DRAFT DETAILED PROJECT REPORT

KARNAL PLASTIC PACKAGING CLUSTER

Submitted to,

Department of Industries and Commerce
Government of Haryana
and
Development Commissioner (MSME)
Government of India
(for assistance under MSE-CDP scheme)

:

March 2017

Submitted by,
Karnal Plastic CFC Private Limited (SPV)

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

03 March 2017

Director
Department of Industries & Commerce,
Government of Haryana
1st Floor, 30 Bays Building,
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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 Common Facility Centre (CFC) at Plastic Packaging Cluster, Karnal 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 Detailed Project Report is based on studies of and discussions with:

- Directorate of Industries, Govt. of Haryana
- MSME-DI, Karnal
- Members of Karnal Plastic CFC Pvt. Ltd.
- Plastic packaging units located in Karnal
- 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 or the Office of Development Commissioner, Ministry of MSME 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

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Acknowledgement

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We would like to convey our sincere thanks to members of **Karnal Plastic CFC Pvt. Ltd.** for their support during the on-site visits and interactions with plastic packaging units in Karnal as well as facilitation in conducting stakeholder consultations. Further, we would also like to thank officials of **Karnal Food Pack Cluster Ltd.** for providing support and information related to plastic units in Karnal.

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

Abbreviations

ABS	Acrylonitrile Butadiene Styrene
AIPMA	All India Plastics Manufacturers Associations
AoA	Article of Association
BEP	Break Even Point
BIS	Bureau Of Indian Standards
BOPP	Biaxially Oriented Polypropylene Films
BrE	Rotational Molding
C.U.	Capacity Utilization
CAGR	Compound Annual Growth Rate
CE	Capital Employed
CEO	Chief Executive Officer
CFC	Common Facility Centre
DC-MSME	Development Commissioner, Ministry Of MSME
DIC	District Industries Centre
DPR	Detailed Project Report
DSCR	Debt-Service Coverage Ratio
FDI	Foreign Direct Investment
FMCG	Fast-Moving Consumer Goods
FY	Financial Year
GAIL	Gas Authority Of India Limited
GI	Geographical Indication
GM	General Manager
GoH	Government Of Haryana
GoI	Government Of India
HCCI	Haryana Chamber of Commerce & Industry
HDPE	High-Density Polyethylene
HMEL	HPCL-Mittal Energy Limited
HPL	Haldia Petrochemicals Ltd
HSIIDC	Haryana State Industrial & Infrastructure Development Corporation Limited
HUDA	Haryana Urban Development Authority
IBEF	India Brand Equity Foundation

IIP	Indian Institute Of Packaging
INR	India Rupee
IOCL	Indian Oil Corporation Ltd.
IPR	Intellectual Property Rights
IRR	Internal Rate Of Return
KFPCL	Karnal Food Pack Cluster Limited
LDPE	Low-Density Polyethylene
LLDPE	Linear Low-Density Polyethylene
MNC	Multinational Corporation
MnTPA	Million Tons Per Annum
MoA	Memorandum Of Association
MSE-CDP	Micro & Small Enterprises - Cluster Development Programme
MSME-DI	Micro, Small & Medium Enterprises-Development Institute
NCR	National Capital Region
NDRI	National Dairy Research Institute
NID	National Institute Of Design
NIFTEM	National Institute Of Food Technology Entrepreneurship And Management
NPV	Net Present Value
NSIC	National Small Industries Corporation
PAT	Profit After Tax
PC	Polycarbonate
PE	Polyethylene
PET/PETE	Polyethylene Terephthalate
PIAI	Packaging Industry Association Of India
PMC	Project Management Committee
PMMAI	(Pmmai)Plastics Machinery Manufacturers Association Of India
PNB	Punjab National Bank
PP	Polypropylene
PS	Polystyrene
PV	Polyvinyl Chloride
PVC	Polyvinyl Chloride
R&D	Research And Development
RIL	Reliance Industries Limited
ROCE	Return On Capital Employed

SIDBI	Small Industries Development Bank Of India
SL	Straight Line
SPV	Special Purpose Vehicle
SWOT	Strength Weakness Opportunity Threat
UAE	United Arab Emirates
UAM	Udyog Aadhaar Memorandum
UK	United Kingdom
USA	United States Of America
USD	United States Dollar
WC	Working Capital
WDV	Written Down Value
WPP	Woven Polypropylene Bags

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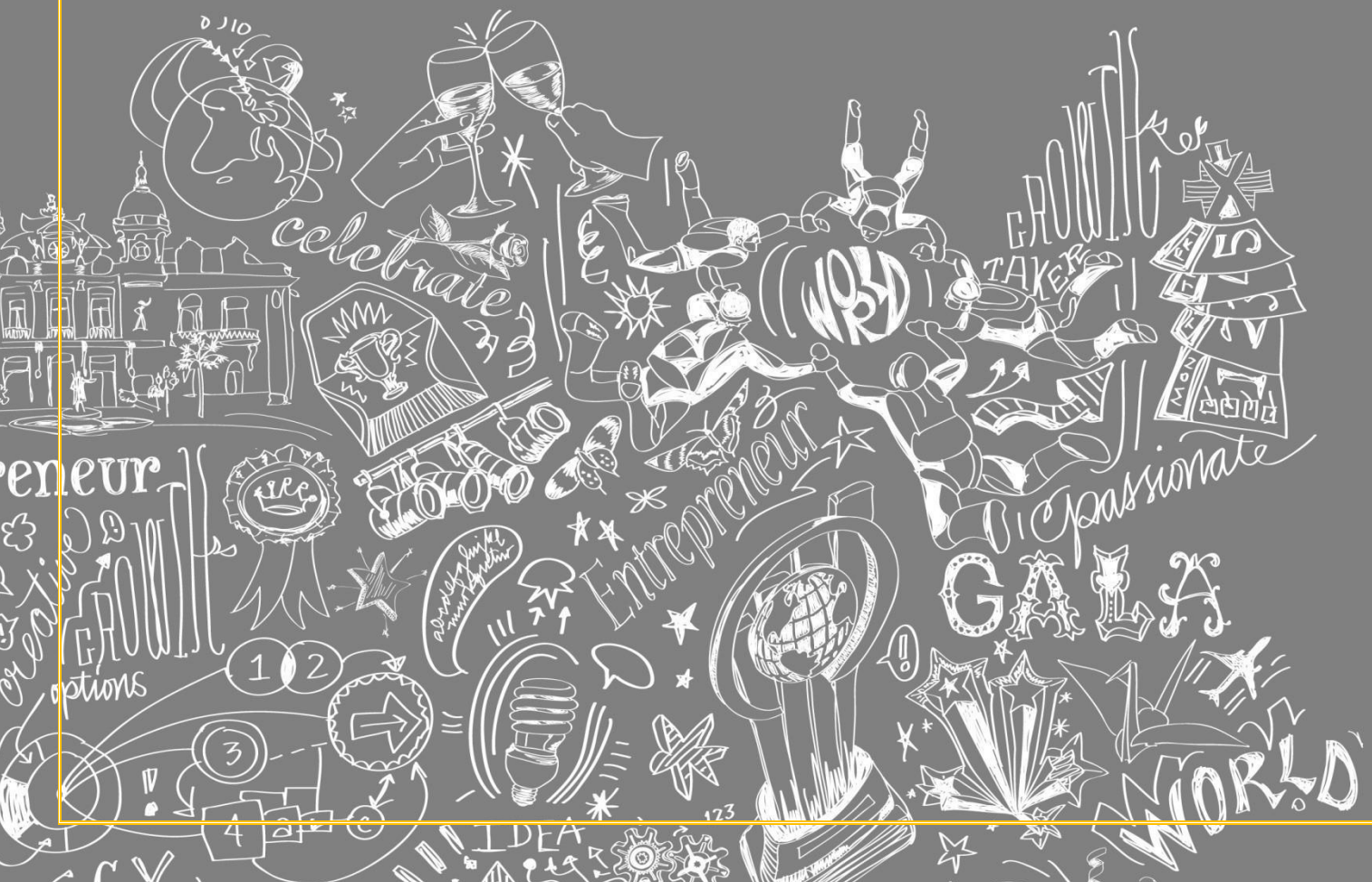
Executive Summary



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 trajectory. 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. An attempt is also being made to actively leverage the grants available under central government schemes. 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 Micro and Small Enterprises Cluster Development Program (MSE-CDP) scheme of Ministry of MSME (led by the office of DCMSME) as well as providing grant under its EPP 2015.

In this context, this Detailed Project Report (DPR) has been prepared to seek grant-in-aid assistance under the MSE-CDP to set up a state-of-the art Common Facility Centre (CFC) in plastic packaging cluster at Karnal District, Haryana.

About the Karnal Plastic Packaging Cluster

Packaging in India is one of the fastest growing sectors given the interface and demand derived from almost every industry segment. With the current market size of about USD 27 billion, the packaging industry is well positioned to leap frog to a higher growth trajectory driven by burgeoning disposable income levels and rising demand from anchor sectors like food, beverages, cosmetics, toiletries, FMCG and pharmaceuticals. The industry comprises of both organized and unorganized segment with a large number of manufacturers of basic materials, converted packages, plastic packaging products, corrugated boxes, machinery and ancillary materials and so on. The fragmentation is such that over 85% of the total 22,000 registered packaging companies are MSMEs that are mainly involved in the lower value added activities.

Today plastics are the material of choice in packaging for the products manufactured by sectors such as Fast Moving Consumer Goods (FMCG), food and beverages, pharmaceuticals etc. primarily innovative visual appeal for customer attraction and convenience. Additionally, they improve the hygiene quotient and shelf-life of the products especially in the food and beverages segment. The industry is driven by key factors like rising population, increase in income levels and changing lifestyles. Growth prospects of end-user segments are leading to rise in the demand of the plastic packaging industry. However, the manufacturing of plastic packaging products is highly fragmented as the segment is dominated by micro, and small firms.

Haryana has a thriving plastic packaging industry with a presence of a large number of industries manufacturing plastic packaging products for the state's food & beverage, FMCG and pharmaceuticals industry. One of the major concentrations of micro and small plastic packaging units is in Karnal, a prominent industrial hub of the state. The cluster comprises of about 60 units (most of

them in the micro category) involved in manufacturing of plastic packaging products such as PET bottles for mineral drinking water, liquor & pharmaceuticals etc.; BOPP bags for rice, grains, flour & fertilizers; multilayer plastic packaging for snacks, pharma products; and containers for milk, glue, paint etc. The units also undertake variety of print packaging jobs for dairy units, food processing, paint industry and pharma units. The cluster provides employment to about 2000 workers.

The cluster owes its origin to derived demand through proliferation and influx of dairy, pharmaceutical and rice industries in the region. Increased local demand of plastic packaging by dairy, pharma, rice packaging, distillery and FMCG industry in the region further fuelled the growth of the cluster. The easy availability to raw materials such as PE/PP due to proximity of IOCL Panipat plant and HMEL Bhatinda PP plant also provided a boost to the plastic packaging industry. Many agro processing and other units in the cluster are export oriented and require quality printing and packaging services that the existing units are unable to provide as most of them deploy obsolete technologies and practices.

Presently, the cluster is catering the local demand of customized products and services. The demand of large units for plastic packaging requires improved quality and increased volumes. The cluster is yet to tap this market in the region. The small plastic packaging units are unable to offer the packaging material at competitive prices, resulting in plunging market shares

Diagnostic Study and Interventions

A diagnostic study was undertaken by the cluster members during 2016 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 by the cluster SPV in close coordination with the District Industries Centre, Karnal and with inputs from MSME-DI, National Institute of Design and Corporation Bank. The awareness level of the cluster units (on plastic packaging technologies, cluster development initiatives) was found to be low. Additionally, it was observed that most of the cluster units deploy obsolete technologies and are unable to meet the requirements of the market due to lack of availability of plastic packaging machines/equipment. There are limitations in terms of lamination and plastic printing services. The finishing of products is ordinary due to dependence on manual techniques and conventional machines. These were the major pain areas that necessitated an urgent intervention. Subsequently, the need to set up a CFC was established.

The DSR was presented to the state government during first meeting of the State Level Project Steering Committee (SLPSC) on 21 October 2016 and was subsequently approved. The SPV was granted permission to go ahead with preparation of Detailed Project Report DRP) for the cluster.

Proposed Common Facility Centre

The proposed CFC will facilitate:

i. Value added Injection Moulding and blow moulding facilities

ii. Multilayer extrusion facilities
iii. Modern coating & lamination facilities
iv. Automatic plastic packaging printing facilities
v. Value added finishing facilities

Such a common facility will not only supplement but complement activities of firms in the cluster and there is no similar facility available in the district for use by cluster micro enterprises. The proposed common facilities will be utilized by the SPV members and will also be available to non-members units in and outside the cluster. The facility will provide a much needed infrastructural push to the cluster units and will enable them to become more competitive.

Special Purpose Vehicle for Project Implementation

Post the need identification during the diagnosis study, the cluster units came together to form a Special Purpose Vehicle (SPV) by the name and style of '**Karnal Plastic CFC Pvt Ltd**.' The SPV was set up as a private limited company under section 7 of the Companies Act, 2013 and rule 8 of the Companies (Incorporation) Rules, 2014. DIC, Karnal and MSME-DI have played an important role in SPV formation by cluster stakeholders. The SPV was incorporated in 2016 and already includes about 25 members who are subscribing to the necessary equity base of the company. The proposed CFC will be implemented on public-private partnership basis through SPV 'Karnal Plastic CFC Private Limited' by availing support from Government of Haryana (under EPP 2015) and Government of India (under MSE-CDP scheme of DCMSME).

The SPV members have a 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 plastic packaging and enhancing productivity of their units. These include exposure to cluster development initiatives in other clusters, exposure visits to fairs, registration under UAM and awareness programs on new trends in packaging industry (particularly for food and dairy industry), lean manufacturing, IPRs, design interventions and new technologies. These programs were conducted in collaboration with DIC, MSME-DI and BDS providers such as National Dairy Research Institute (NDRI), National Institute of Design (NID) and so on.

Project Parameters, Viability and Sustainability

The Karnal Plastic Pack CFC Limited with support from DCMSME (under MSE-CDP) and state industry department is willing to set up a Centre of Excellence– a Common Facility Centre having state-of-the-art plastic packaging facilities to undertake job work of cluster units with a total project cost of about **INR 18.64 crores**. The SPV members have proposed to contribute 17.80% of the project cost. The total contribution of SPV members will amount to Rs. 4.42 crores. Support from MSE-CDP of the DC-MSME is envisaged for Rs. 10.5 crores and from the government of Haryana is Rs. 4.81 crores (25.84%).

The cost of the project and proposed means of finances is tabulated below:

Project Cost

S. No.	Particulars	Amount (INR in Lakhs)
1	Land (Rs. 201.50 Lakh) and site development (Rs. 10.00 Lakh)	212.72
2	Building and civil works (two storied building and basement: total shop-floor area of 41137 sq ft. @ Rs. 800/- per sq ft.	329.09
3	Plant & Machinery (primary machines) and related equipment (secondary machines) including 5% electrification & 2.5% plumbing expenses on total P/M cost of Rs. 1062.21 lakh	1141.88
4	Miscellaneous fixed assets (office items, furniture, fixtures, firefighting equipment, first-aid equipment, back-up power supply etc.)	15.00
5	Preliminary expenses (DSR, DPR, legal & administrative expenses, registration, civil engineering drawings with estimates & tender forms, telephone, stationery etc.)	21.00
6	Pre-operative expenses (establishment cost, travel, overheads during construction period including salaries, machine testing cost and other services, etc.)	75.13
7	Provision for contingencies (2% or Rs. 6.58 lakh on building, 5% or Rs. 53.11 lakh on plant & machinery and 5% or Rs. 0.75 lakh on other fixed assets)	60.44
8	Working capital margin (at operating capacity of 80%)	8.41
	Total	1863.64

The total project cost is estimated to be Rs. 1863.64 lakh. As indicated assistance to the project from the Govt. of India is envisaged to the tune of 56.35 percent of the project cost, SPV contribution is to the tune of 17.80 per cent of the project cost and 25.84 per cent of project cost by will be contributed of GoH.

Means of finance

S. No.	Source of finance	Project cost upto INR 1500.00 lacs		Project cost over INR 1500.00 lacs		Total Amount (INR in lacs)
		Percentage Contribution	Amount (INR in lacs)	Percentage Contribution	Amount (INR in lacs)	
1	Grant-in-aid under MSE-CDP (Govt. of India)	70	1050.00	0	0	1050.00
2	Grant-in-aid (Govt. of Haryana)	20	300.00	50	181.82	481.82
3	Contribution of SPV	10	150.00	50	181.82	331.82
	Total	100	1500.00	100	363.64	1863.64

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

S. No.	Particulars	Estimates
1	BEP (cash BEP at operating capacity of 80%)	77.30

2	Av. ROCE (PAT/CE) without Grant	6.13% (project unviable)
3	Av. ROCE (PAT/CE) with Govt. Grant	34.42%
4	Internal Rate of Return (IRR)	68.10%
5	Net Present Value (at a discount rate of 10 per cent) - incorporating viability gap funding (grant) by GoI and GoH	NPV is positive and high (Rs. 1186.14 lakh) at a conservative project life of 10 years
6	Payback period (calculated on SPV contribution)	1 Year & 9 months with Grant-in-aid assistance from GoI
7	DSCR	Not Applicable (No term loan to be availed in this project)

As evident from the financials above, with viability gap funding under the MSE-CDP and under EPP of GoH, the project is highly viable and sustainable. The project is expected to generate surplus from the second 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 12 months upon receipt of final approval of grant-in-aid assistance from the Government of India under MSE-CDP. The project will be implemented by the SPV in close association with DIC, Karnal and MSME-DI Karnal. It is proposed to constitute a Cluster Development Co-ordination Committee (CDCC) constituted under the Chairmanship of Director of Industries, Government of Haryana to oversee all cluster development projects in Haryana under MSE-CDP. The CDCC can also 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).

In addition, for implementing this CFC project, a Project Management Committee (PMC) comprising the GM, DIC, Karnal, and representatives of SPV, Corporation Bank, Kurukshetra University and EY experts shall be constituted to directly oversee effective monitoring and implementation. 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 DC-MSME.

The potential for Karnal plastic packaging cluster to grow is enormous, owing to the increasing demand of plastic products in the region. The strengths of the plastic packaging cluster is its location (both geographically & industrially), a thriving food processing, dairy and pharmaceutical industry in the region. The region of Karnal district is famously known as '*Rice bowl of India'* district with home to about 250 rice millers producing of about a million MT of rice each year. This has led to huge demand for rice packaging BOPP bags which is currently not being catered to by the plastic packaging units of Karnal. Moreover, the large number of pharma manufacturing units also require tube and foil for packaging of drugs/tablets. The dairy industry is another prominent sector in the region that requires plastic packaging products. However, the cluster units are unable to effectively cater to these market segments due to lack of technological capacities, low production scales and outdated processes.

Against this backdrop, if modern plastic packaging manufacturing machines (extrusion, blow moulding and injection moulding) are provided to micro and small units of the cluster under CFC mode, their production costs will reduce and they will be able to garner bulk orders from food processing, dairy, liquor, and pharma industries.

This cluster has ability to increase its output and market share through manufacturing of quality 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 premium packaging requirements of the market. The facility will also provide an opportunity to micro units to increase their capacity utilization and profitability. The facility will provide a major infrastructural push to the units reeling under high competition. Last but not the least, the CFC will enhance the co-operation and joint action among cluster stakeholders to improve their competitiveness to meet the demands of the domestic and international markets.

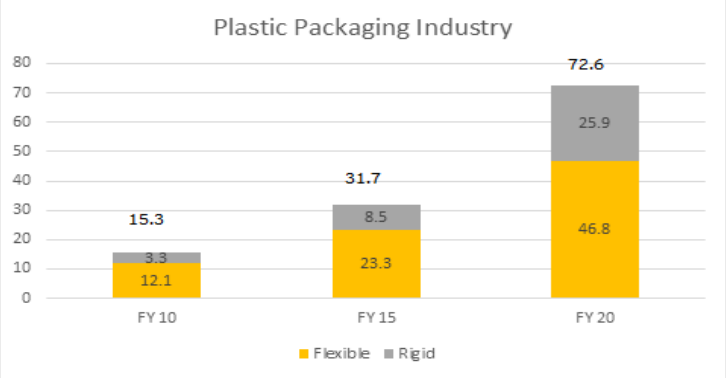
Introduction

1. Introduction

1.1 Overview of the Cluster

Packaging in India is one of the fastest growing sectors given the interface and demand derived from almost every industry segment. With the current market size of about USD 27 billion, the packaging industry is well positioned to leap frog to a higher growth trajectory driven by burgeoning disposable income levels and rising demand from anchor sectors like food, beverages, cosmetics, toiletries, FMCG and pharmaceuticals. Thomas Schneider, President of the World Packaging Organisation (WPO), says, '*In coming years the Indian packaging industry will see substantial growth'*. As the retail sector grows, the concept of track and trace devices, especially for product identification such as 2D barcodes, radio frequency identification (RFID), etc. will penetrate aggressively into Indian packaging."

Packaging is one of the fastest growing industries and is valued at over USD 700 billion globally. It has grown higher than GDP growth rate in most of the countries. In developing country like India, it grew at a CAGR of 16% in the last five years and touched ~USD 32 Bn in FY 15. The Indian packaging industry constitutes ~4% of the global packaging industry. However, the per capita packaging consumption in India is low at 4.3 Kgs, compared to developed countries like Germany and Taiwan where it is 42 Kgs and 19 Kgs respectively. In the coming years, Indian packaging industry is expected to grow at 18% p.a. wherein, the flexible packaging is expected to grow at 25 % p.a. and rigid packaging to grow at 15 % p.a. (Refer fig. 1).



Source: IBEF, Industry Reports

Figure 1: Indian Plastic Packaging Industry Outlook (USD BN)

Haryana has a thriving plastic packaging industry with a presence of a large number of industries manufacturing plastic packaging products for the state's food & beverage, FMCG and pharmaceuticals industry. One of the major concentrations of micro and small plastic packaging units is in Karnal, a prominent industrial hub of the state. The cluster comprises of about 60 units involved in manufacturing of plastic packaging products such as PET bottles for mineral drinking water, liquor & pharmaceuticals etc.; BOPP bags for rice, grains, flour & fertilizers; multilayer plastic packaging for snacks, pharma products; and containers for milk, glue,

paint etc. (Refer Table 1). The units also undertake variety of print packaging jobs for dairy units, food processing, paint industry and pharma units. The cluster provides employment to over 1800 persons.

Table 1: Products of Plastic Products Cluster, Karnal

Packaging material	Usage
PET bottles	For mineral drinking water, liquor & pharmaceuticals etc.
BOPP bottles, Sacks, Bags	For packaging of grains, flour etc.
Plastic Canister, Bucket, Drum	For Milk, curd etc.
Monolayer & Multi layers plastic packaging	For pharmaceuticals, flexible packaging of food snacks etc.
Plastic Drums (large)	For Chemicals/ Fevicols/ Paint industry
Printing of labels	For Bottles/ drums etc.

The cluster is relatively old and has naturally evolved in last 25 years, Over 80% of the units in the cluster belong to micro category and the overall turnover of the cluster is around Rs. 250 crores. The major association of plastic packaging manufactures is the 'Karnal Plastic Association'. It was formed to address common issues and challenges of the cluster units located in Karnal district. The association has come forward to address the need of Plastic Packaging Cluster and formed a SPV "**Karnal Plastic CFC Private Limited".**

The cluster owes its origin to derived demand through proliferation and influx of dairy, pharmaceutical and rice industries in the region. Increased local demand of plastic packaging by dairy, pharma, rice packaging, distillery and FMCG industry in the region further fuelled the growth of the cluster. Presence of prominent institutions like National Dairy Research Institute (NDRI) and Indian Council of Agriculture Research in Karnal led to establishment of a lot of units in the food processing and dairy category in the region, which also resulted in increased demand for plastic packaging products. The easy availability to raw material such as PE/PP due to proximity to major refineries like IOCL Panipat plant and HMEL Bhatinda PP plant further propelled the growth of plastic packaging units in the region.

However, with the changing trends in the plastic packaging industry, the micro units of Karnal are unable to meet the customer's requirements due to lack of technological capacities. Many agro processing and other units in the cluster are export oriented and require quality printing and packaging services that the existing units are unable to provide as most of them deploy obsolete technologies and practices.

Presently, the cluster is meeting the local demand of customized products and services. The demand of large units for plastic packaging requires improved quality and increased volumes. The cluster is yet to tap this market in the region. The small plastic packaging units are unable to offer the packaging material at competitive prices, resulting in plunging market shares.

1.2 About the district

Karnal is one of the most industrialized and historical districts of Haryana. It is famously known as a city of 'Daanveer Karna', as per the ancient Indian epic Mahabharata. Karnal district is known as the '*Rice bowl of India*' due of production of huge quantities of for production of rice. It is also famous for its dairy industry and for presence of premier research institutions such as National Dairy Research Institute (NDRI), Central Soil Salinity Research Institute (CSSRI), Wheat Research Directorate, National Bureau of Animal Genetics Resources, Sugarcane Breeding Institute etc.

Figure 2: District map of Haryana

Karnal district is prominently located on the Sher Shah Suri Marg (G.T.Road), and the Delhi Ambala rail line which connects Karnal with all important places in the country. It is centrally located between Delhi and Chandigarh at a distance of about 125 kms from each. Karnal district is strategically located and connects with five different states in proximity, this has fuelled the growth of district by enabling industries to tap market of 5 states. Karnal district lies on the western bank of river Yamuna and forms eastern boundary of the district. The river Yamuna separates Haryana from Uttar Pradesh. The Karnal district is surrounded by Kurukshetra district on its north-west, Jind & Kaithal district on its west, Panipat district on its south and Uttar Pradesh on east (figure 2 and 3).

Figure 3: Karnal map

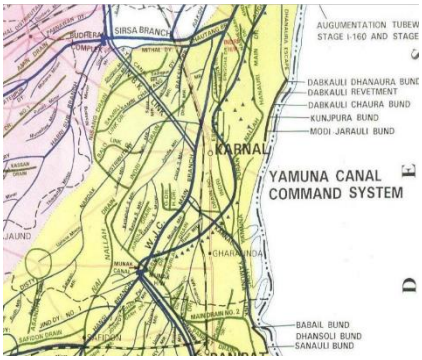
1.3 Industrial scenario of Karnal

By late sixties, this region had started feeling the impulses of development. Regions adjacent to GT road (NH 1) recorded considerable economic growth, especially due to industrial development in areas around Delhi. The onset of green revolution, progress in dairy farming, and expansion of agro-based & agriculture oriented industries (particularly rice mills in large numbers) provided an impetus to the growth of the region. Subsequently, the region witnessed a transition from agriculture to industrialization. The Haryana government also undertook several initiatives to promote industrial

development in the region. The state 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. Presence of NDRI in Karnal coupled with enabling policies of the government led to establishment of several milk processing and dairy plants in the region. At present, Karnal has become the major industrial hub with presence of a large number of industries across various segments such as and several industrial sectors such as dairy, food processing, rice milling, pharma, plastic, agriculture implements and so on.

1.4 Geographical Traits

The Karnal district lies between 29'09'50" and 29'50' North latitude and 76 31' 15" and 77 12'45" East longitude. The topography of Karnal district is almost plain and well irrigated through tube wells and canals. It has an elevation of 235 to 252 meters (748 feet). Irrigated area is about 205627 hectare, while the gross irrigated area is 388917 hectare. Percentage of the gross irrigated area to total cropped area is 98.72 % while the cropped area is 387111 hectare



River Yamuna forms eastern boundary of the district and flows from north to south. The district is a part of the Ganga-Sindus (Indo-Gangestic) plains and has a well spread network of western Yamuna canal. Its geographical area has been divided in to three agro climatic regions, Khadar, Bhangar and Nardak belt. Khadar starts from Indri-Karnal road one mile away from Karnal covering the area in between Yamuna River and NH-1 up to Patti-Kalyana village. Bhangar area starts from west of Khadar area covering Gharaunda, development block. The nardak area lies in Nissing, Nilokheri and Assandh development block.

1.5 Demographic Trends and Economic Structure

According to the 2011 census, Karnal district had a population of 1,505,324 (of which male and female were 797,712 and 707,612 respectively), making it the 5th largest district of Haryana in terms of population[1]. The district has a population density of about 600 inhabitants per square km. Karnal has a sex ratio of 887 females for every 1000 males, and a literacy rate of about 75%. Overall penetration of higher education in Karnal is lower than the state average.

The percentage of Cultivators to total Workers in 2011 in the district was about 22% whereas during 2001 it was 27[2]. This infers that people have moved away from farming due to lesser profits. However, the district's economy is still predominantly agriculture based owing to the existence of good irrigation system across the district. Industrial activities have started increasing in the district

[1] http://www.census2011.co.in/census/district/213-karnal.html
[2] Census 2011: District Census Handbook, Karnal

with due to pro-business environment in the state. This had led to generation of employment in secondary and tertiary sectors.

The existing area under industrial use is approximately 102 hectare including the major industrial estate of HSIIDC in Sector 3 of Karnal. Keeping in view the location, available infrastructure, topography and drainage, an industrial area of 466 hectare has been allocated by Government of Haryana in sectors 1, 2, 37, 40 and 43-A of Karnal district. This units that will be sett up here are expected to provide employment to about 35000 workers.

Overview of the Plastic Packaging Sector

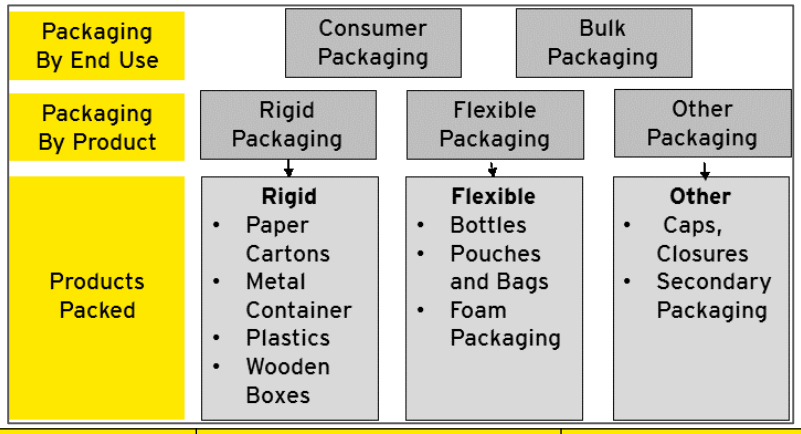
2. Overview of the Plastic Packaging Sector

The World Packaging Organizations (WPO) slogan, "*Better Quality of Life through Better Packaging*" highlights the salience of the packaging sector today.

Globally, the packaging industry sector has positioned itself as a full-fledged industry, which is one of the fastest growing industry across all countries. The packaging industry is a unique one, responsible for both, creation of wealth through a wide range of manufacturing activities as well as preservation of wealth or value created by many, many other industries like pharmaceuticals, textiles, agro-processing. The industry is worth over USD 800 billion (in 2014), growing between 5-8 % per annum and expected to grow to USD 820 billion by 2016[3] . Packaging is an emerging science, an emerging engineering discipline, and a success contributor to major industries such as pharmaceutical, FMCG and electronic industries. Packaging is the world's third largest industry following the food industry (1st) and energy (2nd) and the only industry that has to do with every single product produced. The industry is growing faster (6-8%) in developing countries (particularly India and China) than in developed countries (3-5%). The region-wise shares of the global packaging market are: Asia (34%); Europe (30%); North America (24%), and the rest of the world (10%)

Global Market Structure of Packaging Industry

Globally, the major segments of packaging industry are: flexible (plastic packaging), folding cartons, corrugated and paper boxes, glass bottles and metal containers (figure 4). Earlier Rigid packaging occupied a lion share of the market of the packaging market. However, lately there has been a shift towards flexible packaging (mainly plastic packaging) with ease of transportation, handling and disposal. As compared to rigid packaging, flexible packaging is one of the most dynamic and fastest growing markets in India. Flexible packaging anticipates a



Material	Packaging Type	Preferred in Application
Paper Board	Cartons, Box, Bags, Wrappers	Light weight, low cost, easy availability and disposal
Plastics	Cartons, bags, wrappers, pouches, caps, pallets	Available technology, light weight, corrosion resistance, versatility
Aluminum	Collapsible tubes, foils, containers, cans, closures	Barrier properties, grease proof, shrink proof,
Glass	Bottles, jars, jugs	Strength, rigidity, chemically inert, gas and water-vapour barrier
Tinplate	Cans, containers and caps	Barrier properties, strength, long shelf-life, reusable
Laminates (plastic and paper)	Pouches, films, tubes, bags	Barrier properties, strength, grease proof, heat-seal

Figure 4: Packaging industry categorization

[3] http://www.nsic.co.in/study/techgapstudy.pdf

strong growth in the future. There has been increasing shift from traditional rigid packaging to flexible packaging is due to its attractiveness, cost effectiveness, strength, convenience in handling and disposal, savings in transportation costs etc. Packaging type is also determined based upon the type of material used (figure 4).

Each of the packing materials can also be categorised in terms of levels of packaging. The plastic packaging fall under both primary and secondary packaging segment. Various levels of packaging are mentioned below:

- **Primary Packaging**: First and most protective barrier which is in direct contact with the product. Such package remains attached with the actual commodity until the consumers have completely used it. Examples: beverage PET bottle, medicine (injections/syrups) bottles, tooth paste-tube etc.
- **Secondary Packaging**: The layer of cover added to the primary package for its protection is called secondary package. It is the physical distribution carrier and also used for display of primary packages. The secondary packaging is usually taken off before usage. Examples: Mono carton (cardboard-box) of medicines, toothpaste box, the cover of soap etc.
- **Tertiary Packaging**: Also known as shipping package, tertiary packaging consists of a number of secondary packages used to facilitate handling and transportation of the product. Examples: Corrugated boxes (mono-cartons), plastic boxes etc.

Today plastics epitomize the material of packaging for the sectors such as FMCG, food and beverages, pharmaceuticals etc. In India, a large chunk of products that households buy for daily use are packaged in plastics. Plastics are used heavily for packaging due to innovative visual appeal for customer attraction and convenience. Additionally, they improve the hygiene quotient and shelf-life of the products especially in food and beverages segment. Digital revolution, organized retail and e-commerce has further contributed to the increased demand of plastic packaged products in rural areas.

Rigid plastic packaging combines durability with light-weighting and cost-effectiveness. It is used for food & beverage packaging, healthcare, personal care and industrial packaging. There are a wide variety of plastic polymers (PET, PE, PVC and PP) used to produce product for rigid packaging. PET/PETE is clear and tough and has good gas and moisture barrier properties. HDPE has excellent resistance to most solvents and has higher tensile strength compared to other forms of polyethylene. PVC has high impact strength, brilliant clarity and excellent processing performance. It is resistant to grease, oil and chemicals. PP is a strong resin that has good chemical resistance and a high melting point, which makes it good for hot-fill liquids.

Flexible plastic packaging is made of plastic films and sealed generally with heat and/or pressure. There are a wide variety of plastic polymers used to produce films for flexible packaging that include polypropylene, polyethylene, nylon and polyester. Aluminium foil and metalized plastic films are very

popular as well. The plastic films are used to form a bag or pouch to produce a flexible package. Flexible packaging is the newer of the two packaging technologies and has increased in popularity globally over the past couple of decades.

2.1 World overview

Plastic products permeate the entire spectrum of daily use items and cover almost every sphere of life like clothing, housing, construction, furniture, automobiles, household items, agriculture, horticulture, irrigation, packaging, medical appliances, electronics and electrical etc. These industries hence drive the demand growth of petrochemicals. Current per capita consumption of Polymers in India is approximately 9.7 kg vis-à-vis global average of 28 kg, Singapore's 43kg, China's 45kg, Thailand's 50kg, Japan's 56kg, Malaysia's 58kg and Taiwan's 67kg. This is an indication of substantial un-tapped potential in our country. Per capita consumption of plastic in developed countries is considerably high when compared to developing countries (see figure 5). India has only 9.7 kg per capita consumption of plastic products[4] and offers a huge opportunity for this sector over long term.

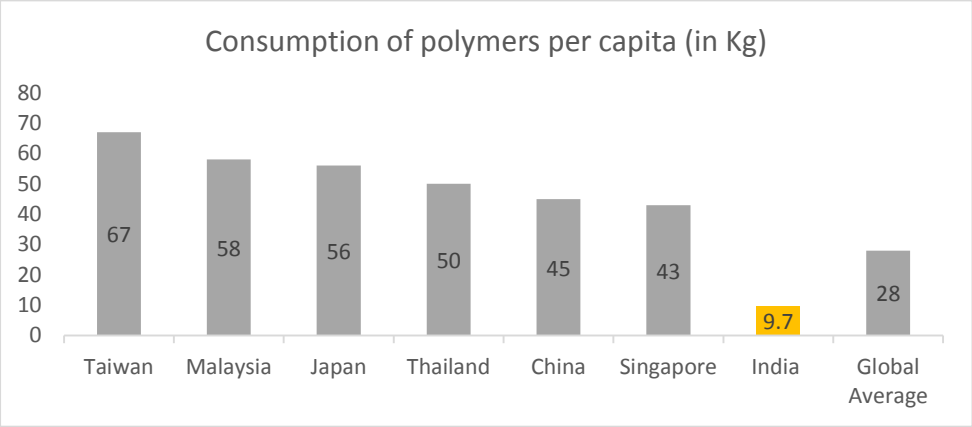


Figure 5: Global Per capita polymer consumption (Kg/person)

Polymer utilization has also been increasing across the world. Developed countries have a strong penetration of plastics across sectors like packaging, infrastructure, automobile, agriculture etc. Packaging industry in India has seen the highest share of

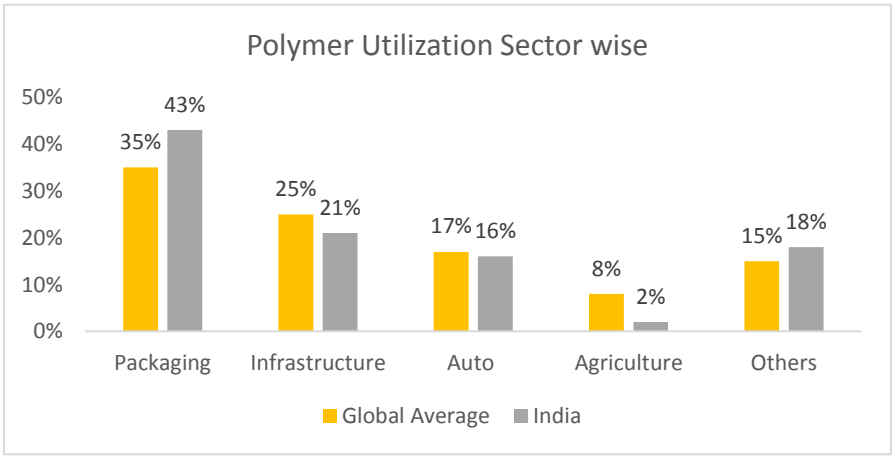


Figure 6: Polymer utilization by application, FY 13

[4] The Growth Story Continues, Indian Plastic Industry 2013-2016, Plastindia Foundation, Feb 2014

polymer consumption (43%) across the world[5]. However, there has been a spurt in use of polymer across various sectors.

The features of plastics make them an ideal packaging material for all industrial or commercial users. Globally, plastics comprise of 42% of packaging[6] with the combination of rigid and flexible plastics in packaging (Refer Figure 7).

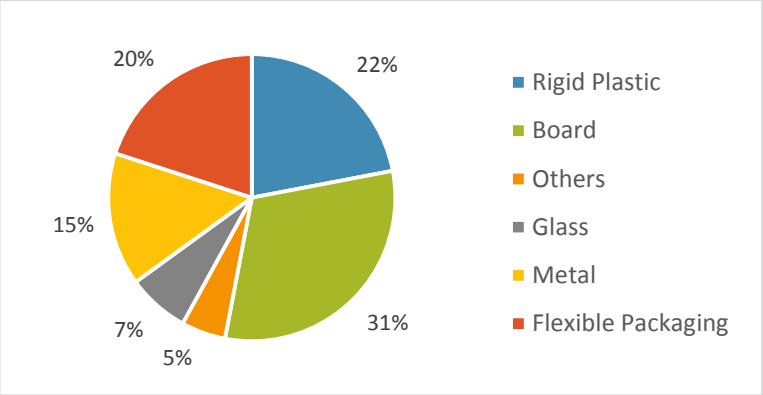


Figure 7: Global segment breakup of packaging materials (%)

Plastics have been the preferred choice in packaging globally due to the following key benefits;

a. Increased Food Safety, Quality & Shelf Life

Plastics act as an excellent barrier to oxygen, water and carbon dioxide. They are inert towards acids, alkalis and most solvents and therefore they ensure freshness & hygiene of the contents and high durability of the items packed. Plastics find applications in packaging of food products which protects the longevity and quality of food and can reduce the post-harvest losses. For example;

- Plastic Sacks: Used for packaging rice, grains and other materials. It can be generally recycled for packing fresh produce. The key advantages are ready availability and cost effectiveness.
- Plastic Bags: These are made from polyethylene films and are commonly used for transporting highland vegetables to wholesale markets in urban centres. They are relatively inexpensive, readily available and have a low weight to volume ratio.
- Plastic Films: Used as a cushioning material in packaging. It helps in reduction of

[5] Agricultural Census, Tata Strategic
[6] FICCI: A report on Plastic Industry, January 2016

moisture loss from the product, which is a principal requirement of limited permeability packaging materials.

b. Reduced Environmental Impact

As plastics possess versatile properties, these can help us do more with less. Plastics are light in weight, they have a high product to package ratio which results in lighter weighed end product. Thus, plastic packaging enables in shipping more products with less packaging material consequently bringing down the fuel consumption and the overall transportation cost.

Besides this, plastics can be reused and recycled. They have low energy requirements during production, processing them consumes lesser energy. They consume ~25% less energy in production compared to other alternatives. They result in lower emission of CO_2 gas. Thus when compared to glass or aluminium plastics results in lesser environmental footprint.

c. Innovations in Packaging

The unique properties of plastics provide an advantage of using plastics in flexible manners. Plastics can be made re-sealable, reusable, they can be moulded into desirable shapes, rigid packs, innovative designs etc. thus resulting in consumer friendly packaging; that provides ease in handling, disposal, storage etc.

2.2 India overview

The packaging segment in India is an amalgamation of both organized and unorganized players. Most of the units are running on small scale and there is limited presence to big players but they own large market share. Demand for packaging segment is anticipated to grow rapidly across all the players. Also, there is an increasing focus on innovative and cost effective packaging materials. Thus, the industry players are keeping track of the changing trends in packaging and making efforts to capture the market with higher technology orientation. The growth in packaging industry has been leading to greater specialization and sophistication amongst the market players to ensure health and environment friendliness of these products.

According to the Packaging Industry Association of India (PIAI), packaging in India is one of the fastest growing sectors, partly because it spans almost every industry segment. Right from packaging of food and beverages, fruits and vegetables, drugs and medicines, to highly dangerous products, packaging has led to greater specialization and sophistication over a period of years.[7]

The packaging market in India is set for the next level of growth. Strong favourable demographics, increasing disposable income levels, rising consumer awareness and demand for processed food have been prime factors behind the surge in demand of plastic packaging. Multinational giants have made

[7]Jagdish Kumar, March 2015, Indian Packaging Industry, Packaging World, <http://www.packworld.com/trends-and-issues/global/indian-packaging-industry-turnover-reach-32-billion-2020>

great progress in plastic packaging of food, beverages, cosmetics & toiletries and pharmaceutical products. These factors have forced both packaging suppliers and end-user industry to shift from bulk packaging to retail, and unit-level and small-sized packaging. In addition, exploding organized retail growth and newly relaxed Foreign Direct Investment (FDI) norms in retail and other sectors, have opened new markets for packaging market in India.[8]

The growth rate of the Indian plastics industry is one of the highest in the world, with plastics consumption growing at 16% per annum (compared to 10% p.a. in China and around 2.5% p.a. in the UK). With a growing middle class (currently estimated at 50 million) and a low per capita consumption of plastics, currently 8 kg per head, this trend is likely to continue.[9] The government of India has ambitious plans of doubling the current per capita consumption of plastics from the present 10 kg per person to 20 kg per person by 2022[10].

A wide variety of polymers are produced to meet the material needs of different sectors of the economy. These polymeric materials are broadly categorized as commodity, engineering and specialty plastics. Commodity plastics are the major products that account for bulk of the plastics. Commodity plastics comprise of Polyethylene (PE), Polypropylene (PP), Polyvinyl Chloride (PVC) and Polystyrene. There are three broad types of PE: Low-density Polyethylene (LDPE), High-density Polyethylene (HDPE) and Linear Low-density Polyethylene (LLDPE). Major plastic materials like PE and PP are derived from Ethylene and Propylene respectively, while other plastics such as PVC, PS & ABS and PC are produced from benzene, butadiene and other feedstock. Various types of plastic material along with its applications and benefits is provided in table 2.

Table 2: Applications and Benefits of different plastic products

Plastic	Applications	Benefits
PET	▶ Food jars for jelly, jam and pickles ▶ Plastic bottles for soft drinks, water, juice ▶ Oven able film and microwavable food trays	▶ Excellent resistance to most solvents ▶ High impact capability and shatter resistance ▶ Clear and optically smooth surfaces
HDPE	▶ Cereal box liners ▶ Reusable shipping containers ▶ Bottles for non-food items, such as shampoo, liquid laundry detergent, household cleaners, motor oil etc.	▶ Relatively stiff material with useful temperature capabilities ▶ Higher tensile strength
PVC	▶ Rigid packaging applications include blister packs and clamshells ▶ Packaging, film and sheet, and loose-leaf binders ▶ Flexible packaging uses include bags for bedding and medical	▶ High impact strength ▶ Brilliant clarity ▶ Excellent processing performance
LDPE	▶ Container lids ▶ Shrink wrap and stretch film. ▶ Squeezable bottles (e.g., honey and mustard)	▶ Excellent resistance to acids, bases and vegetable oils ▶ Toughness, flexibility and relative transparency
PP	▶ Medicine bottles ▶ Bottle caps and closures	▶ Low moisture vapor transmission

[8] Aranca Report (2012), http://www.aranca.com/downloads/special-reports/The-Aranca-Report-Packaging-Industry-AReview.pdf
[9] Plastics Industry in India: British Plastics Federation
[10] Business Standard: Feb 4, 2016: Govt plans to double per capita plastics consumption, says Dharmendra Pradhan

	▶ Bottles for catsup and syrup	▶ Inertness toward acids, alkalis and most solvents
PS	▶ Protective foam packaging or furniture, electronics and other delicate items ▶ Packing compact disc cases and aspirin bottles	▶ Low thermal conductivity and excellent insulation properties ▶ Excellent moisture barrier for short shelf life products

Polyethylene (PE) is the most largely used plastic raw-material by Indian industry. Its demand has grown at 8% per annum in last 5 years to reach 3.6 MnTPA in FY14[11]. Polyvinyl Chloride (PVC) is the second largest with the consumption growing from 1.4 MnTPA in FY09 to 2.6 MnTPA in FY14 at growth rate of 13% p.a. Polypropylene (PP) demand has grown at 3% p.a from 1.9 MnTPA in FY09 to 2.2 MnTPA in FY14. Poly-Styrene (PS) has observed a growth rate of 3% p.a. to reach 0.2 MnTPA in FY14, while other (PC/ ABS etc.) have grown at 7% p.a. from 0.09 TPA in FY09 to 0.13 MnTPA in FY14[12].

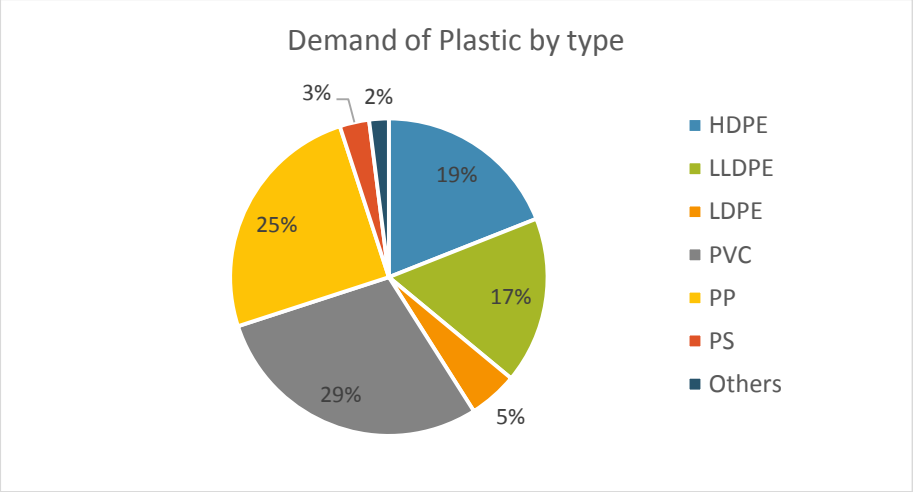


Figure 8: Demand breakup of plastic by type, FY 2014

Polyethylene (PE), which includes HDPE, LLDPE and LDPE (High Density PE, Low Density PE and Linear Low density PE), accounts for the largest share i.e., 41% of total consumption, while PP accounts for 25% of total consumption (figure 8). Within PE, HDPE is observing a moderate growth and has a consumption share of 19%. LLDPE is expected to grow at higher pace due to its increased penetration in LLDPE applications. Others include EPS and PVC compounds.

Four companies- RIL, HPL, HPCL (HMEL) and IOCL are the major producers of Polypropylene in India (table 3) . In 2012-13, RIL continued to dominate the Indian market with a share of 64%. Capacity additions by major players will increase production substantially over the next 5 years. These suppliers have not been able to increase the production capacity of polymer with increasing demand

[11] Chemical & Petrochemical Statistics

[12] FICCI: Knowledge paper on Plastic Industry, June 2015

and it is expected that by 2018, India could become a net importer of PP in the absence of any new large capacity additions[13].

Table 3: Production capacity of plastics by major players, FY 2013

Producer	PE	PP	PVC	Others
RIL	11,65,000	27,00,000	6,50,000	-
IOCL	6,50,000	6,00,000	-	-
GAIL	5,05,000	-	-	-
HPL	7,10,000	3,90,000	-	-
Chemplast Sanmar	-	-	2,50,000	-
Finolex	-	-	2,70,000	-
Supreme	-	-	-	2,72,000
Ineos ABS	-	-	-	60,000

Source: Plastindia

India is overall deficit in plastics and a lot of polymer materials (PE, PVC etc.) are imported to cater the unmet domestic demand. The major import source countries are Saudi Arabia, Qatar, UAE, Korea, USA, Singapore, Thailand, Germany, Spain and Malaysia. Few Plastics materials (PP, PS) are produced in surplus and these materials are exported to international markets. Major export destinations are China, Egypt, UAE, Turkey, Vietnam, and Indonesia.

Demand of plastics across country

Western India has traditionally been the largest consumer of plastics accounting for almost 47% of the total consumption. The State of Gujarat in Western India is the leading plastics processing hub and accounts for the largest number of plastics manufacturers, with over 5,000 plastics firms. The Northern region consumes about 25%.

The consumption in Northern India is low in comparison to Western India primarily due to lack of availability of raw material. Reliance the largest petrochemical player in India had all its cracking units in West and this facilitated the growth of downstream plastic processing industry in Western region. However, with IOCL Panipat cracker and HMEL Bhatinda PP plant, the availability of PE/ PP is not expected to be a constraint and hence facilitate downstream plastic processing units. The upcoming petrochemical complex at Barmer can also spurt the sector in the region.

[13] http://indianpetrochem.com/report/polypropylenereport

Diagnostic Study Findings

3. Diagnostic Study Findings

The diagnostic study was undertaken by the cluster members during July to September 2016 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 by the cluster SPV in close coordination with the DIC, Karnal and with inputs from MSME-DI, NID and Corporation Bank. The awareness level of the cluster units (on plastic packaging technologies, cluster development initiatives) was found to be low. Additionally, it was observed that most of the cluster units deploy obsolete technologies and are unable to meet the requirements of the market due to lack of availability of plastic packaging machines/equipment. There are limitations in terms of lamination and plastic printing services. The finishing of products is ordinary due to dependence on manual techniques and conventional machines.

The DSR was presented to the State Level Project Steering Committee (SLPSC) on 21 October 2016 and was subsequently approved. The minutes of the SLPSC highlighting the approval of DSR and permission to undertake DPR are provided in ***Annexure 1***. The SPV was granted permission to go ahead with preparation of Detailed Project Report DRP) for the cluster. The major findings of the DSR are presented below:

3.1 Cluster Actors and their role

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 Karnal Plastic Packaging Cluster are:

District Industries Centre (DIC)

DIC in Karnal comes under the Dept. Of Industries and is headed by General Manager who is assisted functional managers and technical field officers. DIC promotes and routes subsidy to micro and small enterprises in the region. DIC is key stakeholder in promoting cluster development initiative in the district. The Karnal DIC has been instrumental in preparation of the DSR of the cluster, formulation of the SPV and registration of members under Unique Aadhar Memorandum (UAM) and the organization of several awareness programs in the cluster.

The DIC has also conducted verification visit at each of the SPV member premises. The verification report submitted to the Director of Industries is attached in Annexure 2. GM, DIC will also be part of the Project Management Committee (PMC) that shall be constituted to spearhead the project implementation under MSE-CDP in the Karnal plastic packaging cluster.

MSME - Development Institute, Karnal

MSME-DI is a field office of the Development Commissioner (MSME), Ministry of MSME. The institute is an apex body for promoting, coordinating and monitoring the policies and programs of DCMSME in the state. MSME -DI, Karnal along with its Branch office at Bhiwani provides a wide range of extension / support services to the MSMEs in Haryana. The MSME-DI, Karnal has been actively conducting several initiatives in Karnal cluster such as organizing awareness programs on MSE-CDP, collateral free loans under Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE), design clinic scheme, IPRs, technical trainings etc. It has also been involved in supporting several 'soft interventions' in the plastic cluster at Karnal. The Director, MSME-DI will also be a member of the PMC for the project and will be guiding force to the SPV for project execution.

Banks/Financial Institutions (FIs)

Banks like Small Industries Bank of India, (SIDBI), commercial banks etc. serve the financial needs of the cluster units. The lead bank in Karnal district is Punjab National Bank (PNB). 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. SIDBI has an office in Chandigarh whose services are envisaged to be used for appraisal of this DPR. Corporation Bank has been proactive in extending financial assistance to micro units of Plastic Cluster and has agreed to support the cluster by providing assistance for working capital requirement.

Haryana State Industrial and Infrastructure Development Corporation (HSIIDC)

HSIIDC is an autonomous body, set up by the Government of Haryana in 1967, is 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 facilitation land allocation to industries, creating industrial areas and required infrastructure. Entrusted fundamentally with the task of establishing industrial areas, HSIIDC has also taken the responsibility of providing a 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. HSIIDC has provided Change of Land Use (CLU) permission from agriculture land to industrial land for acquired land by Plastic Packaging Cluster, Karnal.

Karnal Food Pack Cluster Ltd. (KFPCL)

KFPCL is a infrastructure developmental body set up to promote the growth and development of the MSMEs of Karnal. It was formed by a group of visionary entrepreneurs from dairy, print & packaging and signage & advertising sector with a common vision of enabling MSME growth through cluster development. KFPCL aims to achieve the target of inclusive growth not only for themselves at individual level but for the Karnal industry as a whole.

KFPCL has developed an industrial region with required infrastructure facilities like roads, water, street lights, drainage, etc. at Mogul Majra in Karnal. Many food processing, dairy, plastic packaging and signage units are setting up production facilities in the industrial township. KFPCL also intends to provide and maintain public utility, civic amenities, R&D and Skill Development Centre in the region. The Karnal Plastic Pack SPV also proposes to lease land from KFPCL for setting up the proposed CFC. KFPCL will play a key role in setting up the proposed CFC as a model of complimentary facilities at a single location in Karnal. KFPCL is also working on providing marketing support to the units setting up base in Mogul Majra.

Raw material suppliers

IOCL Panipat plant and HMEL Bhatinda plant are key stakeholders as they provide most of the raw material (HDPE, PVC, LDPE and PP) to the cluster units. These plants have significantly enhanced the feedstock availability in Northern India. GAIL also has plans to double its capacity which will further make the feedstock scenario more promising in Northern India. These will lead to increased investments in downstream plastic processing. In addition to this, recently cluster units have also started procuring raw material from Saudi Arabia due to cheaper rates of polymers. The average price of plastic raw material prevalent in the cluster is provided in table 4.

Table 4: Rates of Polymers

Plastic/Polymer (Raw material)	Rate (INR/Kg)
HDPE	106.20
PVC	91.00
LDPE	111.42
PP	108.31

Technical Institutions

There is a good presence of technical institutions in and around the Karnal district. These institutes will be able to extend necessary technical assistance and capacity building support to plastic packaging cluster, Karnal. The nearest major University- 'University of Kurukshetra' offers courses in printing and packaging. The technical department of the University has been consulted for the purpose of finalizing hard recommendations, particularly the machines to be proposed in the CFC.

Other institutes such as National Institute of Food Technology Entrepreneurship and Management (NIFTEM), under the Ministry of Food Processing Industries, Government of India, extends support to entrepreneurs on new trends in food packaging, food processing technologies and food standards,. Karnal is also famous for the National Dairy Research Institute (NDRI) which enabled setting up of several diary plants in the region that subsequently propelled the growth of the plastic packaging industry in the region. NDRI, is also extending technical support to the cluster SPV and guiding members to set up facilities required to upgrade the packaging for dairy products.

Haryana Chamber of Commerce & Industries, Karnal 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 liaison 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 Karnal district that takes cares of the interest of MSMEs of Karnal. Recently, HCCI has also been invited by the government to assist in the budget formulation of the state to promote industries in the state. HCCI has 133 registered members in the Karnal chapter. Members of Plastic Packaging Cluster, Karnal are also members of HCCI.

Bureau of Indian Standards (BIS)

BIS is a statutory body of Government of India set up in 1947 as Indian Standard Institution and christened as BIS in 1986. The important activities of BIS include formulation of standards, product and quality system certification, training information service etc. Units at Karnal Plastic Cluster products require certification to be able to compete in the market.

Haryana State Pollution Control Board (HPCB)

HPCB is a major stakeholder for the industries operating in the region from the environmental viewpoint. The main functions of the board are (a) to make sure that the units comply with the environmental regulations; (b) to collect and disseminate information relating to pollution and the prevention, control or abatement thereof; (c) to encourage, conduct and participate in investigations and research relating to problems of pollution. The board also has to implement the regulations laid out by Central Pollution Control Board (CPCB).

However, most of the plastic products manufacturing units in the cluster are non-polluting. Units involved in plastic good manufacturing are in the 'Green' (non-polluting) category as declared by the pollution control department.

Other key stakeholders located outside the cluster

There are a number of other service providers and institutions located outside the cluster but they are important stakeholders in the business environment of cluster units. Some of these are mentioned below:

National Small Industries Corporation (NSIC)

NSIC is a Government of India enterprise under Ministry of MSME. NSIC was established in the year 1955 with a view to promote, aid and foster growth of small industries in the country. Some of the services and schemes offered by NSIC are:

- Helping entrepreneurs in purchasing machinery and equipment
- Equipment leasing and working capital finance
- Raw material assistance and information on technological up gradation
- Composite loan scheme and export assistance

The nearest NSIC office is in Panipat, The SPV members are in discussion with NSIC to set up a raw material bank for plastic packaging units provide them raw materials at competitive prices.

Indian Institute of Packaging (IIP), Mumbai

An autonomous body in the field of packaging and working under the administrative control of the Ministry of Commerce and Industry, Government of India. The Institute is conceived to provide leadership in packaging and allied sciences not only within the country, but also globally. IIP imparts quality education in the areas of packaging sciences and promotes innovation and research. It also conducts several training programs for the packaging industry.

It also aims of improving the packaging standards in the country. The Institute endeavors to improve the standard of packaging needed for the promotion of exports and create infrastructural facilities for overall packaging improvement in India. The institute has five centers across the country based out of Mumbai, Delhi, Chennai, Kolkata & Hyderabad. The institute also conducts programs for SMEs and promotes the packaging industry through various exhibitions. INDPACK, the annual national exhibition organized at Mumbai, Kolkata, Ahmedabad, Hyderabad, Chennai, Delhi, Indore, Coimbatore, Pune, Guwahati, offers the packaging industry an opportunity to display development in the machinery and material sector. Experts from IIP have been invited to consult awareness programs in the cluster.

National Institute of Design (NID), Ahmedabad

The National Institute of Design (NID) is a design school in Ahmedabad, India. The institute functions as an autonomous body under the Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, GoI. NID serves as a nodal agency for Ministry of MSME for implementation of the "Design Clinic Scheme". The objective of design clinic scheme is to bring MSME sector and design expertise to a common platform and to provide expert advice and solution on design related issues, resulting in continuous improvement and value addition for existing products.

The institute has already conducted a workshop with the cluster firms on need of design improvement in plastic packaging industry. The members of Plastic Packaging Cluster, Karnal have been coordinating with NID and MSME-DI to implement design clinic programs and training of units in design development and innovation in plastic packaging in the cluster. Recently, a workshop under design clinic scheme was organized in the cluster during the month of January 2017. The experts in the workshop threw light on innovation in plastic packaging.

The All India Plastics Manufacturers' Association

AIPMA is the oldest apex body of the plastic industry in India. It is headquartered in Mumbai and has regional offices in Delhi, Chennai and Kolkata. AIPMA works towards promotion of plastics in

compliance with national and international standards and provides certifications like BIS, ISO, Six Sigma, lean management, National Manufacturing competitiveness, REACH etc. It also helps organize training programs for owners, executives and skilled workforce for Plastic industry. The cluster units have participated in several exhibitions organized by the AIPMA.

Plastics Machinery Manufacturers Association of India (PMMAI)

PMMAI promotes the interests of the Indian plastics machinery manufacturers for technology upgradation utilizing Govt. incentives, technology knowledge sharing, skill set development, global benchmarking, market development, export marketing, industry growth, representing to Government for policy issues affecting plastics machinery manufacturers etc.

PMMAI's vision is to generate high degree of co-operation amongst members of PMMAI. This is mainly done through market intelligence, technology sharing, cluster development, export marketing with India brand etc. SPV is willing to register itself as a member of PMMAI and consult them for identification of machinery to be proposed in the CFC.

The key stakeholders of the Karnal cluster are presented in figure 9:

Figure 9: Stakeholders of Plastic Packaging Cluster, Karnal

3.2 Cluster Turnover, Market, Employment

The cluster units are mainly concentrated in Karnal town. There are about 60 units in the cluster. Most of the units (47) are in the micro segment and the rest are in small category. The classification of units in terms of size is shown in figure 10. The total turnover of the cluster is estimated to be INR 250 crores. Cluster units are providing direct employment to 1300 workers and around 500 workers are engaged indirectly to facilitate various activities in the cluster. Most of the workers in these units are migrants from adjacent states particularly Uttar Pradesh. Women workers are few in number and primarily works as auxiliary labour. Employment status of Karnal Plastic Packaging Cluster is shown in figure 11.

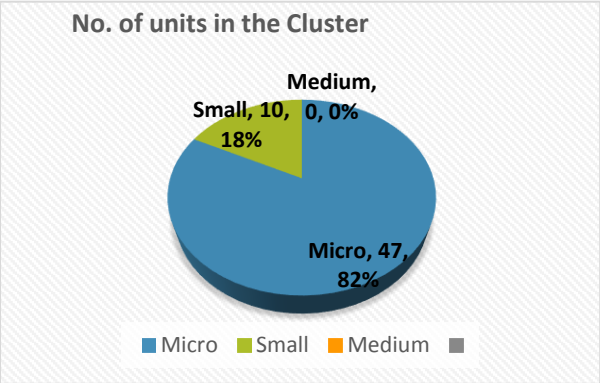


Figure 10: Classification of units

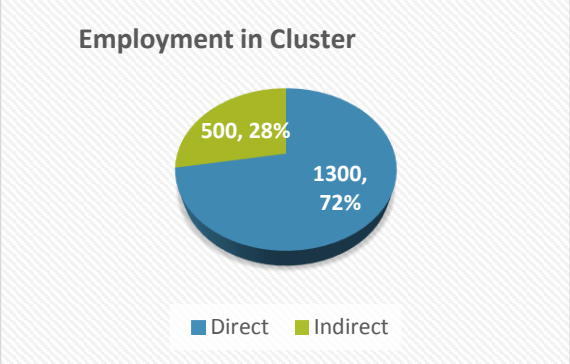


Figure 11: Employment status in Cluster

Almost all the units are supplying their produce to food processing, pharmaceutical, dairy, fertilizers, liquor, paint and glue industry. Most of these anchor units are based in and around Karnal. Due to technological backwardness, lack of quality, lesser production capacity and poor quality of printing, cluster units are unable to obtain take bulk orders from large customers. The rice millers particularly remain untapped as they now demand for BOPP bags which many of the cluster units cannot produce as they do not have the technological capacities to do so.

The major products manufactured by the cluster units along with the number of units engaged in producing these products is mentioned in table 5.

Table 5: Products manufactured by cluster units

S. No.	Products	No. of units
1	PET bottles	8
2	BOPP bottles, Sacks, Bags	9
3	Plastic Canister, Bucket, Drum	10

4	Monolayer & Multi layers plastic packaging	9
5	Plastic Drums (large)	0
6	Labels and pharma packaging (Roto gravure units)	20

This cluster has ability to increase its output and market share through manufacturing of quality products at competitive prices. The proposed facility will be open to all cluster firms to enable them to get job work done in order to cater to the premium packaging requirements of the market. The proposed CFC will provide an opportunity to micro units to get job work done on modern machines and manufacture high quality products, thereby increasing their individual capacity utilization and profitability. The facility will provide a major infrastructural push to the units reeling under high competition. The CFC will also led to creation of a large number of jobs for supervisors, machine operations and unskilled workers like helpers both inside the CFC and in individual units due to enhanced capacity utilization.

3.3 Production Processes

Plastic packaging products are manufactured through different molding techniques such as injection, blow, extrusion and roto moulding. Extrusion process is the most commonly used process in India and accounts for 60% of total production by downstream plastic processing industries. Injection moulding is the second widely used process accounting for ~25% of the production. Blow moulding is used for ~ 5% of processes and roto moulding for 1% of the processes. The remaining is processed through various niche and specialized processes. Different types of plastic moulding along with the products manufactured with each technique are mentioned in table 6.

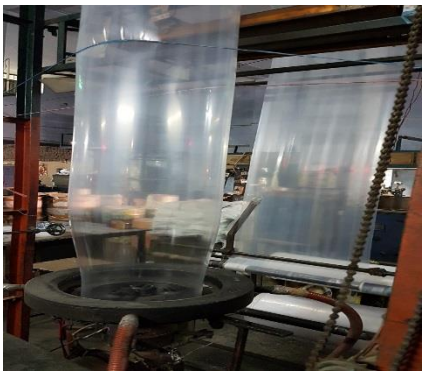


Table 6: Classification of plastic products by type of process

Type of moulding	Description	Products manufactured
Extrusion	Process of molding plastic material by softening and melting it with heating cylinder, and then extruding it with screw. (It consists of extrusion machine, die, and collection device)	Films & Sheets, Fibre and Filaments Pipes, Conduits and profiles, Miscellaneous applications
Injection moulding	Process of molding plastic material by injecting it into the closed die from heating cylinder through spool (runner and gate) by means of applying pressure.	Industrial injection moulding, Household Injection moulding and Thermoware/Moulded luggage

Blow moulding	Process of molding that holds a pipe made of thermoplastic resin (called parison) between the dies, and sends air pressure into the pipe to inflate it so that it is molded into the final shape. The variations of blow molding include direct blow molding, stretch blow molding, and injection blow molding.	Bottles, containers, toys and housewares
Roto moulding	Rotational Molding (BrE moulding) involves a heated hollow mold which is filled with a charge or shot weight of material. It is then slowly rotated (usually around two perpendicular axes) causing the softened material to disperse and stick to the walls of the mold.	Large circular tanks such as water tanks

The various moulding processes are graphically represented in figure 12.

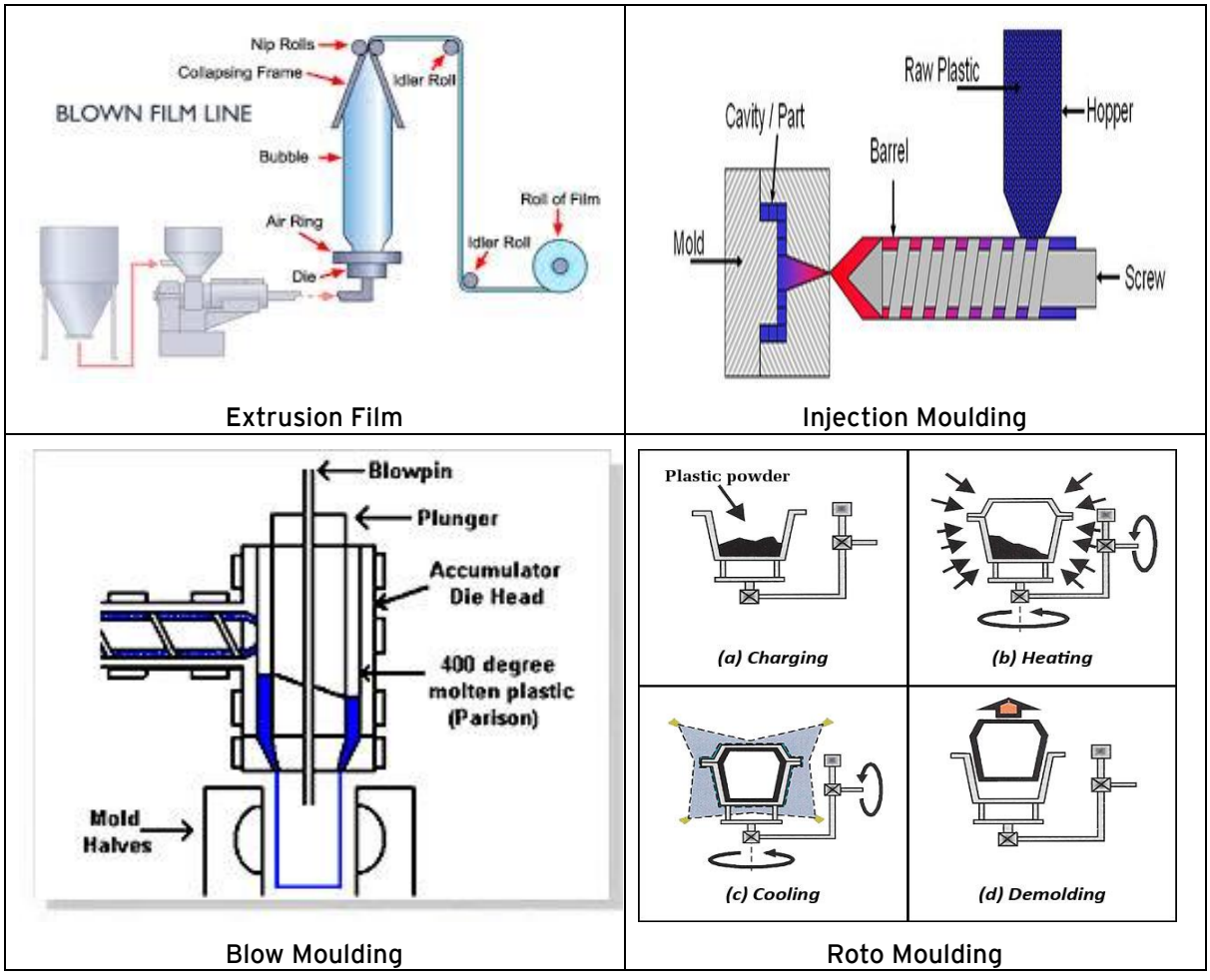


Figure 12: Various moulding techniques for manufacturing plastic packaging products

Process Flow Charts

The process flow chart for plastic films is mentioned in figure 13.

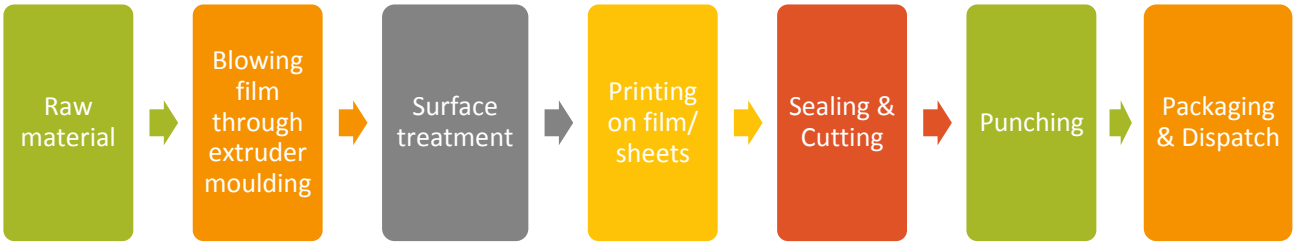


Figure 13: Process flow of manufacturing of Plastic films

The process flow chart for PET bottle manufacturing is mentioned in figure 14. Air compressors are deployed by the units to generate air for blow moulding.

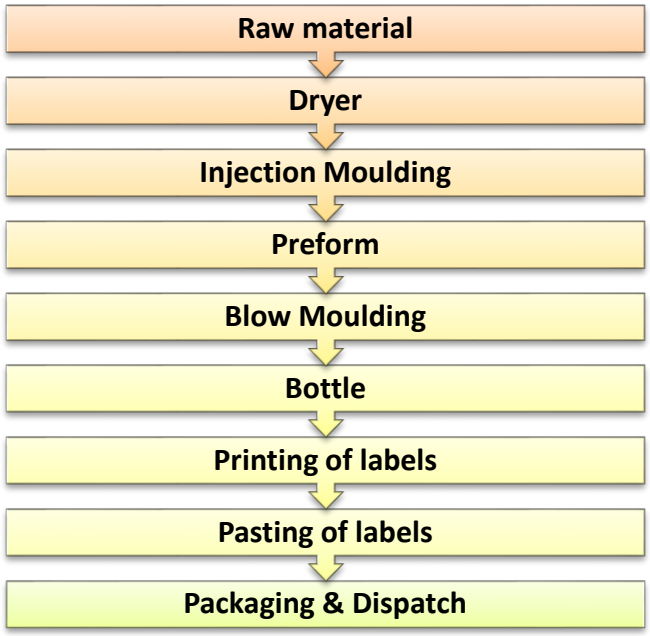


Figure 14: Process flow of manufacturing of PET bottles with cap

The same blow moulding process is followed for manufacture of buckets for fertilizers and the paint industry.

The major processes after production of plastic packs are detailed below:

Printing of plastic packs: Printing of plastic packs is primarily done on the wraps/labels that are further pasted on bottles, buckets etc. using glue. In case of foil/film packaging printing is done directly on the manufactured plastic films. Presently, the cluster is using rotogravure printing facility which can only print 1 to 2 color on the packaging material. This results in manufacturing of limited products which require mono color and units are unable to capture the market.

Digital printing is the latest advancement in the field of printing. It works by transferring a digital image from a device such as a computer etc. directly onto a variety of media using printer. The rotogravure process is a direct transfer method for printing onto plastic films or laminated substrate. This is an advanced technology for food packaging which is directly creates an impression through laser engraved printing cylinders. However, none of the cluster units' has this facility.

The rotogravure process is the latest technology to directly print onto films such as polyester, OPP, nylon, and PE; papers; carton board' and aluminium foil. However, There is no rotogravure printing facility with 8 colour printing in cluster, while there is increasing demand of 8 colour Roto printing products in the markets. The process, also commonly called gravure printing, is used in the manufacturing of food and non-food packaging, as well as labels, wall coverings, transfer printing, and has a variety of further applications in the security printing, industrial, and tobacco segments of industry. Pharma is key sector for rotogravure printing which require high definition printing on packets. FMCG is another key sector which has started using high definition printing on the packets. Cluster has not been able to cater the demand of these industries due to lack of this rotogravure printing.

***Stitching & cutting of products*:** Printing usually happens in the form of film rolls. Once the films rolls are printed, these are transferred to coiling and pasting machine which coils a flat sheet or film in the form of a tube. Heat is used to paste the ends of the tubes. These tubes are then transferred to slitting machine which cuts a plastic sheet or film of a certain width into several pieces of sheets or films of smaller width.

Packing & Dispatch: Products manufactured in this cluster are customized as per orders by customer. Once the products are finished, the products are packed and dispatched to customers. Plastic packets usually require less space for packing except bottles and containers which acquires a lot of space and are cost much in transportation.

3.4 Value Chain Analysis

Value chain analysis is a strategic tool used to analyse internal firm activities. Its goal is to recognize, which activities are the most valuable to the firm and which ones could be improved to provide competitive advantage. The analysis also reveals a firm's competitive advantages and disadvantages. The units of plastic packaging cluster, Karnal competes through cost advantage. These units intend to perform some production activities at lower costs to enhance their competitiveness.

Value chain analysis of most commonly produced cluster product (plastic bucket for fertilizers and paints) has been conducted to analyse the internal activities to propose corrective measure to increase competitiveness. The same is provided in table 7.

Table 7: Value chain analysis for manufacturing of Injection mould Bucket of 540 gm

Particulars	Value Added	Total Value (Rs.)	% of Cost of production
Raw Material	40	40	47%
Injection Moulding	27	67	32%
Electricity	5	72	6%
Labours	2	74	2%
Printing	6	80	7%
Packaging	1	81	1%
Handle	3	84	4%
Wastage	1	85	1%
Total Cost	85		
Profit Margin	5		
Selling Price	90		

It is evident from the above table that raw material (47%) and injection moulding (32%) contributes maximum to the cost of production. Processing includes activities of injection moulding, design printing and assembly of parts, these processes constitute 53% of value addition. The same is the case with most of the products being manufactured where raw material consumption and machining operations costs are high due to deployment of conventional and outdated machines. Targeting these major cost areas and providing better facilities to the units in these areas will lead to increased competiveness of the cluster units.

Upon implementation of modern injection/blow/extrusion/roto molding machines on CFC basis, the raw material consumption and machine operational cost per product will reduce significantly. The key objective of the CFC shall be to enable the cluster units reduce their cost of production through minimizing the cost of processing plastic, which constitutes the major portion of the production costs. Further, minimizing the cost of production through increased value addition in production and finishing operations shall increase the profit margin of the cluster units.

3.5 SWOT Analysis of cluster

A SWOT (Strength, Weaknesses, Opportunity and Threat) analysis of the plastic packaging units has been carried out keeping in mind the technology, marketing, product quality, skills, inputs, production, & business environment of the units. This has helped to understand the real situation of the cluster and the same has been presented in table 8.

Table 8: SWOT Analysis of the cluster

	Current situation		Future	
	Strengths	***Weaknesses***	***Opportunities***	***Threats***
Markets	Steady local demand for cluster products from several dairy, pharmaceutical, and food processing units in Karnal district Increasing importance of plastic packaged products in the market especially in urban areas Improvement in packaging techniques to aid branding and advertisement of products through plastic packaging Proximity to the Delhi and well connected to all major cities of North India	Sales only confined to local industries of smaller size Lack of production capacity of units to explore & cater new markets Lack of product diversification to cater to rice mills Lack of information on changing customer preference No Systematic Marketing effort Lack of marketing capabilities of entrepreneurs	Growing domestic market potential of plastic packaging Potential to supply to rice millers by producing BOPP bags Increasing preference to adopt plastic packaging across industries particularly FMCG sector Capacity building of entrepreneurs on export promotion & documentation Government support available for buyer-supplier contacts through fairs, meets, web portal etc.	Intense competition from large packaging units based in Delhi NCR deploying automatic machines Environment law may restrict use of plastics Squeezing margins driving many micro plastic packaging units out of the market
Technology/ Product quality	Capability to produce low volumes competitively Some units have ISO certifications Entrepreneurs aware about new technological developments in plastic packaging industry Technical assistance by government & research institutions (Kurukshetra University & NDRI)	Most of the units are using obsolete machines leading to poor quality of products Cluster units lack capability to install advance facilities to manufacture quality products Low production capacity due to poor efficiency of machines Inability to execute large orders at competitive prices Lack of awareness on quality assurance measures Higher energy consumption due to	Adoption of modern extrusion, injection, blow and roto moulding machines on CFC mode Innovation in plastic packaging techniques and machinery due to increasing preference to packaging industry Extended support from government to improve the technology used by MSE Process automation for increased productivity and efficiency Provide assistance to small units to adopt lean techniques to enhance their productivity	Micro units unable to get orders from large anchor units due to their low production capacities Low productivity and reduced margins leading to shutting down of units Reluctance to share good practices with other units Production process is increasingly mechanized to increase efficiency & product quality. Might drive micro

		non-implementation of energy management and lean manufacturing tools		players out of the market.
Skills/ Manpower	Skills acquired on-the-job Educated & active entrepreneurs Availability of economic labour Kurukshetra University offers courses related to the industry	Shortage of skilled manpower in the cluster No mapping of required skill-sets among workers Absence of a dedicated training centre for plastic packaging industry Lack of interaction between SMEs and academic institutes providing technical training	Availability of government sponsored training program by CIPET for skill upgradation Conduct on job training programs on required skills (operations, packaging, soft skills etc.) Bridge gap between industry and academic institutes providing specialised training programmes	Non-availability of skilled manpower Local youth not keen on working in small units
Inputs	Availability of polymers (raw material) in vicinity at IOCL-Panipat, HMEL-Bhatinda & GAIL Stable prices of raw material (polymer) due to regulations Availability of quality power	No web portal displaying prices and sources of raw materials Fluctuation in prices of other raw (paint, chemicals etc.) High energy cost structure because of lack of efficient processes No energy audits practiced, wastage of raw material	Potential to reduce energy costs by energy auditing Opportunity to develop a portal displaying information (price, suppliers) of raw materials	Rise in price of raw material and fuels
Business Environment	Steady growth in domestic demand State industry department is proactively undertaking several developmental initiatives for MSMEs Active industry associations and cluster SPV, have good knowledge about goct schemes	High cost of industrial land in the cluster Lack of common infrastructure/CFC facilities Lack of amenities for workers Lack of bargaining power of units	Establish CFC with latest technologies for quality products and increasing efficiency Create better awareness of government schemes and regulations	Plastic packaging is a dynamic industry and large firms with modern technologies are capturing major market share, leading to a declining trend for micro and small industries

3.6 Major issues/problem areas of the cluster

The critical constraints experienced by cluster firms at Plastic packaging cluster, Karnal are as follows:

- ***Obsolete level of technologies and limited access to advanced technologies***: Almost all the micro and small scale units in the cluster deploy manual practices and obsolete technologies for injection, extrusion, blow and roto moulding. Cluster units lack access to advance machinery and

infrastructure for manufacturing value added plastic packaging products including multi-colour printing and multi-layer films for packaging of food and allied products (eg. rice packaging). These units also lack availability of preforms for manufacturing of PET bottles, which is one of key products of the cluster. The units are presently dependent on large industries in the Delhi NCR region to procure these preforms. Cluster units are also unable to diversify their product line to cater to emerging demands of market and need advanced machineries to manufacture plastic containers of larger volume as well as plastic BOPP bags. The present machineries are obsolete and have low capacity. Quality is another major concern with existing machineries & technologies. This has led to reduced market share of these in units in plastic packaging market.

- ***Production inefficiencies***: Deployment of obsolete machines and dependency on manual operations lead to operational inefficiencies and enhanced cost of production. The units in the micro and small sector incur almost double the cost in production of the products like bottles, buckets, BOPP bags as compared to their large counterparts. This has hindered the ability of micro and small firms to obtain bulk orders from anchor units. Consequently, the units are witnessing plunging market shares and their sustainability is also in jeopardy.

- ***Lack of standardization of processes & products*:** Plastic products of the cluster are not consistent due to lack of adequate efforts and technology required for standardization. The cluster is presently catering to the local packaging industry due to inability to meet the standard set by larger firms/MNCs. This has been a hindrance to expand the market.

- ***Limited access to markets*:** The cluster units are smaller in size with lesser production capacity. Individually they have not been able to garner bulk orders. Moreover, they have been unable to do product diversification 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 machineries. Lack of capital to purchase these machines has limited the increase of production capacity of these units.

- ***Absence of cluster portal for e-commerce and dissemination of information*:** In today's market, e-commerce has evolved as a major tool to increase the visibility of products in the market and attract potential buyers. Several Business to Business (B2B) e-commerce sites have capitalized on this aspect of technology and have been successful so far. In coming time this is going to increase even more. Cluster units need to catalogue their products and publish on a common e-commerce site to expand their buyer base. The portal shall also enable units to receive enquiries of their products online and provide a platform to interact with new buyers. At the same time this can also be used to disseminate information among the members of the cluster regarding availability of market, promotional events, new regulations etc.

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

3.7 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 9.

Table 9: Current technologies, gaps and scope of upgradation

Critical technology and capacity gaps in the cluster	Scope of upgrading through enhancing technological infrastructure on CFC mode
Injection Moulding Operations	
Absence of technology for high end injection moulding facilities for production of quality products and reducing cost of production. Presently, there is no facility available in the cluster for manufacturing of PET Preforms (required to further manufacture PET bottles by blowing)and lid/covers for medium size packaging solutions. The advancements in the packaging industry have brought about a shift towards PET based bottles, replacing conventional bottle such as glass & metal. PET bottles have better sustainability, technical performance and aesthetics. On the other hand, dairy, glue & paint industries of Karnal have huge requirements of medium size packaging solutions. Units of Karnal currently purchase PET Preforms & lid/covers of medium size containers from NCR and other far off locations. Lack of availability of adequate injection moulding facilities has hampered the competitiveness of the units, who are witnessing tremendous decline in their marketing shares. No Individual unit has the capability to invest in this machine.	Deployment of advance injection moulding machines for manufacturing of PET preforms and covers of containers. This high end technology will facilitate the availability of PET preforms to small plastic packaging units of Karnal who can then cater to the requirements of the liquor and mineral water industry. This will remove the dependence of units on private players based outside the state who supply PET preforms at high prices. This will also help in reducing cost of production and will eliminate delays in production. Additionally, the small units can get lids/caps of large sizes made at the CFC, while making the other components on their shop floor. This will also ensure good quality lids as the individual units can supply their own raw materials at the CFC.
Blow Moulding Operations	
Lack of technology to manufacture large size containers/ drums to cater to the demand of local glue and paint industry. The cluster units are only able to supply small sized drums to the fertilizer, paint and glue industry because of inexistence of large blow moulding facilities. Because of this, the cluster units have lost a lot of market share and the paint/glue industry also has to procure these drums from far off places at higher prices. Consequently, blow moulding operations of higher size are required in Karnal on CFC mode. High transportation cost is leading to increased cost of production. Individual	Deployment of large capacity blow moulding machine in the cluster to enable the cluster units offer packaging solutions to paint/glue/fertilize industries based in and around Karnal. This will help diversify their product line and enable these units to offer a complete packaging solutions to these industries in Karnal. This will also help manufacture better quality of products.

units have inability to invest in the equipment required for these operations.	
Multilayer Extrusion Operations	
The cluster is deploying obsolete technologies for manufacturing food products packaging materials. This is resulting in reduced market shares for cluster units as they are unable to supply to large dairy and rice mills industries in the region. With advancement of technology, multi layer films are increasingly being used in the packaging industry. These films are required for packaging purpose owing to latest government norms on food packaging and to enhance shelf-life and protection of food products. However, there is no such facility in the cluster. The other advantages are excellent resistance to puncturing, heat sealability, gas barrier, high mechanical property high bursting strength etc.	The cluster can implement a multi-layer extrusion facility under the CFC mode. This facility will significantly upgrade the technological level of the cluster. Multi-layer has a perfect structure of plastic materials, which is co-extruded into different-layered structure. This packaging will help to significantly enhance the shelf life of foods and beverages. The Ethylene Vinyl Alcohol Copolymer (EVOH) is able to obstruct oxygen and to preserve the foods' taste and freshness. It is also heatproof up to 120ºC that enables foods or beverages to put into a microwave without placing it into another container. This facility shall help cluster explore new markets.
Coating and Lamination Operations	
Coating and lamination of plastics has been recent advancement in the plastic packaging industry. These help create another layer of protection for packed material. Coating is done through extrusion process while lamination helps in pasting of multi films for increased strength and protection against air and moisture. Coating and lamination depends on the product to be packaged. However, the cluster lacks modern coating and lamination and hence unable to produce quality products.	Establishing extrusion coating plant for creating inside layer in BOPP bags, aluminium foil for packaging of various products. The units can get job work done at the CFC for quality coating and lamination and enhance their product's value. Availability of different lamination machines at CFC will enable to join two or more independent sheets into a single sheet within cluster itself. This will also enable a lot of micro units cater to the packaging material requirements of large rice millers based in the region.
Value Added Printing Operations	
The cluster lacks advanced printing facilities for high definition jobs within the cluster. Lack of facilities for value added printing and gap in terms of UV coating, semi-automatic screen printing, coating etc. These technological gaps affect the quality of products and hence the units are unable to attract premium customers of beverages and food processing segment.	Establishing modern automatic rotogravure 8 color printing facility in cluster will enable the micro units cater to huge requirements of roto printing products. The digital printing will also facilitate low volume high definition printing. Rotogravure machine can print value added prints on plastic sheets and PVC sheets which is used for cosmetic and pharma industry. It can also perform printing job work on BOPP bags for rice packaging and other FMCG industry.
Finishing Operations	
Poor quality of output in many jobs and long lead time leads to inability of cluster firms to cater to the demands of large/premium industrial customers. Individual units have shown inability to invest in the range of equipment required for quality finishing.	Establishing automatic slitting facility to ensure the proper finish of large rolls of products manufactured at different stages of plastic packaging industry. This will also enable proper cutting of different pack size required by these units within limited time. Units will be able to enhance their product's finish by getting job work done on these.

3.8 Cluster growth potential

The potential for Karnal plastic packaging cluster to grow is enormous, owing to the increasing demand of plastic products in the region. The strengths of the plastic packaging cluster is its location

(both geographically & industrially), a thriving food processing, dairy and pharmaceutical industry in the region. The region of Karnal district is famously known as '*Rice bowl of India*' and along with nearby districts houses over 250 rice millers (with leading players like Best Food Ltd. & Dunar Foods Ltd.) producing of about a million MT of rice each year. This has led to huge demand for rice packaging BOPP bags which is currently not being catered to by the plastic packaging units of Karnal. In addition, there are several other small scale manufacturers of bakery, '*Namkeen'* and beverages etc. in Karnal. These units also require plastic packaging of their products.

Moreover, the large number of pharma manufacturing units also require tube and foil for packaging of drugs/tablets. The dairy industry is another prominent sector with presence of institutions like NDRI and major players like Modern Dairy, Karnal Milk Foods, Bharti Dairy etc. in the region that requires plastic packaging products. However, the cluster units are unable to effectively cater to these market segments due to lack of technological capacities, low production scales and outdated processes.

Against this backdrop, if modern plastic packaging manufacturing facilities (extrusion, blow moulding and injection moulding) are provided to micro and small units of the cluster under CFC mode, their production costs will reduce and they will be able to garner bulk orders from food processing, dairy, liquor, and pharma industries.

Diagnostic Study Recommendations (Proposed CFC)

4. Diagnostic Study Recommendations

Based upon the diagnostic study report and subsequent intense discussions with various cluster stakeholders, members of Karnal Plastic CFC Pvt. during formulation of this Detailed Project Report (DPR), a mix of hard and soft interventions have been/ are being proposed to enhance the competitiveness of the cluster units. These have to be undertaken with government support to ensure the survival and growth of the plastic packaging units in Karnal. The recommendations for both soft and hard interventions have been elaborated in subsequent sections.

Cluster enterprises have also been undertaking 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, MSME-DI, Karnal and BDS providers. They have also conducted exposure visits to other developed clusters, participated in national and international exhibitions and facilitated UAM registrations.

4.1 Soft Interventions recommended and action taken

1. ***Capacity Building and Awareness Generation*:** One of the primary recommendation for soft intervention 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. Towards this, the cluster units had organized a series of workshops, the details of which are provided below:

   - Cluster members organized a **workshop on forming SPV for Plastic Packaging Cluster** in Karnal to undertake joint initiatives for the benefit of units. The participants were sensitized regarding the issues being faced by cluster units such as technological backwardness, low quality production and loosing market shares. Subsequently, they were explained on how they can address these major issues by availing benefits under government schemes by forming an SPV. Members were educated regarding MSE-CDP scheme of Govt. of India and process to avail grant under the scheme. Members also discussed on the technological advancement required to compete with big players in the industry.

   - An **orientation program of cluster stakeholders** was organized during August 2015 on cluster development schemes. This was organized under the banner of KFPCL. The orientation program was graced by the Principal Secretary, Department of Industries; Director, Industries; Vice Chancellor, NDRI; Chief Manager, Oriental bank of Commerce;

OSD to Chief Minister; Zonal head, Laghu Udyog Bharti; and members of plastic cluster. Cluster members presented the challenges faced by them and support required from the government. Participants were educated on the scheme of MSE-CDP and process of availing benefits of the scheme. Members were also informed about the proactive role of state government to implement this scheme. The Director Industries informed the participants about the benefits to be offered to MSME entrepreneurs in the state Enterprise Promotion Policy (EPP) 2015. HE stated that the state government shall also be increasing its contribution towards the projects under MSE-CDP from existing 10% to 20% of the project cost upto 15 crores. Other stakeholders present during the meeting informed the cluster members about the support available to cluster from their respective organizations to the plastic cluster.

- Cluster members organized a **meeting with Laghu Udyog Bharti** to discuss the functioning and operations of SPV under MSE-CDP and to capture inputs for DSR during the month of September 2015. The main agenda for this meeting was to educate members regarding the roles and responsibilities of SPV. The members were informed regarding the formation of legal entity in the form of SPV to manage and operate CFC for Plastic Packaging Cluster, Karnal. Technical details for selection of Directors, equity contribution and role of members in functioning of SPV were also discussed among the participants.

- Cooperation and trust building among members is foremost condition for smooth functioning of cluster and SPV. A meeting was organized by cluster members during the month of November 2015 at Karnal Agro Park to enhance cooperation among member units and to obtain inputs for DSR> Members of the cluster were informed about the registration of company for cluster and identification of land for CFC. Members of cluster raised their concerns during the meeting which were resolved by other members of the cluster.

- Another workshop was conducted during the month of March 2016 to finalize the legal structure of SPV and finalization of members of the SPV for Plastic Packaging Cluster, Karnal. Subsequently, SPV in the name of "Karnal Plastic CFC Private Limited" was registered under section 7 of the Companies Act, 2013 during the month of June 2016. The findings of the DSR were also validated then.

2. ***Exposure Visits and Participation in Trade Fairs***: In order to enhance the exposure of cluster units on new and emerging technologies in the plastic packaging segment as well as new trends in plastic packaging a number of exposure visits were recommended. The aim was to gather technical experiences required for developing their cluster. Additionally, recommendations for participation in trade fairs and exhibitions was made to provide a platform to cluster units to promote their products as well as witness innovative products being brought out in the market. The following actions were taken in this regard:

   - **Participation in Plastasia Trade Show:** Plasto Asia Trade Show was organized at Pragati Maidan, New Delhi during March 2016. Plastasia Exhibitions is a flagship event in the field of plastics, raw materials, processing, machinery and finished goods. Selected members of plastic packaging cluster participated in the Plastasia trade show to identify the latest technologies and machineries available in the plastic packaging space that could be recommended as hard interventions for the CFC.

   - **AAHAR Exhibition:** "AAHAR – The International Food & Hospitality Fair", is an annual event organised by India Trade Promotion Organisation (the premier trade promotion body of the Government of India). AAHAR 2016, Asia's biggest event in Food and hospitality sector, was organized at Pragati Maidan, New Delhi during March 2016. Members of Plastic Packaging Cluster participated in the event to understand the technological upgradation in food packaging industry.

- **Participation in PackPlus 2016:** PackPlus is an annual event held at Pragati Maidan. It was held at New Delhi during July 2016. It provides a platform to witness latest technologies in packaging from across the world and network with people from the packaging industry. Selected members of plastic packaging cluster participated in the event to understand the latest development in the plastic packaging and processing industry. The members interacted with exhibitors as well as customers in the event to understand the market requirement.

- **Exposure Visit to Uflex, Noida:** Uflex is one of the largest and fastest growing manufacturer of machines for production of plastic films for packaging and printing of plastic packaging. Uflex has a manufacturing unit at Noida, which was visited by members of SPV during September 2016. The objective of visit was to identify the machinery suitable for Plastic packaging cluster, Karnal. This helped cluster member to identify the machines for CFC.

- **Visit to Plastivision India trade fair:** Plastivision India is organized by All India Plastic Manufacturer's Association (AIPMA), the largest non-profit apex body working towards welfare of the plastic industry. The event was attended by members of plastic packaging cluster at Mumbai. They interacted with different exhibitors present to understand the latest development in packaging of food products. They also had a detailed discussion with machinery manufacturers for upgradation of their cluster by offering modern technologies under CFC mode.

3. ***Technical Trainings of Members*:** The third major soft recommendation was around enhancing the knowledge of the entrepreneurs through technical trainings on various aspects of technology, quality and regulatory issues. The actions taken in this regard are detailed below:

- **Training on technology upgradations in plastic industry.** This was organized by the SPV with support from MSME-DI, Karnal during July 2016. The training aimed at enhancing technological awareness of cluster units as well as guiding the participants on innovations and product development to cater to the emerging market demand for plastic packaging like rice bags, pouches, disposable products etc.

- **Training on plastic packaging requirement of the dairy and food processing industry**. This was conducted in collaboration with NDRI, Kanal. The training aimed to sensitize the plastic packaging manufacturers to understand the merging packaging requirements of the dairy industry. NDRI is leading institute in dairy technology institute and has assured to provide technical guidance to the cluster for innovative packaging of dairy products in the cluster that shall enhance a product's life significantly.

- **Awareness/sensitization programme on Intellectual Property Right** (IPR) by Ministry of MSME, Govt. of India during August 2016. Ministry of MSME had launched series of programs for creating awareness on IPR. Member of Plastic Cluster, Karnal participated in the awareness program. Training aimed to create awareness regarding IPR, GI tagging and trade marks among cluster members. The units were encouraged to apply for IPRs to enhance their brand proposition.

- **Training on Design Clinic Scheme**: NID, Ahmedabad implements design clinic scheme for MSMEs with support from DCMSME. A training was undertaken by NID in collaboration with Karnal plastic SPV and MSME-DI. The experts elaborated on new product development and product differentiation and hoe units can take up design projects under the scheme.

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

The plastic units in the Karnal need technological support to enhance their competitiveness and ensure their survival. The units are reeling under bitter competition margins and require modern high capacity automatic machines and other related equipment to get their job work done and reduce their costs of production.

The following common infrastructural facilities are being proposed to be set up with support from the state industry department and DCMSME:

1. PET Preform manufacturing machine

Plastic packaging has become so essential to almost every food, beverage and FMCG product the world over and a global trend has emerged to produce hi-Tech and sophisticated plastic packaging. PET (bottle grade) is a kind of transparent, wear-resisting and corrosion-resisting plastics with high strength and smooth finish, it is widely used for manufacturing PET bottles of mineral water, juice, edible oil, pharmaceuticals, cosmetics, etc. by using blow moulding machines. The raw material used in manufacturing of PET Bottles/ Preforms is Polyethylene Teraphthalate. Production of PET Preforms and PET Bottles involves the conversion of PET Granules to Preforms and later converting to PET Bottles through blow moulding process. The proposed machine shall manufacture preforms of 750 ml, 180 ml, 375 ml, 500 ml & 200 ml bottle.

There is no PET preform manufacturing facility in the cluster. These units purchase PET Preform at high prices from delaers in Delhi NCR, which is transported to cluster for blowing and processing. PET preform manufacturing facility shall improve the competitiveness of the cluster by reducing cost of producting PET bottles. A good quality preform will also enhace the prodtc;s life.

There is significant presence of pharma, beverages and liquor industry in Karnal district, which creates a great demand for PET bottles. Individual units do not have required capital to install this machine on their own. PET preform manufacturing facility at CFC shall cater the demand of preform of micro/small units and ensure better quality of cluster products with reduced cost of production. Users shall provide the raw material along with their requirement of Preforms to get their job work done at CFC.

2. Injection Moulding Machine

Injection molding is the most commonly used manufacturing process for the fabrication of plastic parts. A wide variety of products are manufactured using injection molding, which vary greatly in their size, complexity, and application. The injection molding process requires the use of an injection molding machine, raw plastic material, and a mold. The plastic is melted in the injection molding machine and then injected into the mold, where it cools and solidifies into the final part. Injection molding is used to produce thin-walled plastic parts for a wide variety of applications, one of the most common being plastic housings

Units of the cluster cater the demand of 20 ltr. Jerry can and other drums required by the local dairy, paint and glue industry. However, none of the cluster units have facility to manufacture covers for this size of drums/cans. These units procure these covers from NCR, which increases the cost of production thereby reducing competitiveness. Individual units lack capital to install this facility. CFC shall provide the facility to manufacture the lid/covers of variable size to these units. Units will be required to provide raw material and mould of their requirement at CFC to get their job work done. A 250 injection moulding machine has been proposed.

3. Automatic Blow Moulding Machine

Blow Moulding is the process of manufacturing hollow containers like Bottles, Jerry cans, Jars, Drums, tanks etc. from plastics. The most common blow moulded plastic resins are HDPE, LDPE, PVC, ABS, PC, PP etc. The basic process is to heat up the raw material to a molten state and blowing to the shape of cavity of the mould by air pressure. Due to the blowing of air, the process is known as blow moulding. Units of this cluster have limited ability to produce bigger size (like 60 ltrs) of Jerry cans for milk, drum etc. Presently, the units of the cluster has capacity to manufacture only 5 litre drums. Drums of larger capacity are procured from Delhi NCR and rest of the processes (manufacturing handles, lids, fitting steel rims and printing) are completed at these units. Machine for larger container manufacturing are expensive and individual units lack capital to afford these machines.

None of the unit has the financial capacity to acquire a large sized blow moulding machine individually. Hence, a 60 ltr single layer automatic blow moulding machine is being proposed. Availability of blow moulding machine with moulds of required sizes will enable the cluster firms to manufacture products

and offer a complete solution to their clients. Units will be required to provide their own raw material to get their job work done.

4. 80 mm Extrusion Coating Plant

Extrusion coating is the coating of a molten web of synthetic resin onto a substrate material. It is a versatile coating technique used for the economic application of various plastics, notably polyethylene, paper, aluminium foils, Non-woven, or plastic films. The process of extrusion coating involves extruding resin to form plastic sheet of desired thickness which is laminated to form a second web of material.

Extrusion coating has been an essential element of packaging food products which usually requires extra protection. BOPP rice bags, cement bags, fertilizer bags, animal feed bags, and aluminum foils require additional protection against moisture. Extrusion coating creates a film on the inside surface of packing material such as BOPP or WPP using molten polymer. The cluster units do not have an extrusion coating facility which has hindered their ability capture large orders from food processing units.

Extrusion coating facility at CFC will give an edge to the products manufactured by cluster units. Karnal is a hub for rice mills and generates good demand for these bags. Units will bring their packaging sheets rolls at CFC and raw material for coating. Extrusion coating facility will create a film as per requirement of these units. The units will further process the sheets to prepare bags by printing, cutting, heat sealing, stitching etc. to manufacture final product.

5. Eight color Rotogravure printing press machine

Rotogravure printing machine is used in flexible packaging manufacturing and printing process with two sided printing facilities. The high speed rotogravure printing machine offers great flexibility and high resolution color combination at faster rate. The rotogravure process is the latest technology to directly print onto films such as polyester, OPP, nylon, and PE; papers; carton board and aluminum foils.

Rotogravure printing is used in the manufacturing of food and non-food packaging, as well as labels, transfer printing etc. The layout of a gravure printing press follows an in-line arrangement where the required number of printing units is installed along a horizontal plane. Presently, the cluster is using rotogravure printing facility which can only print 1 to 2 color on the packaging material. These

machines are also conventional and the quality of printing is low. This has resulted in manufacturing of limited products which require mono color.

This has led to reduced market share of these units in plastic packaging. Pharma is key sector for rotogravure printing which require high definition printing on packets. FMCG is another key sector which has started using high definition printing on the packets.

A Rotogravure printing facility has been proposed to be installed in the CFC to offer an opportunity to cluster units to get high definition prints done on job work basis. Cluster units shall be required to bring their own engraved cylinders, design and packaging material to print at CFC to get their work done. CFC shall provide the colors and print roll, which will be further processed at individual units to manufacture final products.

6. Solvent Less Lamination Machine

Lamination is the process of joining two or more substrates together to achieve optimum barrier properties. The printed substrates without lamination are not strong enough for packaging use. Solvent less lamination is latest technology to laminate food products and pharma products. However, this facility is not available in the cluster and is required urgently by the micro and small units.

There are three types of adhesive lamination systems for flexible packaging – water based, solvent based, and solvent-less. Solvent-less lamination is the dominant technology, used for multi-film packaging. Bonds created with solvent-less adhesives between the laminated sheets are 100 percent destruct and minimize the risk for de-lamination or other issues associated with weak or poor bond strength. Solvent-free products are perfect for general purpose applications like film-to-film and film-to-metallized film for candy, salty snacks, bakery, meat and cheese packaging.

Food processing and pharma industry demands this lamination on their packaging material. Presently, there is no facility of such kind in the cluster. A solvent less facility is being proposed under CFC to enable cluster units to manufacture multilayered packaging material in these units. Cluster units shall be required to bring their sheets for lamination to get their job work done. The laminated sheets rolls will be further processed at individual units to manufacture final products.

7. Dry lamination machine

Laminating is the process through which two or more flexible packaging webs are joined together using a bonding agent. The substrates making up the webs consists of films, papers, or aluminum foils. In dry lamination, an adhesive is applied to the less absorbent substrate web, after which the second web is pressed against it to produce a duplex, or two-layer, laminate. During the process of dry lamination bonding agent is dissolved into a liquid (water or a solvent) and applied to one of the webs, the adhesive evaporates in the drying oven. The adhesive coated web is laminated to the other under strong pressure and using heated rollers, which improves the bond strength of the laminate.

Dry lamination is commonly used to produce a paper-aluminum foil laminate that is widely used in flexible packaging. Karnal has good presence of small enterprises involved in manufacturing of local snacks and other items which require medium level packaging material in order to be cost effective. Presently, there is no facility of such kind in the cluster.

A dry lamination facility under CFC mode will enable the cluster units to manufacture multilayered packaging material in these units. Cluster units shall be required to bring their sheets for lamination to get their job work done. The laminated sheets rolls will be further processed at individual units to manufacture final products.

8. Slitting Machine:

Slitting is the process of cutting the width of laminated substrates to the desired width so as to use it further for processing. Slitting machine is used for multi width slitting of plastic, aluminum sheets & rolls. It is widely used for food processing and pharma packaging. This process is required to economize the total converting operation, as multi-width printing and slitting is suitable for plastic packaging industry.

Presently, cluster units are using slitting machine of inferior quality leading to poor finishing of products. A slitting facility at CFC will enable the cluster units for quality finishing of products manufactured by these units. This will improve the quality of product considerably. Cluster units shall be required to bring their rolls to get the slitting job done at CFC. Slit products shall be further processed by individual units to manufacture final products.

9. Three Layer Blown Film Plant Co-extruder Blown Film Line

Three layer blown film uses multi-layer extrusion technology, in the process of forming the multi-layer the blown film moves upward and cools, it further passes through nip rolls to form a flat tube known as a 'lay-flat' tube of film. Blown film is applied to give additional film line in packaging which provides additional strength to the outer material and keeps the product safe from external atmospheric influence. Mono layer blown film line acts as a lamination for jute bags, aluminum foils, woven sacks, etc. Multilayer blown films are many times thicker and tougher than mono layer blown films. It is widely applied for its puncture resistance and dart impact strength properties. Multi-layer blown films lines benefits following industries:

- Liquid Packaging: Water, Milk, Oil, Ghee, Liquor
- Food Packaging: Wheat flour, Rice, Sugar, Salt, Cereals
- Lamination Film: Biscuits, Chips, Chocolates, Confectionary, snacks, spices, etc.
- Shrink Film & stretch Wraps
- Hygiene and medical Packaging
- Industrial Packaging: Lubrication oil pouch, Grease, Chemical packaging, etc.

Presently, the cluster units have no facility to manufacture the multi-layer film to manufacture packaging products. With increasing industries in dairy sector at Karnal the demand of multi-layer packaging has been increasing.

The 3 layer tube film manufacturing facility available to cluster units under CFC mode will enable them to offer better quality packaging products. The facility will help the get multi-layer film done on job work basis. Cluster units shall be required to provide the raw material for manufacturing of lay-flat tube. This tube shall be further processed by individual units in terms of printing, slitting etc.

10. Extrusion Blow Moulding (Double Station) with auto deflasher

Blow moulding produces hollow three-dimensional articles from thermoplastics materials/ polymers which are available as granules. Granules or powder are softened in a cylinder and extruded into a vertical tube called "parison". The warm parison is surrounded by the open mould which is then closed, thereby sealing the lower end of the parison. This is then inflated from the other end) to conform to the surface of the mould.

Extrusion blow moulding machine is used for manufacturing plastic bottles of 200ml, 500ml & 1000ml capacity, which are used in FMCG, Pharma and Fertilizer industry. This machine offers technology advancement in manufacturing of HDPE & PVC bottles. The existing blow moulding technique in the cluster generates a wastage of 30% and involves manual cutting.

The proposed machine will have auto deflasher which would help in reducing waste. This technology offers improved quality of products with minimization of loss due to wastage. The machine will have double station which increases the efficiency of the machine.

With this technology, the CFC will be able to provide facility to cluster units to manufacture HDPE/PVC bottles. Cluster units shall be required to provide their raw material required and user fee to get their work done. The bottles will be further processed (labelling, capping etc.) at individual unit level.

4.3 Expected Outcome after Intervention

The project will be beneficial both for individual units and the cluster as a whole. The setting up of 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 vis-à-vis medium and large sized enterprises in competing clusters; progressively tapping local industry demand for quality plastic packaging
- Scope for the cluster to target new market segments by developing new and improved products
- Cluster MSEs will move up the value chain into higher value added packaging products by having multi-layer packaging facilities, lamination and printing facilities
- 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 units 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 CFC and at individual units due to enhanced capacity utilization

- The CFC is also expected to enhance the levels of co-operation and joint-action amongst cluster stakeholders and SPV members to co-operate in other areas such as joint marketing initiatives, common raw material procurement and so o
- Also, it will complement the efforts of state government in promoting clusters in the state and serve as a model for upgrading micro enterprise clusters.

The expected outcome after commissioning of CFC vis-a-vis the current situation is mentioned in table 12.

Table 10: Expected outcome of CFC

Area	Current Scenario	Expected Out Comes
Production Units	About 60 MSEs	About 80 SMEs
Markets	Mostly local units involved in food processing, pharma, dairy, paint & glue industry situated in and around Karnal district	Food processing MNCs, large rice millers, large beverage and liquor manufacturers. Indirect exports
Employment	About 1300 direct employees	About 2000 direct employment
Technology	Lack of Injection moulding, blow moulding, multilayer, lamination and high definition printing facilities	Availability of CFC with advance facilities for moulding, lamination, printing and finishing operations. Will drastically improve technological capacities of firms
Production	Small batch size Material wastage Delays High costs Unskilled workforce	Improved quality Bulk production No material wastage Quick production Competitive prices
Exports	Current exports from cluster units are negligible	25% of units shall explore international markets and start exporting
Turn Over	About 250 crore	Increase of 10% each year and expected to double within 7 year

Special Purpose Vehicle (SPV) for Project Implementation

5. Special Purpose Vehicle (SPV) for Project Implementation

The micro and small units at Karnal Plastic Cluster came together to form a Special Purpose Vehicle (SPV) as a private limited company under section 7 of the Companies Act, 2013 and rule 8 of the Companies (Incorporation) Rules, 2014. The SPV is named as **'Karnal Plastic CFC Private Limited'** with CIN being U74999HR2016PTC064675. The SPV was registered on 21st June 2016. The certificate of registration along with Memorandum of Association (MoA) and Articles of Association (AoA) is provided in ***Annexure – 2 (a and b).*** The company has an authorized paid up capital of Rs. 2.00 Lakhs which shall be enhanced in near future. The members are largely micro-sized firms (registered units) involved in plastic packaging related activities, predominately based in sector 3 industrial area Karnal.

DIC, Karnal and MSME-DI both played an important role in SPV formation by cluster stakeholders. The SPV was incorporated in 2016 and already includes about 25 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 20 at all times. The proposed CFC will be implemented on public-private partnership basis through SPV 'Karnal Plastic CFC Private Limited' by availing support from Government of Haryana (under EPP 2015) and Government of India (under MSE-CDP scheme of DCMSME).

The SPV members have a 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 plastic packaging and enhancing productivity of their units as mentioned in the previous sections. These include exposure to cluster development initiatives in other clusters, exposure visits to fairs, registration under UAM and awareness programs on new trends in packaging industry (particularly for food and dairy industry), lean manufacturing, IPRs, design interventions and new technologies. These programs were conducted in collaboration with DIC, MSME-DI and BDS providers such as National Dairy Research Institute (NDRI), National Institute of Design (NID) and so on.

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

5.1 Shareholder profile and Shareholding mix

List of Directors: The SPV has four directors. The details of the directors are furnished in table 11. Other than these directors, the SPV will have provision of having one director each from the state (DIC) and the centre government (DCMSME/MSME-DI). The SPV comprises members from micro and small plastic packaging manufacturing units. It is homogeneous in nature due to similar products and activities performed by the cluster units.

Table 11: List of Directors

Sl. No.	Director Name	Name of the unit	Unit address
1	Neeraj Kumar Dhingra	Aneevi Packaging Pvt. Ltd.	127 Sector 3, HSIIDC, Karnal
2	Karan Bansal	R K Packers	120, Sector 3, HSIIDC, Karnal
3	Garima Taneja	Srikoshi Printers & Publishers	121, Sector 3, HSIIDC, Karnal
4	Rishabh Gupta	Rishabh Enterprises	Tau Devi Lal Chowk, Meerut Road, Karnal

The lead promoters/ shareholders have several years of successful experience in production of plastic packaging products and are also well versed with the benefits of cluster developmental initiatives.. These units are financially viable in nature. Post the DSR validation, the MSME DI also acknowledged the genuineness and enthusiasm of the SPV members to undertake project initiative under MSE-CDP and has recorded that the CFC demand is authentic. A letter indicating the same sent by the Director, MSME-DI Karnal to Director of Industries, Government of Haryana is provided in ***Annexure 3.***

Members and contribution to paid-up capital

Members of the SPV have been engaged in production of plastic packaging products at Karnal since yaers. SPV directors/ members of the SPV also have considerable experience in marketing and manufacturing of plastic packaging products. Directors/members have been in close interactions with technical experts, government institutions and machinery suppliers.

The SPV was formed with the objective to take 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 per cent 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 12.

Table 12: Details of members of SPV

S.No.	Contact Person	Company Name	Contact No.	Address	UAM No.	Product
1	Ravikant Singla	Ravi Industries	94162-81226	Opp. Govt. High School, Adarsh Colony Vill. Kunjpura Near Petrol Pump, Dist-Karnal	HR10B0000461	Die Cutting, Genset winder
2	Anmol Mittal	Shri Ram Packing	90345-52145	Plot NO. 73, sec 3, HSIIDC, Karnal	HR10B0000406	Rotogravure
3	Karan Bansal	R.K. Packers	72066-93000	Plot no. 120, Sec-3, HSIIDC, karnal	HR10B0000403	Flexo Machine/ ROTOGRAVURE
4	Vipul Khurana	Arnav Medipack	98962-00900	Plot No. 171,Sec-3,Indl Area,Karnal	HR10B0000705	Flexo/ROTOGRAVURE + OFFSET
5	J.P. Singh	Shree Packaging Industries	98125-73000		HR10B0000709	ROTOGRAVURE/ Mono Layer
6	Gaurav Kaushik	Bharat Polymers	72060-70005	Plot No. 66, HSIIDC Karnal	HR10B0000670	Blow Molding
7	Dhurv Sharma	Karnal Printers		213 Sec 3 HSIIDC, Namesty Chowk, Karnal	HR10A0000441	Flexo
8	Aman Arora	Ganpati Laminator Products	99917-00047	234 A, Sec-3, HSIIDC, Karnal		Injection,Blow molding Rotogravure
9	Parmod Kumar	Krishan Chemical	94160-33220	220/13 Extension Urban Estate, Karnal		Plastic Trading
10	Rohit Garg	R.K. Polymers	99910-00104	Plot No. 28, Near Batra Rice Mill, Karnal	HR10B0000445	Injection Blow Mondling
11	Bhushan Goel	Prabhat Fertilizers & Chemicals	98120-68809	Indri Road, Karnal	HR10B0000537	Blow Molding
12	Sanjay Madaan	Gauri Creation	94160-32983	New Ramesh Nagar, Karnal		Pet Blow
13	Rishab Gupta	Rishab Packaging	93556-77777	SCO-2,2nd Floor, Meerut Road Karnal		Blow Molding
14	Raghupreet	Arihant Industries	98969-94455	Sec 3, HSIIDC, Karnal	HR10B0000436	Injection Molding
15	Aditya Bansal	Bansal Agencies	94160-68504	823/18 Near K.G. Old. G.T. Road, Karnal		Polymar trading
16	Sanjeev Sharma	Mahadev Plastic	98961-00731	Sonkara Road, Tarori		Blow Mondling

17	Vinay Taneja	Shrikoshi Reprographics	98120-53552	121, Sec 3, HSIIDC, Karnal	HR10B0000667	Offset Machine & Flexo Machine
18	Neeraj Dhingra	Aneevi Packaging Pvt. Ltd.	94160-33340	Railway Road, Karnal	HR10B0000423	Offset Machine & Corrugation Machine
19	Vineet Khera	Bharat Enterprises	94160-32013	Yamuna Nagar Road, Newal Karnal	HR10A0000421	Blow Molding, tube formation
20	Devinder Mann	A.M. Plastic	90341-99476	Plot No. 226-27, Sec 3, Karnal	HR10A0000693	Blow Injection
21	Gaurav Gupta	Jai Hanuman Rice & General mill	95180-17777	Vill. Gadhi Multan, Kamla Road, Ghd	HR14B0001874	Rice Bag/ Woven Sag Printing
22	Ashwani Kumar	Kalra Enterprises	92156-44545	Multan Market, Railway Road Karnal	HR11A0000214	Flexo/ROTOGRAVURE
23	Amit Kamboj	VEDE PARKASH AND SONS LUMBER PVT LTD.	98122-56668	Timber Market Sadar Bazar, Karnal		Non-woven D-Cut & Flexo Printing
24	Vaibhav Arya	INSTA PACKAGING		231/3, HSIIDC Karnal		
25	Nishant Chawla	Bharat Plastic	98966-51303	Plot No. 66 HSIIDC, Karnal	9155560018240	Injection Moulding

5.2 'Initiatives undertaken by the SPV

As mentioned in detail in section 4.1 (Soft interventions recommended and action taken), 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. These initiatives have been undertaken in collaboration with DIC, MSME-DI, NDRI, KFPCL, AIPMA, PMMAI, NID etc. The major initiatives are:

- Pursuing initiatives in close coordination with MSME-DI and DIC, Karnal to facilitate understanding of cluster development, common procurement, marketing, available government support, latest technology for common facility etc.
- Exposure visits to trade fairs and machinery fairs for plastic industries in NCR and large factories at other locations to understand the technology, market requirement and available opportunities.

- Conducting various programs for capacity building, awareness generation and technological advancement in the cluster as well as participation in similar programs organized by stakeholders.
- Identification of land for construction of CFC and collective acquisition of land in the name of SPV.
- The preparation of DSR was led by the SPV and the presentation of the DSR in the SLPSC was also done by the SPV members.

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 and the centre 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 and the MSME-DI for DPR approvals in the SLPSC
- Accompanying EY experts to various meetings at the state and centre government departments
- Execution of land lease deed in SPV name
- Garnering the SPV project contribution from the members
- Assisting the EY team in providing inputs to the DCMSME technical committee, if required
- 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 industry department and DCMSME

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; will include office bearers elected/nominated from time to time including one nominee of State Government (DIC) and DC-MSME, they will also remain present during meetings.

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 by unanimous decision of the members. The CFC will seek direction and guidance from the SPV Board of Directors 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 fixation of user fees (for members and non-members) and usage of reserves etc. for future expansion. The Chairman and 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 background in plastic packaging industry will be appointed as the Chief Executive Officer (CEO), who will look after day to day operations of CFC and shall be directly reporting to the Board of Directors. Each facility (extrusion, injection, blow, roto moulding) will have its own technical staffs (supervisors, operations and helpers) as per the requirement. 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 19:

Figure 15: Organizational Structure of CFC

Project Economics

6. Project Economics

6.1 Project Cost and Means of Finance

6.1.1 Project Cost

The total project cost is estimated at Rs. 1,863.64 Lakhs (INR 18.64 crores). The project cost for setting up a CFC Plastic Packaging Cluster, Karnal includes the following:

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

The detail of each project component is provided below:

1. Land and Building

Land

The proposed CFC would be require space for construction of buildings, pre fabricated structure for installation of machinery and provision for stocking material. A lot of space also needs to be left open considering the industry FAR norms in the state. Considering the space requirements of the proposed facilities in the CFC and the FAR norms, it is estimated that a plot of about 3100 square yards shall be required.

The cluster SPV has identified a plot of land at village – Mugal Majra, 8 kms away from the Karnal city. The land is in an industrial township being developed by KFPCL and provision for power is available. Many plastic packaging units are also coming up in that industrial estate. The land is appropriately located and only 10 kms away from the major existing industrial estate in Karnal.

SPV has identified a plot of 27,900 sq ft. (3100 sq. yards) that shall be leased for a period of 95 years. As per the Haryana Urban Development Authority (HUDA) Erection of Buildings Regulations, 1979, maximum permissible coverage on ground (built up area) is 60% of area of an industrial site. This shall allow an area of 16740 sq. ft. (1860 sq. yards) for CFC construction.

An Agreement for lease of land has been entered into by the SPV. The document highlighting the same and establishing the proof for availability of land is provided in ***Annexure 4.*** The lease value for the land is estimated to be Rs. 202.72 Lakhs. The site development charges are estimated at Rs. 10

Lakhs. The amount required to lease the land shall be provided by the SPV members as their contribution towards the project cost.

Building

The built up area of the facility will comprise of two storied building with basement (a mix of RCC and pre fabricated structure), resulting in total covered area of 41137 sq ft. Indicative building layout plan is provided in ***Annexure 5*** **.** The total cost of construction of the building including partitioning and ceiling is estimated to Rs. 329.10 Lakhs. The building estimate duly certified is provided in ***Annexure 6.*** Hence, the total cost of land, site development as well as construction of building is estimated at Rs. 541.82 lakhs (see table 13) .

Table 13: Requirement in terms of land and buildings

Particulars	Amount (INR in Lakhs)
Land of Rs. 202.72 Lakh and site development (@ Rs. 10 Lakh)	212.72
Building and civil works (shop-floor area of 41137 sq ft. @ Rs. 800/- per sq ft.	329.10
TOTAL	**541.82**

2. Plant and Machinery

As detailed in section 4.2 (Hard interventions) a number of modern automatic and high capacity plastic moulding and plastic printing machines 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 CFC are Injection Moulding facilities, Blow Moulding facilities, Multilayer Extrusion facilities, Coating & Lamination facilities, Value added Printing facilities and value added finishing facilities. The total cost of plant and machineries has been estimated at Rs. 1062 lakhs and including electrification, plumbing, installation and contingency works out to Rs. 1202.32 Lakhs.

The details of the proposed machinery items are presented in the table 14. The detailed specifications and quotations of the machines are provided in ***Annexure 7***. 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 machineries during project execution and selected vendors will be further invited to negotiate.

Table 14: List of proposed plant and machinery

S. No.	Machine Name	Quantity	Major Supplier	Amount Rs. in lacs (Including taxes)
	PRIMARY MACHINES			
1	PET PREFORM MANUFACTURING MACHINE: a. PET SERIES - 970/510 Injection Moulding machine b. Auxilliaries (Dehumidifier, Water cooled chiller, Granulator) c. Moulds (750 ml, 180 ml, 375 ml, 200 ml bottles)	1	Ferromatic, Windsor, Toshiba	131.68
2	INJECTION MOULDING MACHINE: Hydron Servo -250 Injection moulding machine including Hydraulic Core Pull, Air Ejection, Water Manifold, UPS etc.	1	Ferromatic, Haitian, Negribossi	41.22
3	AUTOMATIC BLOW MOULDING MACHINE: JMV - 60 - Production of 60 Ltr - 70 Ltr Single Layer Automatic Blow Moulding Machine with B&R Multipoint Parison, Energy meter, Air Compressor, Water cooled chiller, Grinder, Cooling Tower, Hopper Loader, Mould 60 Ltr	1	Jagmohan Pla-mach pvt ltd., Rana Sons, CMP	114.50
4	80 MM EXTRUSION COATING PLANT Extruder, Screen changer, Carriage, Die, Unwinder, Laminator, Turn Bar, etc.	1	JP EXTRUSIONTECH LIMITED	123.66
5	8 COLOR ROTOGRAVURE PRINTING MACHINE: Rotogravure Printing Machine including Automatic Registration Control, Web video, Hot air generator, Ink circulation pump	1	UFLEX, C. Trivedi, Pelican	171.75
6	Solventless Lamination Machine	1	UFLEX	80.15
7	Dry Lamination Machine	1	UFLEX	68.70
8	Slitting machine (1 for BOPP + 1 for WPP products)	2	UFLEX	73.28
9	Three Layer Blown Film Plant Co-extruder blown film line multifoil	1	KABRA/Rajoo	97.33
10	Extrusion blow moulding machine (1lt. Double station) with auto deflasher	1	Central Machinery & Plastic Products	23.47
11	Testing equipment (Tensile Tester, Opacity Tester, Static & Kinetic Friction Tester, Hot Air oven, Heat Sealer, Dart Impact Tester)		Advance Equipment, International Equipment	14.31
	SECONDARY MACHINES			
11	Genset	1	Sudhir, Cummins India Limited	41.00
12	Computer & Printers	5	Horizon Systems & Comm. Pvt. Ltd.	4.82

13	Camera	50	Horizon Systems & Comm. Pvt. Ltd.	4.05
14	Air compressor with filter and air dryer (Fully loaded, Ingersol Rand or equivalent make)	2	Rajoo	5.73
15	Compact air cooled water chiller (2 No. - 10 TR + 20 TR)	2	Rajoo	13.74
16	Lifts	2		9.16
17	Transformers (1000 kVa)	1	Power Engineers & Consultants	8.72
18	Air conditioners	10		10.53
19	Web guiding system Digital Opto Electronic (BST or equivalent make)	1	Rajoo	1.85
20	Corona surface treatment with full width segmented metal electrode controller with mounting arrangement for treater and control panel (E+L or equivalent make)	1	Rajoo	11.34
22	Cooling tower (50 TR)	1	Rashi Cooling Towers (P) Ltd.	0.75
23	Cooling tower (100 TR)	1	Rashi Cooling Towers (P) Ltd.	1.32
24	Moulds			9.16
	TOTAL	**71**		**1062.21**

3. Miscellaneous Fixed Assets

The CFC would also require fixed assets such as furniture, fixtures, firefighting equipment, first-aid equipment etc. for smooth running of operations. The total estimated capital expenditure for purchase of miscellaneous fixed assets is estimated to be Rs. 15.00 Lakhs. Details are provided in table 15.

Table 15: Miscellaneous fixed assets

Particulars	Amount (INR in Lakhs)
Office items and allied items, furniture, fixtures, firefighting equipment, first-aid equipment and back-up power supply etc.	15.00
TOTAL	15.00

4. Preliminary and Pre-operative Expenses

Another major component of the project cost are the preliminary and pre-operative expenses. The preliminary expenses are envisaged as expenses incurred for registration of SPV, legal and administrative expenses, detailed civil engineering drawings with estimates, tendering forms, tendering cost and preparation of DSR & DPR of the cluster.

Pre-operative expenses include expenses for electricity connection charges, administrative establishment, travelling, bank charges, stationery, telephone, overhead expenses during construction and machinery testing period including salaries, machine testing cost, bank charges, traveling, etc. It also includes the expenses for professional project management charges as consultancy fee. The PMC have been taken @1.45% of project cost. The total expenditure for preliminary and pre-operative expenses are estimated at Rs. 96.04 Lakh (table 16).

Table 16: Preliminary and pre-operative expenses

Sl. No.	Particulars		Amount Rs. in lakhs
1	PRELIMINARY EXPENSES	Company Registration	6.00
2		Civil engineering design with estimates	2.00
3		Tender forms & tendering cost	3.00
4		Project Report Preparation (DSR & DPR)	10.00
5	PRE-OPERATIVE EXPENSES	Project Management Charges (@1.45% of Project cost)	26.64
6		Telephone & Stationary items	1.00
7		Establishment Cost	4.00
8		Travelling Cost	2.00
9		Overheads during Construction Period	5.00
10		Machine testing cost	10.00
11		One time connection charges @ Rs. 3300 (security + service charge etc.)	26.40
	Total		**96.04**

5. Provision for Contingencies

As per the guidelines of MSE-CDP a provision for contingencies has to be made on plant/machinery and buildings. Contingencies estimated @2% on building and civil works (totalling Rs. 329.10 lakh) amounts to Rs. 6.58 lakh. Contingencies on plant and machinery (totalling Rs. 1062.21 lakh) have been estimated as 5% that amounts to Rs. 53.11 lakh and 5% on miscellaneous fixed assets (totalling Rs. 15.00 lakh) amounting to Rs. 0.75 lakh.

6. Margin Money for Working Capital

The total working capital requirement during the first year of operation at 80% capacity utilization is estimated at Rs. 33.61 lakh with margin money requirement of Rs. 8.40 Lakh (25% of working capital requirement as margin). The working capital requirement has been calculated based on requirement of one month of operational expenses and the calculation has been provided in the subsequent section.

7. Summary Project Cost:

A summary of total estimated project cost is presented in table 17.

The cost of plant and machinery including electrification, plumbing, installation and contingency works out to Rs. 1202.32 Lakh and constitute the major portion of the project cost.

Table 17: Project Cost

S. No.	Particulars	Amount (INR in Lakhs)
1	Land (Rs. 201.50 Lakh) and site development (@ Rs. 10.00 Lakh)	212.72
2	Building and civil works (two storied building and basement: total shop-floor area of 41137 sq ft.	329.09
3	Plant & Machinery (primary machines) and related equipment (secondary machines) including 5% electrification & 2.5% plumbing expenses on total cost of Rs. 1062.21 lakh	1141.88
4	Miscellaneous fixed assets (office items, furniture, fixtures, firefighting equipment, first-aid equipment etc.)	15.00
5	Preliminary expenses (DSR, DPR, legal & administrative expenses, registration, civil engineering drawings with estimates & tender forms, telephone, stationery etc.)	21.00
6	Pre-operative expenses (establishment cost, travel, overheads during construction period including salaries, machine testing cost and other services, etc.)	75.13
7	Provision for contingencies (2% or Rs. 6.58 lakh on building, 5% or Rs. 53.11 lakh on plant & machinery and 5% or Rs. 0.75 lakh on other fixed assets)	60.44
8	Working capital margin (at operating capacity of 80%)	8.41
	TOTAL	**1863.64**

The total project cost is estimated at Rs. 1,863.64 Lakh.

6.1,2 Means of Finance

The project will be financed from three sources: equity from SPV, grant-in-aid from Govt. of India (under MSE-CDP) and grant-in-aid from Govt. of Haryana (under EPP 2015). Working capital loan will be secured from Corporation Bank. The assistance to the project from Govt. of India under MSE-CDP is envisaged to the tune of 70% of the project cost for project up to 1500.00 lakhs. As per Enterprise Promotion Policy 2015 of Govt. of Haryana, it will contribute 20% of project cost for project up to Rs. 1500.00 lakh and 50% of project cost for project exceeding Rs. 1500.00 lakh up to Rs. 2000.00 lakhs. SPV will be required to contribute 10% of project cost for project cost up to Rs. 1500.00 lakh

and 50% of project cost for project exceeding Rs. 1500.00 lakh. Table 18 summarizes the means of finance for the project:

Table 18: Means of Finance

S. No.	Source of finance	Project cost upto INR 1500.00 lacs		Project cost over INR 1500.00 lacs		Total Amount (INR in lacs)
		Percentage Contribution	Amount (INR in lacs)	Percentage Contribution	Amount (INR in lacs)	
1	Grant-in-aid under MSE-CDP (Govt. of India)	70	1050.00	0	0	1050.00
2	Grant-in-aid (Govt. of Haryana)	20	300.00	50	181.82	481.82
3	Contribution of SPV	10	150.00	50	181.82	331.82
	Total	100	1500.00	100	363.64	1863.64

1. Share Capital

The contribution of the SPV members will be the way of subscription to shares in the SPV registered as a Private Limited Company. The extent of paid-up share capital/equity contribution would be Rs. 331.82 lakh contributed by the cluster SPV.

The authorised share capital of the company is Rs. 2.00 lakhs at present which shall be increased in due course. The extent of share capital/equity contribution by each member will be restricted to a maximum of 10% of total contribution to the share capital of the company.

2. Grant-in-Aid

Grant in aid of Rs. 1050.00 lakh is expected from Government of India. The amount received by the way of grant under MSE-CDP will only be utilized to procure plant and machinery for the project.

6.2 Expenditure estimates

In this section, a detailed estimate of expenditure of the CFC has been conducted 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.

1. Consumables

Machines installed at 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 grease, nozzles, PU pipes for injection moulding equipment; ink and chemicals for printing equipment; adhesives for lamination equipment; blades for slitting equipment and others etc.

The annual requirement of consumables is provided in table 19.

Table 19: Annual requirement of consumables

S. No.	Machine Name	Hours available daily	Particulars (requirement of consumables for undertaking usage)	Amount (@ 80% C.U. in Rs. Lakh)	Amount (@ 85% C.U. in Rs. Lakh)	Amount (@ 100% C.U. in Rs. Lakh)
	FACILITY/MACHINE					
1	PET PREFORM MANUFACTURING MACHINE a. PET SERIES - 970/510 Injection Moulding machine b. Auxilliaries (Dehumidifier, Water cooled chiller, Granulator) c. Moulds (750 ml, 180 ml, 375 ml, 500 ml, 200 ml bottles)	8	The machine will require consumables by way of Hydraulic oil, Silicon Spray, Grease, Nozzle & PU pipes @ Rs. 1 87.5 per hour	3.6	3.825	4.5
2	INJECTION MOULDING MACHINE Hydron Servo -250 Injection moulding machine including Hydraulic Core Pull, Air Ejection, Water Manifold, UPS etc.	8	The machine will require consumables by way of Hydraulic oil, Silicon Spray, Grease, Nozzle & PU pipes@ Rs. 187.5 per hour	3.6	3.825	4.5
3	AUTOMATIC BLOW MOULDING MACHINE JMV - 60 - Production of 60 Ltr - 70 Ltr Single Layer Automatic Blow Moulding Machine with B&R Multipoint Parison, Energy meter, Air Compressor, Water cooled chiller, Grinder, Cooling Tower, Hopper Loader, Mould 60 Ltr	8	The machine will require consumables by way of Hydraulic oil, Silicon Spray, Grease, Nozzle & PU pipes @ Rs. 187.5 per hour	3.6	3.825	4.5
4	80 MM EXTRUSION COATING PLANT: Extruder, Screen changer, Carriage, Die, Unwinder, Lamintor, Turn Bar, etc.	8	The machine will require consumables by way of silicon spray, grease and PU pipes @ Rs. 93.8 per hour	1.8	1.9125	2.25
5	8 COLOR ROTOGRAVURE PRINTING MACHINE: Rotogravure Printing Machine inclding Automatic Registration Control, Web video, Hot air generator, Ink circulation pump	8	The machine will require consumables by way of Ink (various shades) & chemicals @ Rs. 4687.5 per hour	90	95.625	112.5

6	Solventless Lamination Machine	8	The machine will require consumables by way of Adhesives @ Rs. 93.8 per hour	1.8	1.9125	2.25
7	Dry Lamination Machine	8	The machine will require consumables by way of Adhesives @ Rs. 281.3 per hour	5.4	5.7375	6.75
8	Slitting machine (1 for BOPP + 1 for WPP products)	8	The machine will require consumables by way of Slitting blades @ Rs. 11.3 per hour	0.216	0.2295	0.27
9	Three Layer Blown Film Plant Co-extruder blown film line multifoil	8	The machine will require consumables by way of silicon spray, grease and PU pipes @ Rs. 93.8 per hour	1.8	1.9125	2.25
10	Extrusion blow moulding machine (1lt. Double station) with auto deflasher	8	The machine will require consumables by way of Hydraulic oil, Silicon Spray, Grease, Nozzle & PU pipes are about Rs. 187.5 per hour	3.6	3.825	4.5
11	Administrative Facility	8	Stationery, office equipment related consumables @ Rs. 50000 per month	2.16	2.295	2.7
12	Computer & Printers	8	For PCs and Software consumables include stationery, toner @ 10000 per month	0.432	0.459	0.54
	Total			**118.01**	**125.38**	**147.51**

2. Manpower Requirements

Another major expenditure head is the manpower, Facilities installed at CFC will require manpower to function effectively as mentioned in section 5.3 of the report. The total manpower requirement for the project would be about 50 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 Rs. 83.28 lakh and for indirect at 61.2 lakhs. The total expense on manpower is projected at Rs. 12.04 lakh per month or Rs. 144.48 lakh per annum

The details of monthly and yearly expenses for manpower required for running the project is provided in table 20 and 21.

Table 20: Expenditure related to salary (Direct manpower-machine operators and helpers)

Category	Details of Manpower Required	Salary per month per person (INR)	Total Salary per month (INR)	Total salary per annum (INR lakh)
MACHINE MANPOWER REQUIREMENT (DIRECT)				

1. PET Preform Manufacturing Machine with moulds PET SERIES - 970/510 Injection Moulding machine 2. Hydron Servo -250 Injection moulding machine	1 Supervisor-cum-In-charge	50,000	50,000	6.00
	1 Main operator	25,000	25,000	3.00
	3 Helper	12,000	36,000	4.32
1. 60 Ltr Single Layer Automatic Blow Moulding Machine 2. Extrusion blow moulding machine (1lt. Double station) with auto deflasher	1 Supervisor-cum-In-charge	80,000	80,000	9.60
	2 Main operator	25,000	50,000	6.00
	5 Helper	12,000	60,000	7.20
1. 80 mm Extrusion Coating Plant 2. Kolsite Three Layer Blown Film Plant	1 Supervisor-cum-In-charge	50,000	50,000	6.00
	1 Main operator	25,000	25,000	3.00
	3 Helper	12,000	36,000	4.32
1. 8 Col Rotogravure printing machine 2. Solvent less Lamination machine 3. Dry Lamination Machine 4. Slitting Machine	1 Supervisor-cum-In-charge	90,000	90,000	10.80
	3 Main operator	40,000	1,20,000	14.40
	6 Helper	12,000	72,000	8.64
Sub Total	**28**	**4,33,000**	**6,94,000**	**83.28**

Table 21: Expenditure related to salary (Indirect manpower-administrative and support staff)

S. No.	Category	No. of Manpower Required	Monthly Compensation (INR) per person	Total Salary per month (INR)	Total salary per annum (INR lakh)
ADMINISTRATION & ACCOUNTING (INDIRECT)					
1	CEO	1	1,00,000	1,00,000	12.00
2	Chief Accountant	1	35,000	35,000	4.20
3	Accountants	2	20,000	40,000	4.80
4	Procurement Officer	1	30,000	30,000	3.60
5	HR Manager	1	50,000	50,000	6.00
6	Marketing Officer	1	30,000	30,000	3.60
7	Dispatch In-charge	1	20,000	20,000	2.40
8	Helper (Packaging)	2	12,000	24,000	2.88
9	Helper (Store room)	1	12,000	12,000	1.44
10	Store Keeper	1	15,000	15,000	1.80
11	Lift Operator	1	10,000	10,000	1.20
12	Electrician	1	20,000	20,000	2.40
13	Office assistant	1	10,000	10,000	1.20
14	Sweeper	1	8,000	8,000	0.96
15	Watchman	1	11,000	11,000	1.32
16	Plumber	1	15,000	15,000	1.80

17	Welder	1	15,000	15,000	1.80
18	Lab Technician	1	35,000	35,000	4.20
19	Lab assistant	1	20,000	20,000	2.40
20	Pantry	1	10,000	10,000	1.20
	Sub Total	22	4,78,000	5,10,000	61.20
	Total (Direct and Indirect)	**50**	**9,11,000**	**12,04,000**	**144.48**

3. *Utilities*

The most important utilities required by the project are power supply and water. 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 800 kW. Table 22 depicts the machine and equipment wise power requirement in the CFC. The drawn power is conservatively assumed at 60% of the connected load in the case of operating facilities and shop floor.

Table 22: Machine & equipment (facility) wise power requirement

S. No.	Machinery and equipment	Power Requirement (kW)/ Connected Load	Total power requirement (60% of drawn power) kWh
1	PET PREFORM MANUFACTURING MACHINE a. PET SERIES - 970/510 Injection Moulding machine b. Auxiliaries (Dehumidifier, Water cooled chiller, Granulator) c. Moulds (750 ml, 180 ml, 375 ml, 500 ml, 200 ml bottles)	80	48
2	INJECTION MOULDING MACHINE Hydron Servo -250 Injection moulding machine including Hydraulic Core Pull, Air Ejection, Water Manifold, UPS etc.	45.7	27.42
3	AUTOMATIC BLOW MOULDING MACHINE JMV - 60 - Production of 60 Ltr - 70 Ltr Single Layer Automatic Blow Moulding Machine with B&R Multipoint Parison, Energy meter, Air Compressor, Water cooled chiller, Grinder, Cooling Tower, Hopper Loader, Mould 60 Ltr	110	66
4	80 MM EXTRUSION COATING PLANT Extruder, Screen changer, Carriage, Die, Unwinder, Laminator, Turn Bar, etc.	65	39
5	8 COLOR ROTOGRAVURE PRINTING MACHINE Rotogravure Printing Machine including Automatic Registration Control, Web video, Hot air generator, Ink circulation pump	60	36
6	Solvent less Lamination Machine	30	18
7	Dry Lamination Machine	30	18
8	Slitting machine (1 for BOPP + 1 for WPP products)	15	9
9	Three Layer Blown Film Plant Co-extruder blown film line multi-foil	184	110.4
10	Extrusion blow moulding machine (1lt. Double station) with auto de-flasher	37	22.2

11	Air compressor with filter and air dryer	7.5	4.5
12	Compact air cooled water chiller	7.5	4.5
13	Cooling Tower	15	9
14	Lifts	10	6
15	Testing lab	20	12
16	Administrative facilities	10	6
	Total	726.7	436.02
	Buffer Connected Load (10% of Total Connected Load)	72.67	
	Total Connected Load for the CFC	800 *	

* Rounded off to the nearest value

The power requirement for operation of core machinery and equipment, testing lab and administrative facilities is 436.02 kWh. Electricity required for shop floor activities in terms of operation of core machinery and equipment is 726.7 kW. The facility is heavily based on electricity for operations and will also require additional 10% connected load as buffer to get the electricity connection. The total connected load for the CFC is estimated to be 800 kW.

Fix charges for connection of 800 kW @ Rs. 173 per kW = Rs. 1,38,400 and monthly consumption charge @ 436.02 kWh yields a consumption of 87,204 units which amounts to Rs. 7.84 lakh. This has been calculated based on the prevalent rates of the power provider.

The table below (23) presents the envisaged annual expenditure in terms of power related charges.

Table 23: Annual expenditure statement vis-à-vis power charges

S. No.	Expenditure component	Particulars	Amount per annum (@ 100% C.U. in Rs. Lakh)	Amount per annum (@ 80% C.U. in Rs. Lakh)	Amount per annum (@ 85% C.U. in Rs. Lakh)
1	Fixed monthly connection charge (total connected load)	Shop-floor, support facilities & administrative (Rs. 1.38 Lakh per month)	16.61	16.61	16.61
2	Variable charges (as per consumption of units)	Shop-floor, support facilities & administrative (Rs. 7.84 Lakh per month)	94.18	75.34	80.05
	Total		**110.79**	**91.95**	**96.66**

Water supply is another utility required for operation of CFC. Water shall be primarily required for cooling of moulding machines installed at CFC and for consumption by manpower. The water requirement is envisaged at 7000 litre/day for consumption and washing purposes and 20,000 litres for machinery purposes. Water charges have been estimated at Rs. 15/KL. This amounts to a total

consumption of approximately Rs. 1.20 lakh per annum. Expenses on sewage is also estimated to be approximately Rs. 1.20 lakh per annum. Hence, total cost of water and sewerage services is Rs. 2.40 lakh per annum.

4. Annual Repairs and Maintenance Expenses

The annual repairs and maintenance expenses have been estimated to be Rs. 40.84 lakh. The details are presented in the table 24:

Table 24: Annual repairs and maintenance expenditure

S. No.	Expenditure component	Particulars	Amount per annum (@ 100% C.U. in Rs. Lakh)	Amount per annum (@ 80% C.U. in Rs. Lakh)	Amount per annum (@ 85% C.U. in Rs. Lakh)
1	Repairs & maintenance	Building: repair & maintenance @ 2%	6.58	5.27	5.59
2		Plant & machinery: repair & maintenance @ 3%	34.26	27.41	29.12
	Total		**40.84**	**32.67**	**34.71**

5. Insurance and miscellaneous Administrative Expenses

Insurance shall be a critical component of asset protection at CFC. Insurance is computed on the basis of 0.05 percent on the fixed assets. Cost of insurance shall remain as a fixed cost. Miscellaneous administrative expenses are estimated at a lump-sum of Rs. 10.00 lakh per year. The cost of miscellaneous expenses is also considered to be fixed irrespective of scale of operation. The details are presented in the table 25:

Table 25: Insurance and miscellaneous administrative expenses

S. No.	Expenditure component	Particulars	Amount per annum (@ 100% C.U. in Rs. Lakh)	Amount per annum (@ 80% C.U. in Rs. Lakh)	Amount per annum (@ 85% C.U. in Rs. Lakh)
1	Insurance	Estimate @ 0.5% on fixed assets (such as buildings, civil works, and Plant & machinery, including related contingency expenses of approx. Rs. 1530.66 Lakh)	7.65	7.65	7.65
2	Miscellaneous administrative expenditure	Stationery, communication, travelling, and other misc. overheads	10.00	10.00	10.00
	Total		**17.65**	**17.65**	**17.65**

6.3 Working Capital Requirements

Working capital has been calculated in terms of one month's operating expenses required for the CFC. The operating expenses includes in form of consumables, salaries, utilities, repair & maintenance, insurance and miscellaneous administrative expenses. The details are presented in the table 26 .

Table 26: Assessment of working capital

S. No.	Particulars	Annual Expenditure at installed capacity of 100% (in Rs. Lakh)	Annual Expenditure at installed capacity of 80% (in Rs. Lakh)	Annual Expenditure at installed capacity of 85% (in Rs. Lakh)
1	Consumables	147.51	118.01	125.38
2	Salary & Wages (Direct Expenses)	83.28	83.28	83.28
3	Salary & Wages (Indirect Expenses)	61.20	61.20	61.20
4	Utilities (power - Fixed charges)	16.61	16.56	16.56
5	Utilities (power - Variable charges)	94.18	75.34	80.05
6	Utilities (water - Fixed Consumption)	2.40	1.92	2.04
7	Repairs & Maintenance	40.84	32.67	34.71
8	Insurance	7.65	7.65	7.65
9	Misc. administrative expenditure	10.00	10.00	10.00
	Total	463.67	406.64	420.88
	Working Capital Requirement per month	**38.64**	**33.89**	**35.07**
	Margin money @ 25%	**9.66**	**8.47**	**8.77**

The working capital requirement of the project for the one month of operation has been considered for consumables and expenses. 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 25% of working capital is shown as margin for working capital and the remaining will be borne by SPV as borrowings. The margin money required for working capital is estimated to Rs. 33.89 lakh during the first year of operation (80% C.U.). Further, total working capital required at an operating capacity of 85% comes out to Rs. 35.07 lakh. The corresponding margin money for working capital requirement at 80% & 85% capacity utilisation amounts to Rs. 8.47 lakh and Rs. 8.77 lakh respectively, and the corresponding loan amounts at Rs. 33.89 lakh and Rs. 35.07 lakh respectively. Corporation Bank has

agreed to finance working capital in case the project gets approved. The interest on bank loan (@13.5% per annum) amounts to Rs. 3.43 lakh at 80% capacity utilisation and Rs. 3.55 lakh at operating capacity of 85%. Computation of working capital and margin money requirement for 10 years is presented in table 27.

Table 27: Computation of Working Capital and Margin Money requirements

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Consumables	118.01	125.38	125.38	147.51	147.51	147.51	147.51	147.51	147.51	147.51
Manpower (Direct)	83.28	83.28	83.28	83.28	83.28	83.28	83.28	83.28	83.28	83.28
Manpower (Indirect)	61.20	61.20	61.20	61.20	61.20	61.20	61.20	61.20	61.20	61.20
Electricity Charges (fixed)	16.61	16.61	16.61	16.61	16.61	16.61	16.61	16.61	16.61	16.61
Electricity Charges (Variable)	75.34	80.05	80.05	94.18	94.18	94.18	94.18	94.18	94.18	94.18
Water Charges (Fixed consumption)	1.92	2.04	2.04	2.40	2.40	2.40	2.40	2.40	2.40	2.40
Repairs & Maintenance	32.67	34.71	34.71	40.84	40.84	40.84	40.84	40.84	40.84	40.84
Insurance	7.26	7.26	7.26	7.65	7.65	7.65	7.65	7.65	7.65	7.65
Misc. administrative expenditure	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Total	406.29	420.53	420.53	463.67	463.67	463.67	463.67	463.67	463.67	463.67
Working capital (for 1 month's expenses)	**33.86**	**35.04**	**35.04**	**38.64**	**38.64**	**38.64**	**38.64**	**38.64**	**38.64**	**38.64**
Working Capital Margin	8.46	8.76	8.76	9.66	9.66	9.66	9.66	9.66	9.66	9.66
Working Capital Loan	25.39	26.28	26.28	28.98	28.98	28.98	28.98	28.98	28.98	28.98
Interest on Working capital loan @13.5% p.a.	3.43	3.55	3.55	3.91	3.91	3.91	3.91	3.91	3.91	3.91

6.4 Depreciation Estimates

Estimates of depreciation are non-cash expenditure and presented in this section on the basis of both Straight Line (SL) as well as 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 building is considered at the rate of 5% per year,

depreciation of plant and machinery at 10% a year (envisaged project life of 10 years prior to replacement of assets) and depreciation of miscellaneous fixed assets at the rate of 10% a year as per the SL method. Depreciation has been based on Straight Line Method (SLM) for calculation of profitability. Depreciation based on Written down Value method (WDV) has been used for computation of income tax.The computation as per SL method and WDV method is provided in table 28 and table 29 respectively.

Table 28: Depreciation employing the Straight Line Method[14]

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Land	212.72	212.72	212.72	212.72	212.72	212.72	212.72	212.72	212.72	212.72
Building and Civil work										
Opening Balance[15]	335.68	318.89	302.11	285.33	268.54	251.76	234.98	218.19	201.41	184.63
Less: Depreciation @ 5 %	16.78	16.78	16.78	16.78	16.78	16.78	16.78	16.78	16.78	16.78
Closing Balance	318.89	302.11	285.33	268.54	251.76	234.98	218.19	201.41	184.63	167.84
Machinery and Equipment including supporting equipment										
Opening Balance[16]	1194.99	1075.49	955.99	836.49	716.99	597.49	477.99	358.50	239.00	119.50
Less: Depreciation @ 10%	119.50	119.50	119.50	119.50	119.50	119.50	119.50	119.50	119.50	119.50
Closing Balance	1075.49	955.99	836.49	716.99	597.49	477.99	358.50	239.00	119.50	-
Misc. Fixed Asset										
Opening Balance[17]	15.75	14.18	12.60	11.03	9.45	7.88	6.30	4.73	3.15	1.58
Less: Depreciation @ 10%	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
Closing Balance	14.18	12.60	11.03	9.45	7.88	6.30	4.73	3.15	1.58	0.00
Opening Balance	1759.13	1621.28	1483.42	1345.56	1207.71	1069.85	931.99	794.13	656.28	518.42
Total Depreciation	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86
Depreciated value	1621.28	1483.42	1345.56	1207.71	1069.85	931.99	794.13	656.28	518.42	380.56

Under the WDV method depreciation is considered at the rate of 10% per year on building, 15% on plant and 10% on miscellaneous fixed assets.

[14] Amount in Rs. Lakh.
[15] Opening balance includes provision for contingencies
[16] Opening balance includes provision for contingencies
[17] Opening balance includes provision for contingencies

Table 29: Depreciation employing WDV method[18]

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Land	212.72	212.72	212.72	212.72	212.72	212.72	212.72	212.72	212.72	212.72
Building and Civil work:										
Opening Balance[19]	335.68	302.11	271.90	244.71	220.24	198.21	178.39	160.55	144.50	130.05
Less: Depreciation @ 10%	33.57	30.21	27.19	24.47	22.02	19.82	17.84	16.06	14.45	13.00
Closing Balance	302.11	271.90	244.71	220.24	198.21	178.39	160.55	144.50	130.05	117.04
Machinery and Equipment including supporting equipment										
Opening Balance[20]	1194.99	1015.74	863.38	733.87	623.79	530.22	450.69	383.09	325.62	276.78
Less: Depreciation @ 15%	179.25	152.36	129.51	110.08	93.57	79.53	67.60	57.46	48.84	41.52
Closing Balance	1015.74	863.38	733.87	623.79	530.22	450.69	383.09	325.62	276.78	235.26
Misc. Fixed Assets										
Opening Balance[21]	15.75	14.18	12.76	11.48	10.33	9.30	8.37	7.53	6.78	6.10
Less: Depreciation @ 10%	1.58	1.42	1.28	1.15	1.03	0.93	0.84	0.75	0.68	0.61
Closing Balance	14.18	12.76	11.48	10.33	9.30	8.37	7.53	6.78	6.10	5.49
Total Depreciation	214.39	183.99	157.97	135.70	116.63	100.28	86.28	74.27	63.97	55.13
Depreciated value	1544.74	1360.75	1202.78	1067.08	950.46	850.17	763.89	689.62	625.65	570.52

[18] Amount in Rs. Lakh.
[19] Opening balance includes provision for contingencies
[20] Opening balance includes provision for contingencies
[21] Opening balance includes provision for contingencies

6.5 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 Karnal shall be charges aa premium for availing the CFC services. The major income sources for CFC are envisaged by the way of provisioning blow moulding facilities, pet preform making facility, advanced printing facilities and three layer blown film facilities.

The user charges have been estimated based upon the operational expenses of the CFC and the prevalent market rates in Karnal. 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 30.

Table 30: Projected annual income statement

S. No.	Facilities	User Charge Per Hour (In Rs.)	Hours available daily (single shift)	User charges @ 100% C.U. (Rs. in Lakh)	User charges @ 80% C.U. (Rs. in Lakh)	User charges @ 85% C.U. (Rs. in Lakh)
1	PET Preform Manufacturing Machine with moulds PET SERIES - 970/510 Injection Moulding machine + Options	1800	8	43.20	34.56	36.72
2	Hydron Servo -250 Injection moulding machine + Options	2250	8	54.00	43.20	45.90
3	60 Ltr Single Layer Automatic Blow Moulding Machine	3225	8	77.40	61.92	65.79

4	80 mm Extrusion Coating Plant	5625	8	135.00	108.00	114.75
5	8 Col Rotogravure printing machine	6000	8	144.00	115.20	122.40
6	Solvent less Lamination Machine	2625	8	63.00	50.40	53.55
7	Dry Lamination Machine	2175	8	52.20	41.76	44.37
8	Slitting machine (1 for BOPP + 1 for WPP products) 2 machines @ Rs. 600 per hour	1950	8	46.80	37.44	39.78
9	Three Layer Blown Film Plant Co-extruder blown film line multi-foil	5850	8	140.40	112.32	119.34
10	Extrusion blow moulding machine (1lt. Double station) with auto de-flasher	1875	8	45.00	36.00	38.25
	Total			801.00	640.80	680.85

Total gross revenue in-flow is estimated to Rs. 640.80 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.

6.6 Estimation of profitability: Income and Expenditure statement

The projections 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 31.

Table 31: Estimation of Profitability: Income & Expenditure Statement

S. No.	Particulars	1st 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 Utilisation in %	80%	85%	85%	100%	100%	100%	100%	100%	100%	100%
A.	Income (User Charge):	640.80	680.85	680.85	801.00	801.00	801.00	801.00	801.00	801.00	801.00
B.	COST OF PRODUCTION										
	1. Power Charges (Fixed + Variable)	91.95	96.66	96.66	110.79	110.79	110.79	110.79	110.79	110.79	110.79
	2. Water Charges (Fixed consumption)	1.92	2.04	2.04	2.40	2.40	2.40	2.40	2.40	2.40	2.40
	3. Direct labour and wages	83.28	83.28	83.28	83.28	83.28	83.28	83.28	83.28	83.28	83.28
	4. Consumables	118.01	125.38	125.38	147.51	147.51	147.51	147.51	147.51	147.51	147.51
	5. Repair and Maintenance	32.67	34.71	34.71	40.84	40.84	40.84	40.84	40.84	40.84	40.84
	6. Depreciation	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86
	Total Cost of production	465.69	479.93	479.93	522.67	522.67	522.67	522.67	522.67	522.67	522.67
C.	Administrative expenses :										
	7. Manpower (Indirect)	61.20	61.20	61.20	61.20	61.20	61.20	61.20	61.20	61.20	61.20
	8. Insurance	7.26	7.26	7.26	7.65	7.65	7.65	7.65	7.65	7.65	7.65
	9. Misc Expense	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
	Total Administrative Expenses	78.46	78.46	78.46	78.85	78.85	78.85	78.85	78.85	78.85	78.85
D.	Financial expenses :										

	10. Interest on Working capital loan @ 13.5% per annum	3.43	3.55	3.55	3.91	3.91	3.91	3.91	3.91	3.91	3.91
	Total Financial Expenses	3.43	3.55	3.55	3.91	3.91	3.91	3.91	3.91	3.91	3.91
E.	Total Expenses (B+C+D)	547.57	561.94	561.94	605.44	605.44	605.44	605.44	605.44	605.44	605.44
F.	Profit (A - E)	93.23	118.91	118.91	195.56	195.56	195.56	195.56	195.56	195.56	195.56
G.	P&P Expenses written off	19.23	19.23	19.23	19.23	19.23	0.00	0.00	0.00	0.00	0.00
H.	Income before Tax (F-G)	74.00	99.69	99.69	176.33	176.33	195.56	195.56	195.56	195.56	195.56
I.	Income Tax (Provision @ 25.75%)[22]	-0.65	13.79	20.49	45.96	50.87	60.03	63.64	66.73	69.38	71.66
J.	**Net Profit for the year (Rs in lakhs)**	**74.65**	**85.90**	**79.20**	**130.3**	**125.46**	**135.53**	**131.92**	**128.83**	**126.18**	**123.90**
K.	**Cumulative Surplus (Rs. In lakhs)**	**74.65**	**160.55**	**239.8**	**370**	**495.6**	**631.1**	**763.0**	**891.9**	**1018.1**	**1141.9**

As evident from the table above, the project is financially viable. A cumulative surplus of about Rs.1141.94 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.

6.7 Computation of Income tax

Table 32 presents the detailed computation of income tax. The income tax rates have been considered depending upon the announcements made in the Budget 2017 and the tax applicable on a company. Income tax has been considered at 25.75 per cent on taxable profit inclusive of all the tax components.

[22] Refer income tax calculation in the subsequent section (6.7)

Table 32: Computation of Income Tax

S. No.	Particulars	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
1	Profit as per Income & Expenditure Statement	93.23	118.91	118.91	195.56	195.56	195.56	195.56	195.56	195.56	195.56
2	Add Depreciation under straight line method	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86
3	Less Depreciation under written down value method	214.4	183.99	157.97	135.70	116.63	100.28	86.28	74.27	63.97	55.13
4	Less P & P written off	19.23	19.23	19.23	19.23	19.23	0.00	0.00	0.00	0.00	0.00
	Taxable Profit	-2.53	53.55	79.57	178.49	197.57	233.13	247.14	259.15	269.45	278.29
	Income tax (25.75%)	**-0.65**	**13.79**	**20.49**	**45.96**	**50.87**	**60.03**	**63.64**	**66.73**	**69.38**	**71.66**

As mentioned, the income tax implication is computed at the rate of 25.75 per cent that is, 25 per cent plus education cess @ 3 per cent. The incidence of tax ranges from Rs. -0.65 Lakh per annum for year 1 to Rs. 71.66 lakh per annum in year 10.

6.8 Cash flow statement

Cash flow statement indicates the cash balance and the liquidity position of the project over the years. Table 33 presents the sources and disposal/uses of funds statement of the project.

Table 33: Cash flow statement

S. No.	Particulars	Construction Period	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
A	SOURCE OF FUNDS											
	1. Cash Accruals (Net Profit + Interest paid)		96.66	122.46	122.46	199.47	199.47	199.47	199.47	199.47	199.47	199.47
	2. Increase in capital	323.35	-	-	-	-	-	-	-	-	-	-
	3. Increase in WC Margin	8.47	-	0.30	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00
	4. Depreciation		137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86
	5. Increase in WC Loan		25.39	0.89	-	4.83	-	-	-	-	-	-
	6. Increase in Grant-in-aid from GoH	481.82	-	-	-	-	-	-	-	-	-	-
	7. Increase in Grant-in-aid under MSE-CDP	1050.00	-	-	-	-	-	-	-	-	-	-
	Total Sources	1863.64	259.91	261.51	260.32	343.06	337.33	337.33	337.33	337.33	337.33	337.33
B	USE OF FUNDS											
	1. P&P Expenses	96.04	-	-	-	-	-	-	-	-	-	-
	2. Increase in fixed assets	1759.13	-	-	-	-	-	-	-	-	-	-
	3. Decrease in TL	-	-	-	-	-	-	-	-	-	-	-
	4. Decrease in working capital loan	-	-	-	-	-	-	-	-	-	-	-

	5. Increase in Investment	8.47	33.86	1.19	0.00	3.59	0.00	0.00	0.00	0.00	0.00	0.00
	6. Increase in current assets & inventory											
	7. Interest		3.43	3.55	3.55	3.91	3.91	3.91	3.91	3.91	3.91	3.91
	8. Taxation		-0.65	13.79	20.49	45.96	50.87	60.03	63.64	66.73	69.38	71.66
	Total Use of Funds	1863.64	36.63	18.53	24.04	53.47	54.79	63.94	67.55	70.64	73.29	75.57
	C. Net Surplus (A -B)		**223.27**	**242.98**	**236.28**	**289.59**	**282.54**	**273.39**	**269.78**	**266.69**	**264.04**	**261.76**
	D. Closing Balance		**223.27**	**466.25**	**702.53**	**992.12**	**1274.67**	**1548.05**	**1817.83**	**2084.52**	**2348.56**	**2610.32**

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 straight line method for cash flow calculations along with adjusted preliminary expenses. As most of the capital expenditure is being supported as grant under the MSE-CDP scheme and EPP 2015, therefore it does not have any negative effect on the Cash flow, in terms of interest, etc.

6.9 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 CFC and undertaking other cluster developmental 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 SPV. The projected balance sheets are as under Table 34).

Table 34: Projected Balance Sheets[23]

S. No.	Particulars	At the end of Implementation Period	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
A.	**Fixed Assets**											
	Gross Block	1759.13	1759.13	1621.28	1483.42	1345.56	1207.71	1069.85	931.99	794.13	656.28	518.42
	Less : Depreciation (SL)		137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86	137.86
	Net Block A	1759.13	1621.28	1483.42	1345.56	1207.71	1069.85	931.99	794.13	656.28	518.42	380.56
B.	**Current Assets**											
	1. Recurring expenditure	8.46	33.86	35.04	35.04	38.64	38.64	38.64	38.64	38.64	38.64	38.64
	2. Cash and Bank Surplus		223.27	466.25	702.53	992.12	1274.67	1548.05	1817.83	2084.52	2348.56	2610.32
	Net Block B	8.46	257.13	501.30	737.58	1030.76	1313.31	1586.69	1856.47	2123.16	2387.20	2648.96
C.	P & P Expenses written off	96.04	76.83	57.62	38.41	19.21						
	TOTAL ASSETS	**1863.63**	**1955.24**	**2042.34**	**2121.55**	**2257.67**	**2383.16**	**2518.68**	**2650.61**	**2779.44**	**2905.62**	**3029.52**
D.	**Current Liabilities**											
	Working Capital Loan		25.39	26.28	26.28	28.98	28.98	28.98	28.98	28.98	28.98	28.98
E.	Fixed Liabilities											
	1. Shareholders' Contribution	331.82	331.79	331.79	331.79	331.79	331.79	331.79	331.79	331.79	331.79	331.79
	2. Grant under MSE-CDP	1050.00	1050.00	1050.00	1050.00	1050.00	1050.00	1050.00	1050.00	1050.00	1050.00	1050.00
	3. Grant from GoH	481.82	481.79	481.79	481.79	481.79	481.79	481.79	481.79	481.79	481.79	481.79
F.	Reserves and Surplus		91.66	152.48	231.69	365.12	490.60	626.13	758.05	886.88	1013.06	1136.96
	TOTAL LIABILITIES	**1863.64**	**1955.24**	**2042.34**	**2121.55**	**2257.67**	**2383.16**	**2518.68**	**2650.61**	**2779.44**	**2905.62**	**3029.52**

[23] Amount in Rs. lakh

6.10 Break-even analysis

The break-even (BE) estimates of the project indicate the level of activity at which the total revenues of the project equals the total costs. From this point, a project is expected to start generating profits. 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 year of activity are provided in table 35.

Table 35: Break-even estimates

S. No.	Particulars	Amount at operating capacity (80%)- 1st Year (Rs. In lakhs)	Amount at operating capacity (85%)- 2nd Year (Rs. In lakhs)
A.	**Total Earning (User Charges)**	640.80	680.85
B.	**Variable costs**		
	Consumables	118.01	125.38
	Utilities (power- variable charge)	75.34	80.05
	Interest on WC Loan	3.43	3.55
	Repair & Maintenance	32.67	34.71
	Utilities (Water) + Sewage	1.92	2.04
	Manpower (Direct)	83.28	83.28
	Total Variable Cost	314.65	329.02
C.	**Contribution (A-B)**	326.15	351.83
D.	**Fixed Overheads (Cash)**		
	Manpower (Indirect)	61.20	61.20
	Utilities (Power - fixed charges)	16.61	16.61
	Insurance	7.26	7.26
	Misc. Expenditure	10.00	10.00
	Sub-total	95.06	95.06
E.	**Fixed Overheads (Non-cash)**		
	Depreciation	137.86	137.86
	Preliminary & Pre-operative expenses written off	19.23	19.23
F	**Total Fixed Overheads**	252.15	252.15
G	**Break-even point (F/C)**	**0.77**	**0.72**

Book break-even is achieved at 77.31% (of operational capacity at 80 per cent) and at 71.67% of (operational capacity at 85 percent). The operation of the CFC is expected to break-even and realise 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.

6.11 Feasibility analysis summary and sustainability indicators

A summary of the financial analysis in terms of key financial indicators such as ROCE (Return on Capital Employed), Net Present Value (NPV), Break Even Point (BEP) and the Internal Rate of Return (IRR). is presented in table 36. The indicators validate the financial viability and sustainability potential of the proposed project.

Table 36: BEP, ROCE, NPV and IRR

S. No.	Particulars	Estimates
1	Break Even Point (cash BEP at operating capacity of 80%)	77.30
2	Average Return on Capital Employed ROCE (PAT/CE) Without Grant	6.13% (project unviable)
3	Average Return on Capital Employed ROCE (PAT/CE) With Government Grant	34.42%
4	Internal Rate of Return (IRR)	68.10%
5	Net Present Value (at a discount rate of 10 per cent) - incorporating viability gap funding (grant) by GoI and GoH	NPV is positive and high (Rs. 1186.14 lakh) at a conservative project life of 10 years
6	Payback period (on SPV contribution)	1 Year & 9 months with Grant-in-aid assistance from GoI
7	Debt Service Coverage Ratio (DSCR)	Not Applicable (no term loan to be availed by the SPV)

The annual estimates in the context of ROCE estimation are presented in the tabulation following:

Table 37: Annual estimates of ROCE

S. No.	Particulars	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
1	ROCE (PAT/CE) in % without grant-in-aid	4.01	4.61	4.25	7.00	6.73	7.27	7.08	6.91	6.77	6.65
2	ROCE (PAT/CE) in % without grant-in-aid	22.50	25.89	23.87	39.29	37.81	40.85	39.76	38.83	38.03	37.34

The average value of ROCE (with grant-in-aid) is 34.42%. 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 are those elements excluding the grant component to the project. Ignoring the possibility of grant assistance from the GoI, the ROCE works out to an unviable 6.13%.

NPV is positive and high indicating strong financials: Estimate at a discount rate of 10% = Rs. 1490.41 lakh (PV of cash inflow) – Rs. 331.82 lakh (PV of cash outflow) = Rs. 1186.14 lakh. This estimate incorporates the benefit of grant in effectively reducing outflow.

The Net Present Value is estimated at a discount rate of 10%.However, as reflected from the high values of NPV, it is positive at even 13.5%, the rate at which bank offers debt capital facility and even at higher discount rates. Project IRR is high at over 66.90% (at a conservative project life of 10 years). This substantiates the viability of the project.

6.12 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 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.

6.13 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 plastic packaging industry but also of 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 of by members of the SPV themselves, thus the facility 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 proceeding towards procurement of land, 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 MSE-CDP 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 table 38.

Table 38: Sensitivities vis-à-vis ROCE and project payback period

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 80%)	77.30	77.70	78.10	78.60
2	Av. ROCE (PAT/CE)	34.42%	33.96%	33.50%	33.04%
3	Internal Rate of Return (IRR)	68.10%	67.70%	67.30%	66.90%
4	Net Present Value (at a discount rate of 10 per cent) - incorporating viability gap funding (grant) by GoI and GoH	1186.14	1176.96	1167.77	1158.59

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.

6.14 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 @ Rs. 1863.64 Lakh on the basis of estimates and quotations.

2. To finance the project, a total of Rs. 1863.64 Lacs is required. The financing will consist of grant from central government, government to Haryana and contribution by SPV.

3. In the financial projections and analysis, year 2017 is the envisaged period of project implementation also involving construction of buildings and installation of plant, machinery and other equipment. This period will commence from the date of final approval by DCMSME under SE-CDP. The financial projections thereafter are prepared for 10 years of operation starting 2018.

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 80% in the first year; 85% for second & third year and 100% thereafter. This is a conservative estimate for first 3 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 @ 2% of building cost and @ 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 required for the CFC shall cost at Rs. 1100 as security deposit and Rs. 2000 as service charge per kW connected load as per the regulatory norms in Haryana.

11. Fixed charges per kW of electric connection shall be charged @ Rs. 173 and variable charges @ Rs. 9 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 straight line (SL) method for calculating profitability and on written down value (WDV) method for other purposes.

14. Provision for income tax has been made @ 25.75% including surcharge. This is the rate prescribed for Private Limited Companies as per the recent Budget 2017.

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

Project Implementation and Monitoring

7. Project Implementation and Monitoring

7.1 Envisaged Implementation Framework

I. 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 India under MSE-CDP.

II. **User Base:** The facilities may be used 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 SPV can decide on same or differential user charges for both members and non-members or based upon the volume of the output.

III. **Project implementation schedule:** The project implementation schedule envisaged over a period of 12 months involves several activities. They are elaborated upon in the table 39.

Table 39: Project Implementation Schedule

Activity/Month	1	2	3	4	5	6	7	8	9	10	11	12
Collecting Contribution from SPV members												
Transfer of land in the name of SPV												
Receipt of final sanction from GoI												
Preparation of detailed drawings												
Formation of purchase committee												
Inviting E tenders for building construction and purchase of machines												
Construction of facilities												
Obtaining statutory clearances and approvals												

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												

As indicated in the table above, the facility is expected to be operational in 12 months' time.

IV. Contractual agreements/MoU with member units: Agreements have been indicatively finalized in terms of utilisation of assets in respect of shareholders.

A total of 25 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 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 as member of SPV is under process and will be submitted in due course of time and as per in-principal approval from DCMSME.

V. Memorandum and By-Law of Registered Company: MOA, AOA 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 Registered Private Entity. Few other units are also willing to be members of the SPV and once the CFC is approved and sanctioned from GoI, many more members will be interested to subscribe to the shares of the SPV.

VI. Availability of Land & Status of Acquisitions: Land is being procured by the SPV for the proposed CFC at Mogul Majra in Karnal district. A plot of land of area 0.6 acre has already been identified by the SPV and shall be taken by SPV on a 90+ year lease.

VII. Availability of Requisite Clearances: Necessary land with all required clearances will be procured by the SPV. Electricity is already available in the area and the proposed CFC can easily be connected to the grid. The other required clearances (environment, labor etc.) shall be obtained in due course.

VIII. 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:

- Civil Alterations
- Electrical works
- 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 under MSE-CDP. The CDCC can also 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:

- Director, Industries and Commerce, Government of Haryana (Chairman)
- Concerned Joint Director, Department of Industries and Commerce
- Director, MSME-DI Karnal
- HSIIDC state officer
- SIDBI general Manager
- President of related industry association
- Directors of related SPV
- EY Cluster Development Expert under MSME project

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

In addition, for implementing the Karnal Plastic Cluster CFC project, a Project Management Committee (PMC) comprising the GM, DIC, Karnal, and representatives of SPV, Corporation Bank, Kurukshetra University and EY experts shall be constituted to directly oversee effective monitoring and implementation.

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 DC-MSME.

Conclusion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8. Conclusion

The micro and small plastic packaging units of Karnal are heavily dependent on manual, low capacity and obsolete technologies for production and are barely surviving due to intense competition from large firms. The increasing costs of raw materials coupled with high production costs is driving many micro players out of the market. Moreover, the food processing, pharma and FMCG players require high quality plastic packaging products with high quality printing and lamination. The micro units do not have these machines and hence are unable to procure orders from MNCs. To add to their woes, the micro and small units are unable to produce quality BoPP bags for the biggest market segment in the region i.e. the rice millers.

Against this backdrop, it is inevitable to support the micro/small plastic packaging units in Karnal to adopt modern injection, blow, extrusion moulding machines as well as hi quality lamination and printing machines. This will reduce their processing costs significantly while increasing the quality of their produce.

The future of plastic packaging industry is lucrative. Plastics packaging segment is poised to grow at a good rate with the major applications being in food, beverage and consumer goods. Several factors are enhancing the demand and supply of plastics used in packaging across India such as high growth of end-user industry, dynamically changing lifestyles, availability of feedstock, focus on manufacturing, etc. Particularly in the Karnal region, the market for high quality plastic packaging products is abundant. The presence of major pharmaceutical, FMCG, food processing, beverages, liquor units in the region coupled with enormous demand from rice millers and dairy industry provides a great opportunity to micro/small units to expand their business. 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 Injection Moulding and blow moulding operations facilities
- Multilayer Extrusion facilities
- Value added Coating & Lamination facilities
- Value added Printing facilities in terms of digital printing
- Value added finishing facilities

The total project cost (including plant/machinery and buildings) is estimated to be **INR 18.64 crores.** The project shall be implemented by the SPV 'Karnal Plastic CFC Private Limited' which has been constituted by the cluster firms. The SPV has proactively undertaken a number of initiatives and have

acted upon the proposed soft interventions in the DSR. 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 DCMSME and the state government (Department of Industries) under a PPP mode. The land for the project has already been identified by the SPV and shall be acquired immediately upon in principle approval by DCMSME The central government and the state industry department is envisaged to provide grant for setting up of the modern machines under the MSE-CDP scheme and the EPP 2015. The SPV members have proposed to contribute 17.80% of the project cost. The total contribution of SPV members will amount to Rs. 441.54 lakh. Support from MSE-CDP of the DC-MSME is envisaged for Rs. 1050.00 lakh (56.35%). And from the GoH is Rs. 481.54 lakh (25.84%). Working capital requirement for the project will be provided by Corporation Bank. The project is financially viable and is expected to generate enough revue to ensure its sustainability.

Annexures

9. Annexures

Annexure 1: Minutes of State Level Project Steering Committee

2011
21/10 5 Copies

From

The Director of Industries & Commerce, Haryana.

To

1. Managing Director, HSIIDC
E-mail:- mdhsiidchry@gmail.com.

2 Special Secretary, Finance Department, Haryana.
e-mail:- asse-hry@nic.in

3 Director, MSME-Development Institute, Karnal
MSME, Development Institute, 11-A,
Industrial Development Colony, Near ITI, Kunjpura Road,
Karnal-132001, Haryana.
E-mail:- gmdickarnal@dcmsme.gov.in.

4. Joint Director, DIC, Karnal
E-mail:- gmdickarnal@yahoo.in

6. Sh. Bagmal Takshak,
Joint Director, DIC, Karnal.

7 Sh. R.K Rana,
Joint Director, DIC, Panipat.

8. Sh. Sandeep Aggarwal, Assistant Director,
MSME, Development Institute, 11-A,
Industrial Development Colony, Near ITI, Kunjpura Road,
Karnal-132001, Haryana.

9. Sh. Deepak Sharma, Consultant,
M/s Access Consultancy Services,
952, Sector-2, Panchkula.

Memo No. Kc/Cluster/MSE-CDP/2016-17/ 13954-A
Dated:- 21/10/16

Subject:- **Minutes of the 1st Meeting of State Level Project Steering Committee held on 06.10.2016 under the Chairmanship of Sh. Devender Singh, IAS, Principal Secretary to Government of Haryana, Industries & Commerce Department at knowledge Centre, 9th Floor, Haryana Civil Secretariat, Chandigarh for approval of DSRs/DPRs under MSE-CDP scheme of MoMSME, Government of India.**

Kindly refer to the subject cited above.

Please find enclosed herewith a copy of Minutes of the 1st State Level Project Steering Committee Meeting held on 06.10.2016 under the Chairmanship of Principal Secretary, Industries & Commerce for approval of DSRs/DPRs under MSE-CDP scheme of MoMSME, Government of India for information & taking further necessary action.

Encl: As above.

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

20/10/2016

(59)

Endst. No. KC/Cluster/MSE-CDP/Review Status/ 139554 Dated:- 21/10/16

A copy of the above alongwith enclosure is forwarded to the following for information:-

1. PS to The Development Commissioner Ministry of Micro, Small & Medium Enterprises, Govt. of India, Mirman Bhawan 7th floor, Mullana Azaad Road, New Delhi-110108 for kind information of DC,MSME.
2. PS to PSI for kind information of PSI.
3. PS to DI & C. for kind information of DI&C.
4. M/s Karnal Plastic CFC Pvt. Ltd. Agro Park, Plot No. 52, Block-C, Mugal Majra Road, Karnal for kind information.
5. M/s Karnal Signage CFC Pvt. Ltd. Agro Park, Plot No. 8-9, Block-C, Mugal Majra Road, Karnal for kind information.
6. M/s Karnal Dairy CFC Pvt. Ltd. Agro Park, Plot No. 35, Block-C, Mugal Majra Road, Karnal for kind information.
7. M/s Textile Printing Cluster Panipat Plot No. 13, Sector-29, P-II, HUDA, Panipat.
8. M/s Electro Plating Cluster, Small Scale Pollution Control Co-op. Society, Faridabad.

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

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Minutes of the meeting held on 06.10.2016 at 12.30 PM under the Chairmanship of Sh. Devender Singh, IAS, Principal Secretary to Government of Haryana, Industries & Commerce Department at Knowledge Center, 9th Floor, Haryana Civil Secretariat, Chandigarh for approval of DSRs/DPRs under MSE-CDP scheme of MoMSME, Government of India.

The following officers were present:-

S.No.	Name of the Officers	Designation
1.	Sh. Sudhir Rajpal	Managing Director, HSIIDC
2.	Sh. Wazeer Singh Goyat	Director of Industries & Commerce.
3.	Sh. Bagmal Takshak	JD, DIC, Karnal
4.	Sh. R.K. Rana	JD, DIC, Panipat
5.	Sh. Sandeep Agarwal	Asstt. Director,
6.	Sh. Arun Rishi	Dy. Secretary, Finance
7.	Sh. Deepak Sharma	Principal Consultant, M/s Access Consultancy.

The detail of representatives of the various clusters who attended the meeting is annexed as Appendix 'A'.

Sh. R.C. Dahra, Consultant O/o Director of Industries & Commerce welcomed all the members of the first State Level Project Steering Committee. Initiating the discussions, he briefed the members about the modifications made in the guidelines of Micro & Small Enterprises-Cluster Development Programme (MSE-CDP) of Government of India. After introduction of the members and other representatives, the agenda of the meeting was taken up as under:-

1.1 DSR in case of M/s Karnal Plastic CFC Pvt. Ltd.

The consultant informed the committee that M/s Karnal Plastic CFC Pvt. Ltd. has submitted Diagnostic Study Report duly validated in the stakeholders meeting held on 15.09.2016. It was also informed by him that the proposal duly verified and recommended to conduct DSR was received through Joint Director, DIC, Karnal.

Sh. Viney Taneja, representative of the Cluster gave power point presentation on the DSR. He informed that there were approximately 60 units in the cluster manufacturing various plastic products like plastic coated foils for pharma sector, pet bottles and buckets for paint & chemical industry, plastic bags for rice millers etc. with a total turnover of Rs. 250 crores. He further informed that the cluster provided direct employment to more than 1300 persons. He informed that scope of their business was changing day by day and new requirements of products like double side plastic coated foils and multi layer

1.

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plastic packaging was coming up. The main constraint of the cluster are lack of automation of various processes and there is a need of installation of various machinery items like pet pre-form making machine, multilayer plastic layer packaging, blow moulding machine. The existing units in the cluster are facing problems due to demand of various products manufactured from these types of machinery by the corporate houses. The cluster is unable to cater the needs of multi- national companies(MNCs).

After detailed deliberations, the committee decided to approve the DSR submitted by the cluster and allowed them to prepare DPR strictly as per the guidelines of Government of India. The representatives of the cluster were also advised to undertake soft interventions on account of technical assistance, capacity building , exposure visits, market development, trust building etc. for the cluster units.

1.2 DSR in case of M/s Karnal Signage CFC Pvt. Ltd.

The consultant informed the committee that M/s Karnal Plastic CFC Pvt. Ltd. has submitted Diagnostic Study Report duly validated in the stakeholders meeting held on 15.09.2016. It was also informed by him that the proposal duly verified and recommended to conduct DSR was received through Joint Director, DIC, Karnal.

Sh. Naresh Saluja, representative of the cluster presented the brief facts about the cluster and submitted that M/s Signage and Advertisement cluster was making efforts to address the emerging challenges before them and to put the cluster on growth path. There are approximately 120 units in the cluster manufacturing various signage products particularly e.g. Flex board, LED Boards, Indoor Branding, Gift Novelties etc. The cluster provides direct employment for more than 1600 persons. Mr. Saluja further informed that most of the units in their Cluster were Micro Units and are facing problems in the absence of advanced machinery items. Most of the MNCs customers are demanding products manufactured on branded machines. The cost of machinery required is very high. There is a huge market for indoor branding, flex printing, UV coating, LED Board and 3D Board. They are meeting the demands of the customer by arranging intermediate products from Delhi and NCR areas. For survival of their member units they need to adopt advanced technology and marketing strategies similar to the units who have installed such machines. For enhancing the productivity and competitiveness as well as capacity building of Micro units, CFC is urgently required.

After detailed deliberations, the committee decided to approve the DSR submitted by the cluster and allowed them to prepare DPR strictly as per the

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From

The Director of Industries & Commerce, Haryana.

To

M/s Plastic Packaging Cluster,
Agro Park, Plot No. 52, Block-1,
Mugal Majra Road, Karnal. plasticcfc@gmail.com

Memo . Cluster/KNL/Plastic/ 14236-A
Dated:- 27/10/16

Subject:- Approval of Diagnostic Study Report.

Please refer to the subject cited above.

2. In this connection, it is to inform you that your Diagnostic Study Report was placed before the 1st State Level Project Steering Committee held on 06.10.2016. Based on your presentation and facts about the cluster, the committee has approved the DSR. You are allowed to prepare Detailed Project Report through your consultant strictly as per the guidelines of Government of India within a period of 3 months and submit the same to this office for getting it approved from the State Level Project Steering Committee.

3. Please note that no charges shall be paid for preparation of DPR as per the GoI guidelines.

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

Endst. Cluster/KNL/Plastic/ 14237-A Dated:- 27/10/16

A copy is forwarded to the Joint Director, Distt. Industries Centre, Karnal for information and necessary action.

Consultant (Cluster)
For Director of Industries & Commerce, Haryana.

27/10/16

Letter16

Annexure 2: SPV Certificate of Incorporation, Copy of Memorandum of Association (MoA) And Article of Association (AoA)

सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF CORPORATE AFFAIRS

Central Registration Centre

Certificate of Incorporation

[Pursuant to sub-section (2) of section 7 of the Companies Act, 2013 and rule 8 the Companies (Incorporation) Rules, 2014]

I hereby certify that KARNAL PLASTIC CFC PRIVATE LIMITED is incorporated on this Twenty first day of June Two thousand sixteen under the Companies Act, 2013 and that the company is limited by shares.

The CIN of the company is U74999HR2016PTC064675.

Given under my hand at Manesar this Twenty first day of June Two thousand sixteen .

DS Ministry of Corporate Affairs - (Govt of India) 14

Arya Jayant Pyarelal
Deputy Registrar of Companies
Central Registration Centre
For and on behalf of the Jurisdictional Registrar of Companies

Mailing Address as per record available in Registrar of Companies office:

KARNAL PLASTIC CFC PRIVATE LIMITED

BHARTI VILLA, KUNJPURA ROAD BUDHA KHERA, KARNAL, Karnal,
Haryana, India, 132001

(THE COMPANIES ACT, 2013)

SCHEDULE-I

(See Section 4 and 5)

TABLE-A

MEMORANDUM OF ASSOCIATION OF A COMPANY LIMITED BY SHARES

KARNAL PLASTIC CFC PRIVATE LIMITED

1st. The Name of the Company is **KARNAL PLASTIC CFC PRIVATE LIMITED**

2nd. The Registered Office of the Company will be situated in the State of Haryana.

3rd. The objects for which the Company is established are :-

(A) THE OBJECTS TO BE PURSUED BY THE COMPANY ON ITS INCORPORATION ARE:

1. To function as Special Purpose Vehicle (SPV) and Set up Common Facilities Centre(CFC) and other infrastructure activities for the benefits of its members and Industry/concerned stake holders following the guidelines and notifications for MSE-CDP under DC(MSME), New Delhi.
2. To undertake works/scheme/programs of Government relating to growth and development of Plastic Industry and carry out/conduct soft and hard intervention activities under MSE-CDP.
3. To act as a resource centre for development and strengthening network as Business development Services related to Technology, Market, Capacity building, Hand holding support etc. for the purpose of growth and development of the Plastic Industry under MSE-CDP.
4. To available packing material to all members' competitive rates by installing printing press for labels printing and pet bottle plant.
5. To available raw material to all members by opening of raw material bank.
6. To arrange latest technology for upgrading all manufacturing unit to provide Quality certificate.
7. To render assistance and encouragement as may be necessary to persons engaged in Plastic processing and/or Manufacturing Industry.
8. To conduct training centre programs/seminars.
9. To undertake and to do trading, manufacturing, import, export of all type of Plastic products and research work in connection with development of Plastic Industry.

1

B. Matters which are necessary for furtherance of the objects specified in clause 3(A) are:-

1. To purchase and otherwise acquire, own, import, all materials, substances, appliances, machines, containers and such other articles and apparatus and things capable of being used in any of the main business and to own, otherwise acquire and use facilities of whatever kind as may be convenient or useful or conducive to the effective working of the main business of the Company.
2. To acquire, build, alter, maintain, enlarge, remove or replace and to work, manage and control any buildings, offices, factories, mills, shops, machinery and conveniences which may seem necessary to achieve the main objects of the company.
3. To carry on and transact every kind of guarantee, corporate guarantee and counter guarantee business and to guarantee the payment/repayment of loans, borrowings of any nature whatsoever granted by any institutions and/or any person to any individual, firm(s), HUF, company(s), association of person and money secured by or payable under or in respect of stocks, bonds, debentures, debenture stocks, contracts, mortgages, charges, obligations and securities of any company whomsoever whether incorporated or not.
4. To purchase or in exchange, hire, take, options over or otherwise acquire any estate or interests, whatsoever and to hold, develop work, concessions, grants, decrees, licences, privileges, claims, options, property real or personal or rights or powers of any kinds which may appear to be necessary for the main business of the Company.
5. To pay for preliminary and pre-incorporation expenses of the Company.
6. To exchange, mortgage, royalty or tribute, grant licences, easements, options and such other rights over and dispose of the whole or any part of the undertaking, property assets, rights and effects of the Company for such consideration as may be thought fit and in particular for stocks, shares debentures whether fully or partly paid up or securities of any other such company having objects whole or in part similar to those of the Company.
7. To pay for any rights or property acquired by the Company and to remunerate any person, firm or body corporate rendering services to the Company either by cash payment or by allotment to him or them of shares or securities of the Company as paid up in full.
8. To open account or accounts with any individual, firm or Company or with any Bank or Banks or Bankers or shroffs and to pay into and to withdraw money from such account or accounts.
9. To undertake financial and commercial obligations, transactions and operations of all kinds.
10. To guarantee the performance of any contract or obligations and the payment of money or dividends and interest on any stock, shares or securities of any company, corporation, firm or person in any case in which such guarantee may be considered directly or indirectly to further the main objects of the Company.
11. To guarantee the payment of money unsecured or secured or payable under or in respect of promissory notes, bonds, debenture stocks, contracts, mortgages,

charges, obligations, instruments and securities of any company or of any Authority, Supreme, Municipal, Local or of any persons whether incorporated or not Incorporated and to guarantee or become sureties for the performance of any contracts or obligations as may be necessary for the main business of the Company.

12. To subscribe for, acquire shares, share-stock, debentures, bonds, debenture-stock, mortgages, obligations, securities of any kind issued or guaranteed by any company (Body corporate undertaking) of whatever nature and whatsoever constituted or carrying on the main business and to subscribe for, acquire shares, debentures and debenture-stocks and debenture-bonds, mortgages, obligations and such other securities issued or guaranteed by any Government, trust, Municipal, local or such other authority or body of whatever nature, whether in India or elsewhere as may be conducive to the main business of the Company.

13. To negotiate and/or enter into agreements and contracts with individuals companies, corporations and such other organizations, foreign or Indian, for obtaining or providing technical, or any other assistance for carrying out all or any of the main objects of the Company and also for the purpose of activating financial participation and for technical collaboration and to acquire or provide necessary formulae and patent rights for furthering the main objects of the Company.

14. Subject to the provisions of the Companies Act, 2013 and borrow or raise money in such manner as the Company shall think fit and in particular by the issue of debentures or debenture-stock (perpetual or otherwise) and to secure the payment of any money borrowed, raised or owing on the mortgage, charge or lien upon all or any of the property or assets of the Company (both present or future) including its uncalled capital and also by similar mortgage, charge or lien to secure and guarantee the performance by the Company, or any other such person or Company, of any obligation undertaken by the Company.

15. To draw, make, accept, endorse, discount, negotiate, execute and issue bills of exchange, promissory notes, bills of lading, debentures and other negotiable or transferable instruments or securities.

16. To apply for, purchase or otherwise acquire and protect, prolong and renew in any part of the world, any patents, patent rights, brevets d'inventions, trademarks, designs, licences, protections, and concessions conferring any exclusive or non-exclusive or limited right to their use of information as to any invention, process or privileges which may seem capable of being used for the main objects of the Company or the acquisition of which may seem calculated directly or indirectly, to benefit the company and to use, exercise, develop or grant licences or privileges in respect of the property, rights and information so acquired.

17. To spend money in experimenting upon and testing and improving or seeking to improve any patents, rights, inventions, discoveries, processes or information of the Company or which the Company may acquire or propose to acquire.

18. To do all or any of the main objects either as principals, agents, trustees, contractors or otherwise and either alone or in conjunction with others and either by or through agents, sub-contractors, trustees or otherwise.

19. To acquire and take over the whole or any part of the business, goodwill, trade-marks properties and liabilities of any person or persons, firm, companies or undertakings either existing or new, engaged in or carrying on or proposing to carry on business, this Company is authorized to carry on, possession of any property or rights suitable for the purpose of the Company and to pay for the same either in cash or in shares or partly in cash and partly in shares or otherwise.

20. To procure the registration or recognition of the company in or under the laws of any place outside India.

21. To form, incorporate or promote any company or companies whether in India or elsewhere having amongst its or their objects the acquisition of all or any of the assets or controls, management or development of the Company or any other such objects which in the opinion of the Company could or might directly or indirectly assist the Company in the management of its main business or the development of its properties or otherwise prove advantageous to the Company and to pay all or any of the costs and expenses incurred in connection with any such promotion or incorporation and to remunerate any person or company in any manner it shall think fit for services rendered or to be rendered in or about the formation or promotion of the Company or the conduct of its main business or in about the promotion of any other such company in which the Company may have any interest.

22. Subject to the provisions of the Companies Act, 2013, to amalgamate or to enter into partnership or into any arrangement for sharing profits, union of interest, co-operation, joint venture or reciprocal with any person or persons of company or companies carrying on or engaged in the main business of the Company.

23. To enter into any arrangements and take all necessary or proper steps with Governments or with other such authorities, supreme, national, local, municipal or otherwise of any place in which the Company may have interests and to carry on any negotiations or operations for the purpose of directly or indirectly carrying out the objects of the Company or effecting any modification in the constitution of the company or for furthering the interests of the members and to oppose any such steps taken by any other such company, firm or person which may be considered likely, directly or indirectly, to prejudice the interest of the Company or its members, and to assist in the promotion whether directly or indirectly of any legislation which may seem advantageous to the company and to obtain from any such Government Authority and company any charters, contracts, decrees, rights, grants, loans, privileges, or concessions which the company may think it desirable to obtain and carry out, exercise and comply with any such arrangements, charters, decrees, rights, privileges or concessions.

24. To adopt such means of making known the main business of the Company as may seem expedient and in particular by advertising in the press by circulars, by purchase and exhibition of works of art or interest, by publication of books and periodicals and by granting prizes, and rewards.

25. (a) To undertake and execute any trust, the undertaking of which may seem to the Company desirable and either gratuitously or otherwise and vest any real or personal property, rights or interests acquired by or belonging to the company in any person of Company on behalf of or for the benefit of the company and with or without any declared trust in favour of the Company.

(5) To accept gifts including by way of awards/prizes from Govt. and semi-Govt. bodies and to give gifts to create trust for the welfare of employees, members, directors and/or their dependents, heirs and children and for deserving object for and other persons.

26. To apply the assets of the Company in any way or towards the establishment, maintenance or extension of any association, institution or fund in any way connected with any particular trade or business or with trade or commerce and particularly with the trade, including any association, institution or fund for the interests of masters, owners and employers against loss by bad debt, strike, combustion, fire, accident or otherwise or for the benefit of any employee workman or others at any time employed by the Company or any of its predecessors in business or their families or dependents and whether or not in common with such other persons or classes of persons and in particular of friendly, co-operative and such other societies, reading rooms, libraries, educational and charitable institutions, dinning and recreation rooms, churches, chapels, schools, and hospitals and to grant gratuities, pensions and allowances and to contribute to any funds raised by public or local subscription for any purpose.

27. To distribute as dividend or bonus among the member or to place to reserve or otherwise to apply, as the Company may, from time to time, determine any money received by way of premium on debentures issued at a premium by the Company and any money received in respect of forfeited shares, money arising from the sale by the Company of forfeited shares, Subject to the provisions of the Act, 2013.

28. To aid pecuniarily or otherwise, any association, body or movement having for an object the solution, settlement of industrial or labour problems or troubles or the promotion of industry or trade.

29. To subscribe or guarantee money for any national, charitable, benevolent, public, general or useful object of and for exhibition, subject to the provisions of the Companies Act 2013.

30. To establish and maintain or procure the establishment and maintenance of any contributory or non-contributory pension or superannuation funds for the benefit of, and give, or procure the giving of donation, gratuities, pensions, allowances or emoluments to any person who are or were at any time in the employment or service of the Company or is allied to or associated with the company or with any such subsidiary Company or who are or were at any time Directors or officers of the company as aforesaid and the wives, widows, families and dependants of any such persons and also establish and subscribe to any institutions, associations, clubs or funds calculated to be for the benefit of or to advance the interest and well-being of the Company or of any such other Company as aforesaid and make payments to or towards the protection of any such persons as aforesaid and do any of the matters aforesaid, either, alone or in conjunction with any such other company as aforesaid.

31. To agree to refer to arbitration any dispute, present or future between the Company and any other company, firm, individual or any other body and to submit the same to arbitration in India or abroad either in accordance with Indian or any foreign system of law.

32. To appoint agents, sub-agents, dealers, managers canvassers, sales representatives or salesmen for transacting all or any kind of the main business of which this Company is authorized to carry on and to constitute agencies of the Company in India or in any other country and establish depots and agencies in different parts of the word.

33. To guarantee the payment or performance of any contracts or obligations or become surety for any person, firm or company for any purpose and to act as agents for the collection, receipt or payment of money and to act as agents for and render services to customers and others and to give guarantees and indemnities. To give surety/mortgage/pledge of the property for raising fund/loan for and on behalf of the company/associates concern/person/any other company.

34. To establish and run units, sister concerns operate for any of the main at places in or outside India as the Company may deem expedient.

35. To do all such other things as may be deemed incidental or conducive to the attainment of the main objects.

36. To collaborate, merger and acquisition, joint venture with Indian and foreign experts, companies, firms, to start industry and business in or outside India on such terms and conditions as the company may deem fit.

4th. The liability of the member(s) is limited and this liability is limited to the amount unpaid, if any, on the shares held by them.

5th. The Authorised share capital of the company is Rs. 1,00,000/- (Rupees One Lac) divided into 10,000 (Ten Thousand) Equity shares of Rs.10/- (Rupees Ten) each.

VI. We, the several persons, whose names and addresses are subscribed, are desirous of being formed into a company in pursuance of this memorandum of association, and we respectively agree to take the number of shares in the capital of the company set against our respective names:-

Names, Addresses, descriptions and occupations of subscribers	No of shares taken by each subscribers	Signature of subscriber	Signature, names, addresses, descriptions and occupations of witnesses
 1. Neeraj Kumar Dhingra s/o Chander Gupt Dhingra Address: 1655 Sector 13, Urban Estate, Karnal Occupation: Business	2500 Equity shares of Rs 10/-		Name: Garima Paneli D/o Jagdish Kumar Paneli Address: 344, Sector 14, Urban Estate, Karnal Occupation: Chartered Accountant Membership Number: 596372 Certificate of Practice Number: 596372 Signature of Witness:
 Karan Bansal S/o Raman Bansal Address:- 2101, Sector 13, Urban Estate Karnal Occupation:- Business	2500 Equity shares of Rs 10/-		
 3. Garima Taneja D/o Dharam Veer Kukreja Address:- 5, Ramesh Nagar, Karnal Occupation:- Business	2500 Equity shares of Rs 10/-		

Bank
Garima
Plastic
Assistant Chief

1. Rishab Gupta S/o Brij Bhushan Gupta Address: H.NO-40/41, Chaudhary House, Colony, Karnal, 132001. Occupation: Student	2500 Equity shares of Rs 10/-	Rishab Gupta	Name: Garima Punshi Father's Name: Jagdish Kumar Punshi Address: 344, Sector 14 U.E. Karnal Occupation: Chartered Accountant Membership Number: 526372 Certificate of Practice Number: 526372 Signature: Punshi
Total Shares	10000 shares (Ten thousand)		

DATE : 21st MAY 2016

PLACE : KARNAL

" I WITNESS TO SUBSCRIBER WHO HAS SUBSCRIBED & SIGNED IN MY PRESENCE ON 21st MAY 2016 AT KARNAL. FURTHER, I HAVE VERIFIED THEIR IDENTITY DETAILS FOR THEIR IDENTIFICATION & SATISFIED MYSELF OF THEIR IDENTIFICATION PARTICULARS AS FILLED IN"

NAME OF WITNESS : GARIMA PUNSHI

FATHER'S NAME : JAGDISH KUMAR PUNSHI

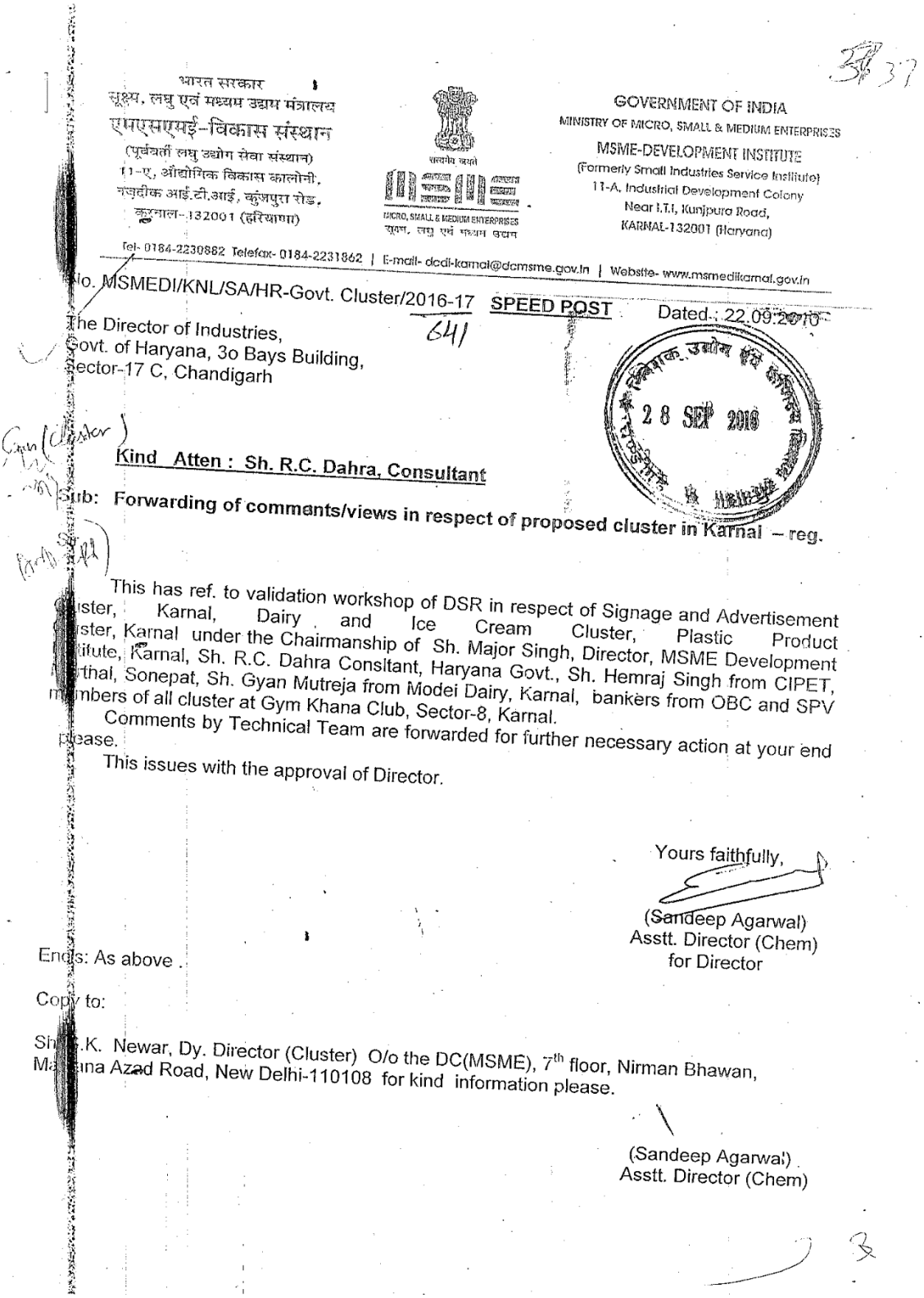
PROFESSION : CHARTERED ACCOUNTANT

ADDRESS : 344 SECTOR 14 URBAN ESTATE KARNAL

MEMBERSHIP NO : 526372

SIGNATURE : Punshi

Annexure 3: Letter from MSME-DI Karnal to Director of Industries, Haryana



भारत सरकार
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
एमएसएमई–विकास संस्थान
(पूर्ववर्ती लघु उद्योग सेवा संस्थान)
11-ए, औद्योगिक विकास कालोनी,
नजदीक आई.टी.आई, कुंजपुरा रोड,
करनाल–132001 (हरियाणा)

GOVERNMENT OF INDIA
MINISTRY OF MICRO, SMALL & MEDIUM ENTERPRISES
MSME-DEVELOPMENT INSTITUTE
(Formerly Small Industries Service Institute)
11-A, Industrial Development Colony
Near I.T.I, Kunjpura Road,
KARNAL-132001 (Haryana)

Tel- 0184-2230882 Telefax- 0184-2231862 | E-mail- dcdi-karnal@dcmsme.gov.in | Website- www.msmedikarnal.gov.in

No. MSMEDI/KNL/SA/HR-Govt. Cluster/2016-17 641 SPEED POST Dated.: 22.09.2016

The Director of Industries,
Govt. of Haryana, 3o Bays Building,
Sector-17 C, Chandigarh

28 SEP 2016

Kind Atten : Sh. R.C. Dahra, Consultant

Sub: Forwarding of comments/views in respect of proposed cluster in Karnal – reg.

This has ref. to validation workshop of DSR in respect of Signage and Advertisement ster, Karnal, Dairy and Ice Cream Cluster, Plastic Product ster, Karnal under the Chairmanship of Sh. Major Singh, Director, MSME Development itute, Karnal, Sh. R.C. Dahra Consltant, Haryana Govt., Sh. Hemraj Singh from CIPET, thal, Sonepat, Sh. Gyan Mutreja from Modei Dairy, Karnal, bankers from OBC and SPV mbers of all cluster at Gym Khana Club, Sector-8, Karnal.

Comments by Technical Team are forwarded for further necessary action at your end ease.

This issues with the approval of Director.

Yours faithfully,

(Sandeep Agarwal)
Asstt. Director (Chem)
for Director

Encls: As above .

Copy to:

Sh. K. Newar, Dy. Director (Cluster) O/o the DC(MSME), 7th floor, Nirman Bhawan, Maulana Azad Road, New Delhi-110108 for kind information please.

(Sandeep Agarwal)
Asstt. Director (Chem)

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Brief Note on validation of DSR in respect of Plastic Products Cluster, Karnal

A validation workshop of DSR in respect of Plastic Products Cluster, Karnal was organized nder Chairmanship of Sh. Major Singh, Director, MSME DI, Karnal on 15.9.2016 and other takeholder of cluster Sh. R.C. Dahra, Consultant Haryana Govt., Sh. Hemraj Singh from CIPET, urthal, Sonepat, bankers from OBC and SPV members of cluster were present during the alidation of workshop held on 15.9.2016.

As per DSR submitted by consultant and claimed that there are Total 56 Nos of MSEs are n the cluster out of 56 units 09 are Small and 47 are having the status of Micro Units. Total urnover of cluster is approximately 250 crore per annum. Including Direct employment in the luster is 1300 and indirect employment is 500 persons.

Main constraints in the cluster are :-

1. Lack of Standardisation of Process
2. Lack of Collective Purchase Mechanism
3. Lack of Training Facilities
4. Lack of Testing Facilities
5. Limited Access to Market etc

resently Injection and blow moulding Machineries and accessories are being used for anufacture the p lastic products .After the deliberation among Cluster members, following achinery & Equipment will be required in the Proposed CFC

1. PET pre form making Machine
2. Solvent Free Laminating Machine
3. Multilayer Plastic Packaging machine
4. 400 T Blow Moulding Machine
5. Tools and Die
6. Testing Equipments
7. Lame Tube Plant

After implementation of CFC in the cluster by way of adding above machinery and skill up radation the likely outcome are per detail appended below.

Presently Direct employment in the cluster is approx 1300 persons and turnover is 250 crore fter the implementation of CFC it will go in employment 2000 nos. and turnover will be Rs.400 rore.

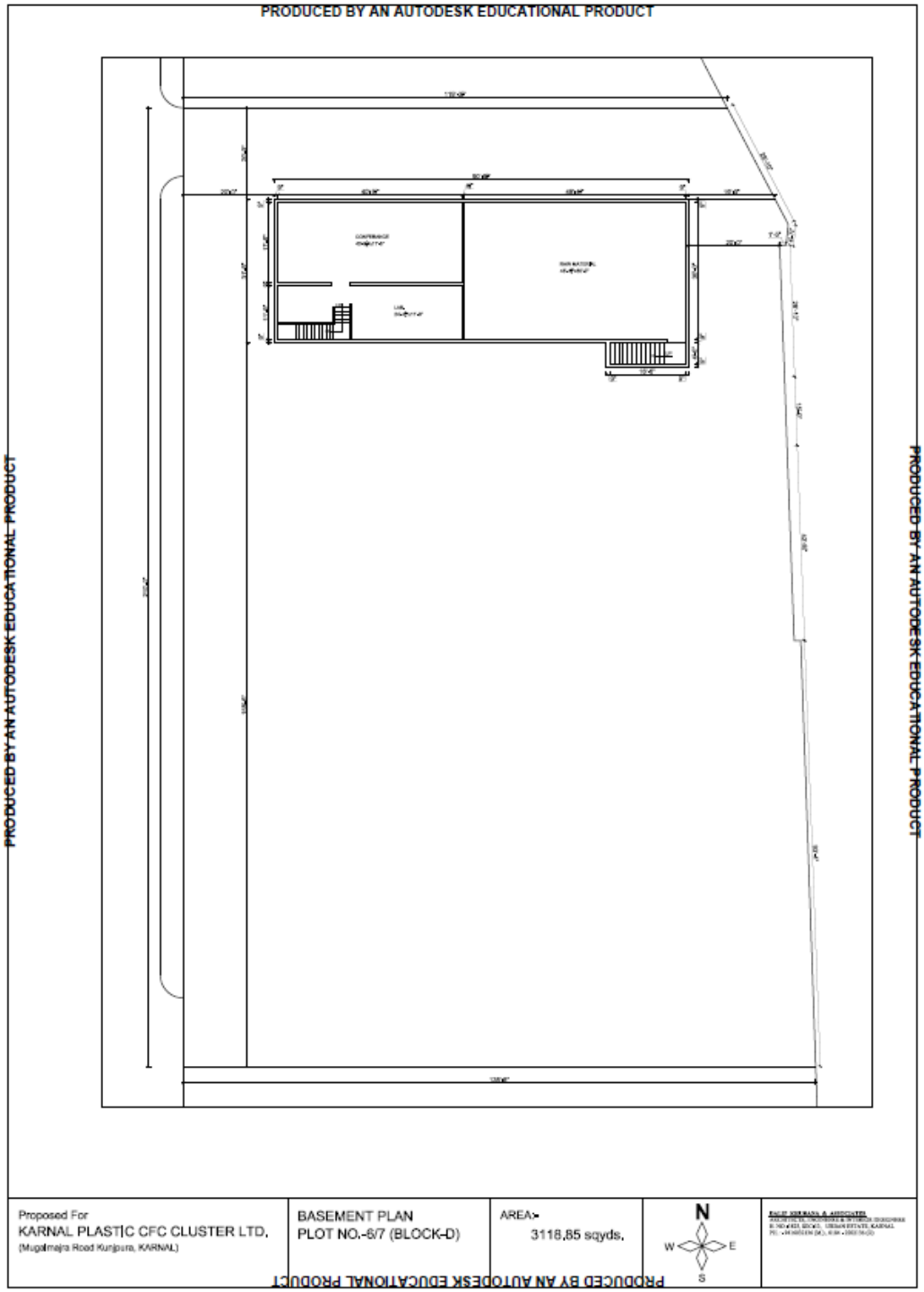
The SPV members of the cluster seems to genuine, positive and enthusiastic towards their ommitment and work. The requirement of CFC appears to be authentic and need based for the pliftment of Plastic Product Cluster in Karnal.

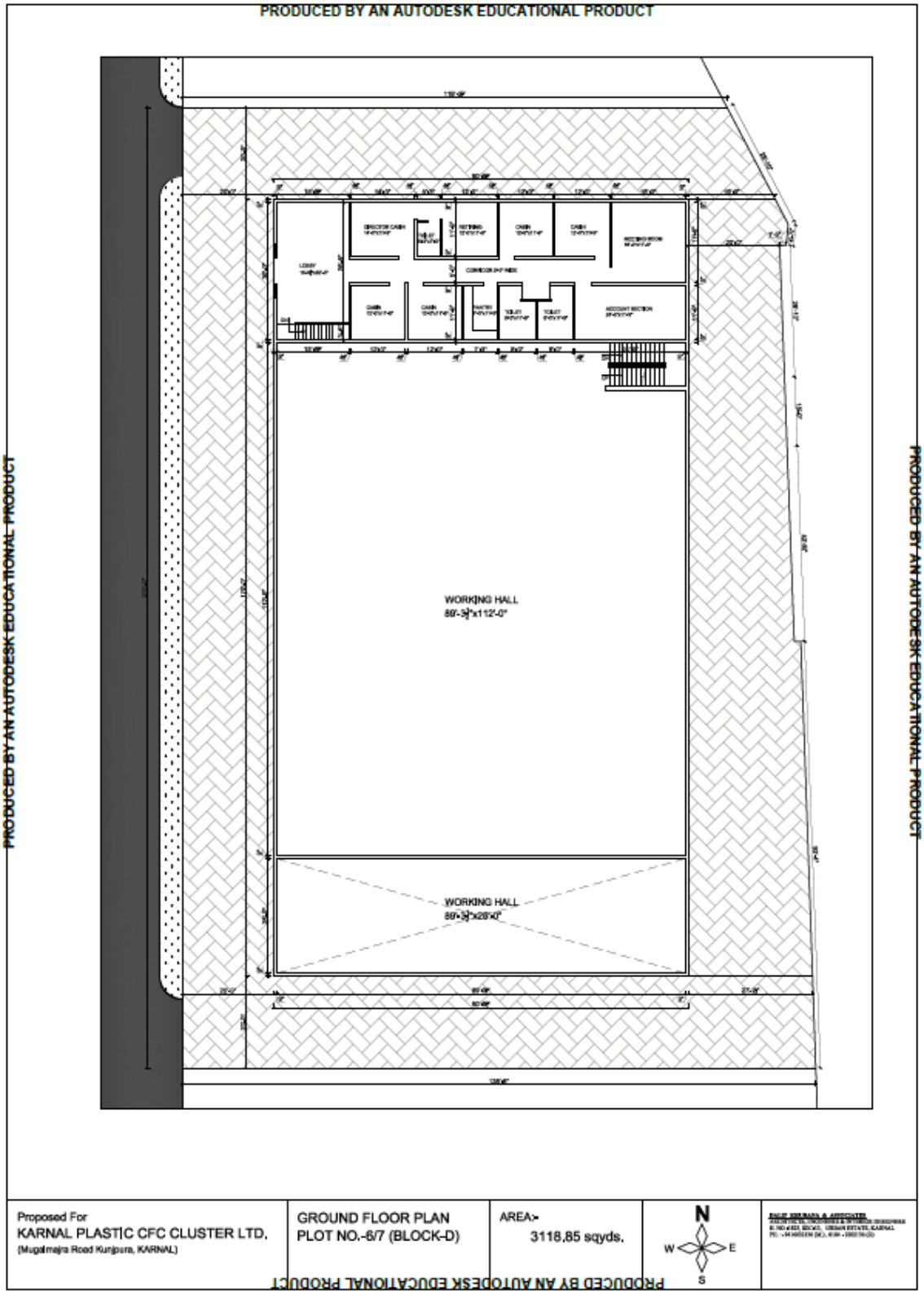
On the basis of above observation & discussion with members of cluster, it is submitted, hat the DSR may be approved subject to submission of UAM and uploading of data in MSME lata bank of all the members of clusters.

SUNIL KUMAR
A.D (Chem)

Annexure 4: Land availability proof

Annexure 5: Building layout plan

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WORKING HALL
Proposed For
KARNAL PLASTIC CFC CLUSTER LTD.
(Mugalmajra Road Kunjpura, KARNAL)
GROUND FLOOR PLAN
PLOT NO.-6/7 (BLOCK-D)
AREA:-
3118.85 sqyds.
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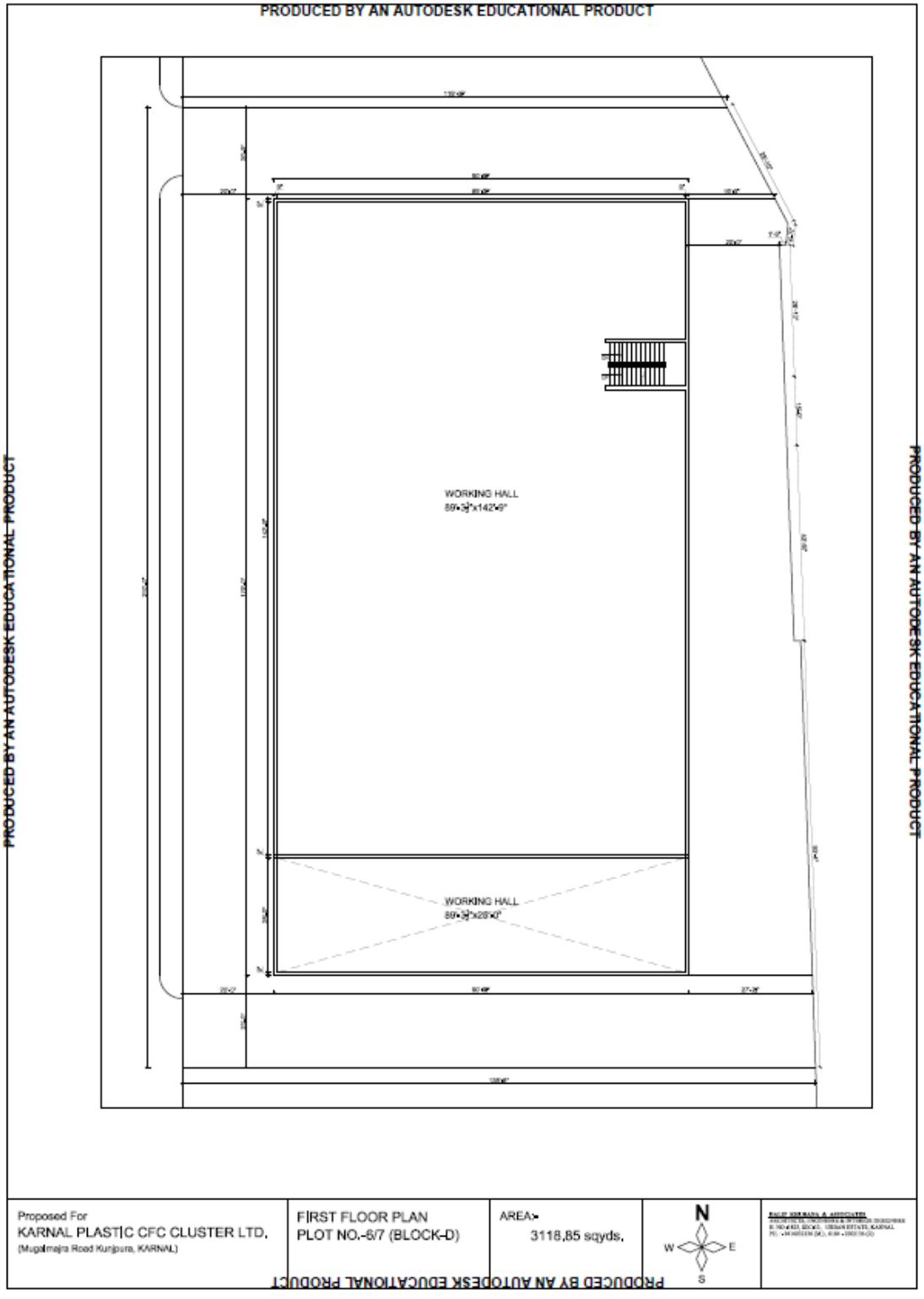
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PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
Proposed For
KARNAL PLASTIC CFC CLUSTER LTD.
(Mugalmajra Road Kunjpura, KARNAL)
FIRST FLOOR PLAN
PLOT NO.-6/7 (BLOCK-D)
AREA:-
3118.85 sqyds.
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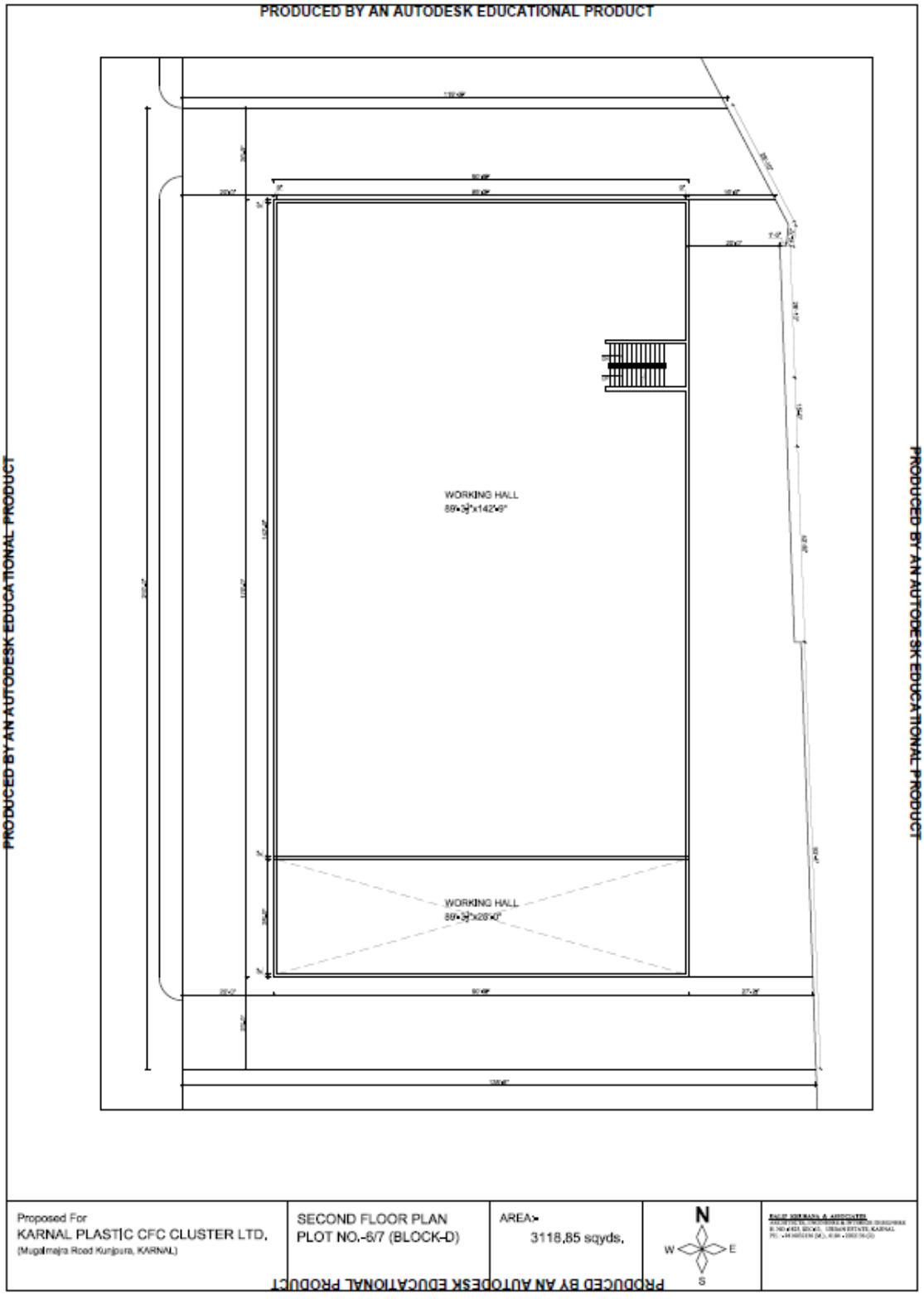
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT


PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
WORKING HALL
WORKING HALL
Proposed For
KARNAL PLASTIC CFC CLUSTER LTD.
(Mugalmajra Road Kunjpura, KARNAL)
SECOND FLOOR PLAN
PLOT NO.-6/7 (BLOCK-D)
AREA:-
3118.85 sqyds.
N
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PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

Annexure 6: Building estimate

॥ श्री सदगुरू देवाय नमः॥

ARCHITECT

Dalip Khurana & Associates

ARCHITECT MCA. AIIA. REGD. NO. CA/2004/34605
REGISTERED VALUER GOVERNMENT OF INDIA

- Architect
- Valuer
- Builder

Ref. No.:- EM/02/2017

Dated: 06-02-2017

COST ESTIMATE FOR NEW CONSTRUCTION OF PLOT SITUATED AT MUGHAL MAJRA DISTT.- KARNAL.

OWNER:- KARNAL PRINTPACK CFC PVT LTD.

TOTAL AMOUNT:- ₹ 3,29,09,000.00

PART-1 THE SPECIFICATIONS OF CONSTRUCTION

1.	No. of Floors and height of each floor	: All Floor Height 15'-0" each
2.	Plinth area floor-wise (Proposed)	: Total covered area = 41137.00Sqft
3	Type of construction-load bearing R.C.C frame/ Steel frames	: Load bearing walls
4.	Walls	: Brick masonry in cement sand mortar.
5.	Doors & Windows	: Wooden Door & Window
6.	Flooring	: Simple Flooring
7.	Finishing	: Cement plastering with superior quality interior and exterior grade painting on Walls & ceilings.
8.	Roofing and terracing	: R.C.C Slab roofing with tile terracing
9.	General	: P.V.C concealed conduit type of Wiring with superior quality electrical & sanitary fittings

PART-II THE ESTIMATION

The proposed Industrial building is to be constructed on the existing of the owner situated at Mughal Majra, Karnal. All types of civil work starting from foundation to finishing level will have to be carried out. The estimated Cost of the above construct ion as per he above specifications comes out as under:-

Total covered area of All floor 41137.00 Sqft @ ₹ 800/- Per sqft. = ₹ 3,29,09,000.00

Say = ₹ 3,29,09,000.00

DALIP KHURANA KARNAL Architect & Valuer

1825, Sector-13, U.E., KARNAL. Ph.: 0184-4037825, MOB.: 94160-32136
E-mail : dalipkhuranaandassociates@gmail.com, khurana1825@gmail.com

ILL THE BREAK UP OF COST

breakup of the estimated cost at different stages of structure on various items of works olved will be as under:-

Sr. No.	Description	Percentage Factor on Overall Cost	Amount
1.	Foundation & Plinth i.e. up to D.P.C level.	3.0%	₹ 9,87,270.00
2.	Masonry work up to door level of Basement including cost of the chowkats	7.0 %	₹ 23,03,630.00
3.	Up to roof level on casting of roof slab of Basement	10.0 %	₹ 32,90,900.00
4.	Masonry work up to door level of Ground floor , first floor & second floor including cost of the chowkats	10.0 %	₹ 32,90,900.00
5.	Up to roof level on casting of roof slab of Ground floor , first floor & second floor	25.0 %	₹ 82,27,250.00
6.	Plastering on walls & R.C.C surfaces	7.0 %	₹ 23,03,630.00
7.	Flooring	8.0 %	₹ 26,32,720.00
8.	Joinery/ Wood work	10.0 %	₹ 32,90,900.00
9.	Painting / Finishing and installation of sanitary & electrical fittings	15.0 %	₹ 49,36,350.00
10.	Miscellaneous	5.0%	₹ 16,45,450.00
	Total	**100.00%**	₹ **3,29,09,000.00**

Part IV, REMARKS

- The owners have informed the portion of the building that is to be constructed.
- The cost of the construction has been calculated as per the prevailing market rates of the construction having the above specifications.

Dated: February 06, 2017
Place: Karnal

Ar. Dalip Khurana
Ar. DALIP KHURANA
AIIA,
Regd. No. CA/2004/54[illegible]5
Architect, Valuer, Planner
& Interior Designer
# 1825, Sector-13, U.E., KARNAL

Annexure 7: Machinery Quotations

Our offices

Ahmedabad
2nd Floor, Shivalik Ishaan
Near CN Vidhyalaya,
Ambawadi,
Ahmedabad - 380 015
Tel: + 91 79 6608 3800
Fax: + 91 79 6608 3900

Bengaluru
"UB City", Canberra Block
12th & 13th floor
No.24, Vittal Mallya Road
Bengaluru - 560 001
Tel: + 91 80 4027 5000,
+ 91 80 6727 5000
Fax: + 91 80 2210 6000
Fax: + 91 80 2224 0695

Chandigarh
1st Floor, SCO: 166-167
Ernst & Young Pvt. Ltd.
Sector 9-C, Madhya Marg,
Chandigarh, Punjab 160009
Tel: +91 172 6717800
Fax: +91 172 6717888

Chennai
TPL House, 2nd floor
No 3, Cenotaph Road
Teynampet
Chennai - 600 018
Tel: + 91 44 4219 4400
+ 91 44 6632 8400
Fax: + 91 44 2431 1450

Hyderabad
205, 2nd floor
Ashoka Bhoopal Chambers
Sardar Patel Road
Secunderabad - 500 003
Tel: + 91 40 6627 4000
Fax: + 91 40 2789 8851

Oval Office, 18, iLabs Centre,
Hitech City, Madhapur,
Hyderabad – 500081
Tel: +91 40 6736 2000
Fax: +91 40 6736 2200

Kochi
9th Floor, Abad Nucleus
NH-49, Maradu PO
Kochi, Kerala 682304, India
Tel: + 91 484-3044000
Fax: + 91 484 2705393

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

Mumbai
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)

Block B-2, 5th Floor,
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

Pune
C-401, 4th floor
Panchshil Tech Park
Yerwada (Near Don Bosco School)
Pune - 411 006
Tel: + 91 20 6603 6000
Fax: + 91 20 6601 5900
Fax: + 91 33 2281 7750

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Artwork by: JG

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