
Validity	60 days
Payment Terms	100% advance through TT
Delivery Schedule	Estimated delivery shall be 8-10 weeks from the date of confirmed Purchase order and payment
Warranty	12 months from date of installation or 13 months from date of shipment, whichever is earlier. Manufacturer's standard warranty apply on parts.
Installation, Commissioning & Training	Installation, Commissioning & Training of machine will be provided free of cost for maximum upto 4 working days.

INNOTRONICS INNOTRONICS TECHNOLOGIES PVT. LTD.

Explorflow Reflow Soldering Machine 0802

Sr. No	Part No.	Description	Unit price [USD]	Qty.	Total price [USD]
1.		**ExplorFlow Reflow Soldering Machine 0802**	41,500.-	1	41,500.-
	Heating System	8 Heating zone (Up + Down), 16 heating modular -Supercharged forced air convection systems; - Closed loop control blower motors (speed control) by inverter -Heating length around 3121mm -Hot air speed adjusting by PC software; -temperature control: PID +SSR; -Oven hood open method: motorized with impoted Italian electrical parts; - temperature control accuracy: +/-1C° - temperature range: Max.300C° - temperature deviation on PCB: +/- 1.5C°			
	Main Conveyor	-Special aluminum alloy material for Rail; **-Auto Chain Oiler** **-Programmable Conveyor Width** **-Conveyor direction: Left to right;** -Chain(Pin 4mm) +Mesh+Rail guide(Standard); -Subsection integrated type for Rail; -conveyor heights: 900mm+/-20mm **- PCB width:min 50mm~max 460mm** -components heights available: Top and bottom 25mm; - conveyor speed: 300mm/min–2000mm/min; - width adjustment method: Manual+ Motorized **- chain automatic lubrication function**			
	Cooling system	Supercharged forced air cooling zone ; - 2 Cooling zone with 900mm length; -Cooling zone air speed is adjustable; - External Cooling fan			
	Control system	-PC+ Siemens PLC, Windows7. -Temperature control system: PID+SSR DRIVE ;			
	Protection system	-Temperature curve analysis, storage, call function,			

Proposal for YJ LINK Board Handling Equipment

* Above pictures are for indication only, and may vary as per below offered configurations.

S.No.	Model	Description	Qty	Total Price
1	ALD-12 Y	Automatic Magazine Loader - 3 Magazine capacity (Upper 1/Lower 2) - LED Light Tower with Buzzer - Emergency Switch - SMEMA Compatible - Bottom to Top Magazine Flow - Dual Clamping System for magazine warp prevent	1	USD 7,800
2.	ACC-100 Y	Link Conveyor, 100 mm - PLC Control - SMEMA Interface - Buzzer, SMEMA interface LED Display - Compact design - Durable Structure by double base plate	2	USD 5,000
3.	AUD-12 Y	Automatic Magazine Unloader - 3 Magazine capacity (Upper 1 / Lower 2) - LED Light Tower with Buzzer - Emergency Switch - SMEMA Compatible - Magazine rack loaded from upper part - Dual Clamping System for magazine warp prevent - Pusher Conveyor	1	USD 9,000
		Total Price(Ex-Works Noida / FTWZ)		USD 21,800

Max. PCB size for Y Size: 440 x 330 mm

AC Plant

GSTIN: 03ANVPD3495L1ZI

D.N. Cooling Appliances

REFRIGERATION & AIR CONDITIONING ENGINEERS

120,Gurjaipal Nagar, Opp.Dr.Ghuman Ortho Hospital.
Near Cool Road, Jalandhar.
Mob. : 99888-49993, 99152-49889
E-mail : dn.cooling@gmail.com

Auth. Channel Partners:
BLUE STAR
Breathe Easy

Deals In:-
Deep Freezers, Chest Coolers,
Water Coolers, Water Dispenser,
Mortuary Machines, Cold Rooms,
Ice Cube Machines, Visi Cooler

Ref.No...BSLDN8/3-002 QUOTATION Dated.....8/3-002.....

MIDAS MECHATRONICS LLP
AMBALA.

DESCRIPTION OF GOODS	QNTY	PRICE
AIR CONDITIONER.		
DUCTABLE SPLIT TYPE	3.	
CAPACITY - 8.5 TON RANGE		115000 + 28% GST.
MODEL - DSA 102 IR1.		⇒ 147200.
MAKE :- BLUESTAR [SCROLL COMPRESSOR]. BLUE FIN RADIATOR		
AREA TO COVER ≅ 2500 Sq.ft.		
	TOTAL	441600 TAX PAID.
LOW SIDE WORK (INSTALLATION).		
BRANDED ANCHOR CABLE		9000/TR
COPPER PIPE - MAANDEV		
DUCT SHEET - TATA/JINDAL/SAIL - 22/24 GAUGE		9000 X 25.5
INSULATION - 9 MM		⇒ 229500.
REFRIGERANT - DUPONT.		
NITROGEN FLUSHING - INCLUDED.		
VACCUMISING - INCLUDING.		

TERMS & CONDITIONS

TAXES - SERVICE TAX AS APPLICABLE ON INSTALLATION @ 18%.
DELIVERY - WITHIN 2-3 WORKING DAYS.
FREIGHT - NO CHARGES (F.O.R).
PAYMENT - 100% ADVANCE

For D N Cooling Appliances
Er. Noble Dhupra. Prop.

Air Dryer

MECHATRONICS TECHNOLOGIES

CNC Machines & Accessories, SPM CNC M/Cs Industrial UPS, Servo Voltage Stabilizes, Air Compressors & Dryers, Consultancy Services for New Machining Plant Set ups

Ref. No-: Met/1054-16/4863 Date 10/03/2018

Kind Attn-: Mr. Parnay

M/s Midas Mechatronics LLP
Ambala cantt.

Subject- Commercial Offer for FRANK make airdryer

Dear Sir/Madam,

With Reference to your discussion you had with undersigned regarding your requirement of listed product/s, we are pleased to submit our best offer with best suited scope of supplies and Features. Kindly consider Listed Price/s and Technical Data as required by you:

S. N.	DESCRIPTION	Quotation price	Final & Best Price
1.	**Air Dryer - Nippydry 35**	85,080	70,900
2.	**Air Dryer - Nippydry 45** ✓ Refrigerant type ✓ Intelligent controller ✓ Dew point +3 Degree centigrade ✓ Designed for high ambient temperature ✓ Time delay for compressor safety ✓ Advance 3 in 1 heat exchanger for low pressure drop	94,200	78,500

Terms & Conditions-

1. Taxes –Extra as GST 18%
2. Transportation (Freight) charges extra at actual.
3. Warranty 1 year from date of Installation.
4. Payment –Advance 100% before dispatch.
5. Delivery within 10 days from date of Advance and Confirmed PO.

For Mechatronics Technologies:
DEEPAK WADERA
Mob:- 98553-76660.

Visit us on WWW.METTECH.IN
Contacts-+91 9855276660,9855376660,9855236660
E-mail-info@mettech.in,support@mettech.in,mechatronicstechnologies@gmail.com
Address-12 N, Anami Complex, Jeevan Nagar Chowk, Focal Point, Ludhiana (India)-141010

Soldering Station

GSTIN : 19ATZPK2876Q1Z9

Mobile : +91-7217685719
Email : kumar_mithu77@rediffmail.com
Whatsapp : 9831442027

MK TRADERS

Stockits and supplier of all types of communication spare parts, suvcillance spare parts and general order supplier.

TO

THE MIDAS MECHATRONICS LLP

AMBALA, HARYANA

SUB: QUOTATION

Quotation of soldering station is as under:-

SNO	ITEMS DESCRIPTION/MODEL NO	QTY	BASE PRICE	GST%
1	XYTRONICS LF399D	PER UNIT	6804.00	18%
2	XYTRONICS LF8800	PER UNIT	37548.00	18%
3	XYTRONICS IR 850	PER UNIT	121464.00	18%
4	XYTRONICS LF 853D	PER UNIT	58590.00	18%
5	VISUAL INSPECTION MAGNIFIERS	PER UNIT	4200.00	18%

Term and Conditions

1. Price	F.O.R Ambala
2. Validity	30 Days
3. GST	Extra as applicable, present rate is 18%
4. Payment	50% advance along with order and balance along Performa invoice before dispatch
5. Delivery	6-8 weeks after receipt of order
6. Warranty	One Year

M. K. TRADERS
Proprietor

Regd. Off. :- 221, Bagpota Road, Behla, Kolkata - 700 061

UPS (30KVA)

Computer Hut

A house of media Suppliers :
You can Rely with confidence

Ref. No.....

Dated.....6/3/18.....

GST No. ALDPS3030Q1ZY

To

The Manager

MIDAS Mechatronics LLP.

Ambala City

Haryana.

Sub: Quotation for UPS

Dear Sir,

We would like submit here with our best reasonable and affordable rates for UPS.

Sr. No.	Particulars	Qty	Rate
1	UPS 30 KVA with 30 Minutes Backup	Each	477250-00

Terms & Conditions:

1. GST@18% Extra
2. Payment against delivery
3. Validity for 10 days
4. Delivery within 5-7 days

Thanking You

For Computer Hut

Authorised Signatory

Prop.

Office : S.C.O. 1112-1113, 2nd Floor, Sector 22-B, Chandigarh. Ph. : 0172-5086545, 2777429, Telefax : 0172-5078907
Mobile : 98140-09610, Hotline : 2745, 8707, E-mail : computerhutchd@yahoo.co.in

Baking Oven

Kay Pee Udyog
A name in Laboratory Instruments
101, Industrial Estate, AMBALA CANTT-133001
Mobile Nos. 9896432272, 9896124839, 8199991707
Email : inquiry.kaypeeudyog@gmail.com, kaypeeudyog@live.com
wwebsite : www.kaypeeudyog.com , www.tempstar.in

[QUOTATION]

No. KPU/03/2017-18/6101 **Dated: 21.03.2018**

To,
M/s. MIDAS MECHATRONICS LLP
95, Industrial Estate
AMBALA CANTT-133006

Ref. No. : TELEPHONICALLY

Sr. No.	Description	Qty.	Rate Each (Rs.)
1.	**Hot Air Oven, Size 24x24x24"**	1 no.	Rs. 85000/- (Rupees Eighty Five Thousand Only)

TERMS & CONDITIONS:-

PRICES:
Prices are nett & Ex-works.

TAXES:
GST applicable extra.

FREIGHT & TRANSPORTATION:
Freight & Transportation will be charged extra.

PACKING, FORWARDING & INSTALLATION
will be charged extra.

PAYMENT
100% advance.

WARRANTY
One year warranty against any manufacturing defect.

DELIVERY
Delivery within 45-60 days afer the confirmed purchase order.

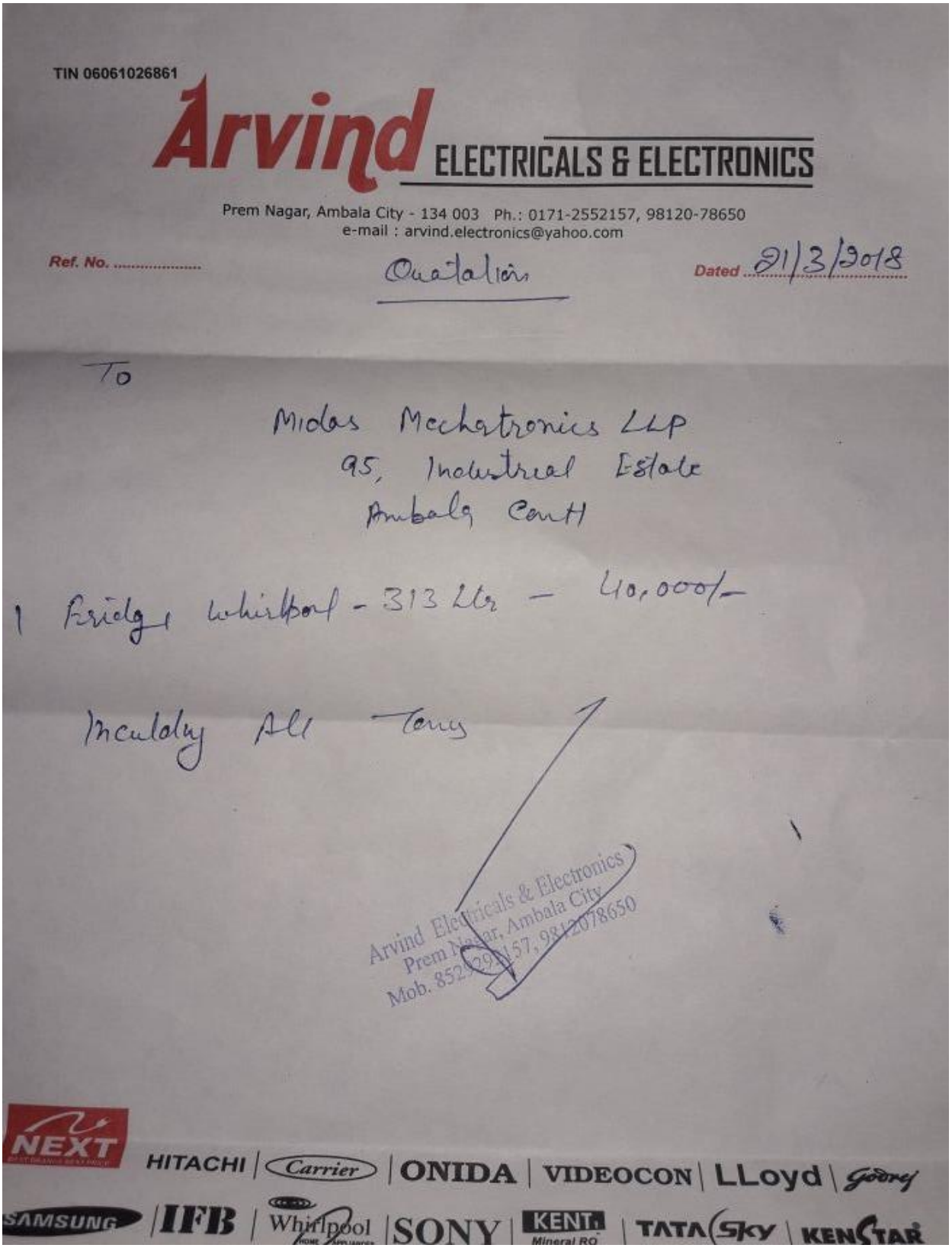
VALIDITY
Validity is 30 days from the date of opening.

BANKERS
INDUSIND BANK, A/C NO. 201001512701, RTGS NO. INDB0001060.

for Kay Pee Udyog

Authorised Signatory

Refrigerator for Storage



TIN 06061026861

Arvind ELECTRICALS & ELECTRONICS

Prem Nagar, Ambala City - 134 003 Ph.: 0171-2552157, 98120-78650
e-mail : arvind.electronics@yahoo.com

Ref. No. .....

Quotation

Dated 21/3/2018

To

Midas Mechatronics LLP
95, Industrial Estate
Ambala Cantt

1 Fridge Whirlpool - 313 Ltr - 40,000/-

Including All Taxes

Arvind Electricals & Electronics
Prem Nagar, Ambala City
Mob. 852[illegible]57, 9812078650

NEXT HITACHI | Carrier | ONIDA | VIDEOCON | LLoyd | Godrej
SAMSUNG | IFB | Whirlpool | SONY | KENT Mineral RO | TATA Sky | KENSTAR

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+ 91 44 6632 8400
Fax: + 91 44 2431 1450

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Fax: + 91 484 2705393

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Block 'C', 3rd floor
Kolkata - 700 016
Tel: + 91 33 6615 3400
Fax: + 91 33 2281 7750

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6th floor & 18th floor
Express Towers
Nariman Point
Mumbai - 400 021
Tel: + 91 22 6657 9200 (6th floor)
+ 91 22 6665 5000 (18th floor)
Fax: + 91 22 22876401 (6th floor)
+ 91 22 2282 6000 (18th floor)

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Nirlon Knowledge Park,
Off Western Express Highway,
Goregaon (E), Mumbai – 400 063
Tel: +91 22 6749 8000
Fax: +91 22 6749 8200

15th Floor, The Ruby, 29,
Senapati Bapat Marg, Dadar (W), Mumbai
- 400 028, India
Tel: +91 22 6192 000

NCR
Golf View Corporate Tower – B
Near DLF Golf Course
Sector 42
Gurgaon – 122002
Tel: + 91 124 464 4000
Fax: + 91 124 464 4050

6th floor, HT House
18-20 Kasturba Gandhi Marg
New Delhi - 110 001
Tel: + 91 11 4363 3000
Fax: + 91 11 4363 3200

4th and 5th Floor, Plot No. 2B, Tower 2,
Sector 126, NOIDA – 201 304
Gautam Budh Nagar, UP, India
Tel: +91 120 671 7000
Fax: _91 120 671 7171

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C-401, 4th floor
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Yerwada (Near Don Bosco School)
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Ernst & Young LLP

Assurance | Tax | Transactions | Advisory

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Artwork by: JG