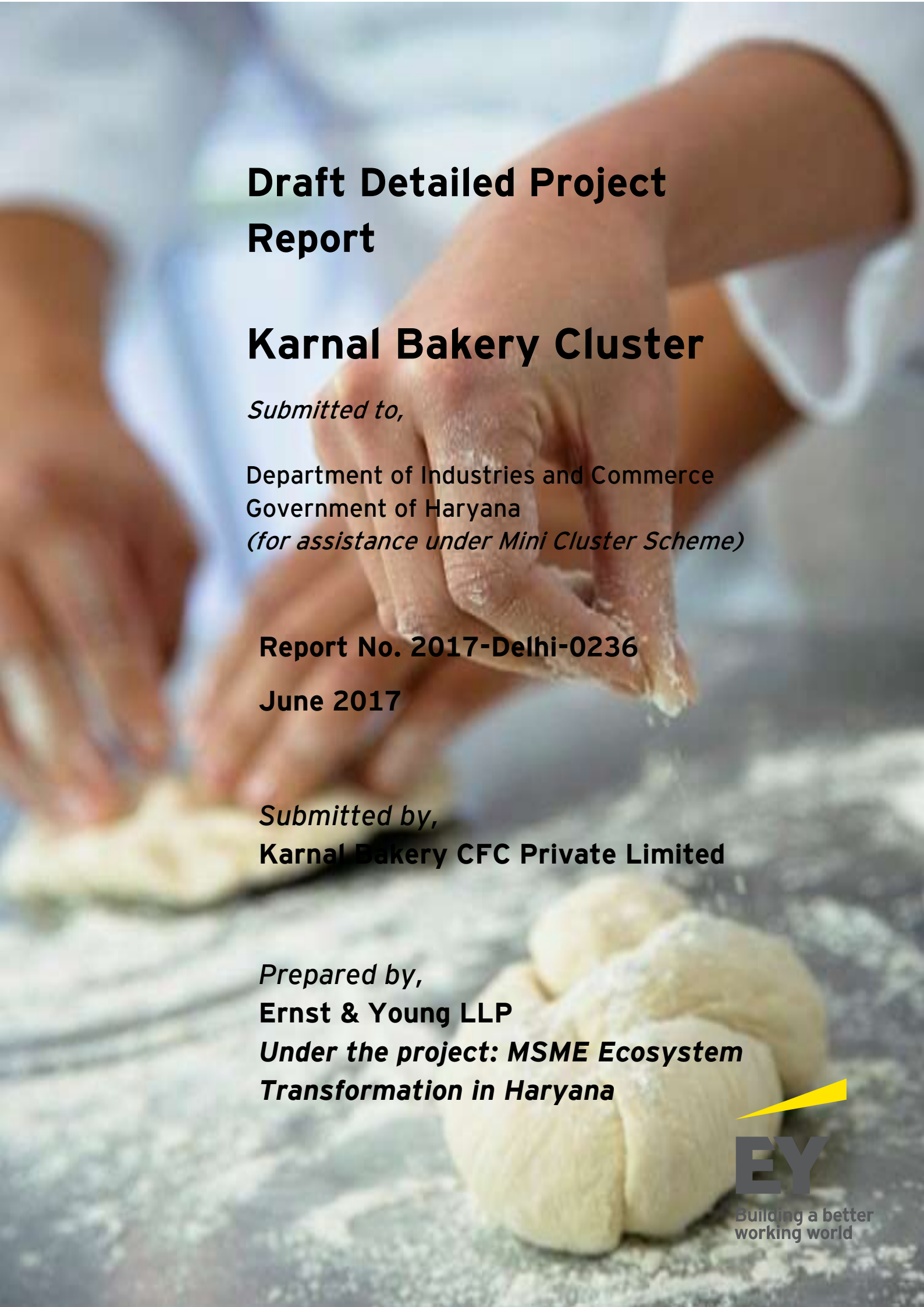


Draft Detailed Project Report

Karnal Bakery Cluster

Submitted to,

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

Report No. 2017-Delhi-0236

June 2017

Submitted by,
Karnal Bakery CFC Private Limited

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

EY
Building a better working world

22 June 2017

Director

Department of Industries & Commerce,

Government of Haryana

1st Floor, 30 Bays Building,

Sector 17, Chandigarh

Dear Sir/Madam,

As part of our engagement for providing consulting services for 'MSME Ecosystem Transformation in the State of Haryana', we hereby submit the Draft Detailed Project Report (DPR) for setting up of Common Facility Centre (CFC) at Bakery 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 12 May 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 Bakery Manufacturers Association and the SPV
- Bakery units located in and around Karnal
- Representatives of Skilltech Consultancy Pvt. Ltd, 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 and is not intended to be used by anyone other than specified party.

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

Sincerely,

Amar Shankar, Partner – Advisory Services

Disclaimer

This Draft Detailed Project Report for development of Common Facility Centre (CFC) at Karnal Bakery Cluster has been prepared by Ernst & Young LLP (hereinafter referred to as 'EY' or 'Ernst & Young' or 'Us') and delivered to the 'Office of Director of Industries & Commerce – Government of Haryana (O/o of DI-HR)' (hereinafter referred to as 'the Client').

The inferences and analyses made by EY in this report are based on information collated through primary research, secondary research, discussions with the client personnel and key stakeholders and our knowledge about the state mini cluster scheme and its objectives. EY has taken due care to validate the authenticity and correctness of the information from various sources, however, no representations or warranty, expressed or implied, is given by EY or any of its respective partners, officers, employees or agents as to the accuracy or completeness of the information, data or opinions provided to EY by third parties or secondary sources.

Nothing contained herein, to the contrary and in no event shall EY be liable for any loss of profit or revenues and any direct, incidental or consequential damages incurred by the Client or any other user of this report.

In case the report is to be made available or disclosed to any third party, this disclaimer along with all the limiting factors must be issued to the concerned party. The fact that EY assumes no liability whatsoever, if for the reason any party is led to incur any loss for acting upon this report, must be brought to the notice of the concerned party.

Acknowledgement

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

We would like to convey our sincere thanks to members of **Karnal Bakery CFC Pvt. Ltd** and **Karnal Bakery Manufacturers Association (KBMA)** for their support during the on-site visits and interactions with bakery units in Karnal as well as facilitation in conducting stakeholder consultations. Further, we would also like to thank officials of **Skill Tech Consultancy Pvt. Ltd** and **Karnal Food Pack Cluster Ltd.** for providing support and information related to bakery units in Karnal.

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

Abbreviations

AIBMA	All India Bread Manufactures Association
AIFPA	All India Food Processors Association
AIBTM	ASSOCOM Institute of Bakery Technology & Management
BIHBM	Bachelor of International Hospitality Business Management
BHMCT	Bachelor of Hotel Management & Catering Technology
BIL	Britannia Industries Limited
BIS	Bureau of Indian Standard
B2B	Business to Business
CAGR	Compound annual growth rate
CFC	Common Facility Centre
DIPP	Department of Industrial Policy and Promotion
EM	Entrepreneur Memorandum
FDI	Foreign Direct Investment
FSSAI	Food Safety & Security Association of India
GDP	Gross domestic product
GSDP	Gross state domestic product
GOI	Government of India
GHRDC	Global Human Resource Development Centre
HR	Haryana
HUDA	Haryana Urban Development Authority
HSIIDC	Haryana State Infrastructure & Industrial Corporation
HFC	Haryana Financial corporation
ITI	Industrial Training Institute
KBMA	Karnal Bakery Manufacturers Association
KU	Kurukeshtra University
LLP	Limited Liability Partnership
MNC	Multi National Company
MFIL	Modern Food Industries Limited
MHM	Masters in Hotel Management
MMDU	Maharishi Markandeshwar Deemed University
MMICT	Maharishi Markandeshwar Institute for catering technology
MSME	Micro, Small & Medium Enterprises
NABL	National Accreditation Board for Testing and Calibration Laboratories

NSIC	National Small Industries Corporation
NCR	North Capital Region
NH	National Highway
NIT	National Institute of Technology
NDRI	National Dairy Research Institute
NIFTEM	National Institute of Food Technology & Entrepreneurship Management
NIILM	National Institute of Integrated Learning in Management
NSDP	National State Domestic Product
PFC	Punjab Financial Corporation
SPV	Special Purpose Vehicle
SME	Small, Medium Enterprise
SIDBI	Small Industries Bank of India
UGC	University of Grant Commission
UNWTO	United Nation of World Tourism Organization

Table of Contents

List of Figures

List of Tables

Executive Summary

Executive summary

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

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

About the Karnal Bakery Cluster

The Bakery Industry grew at a CAGR of 6.5% between 2013-17. It is predicted to reach US$447 billion by the end of 2017. Europe is the foremost producer and consumer of bread and bakery products as these are deeply rooted with their national and religious diets.

33.4% market share of global bakery products are wafers, waffles and sweet biscuits; and the remaining market share is divided between toasted bread, rusks, and other toasted products at 2%; crispbread 1.1%; gingerbread 0.8%; and other types of products at 62.7%. The markets in North America and Western Europe are relatively developed and Asia Pacific is considered to be an evolving market with India making giant strides in bakery industry.

India is one of the major manufacturing hubs for bakery products. The industry comprises 6% of the global bakery market. India's bakery market is worth INR 3295 crore, out of which 82% market share is held by bread & biscuits. The Bakery manufacturers in India can be divided in major three types of category i.e Bread, Biscuits and Cake. The bakery industry in the country is predominantly dominated by the unorganized sector with production capacity of 3 million tonnes. According to NPCS 2013, the country stands in third position in the biscuit manufacturing segment.

The demand for breads and cakes has started growing over the last two decades due to globalization, exposure to various other cultures and changing lifestyles of Indian population. The bakery industry has received further impetus with the development of packaging and food processing industry in the country.

There are about 50 micro units in Karnal district, Haryana with 11 units registered under Employment Memorandum or UAM (Udoyag Aadhar Memorandum). These units are predominantly located in Mugal Canal, Ramnagar and Managlapur with NH1 as the nearest major national highway. The annual turnover of the cluster is about INR 60 Crore. The Karnal bakery cluster is a mix of traditional bakeries that use conventional 'bhattis' as well as modern bakeries using ovens to produce several bakery products. These units produce products such as bread, burgers, pizza base, biscuits, pastries, cakes, sandwich, jambo bread, patties, puddings, muffins, pav etc.

Diagnostic Study and Interventions

A diagnostic study was undertaken by the cluster members in February 2017 to map the existing business processes in the cluster, identify the gaps, and understand the requirements of the cluster. The diagnostic study report (DSR) was compiled by the cluster stakeholders in close coordination with the District Industries Centre, Karnal. The awareness level of the cluster units (on new bakery technologies, cluster development initiatives, etc.) was found to be low. Additionally, it was observed that most of the cluster units deploy out-dated technologies and are unable to meet the requirements of the market due to lack of availability of modern machines/nequipment. The quality of products is ordinary due to dependence on manual techniques and conventional machines. Due to non-availability of testing lab facilities, units are unable to test the raw materials and finished products. These were the major pain areas that necessitated an urgent intervention. In this context, the units decided to establish a CFC.

The DSR was presented to the state government during first meeting of the State Level Steering Committee (SLSC) on 10th April 2017 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:

- Testing facilities to ensure consistency and uniformity of the bakery products
- Testing facilities for food safety and standards regulations
- Testing for conformity issues against standards such as quality and purity
- Job work facility with modern machinery for dough making, frozen cookies, industrial bread etc.

Such a common facility will both supplement and complement the 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 within 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

After the diagnosis study, the cluster units came together to form a Special Purpose Vehicle (SPV) by the name and style of '**Karnal Bakery CFC Pvt Ltd.**' The SPV has been set up as a private limited company under section 8 of the Companies Act, 1956 and rule 7 of the Companies (Incorporation) Rules, 2014. DIC, Karnal has played an important role in SPV formation by cluster stakeholders. The SPV already includes about 11 members who are subscribing to the necessary equity base of the company. The proposed CFC will be implemented on public-private partnership basis through the SPV 'Karnal Bakery CFC Private Limited' by availing support from Government of Haryana (under EPP 2015).

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 bakery industry and enhancing productivity of their units. This includes exposure to cluster development initiatives in other clusters, exposure visits to fairs, registration under UAM, awareness programs on new trends in bakery & packaging, lean manufacturing techniques, design interventions and new technologies. These programs were conducted in collaboration with DIC, State Government and BDS providers such as National Dairy Research Institute (NDRI), National Institute for Food Technology & Entrepreneurship, National Productivity Council (NPC) etc.

Project Parameters, Viability and Sustainability

The Karnal Bakery Cluster CFC Limited with support from State Government (under the Mini Cluster Scheme) is planning to set up a Common Facility Centre having state-of-the-art bakery and testing facilities to undertake job work of cluster units with a total project cost of about **Rs. 285.57 lakhs**. However, the maximum eligible project cost as per the scheme guidelines is Rs 200 lakhs, with government of Haryana's grant restricted to 90% of max eligible project cost i.e. to Rs 180 lakhs. Hence, the SPV members have proposed to contribute entire amount beyond Rs. 180 lakhs, taking their overall contribution to about **37% of the total project cost.** The total contribution of SPV members will amount to **Rs. 105.57 lakhs.** Support from State Government is envisaged for **Rs. 180.00 Lakhs.**

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

S. No.	Particulars	Actual Total Project Cost (Rs. Lakhs)	Eligible Project Cost as per guidelines (Rs. lakhs	Remarks
1	**Land** (5715 sq. ft. to be procured by SPV)	50.79	50.00	Max 25% of project cost of INR 200 lakhs
2	**Building** total covered area (7440 sq. ft.) two floors building including electrification & plumbing charges	65.00		
3	**Plant & Machinery**			
	a. Primary Machines	128.84	128.84	
	b. Secondary Machines	21.29	21.29	
4	**Miscellaneous fixed assets** (fixture, furniture, fire-fighting equipment, etc.)	2.00		Not eligible for grant
5	**Preliminary and Preoperative Expenses** (legal & administrative expenses, registration, civil engineering drawings with estimates & tender	5.91		

S. No.	Particulars	Actual Total Project Cost (Rs. Lakhs)	Eligible Project Cost as per guidelines (Rs. lakhs	Remarks
	forms, telephone, stationery, machinery testing etc.)			
6	**Contingency**			
	a. Building @ 2%	1.30		
	b. Plant & Machinery @ 5%	7.51		
7	**Margin money for working capital** (Working capital required @ 80% C.U.)	2.93		
	Total	**285.57**	**200.13**	

The actual total project cost is estimated to be Rs. 285.57 lakhs. As indicated above, assistance to the project from the Govt. of Haryana is envisaged to the tune of Rs. 180 lakhs. SPV contribution is to the tune of Rs. 105.57 lakhs (over 35%) of the total project cost. The means of financing are presented below:

S. No.	Source of finance	Project cost upto INR 200.00 lakhs (max eligible as per scheme)		Project cost over INR 200.00 lakhs		Total Amount (INR in lakhs)
		Percentage Contribution	Amount (INR in lakhs)	Percentage Contribution	Amount (INR in lakhs)	
1	Grant-in-aid under Mini Cluster Scheme (Govt. of Haryana)	90	180	0	0	180.00
2	Contribution of SPV	10	20	100	85.57	105.57
	Total	**100**	**200**	**100**	**85.57**	**285.57**

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%)	59.77
2	Av. ROCE (PAT/CE) without Grant	10.73%
3	Av. ROCE (PAT/CE) with Govt. Grant	29.03%

S. No.	Particulars	Estimates
4	Internal Rate of Return (IRR)	42.26%
5	Net Present Value (at a discount rate of 10 per cent) - incorporating viability gap funding (grant) by GoI and GoH	185.30
6	Payback period (calculated on SPV contribution)	2 Year & 11 months with Grant-in-aid assistance from GoH
7	DSCR	Not Applicable (No term loan to be availed in this project)

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

Project Implementation

Project implementation is envisaged to involve a time-frame of about 10 months upon receipt of approval of grant-in-aid assistance from the Government of Haryana under State Mini Cluster Scheme. The project will be implemented by the SPV in close association with DIC, Karnal. It is proposed to constitute a Cluster Development Coordination Committee (CDCC), constituted under the Chairmanship of Director of Industries, Government of Haryana to oversee all cluster development projects in Haryana under State Mini Cluster Scheme. The committee may operate under the overall monitoring of the State Level Steering Committee (SLPSC).

In addition, for implementing this CFC project, a Project Management Committee (PMC) comprising of the GM, DIC Karnal, and representatives of the SPV, Corporation Bank, NIFTEM and EY experts shall be constituted to directly oversee effective monitoring and implementation. The project will be implemented through the SPV, and the PMC will report progress of implementation to the CDCC as well as State Level Steering Committee and DIC, Karnal.

The potential for the Karnal bakery cluster to grow is enormous, with an increasing demand of baked products in the region. The strengths of the Karnal bakery cluster lie in its location (both geographically & industrially), with a thriving food processing, dairy, agro & pharmaceutical industry in the region. The natives like to consume milk and milk based beverages such as tea and coffee frequently during the day. Owing to the eating practices and the lifestyles, most of the people like eating bakery products such as biscuits, rusks, buns etc. This has created a large demand for bakery related products in Karnal, since most of the people prefer to eat biscuits and cookies made by local bakery shops rather than MNCs. As a result, many local bakeries have come up in the region. Additionally, due to increasing industrial activity in the region and changing work cultures, people often consume ready-to-eat products such as pizzas, burgers, sandwiches etc. Consequently, the

local bakeries have also started offering these, thereby enhancing their product range. 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.

This cluster has the ability to increase its output and market share by manufacturing high 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 bakery product 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. The CFC will also enhance the co-operation and joint action among cluster stakeholders to improve their competitiveness to meet the demands of the domestic as well as international markets.

Introduction

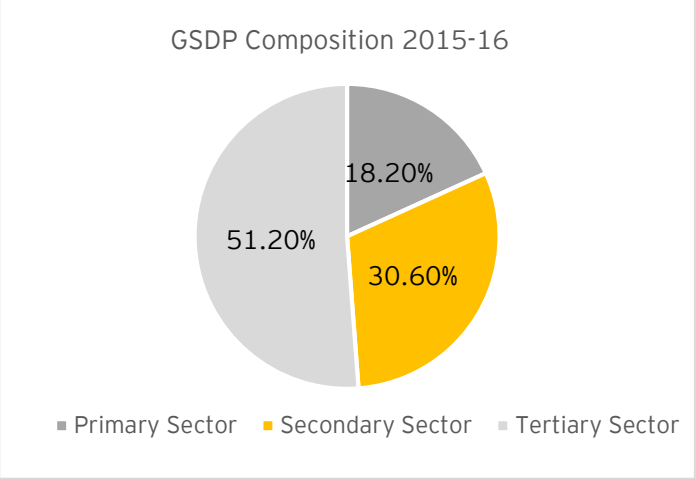
1. Introduction

1.1 Overview of the cluster

There are about 50 micro units in Karnal district with 11 units registered under Employment Memorandum or UAM (Udoyag Aadhar Memorandum) which have come together to form an SPV. These units are predominantly located in Mugal Canal, Ramnagar and Managlapur with NH1 as the nearest major national highway. The annual turnover of the cluster is about INR 60 Crore. The Karnal bakery cluster is a mix of traditional bakeries that use conventional 'bhattis' as well as modern bakeries using ovens to produce several bakery products. These units produce products such as bread, burgers, pizza base, biscuits, pastries, cakes, sandwich, jambo bread, patties, puddings, muffins etc.

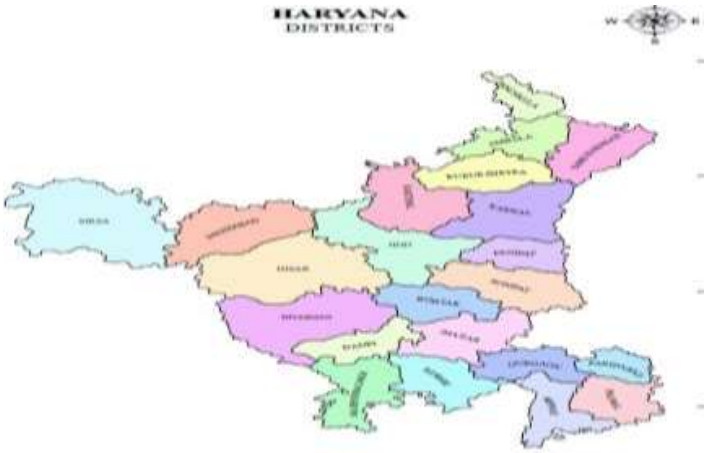
1.2 About the State & District

Figure 1: GSDP Composition 2015-16



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

The industry sector contributes about 18% of the total GSDP of the state. Haryana is fast emerging as one of the most favoured investment destinations in India. The globalization of markets and a resilient economy have given an incredible drive to the industrial sector in Haryana, which already has a competitive advantage in terms of strategic location, basic infrastructure, and a large skilled, educated and young workforce. Besides, the State has an investor-friendly policy and regulatory environment. It is one of the leading states in terms of industrial production, especially passenger cars, mobile cranes, two-wheelers & tractors. It is the 2nd largest contributor of food grains to India's central pool, accounts for more than 60% of the export of basmati rice in the country, and is 3rd largest exporter of software.



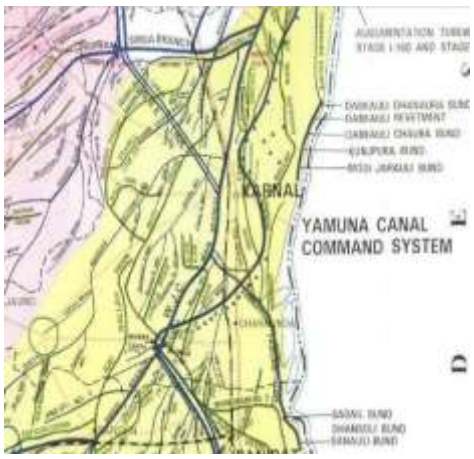
Karnal is one of the most industrialized and historical districts of Haryana. It is famously known as a city of 'Daanveer Karna', as per the ancient Indian epic Mahabharata. Karnal district is known as the '*Rice bowl of India*' due of production of huge quantities of

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.

Karnal district is prominently located on the Sher Shah Suri Marg (G.T.Road), and the Delhi Ambala rail line 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 of these cities. Karnal district is strategically located and connects with five different states in its proximity, which has fuelled the growth of the district by enabling industries to tap the market of 5 different states. Karnal district lies on the western bank of river Yamuna, which forms the eastern boundary of the district. The river Yamuna separates Haryana from Uttar Pradesh. 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.

1.3 Industrial Scenario of Karnal District

By the late sixties, Karnal district and its surrounding regions 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 the 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 a major industrial hub with the presence of a large number of industries across various segments and industrial sectors such as dairy, food processing, rice milling, pharma, plastic, agriculture implements, etc.



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 it is well irrigated through tube wells and

canals. It has an elevation of 235 to 252 meters (748 feet). The irrigated area is about 2,05,627 hectare, while the gross irrigated area is 3,88,917 hectare. The percentage of the gross irrigated area to total cropped area is 98.72% while the cropped area is 3,87,111 hectare.

River Yamuna forms the eastern boundary of the district and flows from north to south. The district is a part of the Indo-Gangetic plains and has a well spread network of the western Yamuna canal. Its geographical area has been divided into three agro climatic regions - Khadar, Bhangar and Nardak belts. 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 15,05,324 (of which male and female were 797,712 and 707,612 respectively), making it the 5th largest district of Haryana in terms of population. 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 272. This implies that people have moved away from farming due to lower profits. However, the district's economy is still predominantly agriculture based, owing to the existence of good irrigation systems across the district. Industrial activities have started increasing in the district due to the 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. In view of a strategic 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.

Sector Overview

2. Sector Overview

2.1 Brief Global Scenario

The Bakery Industry grew at a CAGR of 6.5% between 2013 to 2017. It is predicted to reach US$447 billion by the end of 2017. Europe is the foremost producer and consumer of bread and bakery products as these are deeply rooted with their national and religious diets.

33.4% market share of global bakery products are wafers, waffles and sweet biscuits; and the remaining market share is divided between toasted bread, rusks, and other toasted products at 2%; crisp bread 1.1%; ginger bread 0.8%; and other types of products at 62.7%. The markets in North America and Western Europe are relatively developed and Asia Pacific is considered to be an evolving market with India making giant strides in bakery industry.

2.2 India Scenario

India is one of the major manufacturing hubs for bakery products. The industry comprises 6% of the global bakery market. India's bakery market is worth INR 3295 crore, out of which 82% market share is held by bread & biscuits. The Bakery manufacturers in India can be divided in major three types of category i.e Bread, Biscuits and Cake. The bakery industry in the country is predominantly dominated by the unorganized sector with production capacity of 3 million tonnes. According to NPCS 2013, the country stands in third position in the biscuit manufacturing segment. The country's bakery market

The demand for breads and cakes has started growing over the last two decades due to globalization, exposure to various other cultures and changing lifestyles of Indian population. The bakery industry has received further impetus with the development of packaging and food processing industry in the country.

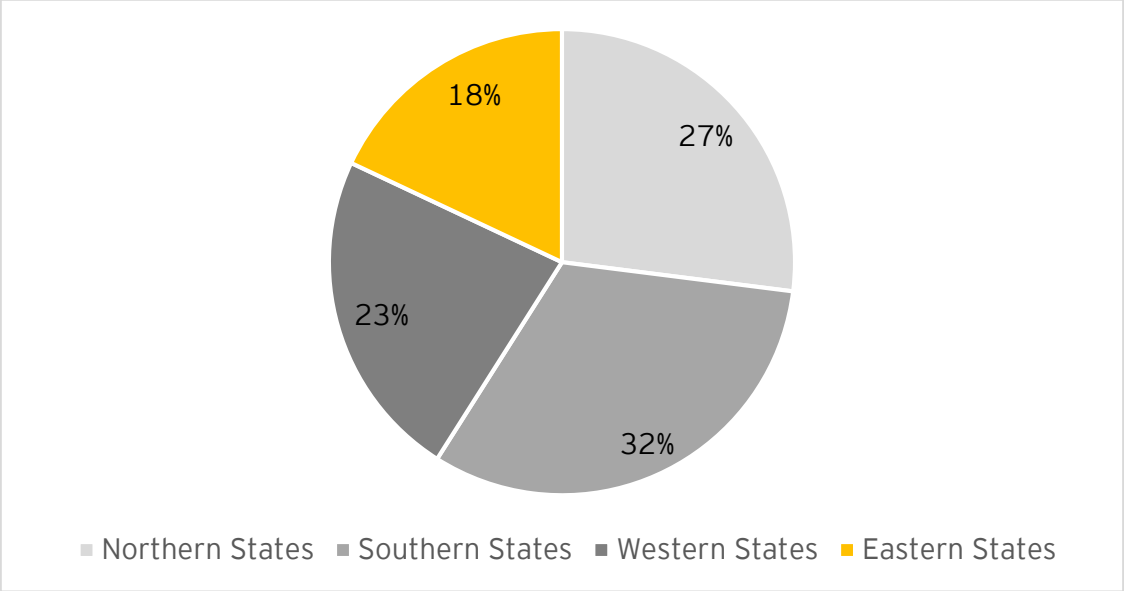
2.2.1 Bread Industry in India

Bread is one of the most hygienically manufactured and packed baked product which is available at affordable prices. It is found that lower middle class and economically weaker class consume 9% of the bread industry's total production. Bread making is a labour intensive process with low margins and high volume. It is a highly perishable product with a shelf life of maximum 72 hours in a tropical country like India. Therefore, once the bread is baked and packed, the baker will make sure that it reaches the market as soon as possible. Considering its perishability within short frame of time, the Government of India has made it necessary to print the date of manufacture and expiry on the packet.

The bread industry in India grew at a CAGR of ~9% over the last three years with a turnover of INR 33bn in FY 2015. It is estimated that the industry shall grow at a CAGR of ~10% with turnover of INR 53 bn by FY 2020.[1] The percentage of bread consumption in four zones in India is shown in the figure below:

[1] https://www.giiresearch.com/report/infi333540-global-bakery-market.html
http://www.valuenotes.biz/insights-publications/publications/bread-industry-in-india-2015-20).

Figure 2: Percentage of Bread Consumption in Different Parts of India



Modern Food Industries Limited (MFIL) and Britannia Industries Limited (BIL) are two major players in the bakery sector in India, having a market share of 7%-8% and 10%-12% respectively. Apart from these two players, there are a few large regional players such as Spencers in South India, Vibbs in Maharasthra, Boon and Kitty in Punjab, 365 days in Delhi NCR, Haryana etc.

With the increasing presence of MNCs and changing lifestyles, the tastes of people have evolved in recent times. The bakery manufactures have started diversifying into other products such as pizzas, burgers etc. to cater to the needs of the consumers.

2.3 Cluster Scenario

The region along the NH 1 witnessed tremendous growth of the food processing industries during the late 60s. The onset of the 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 industrial growth in 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 National Dairy Research Institute (NDRI) in Karnal coupled with enabling policies of the government led to the establishment of several milk processing and dairy plants in the region. As a result, Karnal became a major industrial hub with the presence of a large

number of industries across various segments and industrial sectors such as dairy, food processing, rice milling, pharma, plastic, agriculture implements and so on.

Haryana is one of the richest states in India with agricultural and industrial growth being the key drivers. Haryana is a place with abundance of milk and curd, but other than these, Haryanvi cuisine is also extremely popular because of its taste and link to the land. People like to consume milk and milk based beverages such as tea and coffee frequently during the day. Owing to the eating practices and the lifestyles, most people like to eat bakery products such as biscuits, rusks, buns etc. This has created a large demand for bakery related products in Karnal, since most people prefer to eat biscuits and cookies made by local bakery shops rather than MNCs. As a result, many local bakeries have come up in the region.

Additionally, due to increasing industrial activity in the region and changing work cultures, people prefer to consume ready-to-eat products such as pizzas, burgers, sandwiches etc. Consequently, the local bakeries have also started offering these products and enhancing their product range.

Diagnostic Study Findings

3. Diagnostic Study Findings

The diagnostic study was undertaken in the cluster during February 2017 to map the existing business processes in the cluster, identify the gaps, and understand the requirements of the cluster. The diagnostic study report (DSR) was compiled with inputs from cluster SPV in close coordination with the DIC, Karnal, with inputs from NIFTEM and Corporation Bank. The awareness level of the cluster units (on new baking technologies, cluster development initiatives, etc.) 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 modern bakery machines / equipment. The finishing of products is ordinary due to dependence on manual techniques and conventional machines.

The DSR was presented to the State Level Steering Committee (SLPSC) in its first meeting on 10th April 2017 and was subsequently approved. The minutes of the SLPSC highlighting the approval of DSR and permission to undertake the Detailed Project Report (DPR) are provided in Annexure 1. The SPV was granted permission to go ahead with preparation of DPR for the cluster. The major findings of the DSR are presented 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 Bakery Cluster are:

A. Government Bodies

- **District Industries Centre (DIC)**

  DIC is the most important government stakeholder for the cluster. The office of DIC comes under the Dept. of Industries and is headed by the General Manager who is assisted by functional managers and technical field officers. DIC promotes and routes subsidy to micro and small enterprises in the region. The Mini Cluster Scheme under which the bakeries want to set up a CFC will also be implemented through the DIC office. The Karnal DIC is actively promoting cluster development in the district and also helps the local units register under Unique Aadhar Memorandum (UAM). It would play a key role in formulation of the bakery units SPV.

- **MSME-Development Institute (MSME-DI), Karnal**

  MSME-Development Institute, Karnal is a field office of the Development Commissioner (MSME), Ministry of MSME, New Delhi, which is an apex body for formulating, coordinating and monitoring the policies and programmes for promotion and development of MSMEs in the country. MSME-DI provides a wide range of extension / support services to the MSMEs in the state.

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

B. Industry Associations

- **Karnal Bakery Manufacturers Association (KBMA)**

  The major association and the key stakeholder of bakery manufacturers in Karnal is Karnal Bakery Manufacturers Association (KBMA). The association comprising over 40 bakery units as members is undertaking several development activities in Karnal region. The association addresses issues of the bakery industry and takes up members' grievances with relevant government authorities. Mr. Sanjay Gupta is the President and Mr. Prem Kumar is the General Secretary of the association at present. An SPV shall be created under the banner of KBMA to set up the CFC under the Mini Cluster scheme.

- **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 liaisons closely with the State and the Central Government to raise its concerns for development of industries in the state in a collective manner. It has a chapter in Karnal district that takes care of the interest of MSMEs of Karnal. Some of the bakery units are also members of HCCI Karnal. Recently, HCCI was also 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.

- **All India Food Processors Association (AIFPA)**

  All India Food Processors' Association was established in the year 1943. It has members drawn from largeindustries as well as MSMEs engaged in processing of fruits & vegetables, meat and fish, milk & milk products, and manufacturers of biscuit and confectionery products, ready-to-serve beverage and ethnic delicacies etc. Member industries together account for a large percentage of total food and beverage industry of India. The Association provides information about the emerging trends in the food processing industry to its members and supports studies to constantly understand the changing eating preferences of the citizens.

- **All India Bread Manufacturer's Association (AIBMA)**

  The All India Bread Manufacturer's Association (AIBMA) has been serving the bread industry in the country for the last 30 years. The membership comprises of bread manufacturing units from large and small scale sectors all over India. AIBMA maintains interaction with the government for promoting the bread industry in the country. Besides, the association effectively follows up the issues of the bread industry pertaining to raw materials, quality aspects and promoting popularity of bread as nutritious wheat based food.

C. Educational Institutes

- **National Dairy Research Institute (NDRI), Karnal**
  The National Dairy Research institute (NDRI), is a premier dairy research institution undertaking research, teaching and extension related activities for dairy development in the country. It conducts basic and applied research to enhance animal productivity and also develops cost effective technologies for dairy processing. NDRI enabled setting up of several diary plants in the region that complemented the bakery industry growth.
- **National Institute of Food Technology and Entrepreneurship Management (NIFTEM), Sonepat**
  National Institute of Food Technology Entrepreneurship and Management (NIFTEM) is a premier institute under the Ministry of Food Processing Industries. It extends support to entrepreneurs on new trends in food packaging, food processing technologies and food standards. The institute acts as a centre of excellence and an apex world class centre of global standards in the area of food technology and management. It caters to the needs of various stakeholders such as entrepreneurs, industries, exporters, policy makers, government and existing institutions. The experts shall also be invited as faculty to the capacity building programs that shall be organised in the Karnal Bakery Cluster.
- **ASSOCOM Institute of Bakery Technology & Management (AIBTM), Noida**
  ASSOCOM Institute of Bakery Technology & Management, based in Noida is a one-of-its-kind comprehensive teaching, training and research center specifically for baking technology and allied disciplines. It is one of the best in global skills, knowledge, training methods, and culture in the field of science and technology related to wheat and cereal based products. The institute conducts several programs on bread baking; biscuits and cookies; short courses on flour milling; food safety & quality management; laboratory practice and testing; flour confectionary, including cakes, pastry, sweet goods, items for fast food, etc. The experts shall also be invited as faculty to the capacity building programs that shall be organised in the Karnal Bakery Cluster.

D. Banks / FIs

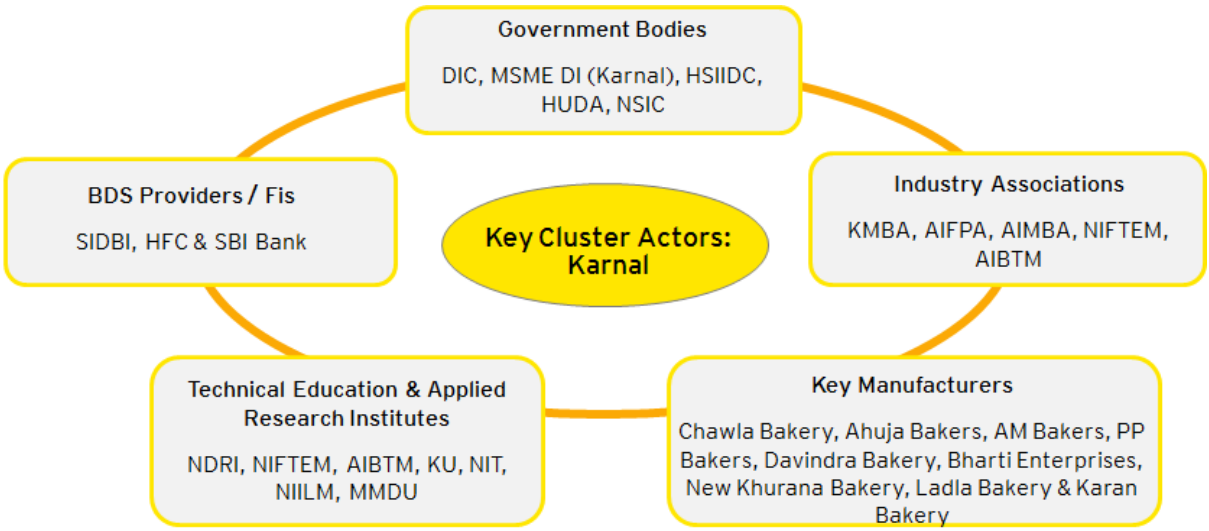
- **Haryana Financial Corporation (HFC)**
  Haryana Financial Corporation, based in Chandigarh was promoted jointly by the Government of Haryana and the Industrial Development Bank of India (IDBI). HFC

has been approved by SEBI as a category-I merchant banker. The corporation's activities include merchant banking, trade finance, lease finance and term lending. The corporation has diversified its range of financial services to include no-fund-based assistance in the form of guarantees, letter of credit and forex services. The DPR for the project shall be appraised by HFC.

E. Leading Manufacturers

Some of the leading bakeries in the Karnal include Gopal Food Products, Davindra Bakery, Ahuja Bakers, Laadla Bakery, New Khurana Bakers', etc.

Figure 3: Key Cluster Actors



3.2 Cluster Turnover, Market and Employment

The cluster units are mainly concentrated in Karnal town. There are about 50 units in the cluster. All units are in the micro category. The total turnover of the cluster is estimated to be INR 60 crores. Cluster units are providing employment to 250 workers to facilitate various activities in the cluster. Most of the workers in these units are migrants from adjacent states, particularly Uttar Pradesh. Many women are also employed in the bakeries as none of the operations are laborious. On an average, each small scale bakery unit in Karnal employs about 50-60 persons including machinery operators, supervisors and lab technicians. This includes a mix of skilled, semi-skilled and unskilled manpower.

The major products manufactured by the cluster units are bread, biscuits, industrial bread, jambo bread, pastries, cakes, rusks, sandwiches, pizzas, masala bread, kulcha bread, buns etc. Most of the units of the clusters are selling their products through their counters. Few progressive bakery units are selling their products across the state. Most of these anchor units are based in and around Karnal. Due to technological backwardness, lack of quality, lower production capacity and poor quality of products, cluster units are unable to obtain and cater to bulk orders from large customers. This cluster has ability to increase its output and market share through manufacturing 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 baked product 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 and will enable the local bakeries supply their produce to large format retailers and food chains. The CFC will also lead to creation of several jobs for supervisors, machine operators and unskilled workers like helpers both within the CFC and at an individual unit level due to enhanced capacity utilization.

3.3 Production Process

The most common product manufactured by over 50 bakery units in Karnal is various kinds of 'bread'. Currently, both traditional and modern production process are used for baking in the Karnal Bakery Cluster. The basic ingredients used in traditional process are flour, yeast, salt and water. The flour is kneaded and mixed with all the ingredients. This is then put in the "Bhatti" for baking. Once the product is baked, the product is allowed to cool and finally the finished product is packed.

Figure 4: Traditional Method of Baking

Figure 5: Flow Chart of the Process

Modern Method: Most of the bakery units in Karnal use modern method of baking. In this method, kneading of flour and mixing of ingredients is done by machine, and an oven is used for baking. Once the product is baked, it is allowed to cool. The finished product is then packed after cooling.

Figure 6: Modern Method of Baking



3.4 Value Chain Analysis

Value chain analysis of the most commonly produced Jambo bread is provided below:

Table 1: Value Chain Analysis of Jambo Bread[2]

Particulars	Value Added	Total Value (INR)	% of cost of production
Raw Material (Flour, refined oil, yeast, sugar, salt, gluten, improver water & ingredient)		38	68
Labour	10	48	12
Electricity	15	63	18
Packaging	2	65	2
Total Production Cost (Rs.)			65
Profit Margin in Rs. (12.5%)			10
Selling price in Rs.			75

The value chain analysis has been prepared based on the stakeholder consultations. It can be observed that the raw materials amount to 68% of the total selling price. Post the implementation of the CFC, there will be reduction in raw material consumption thereby resulting in significant reduction of cost of production. The bakery products are labour intensive and about 12% of the total cost of production goes into labour salary. As the

[2] Source: Stakeholder Consultation inputs

products are manufactured using old machinery, about 18% of cost of production is attributed to electricity. The competitiveness of the bakeries can be increased by targeting these major cost areas and providing better facilities to the units.

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

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

Table 2: SWOT analysis of the cluster

Area	Current situation		Future	
	Strengths	Weaknesses	Opportunities	Threats
Market	▸ Steady local demand for cluster products ▸ No presence of major bakery manufacturers in Karnal ▸ Cluster located on major national highway NH1. ▸ Proximity to Chandigarh and well connected to Delhi	▸ Sales only confined to local area ▸ Many small units exploited at the hands of large players and not getting enough margins ▸ Lack of marketing strategies and capabilities of entrepreneurs due to which unable to reach out to format retailer and food chains ▸ Lack of brand building of the product	▸ Growing domestic market potential ▸ Potential to supply to major hubs such as Chandigarh & Delhi ▸ Capacity building of entrepreneurs on export promotion & documentation ▸ Potential for increased market share due to introduction of various marketing related schemes ▸ Potential for common branding and supply to large format retailers ▸ Tie up with online portal for selling of products ▸ Develop common platform for marketing	▸ Intense competition from global markets ▸ Competition from other major bakery players like Kitty, Bonn & Britannia
Technology/ Product Quality	▸ Capability to produce competitively	▸ Absence of certified testing lab facilities in the cluster	▸ Setting up of CFC with accredited testing lab, job work facilities	▸ Increase in cost of production ▸ Low production scales among small units

Area	Current situation		Future	
	Strengths	Weaknesses	Opportunities	Threats
	▶ Some small scale units have FSSAI certifications ▶ Easy availability of raw material	▶ Absence of a common job work facility centre ▶ Outdated machinery ▶ Lack of support to small scale units for job work facility ▶ Lack of knowledge among small units on operational requirements ▶ Unavailability of skilled manpower to operate modern machines ▶ No food safety and security audits practiced	▶ Provide assistance to small units to adopt FSSAI certification and make them more competitive ▶ Process automation ▶ Potential to streamline the process efficiency through lean manufacturing	▶ Increase in awareness of people on quality certifications shall lead to losing out on business ▶ Competition from vendors manufacturing products with advanced technology machines
Skill/Manpower	▶ Skills acquired on-the-job ▶ Presence of technical institutes such as National Institute of Food Technology & Entrepreneurship Management at Sonepat ▶ No mapping of skill-sets required	▶ Acute shortage of manpower in the cluster ▶ Absence of a dedicated training centre for bakery industry ▶ Lack of interaction between SMEs and technical institutes for providing technical training ▶ No mechanism to mobilize regional youth for training	▶ Establish a dedicated training facility in the proposed CFC ▶ Customized training courses and training programs on required skills (operations, packaging, soft skills etc.) ▶ Engage a local NGO to mobilize regional youth for training ▶ Engage technical institutes for skill development programs	▶ Youth interested to work in other lucrative sectors ▶ Large companies such as Nik bakers, Cremica etc. attract the manpower
Inputs	▶ Availability of raw materials from local dealers	▶ Acute shortage of municipal water supply and demineralised water	▶ Potential to develop a portal displaying information (price, suppliers) of raw materials	▶ Rise in price of raw material and fuels ▶ Over dependence on local market

Area	Current situation		Future	
	Strengths	Weaknesses	Opportunities	Threats
		▸ No web portal displaying prices and sources of raw materials ▸ Fluctuation in raw material quality and prices	▸ Setting up of a bakery park in Karnal for required infrastructure	
Innovation	▸ Ability to manufacture bakery products as per the local market's demand	▸ No job work facility available in the cluster to assist small units ▸ Lack of a standardised ERP solution for bakery industry ▸ Low investment in R&D ▸ Lack of process automation	▸ Set up a job work facility along with R&D centre ▸ Develop a standard IT based ERP solution ▸ Structured processes for information sharing among SMEs in the cluster ▸ Cross-learning from other progressive bakery institutes	▸ Could lose business due to lack of innovation facilities in Karnal cluster ▸ Reluctance to share information on innovation between units
Business Environment	▸ Steady growth in domestic demand ▸ Cluster well known as a bakery hub across North India ▸ Conducive policy and regulatory initiatives ▸ Active State Government and schemes for development of the sector ▸ Proactive industrial association	▸ Lack of knowledge about regulatory frameworks and government schemes ▸ High cost of industrial land in the cluster ▸ Lack of common infrastructure/CFC facilities ▸ Lack of bargaining power of units with large industries (get less conversion charges) ▸ No long term vision of industrialists	▸ Establish CFC with latest technologies for testing, job work facility and energy management facilities ▸ Create better awareness of government schemes and regulations	▸ Rapid changes in external environment e.g. large industries may start production in Karnal ▸ Bakery industry might shift to other places where excise exemptions are being offered ▸ Change in policies and regulatory environment ▸ Increase in land rates

Area	Current situation		Future	
	Strengths	Weaknesses	Opportunities	Threats
Energy/ Environment		▶ Lack of knowledge of energy efficiency resulting in higher energy consumption ▶ High energy cost structure because of lack of efficient processes ▶ Lack of proper working conditions	▶ Regular checks on maintaining hygiene of the units ▶ Potential to reduce energy costs by energy auditing	▶ Increase in power tariff ▶ Units not able to compete due to high cost of production

3.6 Major Issues / Problem Areas of the Cluster

The key problems cluster related problems identified are:

- **Absence of Material testing lab:** Testing is a key aspects in the food industry due to health and safety requirements. No major company buys products without certification of quality parameters. This is one of the major impediments for the bakery cluster as they are facing challenges in expanding their market without testing certificates. As per the law, various testes need to be conducted by the bakery units. The lack of testing labs also results in production delays and waste of materials.
- **Lack of availability of modern bakery equipment:** Most of the machinery used by the units is outdated leading to production of substandard bakery products, particularly for dough manufacturing which is the base for manufacturing of all bakery products.
- **Lack of training facilities to train workers:** There is no facility to train workers, and a dedicated institute with training courses for the bakery industry is required. Most of the training at present is on-the-job that often results in material wastages and production delays. Availability of manpower is also a challenge and a system of mobilisation of candidates is required. The training of workers should not only be limited to baking methods, but should also focus on other allied aspects like, hygiene and sanitation, bakery management, production methods, quality control, and specifications.
- **Limited access to markets:** The cluster units are small in size with low production capacity. Individually, they have not been able to garner bulk orders. Moreover, they have been unable to diversify their products due to lack of technological capacities, which has led to limited access to market. In order to increase the production capacity as well as produce new products, units require modern efficient machinery. Lack of capital to purchase these machines has limited the production capacity of these units.
- **Production inefficiencies:** Deployment of obsolete machines and dependency on manual operation leads to operational inefficiencies and increased cost of production. This has hindered the ability of micro and small firms to obtain bulk orders from anchor units. Consequently, the units are witnessing declining market shares and lower sustainability.
- **Lack of standardization of processes & products**: Bakery 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 market due to inability to meet the standards set by larger firms/ MNCs. This has been a hindrance to expanding the market.

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

3.7 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 3.

Table 3: Rationale for hard interventions

Rationale for proposed hard interventions under CFC mode	
Critical technology gaps in the cluster	**Proposed technology interventions to enhance cluster's competitiveness through CFC mode**
Material testing lab	
Absence of a material testing facility is one of the primary challenges in the food industry. No major company buys products without certification of quality parameters. This is one of the major impediments for the bakery cluster as they are finding it very difficult to expand their market without product test certificates. As per the law as well, various tests need to be conducted by the bakery units. The lack of a testing lab also results in production delays and material wastage.	Presence of certified testing lab in the cluster shall ensure the required certification and quality of products. This shall further enable cluster units to expand their market share and tie up with large buyers. The testing lab facility in the cluster shall run on a commercial basis and provide testing facilities to cluster units for a range of products. Testing and certification of products shall also increase the product credibility in terms of market acceptance. With this facility, cluster units will be able to increase their production and sell their products to Dominos, Big Bazaar, McDonalds, Pizza Hut, etc..
Value added Cookies Operations	
Most of the cluster units are currently making cookies with old and manual operation which leads to material wastages and production delays. Presently, cluster units are only making plain cookies.	Installing a cookie dropping machine in the CFC will enable cluster units to make 6 types of cookies like long multi-layer, long rotary, long stationary, rotatory and stationary. With this facility units will be able to make different types and designs of cookies, which would enable the units to cater to the huge demand of cookies in the cluster. This machine has the capacity to make 250 kg cookies per hour.
Dough Making operation	
Dough making is the foundation process of bakery products. Bakery products like bread, cookies, buns, rusk, etc. are made from dough. At present, cluster units are making the dough with manual operations, which usually leads to material wastages & most of the time finished products are rejected by the customers. Without this facility, units are unable to do mass production and cannot meet the market demand. Presently clusters units do not have any modern machines for dough making.	With the availability of dough making machines, cluster units shall be able to increase production and minimize raw material wastage. With this facility, cluster units will be able to do mass production and meet the market demand.

Finishing & Quality Operations	
Currently the bakery units are using manual operation for packaging finished products. The units do not have any machines for cookie packaging, rusk packaging etc. Also, they do not have any machines for detecting metal in finished products.	Establishing the packaging machine for cookies & rusk will enable the units pack their finished products aesthetically. Also units shall be able to increase the production & able to meet the customer need. Metal detector will help in detecting the metal in the finished products.
The metal detector is a critical component of the quality assurance system within the Food industry. Effective product inspection is essential in the bakery industry, ensuring quality and customer safety – the hallmarks of today's bakers. There has been considerable innovation in the bakery sector in recent times, with the traditional staple of sliced bread making way for an array of exciting breads and baked products that appeal to consumers' increasingly sophisticated tastes. At present the bakery units in cluster have not this facility which impacts the quality of the products.	The metal detector machine would be used at the CFC to check for metal pieces, paper pieces, unwanted material, etc. in the finished products. The metal detector guarantees the highest level of product quality and brand integrity. With this, the cluster units would be able to ensure quality in their products.
Oven Facility	
At present a couple of units have an oven facility in their set-up, but most of the units in the cluster do not have an oven facility. Cluster units are still using the traditional method for baking products. This traditional method is a time consuming process which results in delays in production, and an inability to meet the demand of customers.	By establishing this facility in the CFC, units will be able to make quality bread, sponge cake, rusks, buns, cakes etc. in a short time and a large scale, thereby increasing their production and meet the market demand.

3.8 Cluster growth potential

The potential for the Karnal bakery cluster to grow is enormous, owing to the increasing demand of bakery products in the region. The region along the NH 1 witnessed tremendous growth of the food processing industries during the late 90s. The onset of the 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 industrial growth in the region. Subsequently, the region witnessed a transition from agriculture to industry. The Haryana government has also undertaken several initiatives to promote industrial development in the region. The state has ensured creation of massive infrastructure in terms of complete electrification, provision of road transport, expansion of administrative, educational and health facilities in small towns, and establishment of many new industrial townships and urban estates.

Consequently, Karnal became a major industrial hub with the presence of a large number of industries across various segments and industrial sectors such as bakery, dairy, food processing, rice milling, pharma, plastic, agriculture implements, etc. 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 job work bakery manufacturing facilities are provided to micro-units of the cluster under CFC mode, their production costs will reduce and they will be able to garner bulk orders from MNCs like Pizza Hut, McDonalds, Future Group etc.

Diagnostic Study Recommendations

4. Diagnostic Study Recommendations

Based upon the diagnostic study report and subsequent discussions with various cluster stakeholders and members of Karnal Bakery CFC Pvt. Ltd. during formulation of this Detailed Project Report (DPR), a mix of hard and soft interventions 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 bakery 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, Karnal, NPC, Lean manufacturing consultants 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 recommendations for soft interventions was to build the capacities of cluster units and generate awareness among stakeholders regarding cluster development (collective approach to address their issues) and benefits available to them in the form of cluster. In this regard, the cluster units had organized a series of workshops, the details of which are provided below:

   - **Member Meetings:** Cooperation and trust building among members is foremost condition for smooth functioning of the cluster and SPV. A meeting was organized by cluster members during the month of February 2017 in Karnal to enhance cooperation among member units and to obtain inputs for the DSR. Members of the cluster were informed about the registration of company for the cluster and identification of land for the CFC. Members of the cluster raised their concerns during the meeting which were resolved by other members of the cluster.

- **Awareness programme on lean manufacturing:** The National Productivity Council (NPC) in association with the MSME Development Institute, Karnal Bakery Manufacturers Association (KBMA) and Skilltech Consultancy conducted an awareness programme on lean manufacturing and lean manufacturing competitiveness scheme for the industrial sector on 29th March 2017. NPC Deputy Director SP Singh & Assistant Director Ashish Kumar highlighted the benefits being provided to the sector by adopting various schemes. SP Singh further described the objectives of the lean manufacturing scheme to enhance the manufacturing competitiveness of Micro, Small and Medium Enterprises (MSMEs) through the application of various lean manufacturing techniques such as reducing waste, increasing productivity etc. Mr. Varinder Luna and Mr. Sukhchain Mann from Vertex Systems & Solutions lean consultants shared a case study on lean manufacturing techniques and further explained about the lean manufacturing tools through which the units can reduce the production costs and increase their production volume. Mr. Sanjeev from Skilltech Consultancy appreciated the steps taken by the NPC, Union ministry of MSME, for organising the first such type of event for the industrial fraternity of Karnal.

2. **Exposure Visits and Participation in Trade Fairs:** In order to enhance the exposure of cluster units on new and emerging technologies in the bakery cluster, a number of exposure visits were recommended. The aim was to gather technical knowledge and expertise required for developing the cluster. Additionally, recommendations for participation in trade fairs and exhibitions were 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:

- **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 2017, Asia's biggest event in the food and hospitality sector, was organized at Pragati Maidan, New Delhi during 11th March 2017. Members of Bakery Cluster

participated in the event to understand the technological upgradation in the bakery and food industry.

- **Digidhan Mela:** Towards spreading digital financial literacy among the industrial area in Karnal, the State Government of Haryana with District Industries Centre (DIC) organized 'Digi Dhan Mela' in Karnal on 9th April 2017. There were 50 stalls setup in the Mela. Bakery units, plastic & packaging units, and diary units were present, as well as e-Wallet and m-Wallet service providers, and others.

- **Exposure visit to HCS Enterprises Kundli:** HCS is one of leading bakery equipment manufacturers. It has a manufacturing unit at Kundli, which was visited by members of the SPV on 15th February 2017. The objective of visit was to identify the suitable machinery for Bakery cluster, Karnal. This helped cluster member to identify the machines for CFC.

- **Exposure visit to Nagal Brother, Delhi:** Nagpal Brother is one of the largest and fastest growing manufacturers of machines for production of Bakery machinery. Nagpal brothers have a manufacturing unit in Delhi, which was visited by members of the SPV on 24th February 2017. The objective of the visit was to identify the machinery for bakery cluster, Karnal. This helped cluster members to identify the dough & bread making machines for CFC.

- **Exposure visit to Kiddys Food Products, Noida:** Kiddys is one of the largest supplier and manufacturer of food products, jeera cookies, ajwain cookies, shahi khajoor cookies, milk cream cookies, choco swiss cookies, coconut cookies etc. They have a manufacturing unit in Noida, which was visited by SPV members on 16th April 2017. The main objective of the visit was to identify the suitable machinery for cookies and rusk making for bakery

cluster, Karnal. This helped the cluster members to identify the cookies & rusk making machines for CFC.

- **Exposure visit to Machinery Suppliers, Mumbai:** SPV members visited the machinery supplier Sindore & Nayak Oven manufacturing company on 16th & 17th June, 2017 at Mumbai. The main agenda of the visit was to identify the machinery with the latest technology for making of cookies, cakes, chocolate bars, etc. The members also share their experience with the machinery suppliers. The bakery members were influenced by the machinery suppliers about bakery products. Mr. RC Dahra (Consultant) Cluster from Government of Haryana, appreciated the bakery members about their interest to visit the Mumbai for machinery visit and the new idea and techniques.

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

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

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

- **Flour Sifter Machine:**
  Flour sifter will be used at the CFC to separate and break up clumps in dry ingredients such as flour, as well as to aerate and combine them. A strainer is a form of sieve used to separate solids from liquid. Unsifted flour may have lumps which are difficult to incorporate, causing the baker to over-mix the batter, thereby creating too much gluten. The flour sifter can aid in the prevention of gluten and also control the wastage of materials. This machine ventilates the flour, separating the granules thereby making it much easier to mix into a batter for making good quality baking products. This machine saves time and increase the production speed and volume. The proposed machine shall sift 50 kg of flour per hour.

- **Spiral Mixer with Detachable bowl (Model: SPMD-120 kg with Gear Box Capacity):**

Spiral Mixer will be used to add more volume to mixed products, i.e. the dough. It will be used at the CFC to mix all the desired ingredients like wheat, sugar, etc. This machine will enable faster development of the dough with the correct mixing technique to add volume. The bowl rotation alternates kneading and resting, thereby maintaining low dough temperatures. The attached bowl ensures a superior mix with a homogenous and oxygenated dough. The proposed machine has the capacity to mix 220 kg dough in 10-12 minutes.

- **Lifter**

This machine will be used at the CFC for lifting and tilting of bowl trolleys in order to pour contents in them from a given height on the table into other containers, or into the hopper of the automatic divider. This machine has the capacity to lift 210 kg of dough.

- **Dough Divider:**

With this machine, the CFC will be able to accurately weigh products with the least possible variations, hence resulting in maintaining the quality of the products. The automatic oil system helps in keeping production cost low, and thus reduces the wastage of oil. This machine is synchronized with the bread makeing system for mass production. With this machine, operational level costs will decrease and productivity will increase. This machine has a dough weight capacity from 200gm-1100gm, and is able to make 2500-4000 pieces per hour.

- **Dough Rounder:**

This machine will be used at the CFC for gently moulding dough pieces into uniform dough balls as per their weight. The dough pieces move from bottom to top in the tracks that are designed to give the finished pieces a good shape with a right tension. After rounding, the dough will automatically step out to reach the first proofer. A built-in air blower is provided, which prevents the dough pieces from sticking with each other. With the installation of this machine, the CFC will be able also control wastage. This machine has a rounding dough capacity of 2400 pieces of 50gm to 150gm per hour.

- **Dough Moulder**

  This machine will be used in the CFC for moulding the dough of bread, hot dog buns, speciality breads, bread sticks, dinner rolls, etc. It is designed for moulding the dough to any desired shape. This machine has the capacity to make 2400 pieces per hour.

- **Industrial Bakery Oven**

  This is a device which will be used for heating various forms of dough into breads and other baked goods. This machine is used before baking the products. Products such as bread, industrial bread, cake and other desserts are prepared through this machine.

- **High speed slicer**

  CFC will use this machine for slicing different types of breads, rusks, cakes etc. This machine is capable of operating at slicing 60 loaves per minute, depending on the product. Suitable frames can be provided to suit the preferred thickness. The loaves of breads, rusks, etc. are placed one behind the other on the gravity feeding tray, and are then sliced. By acquiring this machine, cluster units will be able to reduce wastage and increase efficiency.

- **Sugar Grinder**

  This machine will be used at the CFC for grinding (crystal) sugar granules into powder form which is utilized for making bulk of cookies and breads in the cluster. 200kgs to 1000 kgs of sugar can be ground at a time. Sugar grinder machine is accessible on varied specifications so as to meet the needs of the customers.

- **Planetary Mixer Model:PLM-140**

  The cluster will utilize this machine to make cookies as well as cakes for mass production. It is built with a strong body to ensure low vibrations and smooth functioning. It is fitted with a scraper and mixer which do not need manual intermittent hand mixing. It has a gear which enables a motorized up-down movement of the bowl. The bowl descends and sits on the floor. Neither the blade, nor the scraper need to be opened after every mixing. The blade is designed to gently beat the dough.

- **Dough Sheeter**

  Dough sheeter will be used in the CFC for making pizza crusts, flatbreads, pie crusts, pastry dough and cake fondant, which are required in large quantities. It creates smooth and thin pieces in a few minutes, without the requirement of rolling by hand. It can also be used to press any kind of dough.

- **Bun Divider**

  A bun divider machine will be used in the CFC for dividing the buns uniformly. The purpose of this machine in the CFC is to facilitate the volumetric division of buns as well as creating round dough balls through an elaborate mechanical system that decreases the operational costs. The bun divider is conceived for the purpose of cutting and rounding or winding the dough. It helps to deliver uniformly scaled pieces. The weight range depends on the dough consistency.

- **Cooling Trolley**

  This trolley will be used in CFC for multi-purpose baking rack for storing, holding and transporting baked products.

- **Cookie Tray**

  It is a flat, rectangular metal pan used in an oven. In the CFC these trays will be used for baking bread rolls, pastries and flat products such as cookies, sheet cakes, swiss rolls and pizzas.

- **Panning Machine**

  It acts as protective cover for bun by protecting from moisture.

Testing Lab Machines

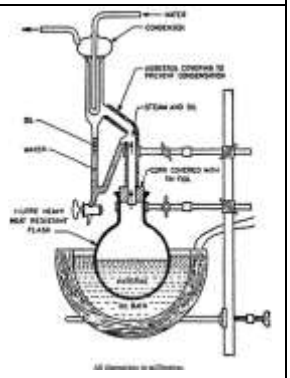
In addition, the CFC is proposed to house a comprehensive testing lab for testing of raw materials and finished bakery products. The instruments proposed to be deployed are mentioned in table 4:

Table 4: Testing equipment proposed

Sr. No.	Name of Equipment	Application	Picture
1.	Purity work board – 930 cubic cms aprox. With handy diaphanoscope	Dirt and Extraneous matter Physical Breads, Rusk, Pau, biscuits, Wheat Flour, Maida -etc.	
2.	Microscope Binocular Microscope 40x - 2000x (auto focus)	Microscopic Observation and microbiological tests, Physical observation, insect fragments, extraneous matter etc.	
3.	Moisture Testing Oven With set of dishes and Desiccators As per IS : 14703	Moisture of any type of products & Dry and wet gluten	
4.	High Ignition Muffle Furnace : with PID controller Dishes-06, ash less filter paper-1 pack	Total Ash value- Flour, Acid Insoluble Ash, Mineral, total Silica content in Flour and Additives	
5.	Electro Magnetic Stirrer with Hot Plate 1 stage- Digital Speed control	All type of Titration and heating, Acid value, Peroxide value, Rancidity tests – of Vegetable fat, oils	

6.	Fat Extraction Soxhlet Apparatus set for Fat extraction – stainless steel Body – Set of 06 Unit With glass parts and Circulating pump As per IS 10640	Total Fat, non-volatile ether extracts, crude fiber, starch, oil soluble colour in Bakery Products	
7.	Reflex condensation system	Total starch, extraneous matter, Crude fibre	
8.	Distillation glass assembly set	Distilled water for reagents in All tests	
9.	Butyro refractometer Machine With Digital waterbath with Circulation pump	For veg fat, oil, ghee etc.	
10.	pH meter – Digital – with Electrode	General Purpose	

11.	Dean and Stark Apparatus for Moisture With assembling stand and Burner system with Cooling pump	Moisture in whole spices, Volatile oil containing all kind of foods	
12.	Wrist action shaker - Total 8 flask holding with 4 on plate form	Cold water soluble extracts, alcohol soluble extracts, crude fiber	
13.	Digital infrared IR thermometer	Cheque oil temperature, Hot plate temperature and Hot liquid temperature	
14.	Triple Beam Balance	General purpose, Sample weighing, Microbiology Media weighing	
15.	Glass Filter Holder with vacuum suction pump	Acid insoluble Ash, crude fibre And other filteration, Gluten In Breads, Rusk, Pau, biscuits, Wheat Flour, Maida	

16.	Filter holder with suction pump and suction flask – Oil free system, Forcep, Tubings, 01 pack of membrane filter – 0.45 micron, 47 mm diameter.	Microbiological tests by Membrane filteration Techniques in Breads, Rusk, Pau, biscuits, Wheat Flour, Maida	
17.	Volatile oil Trapping Clevenger with complete oil bath	Volatile oil (%) test of the spices etc.	
18.	Hot water cattles for making hot distilled water	All kind of oils tests	
19.	Heating Mantle Fitted with energy Regulator. Cap. 500ml -03 Nos.	General heating purpose	
20.	Heating plate Hot plate has the same construction and finish as the rectangular one except that hot plate mounted on a thick mild steel sheet body has a smooth surface cast iron top of 8" dia. Heated with an electrically operated element layed under the plate. A three heat rotary switch which work on 220/230V AC. Temperature is controlled by energy regulator. The top is finished in black heat resistant paint.		

21.	Refrigerator with Digital Temp controller	---- General purpose ---	
22.	Centrifuge Machine 6x15ml Research Model		
23.	Bulk Densisty Apparatus – Two cylinder	Bulk density of powdered Breads, Rusk, Pau, biscuits, Wheat Flour, Maida etc.	
24.	Electronic balance Make CITIZEN/Wenser 1grm accuracy 2kg capacity 1grm accuracy 10kg capacity 0.1mg accuracy 220grm capacity	General purpose weighing Reagents, samples, etc.	
25.	Kjeldahl Digestion and Distillation apparatus with Digestion sink- Unit for 3 Test As per IS : 5194 & IS :14684	Total Proteins, Nitrogen in Breads, Rusk, Pau, biscuits, Wheat Flour, Maida	

26.	Fuming hood (optional) Fume Hoods made of board and painted with colour with working space covered with stainless steel316 Qlty. Acid resistant. The work surface fitted with small wash basin of size 250 x 200 x 150 mm depth of Stainless Steel 316 Qlty. with good quality tap. A gas cock is also fitted for gas supply. Sliding slash made of glass moves vertically up and down with concealed counter balanced weight. Chamber is provided with Fluorescent Lighting arrangement for easy working. The space underneath at the work-station is provided with storage compartment for proper uses. The front fascia is Provided with a panel incorporating 15/5 Amp. socket with switches for light and exhaust system supplied with cord and plug to work on 220/440 Volt 1/3 phase 50 Hz A.C. Front opening of the FumeHood will be H 585 x W 910 mm. Complete with Exhaust System having 38mm exhaust fan with stainless steel deck & Duct to take out fumes. Five heating mantles with thermostat required. Size of Hood (Internal) 1200 L X 600 W X 600 H Mm	Acid Digestion and Distillation plateform for Protein test, Volatile oil content test etc.	

27	Digital Colourimeter	Curcumin tests, SHU of chilli powder, oil soluble colour in spices & Instant Khichdi, Instant Daliya, Instant Mix Idli, Instant Upma, Instant Poha, Instant halwa, Instant Gulab jamunes, Sugar estimation, Iron as nutritional content, Uric acid	
28	Thin layer chromatography testing kit	Asafoetida testing, Synthetic Colour content, Vitamin content	
29	Mineral Analysis - Digital Flame Photometer	Nutritional content – Sodium, Calcium and Potassium	
30	UV Chamber – dual wave fluorescent and germicidal	Curcumin, and other tests, Microbiological tests, Vitamin tests, TLC	
31	Autoclave – Vertical with Auto control system -36 liter	Microbiology tests	

32	Bacteriological Incubator with Glass window- Inside SS Digital Temp. Controller Heavy Duty – 300X300X300 03 nos.	Preparation of Batter for Breads, Rusk, Pau, biscuits, Wheat Flour, Maida , Microbiology Testing –Salmonella shigella, total count, yeast and moulds and Coliforms	
33	Anaerobic culture jar 3.5 Liter with Build in pressure gauge	Microbiology Testing – Salmonella shigella	
34	LAMINAR AIR FLOW SYSTEM Horizontal type – Working size – 3'X2'X2', Size of HEPA filter – 3'X2'X6" With In built Colony Counter	Innoculation of Microbiology	
35	BOD Incubator – Fully SS body heavy duty mounted with Digital temp. Controller,	Incubation for Yeast & moulds count, aerobic count and salmonella and shigella	
36	Water Bath Precision (Constant Temp. Control) Size 40x375x375 mm (18"x15"x15")	Microbiology Testing, Acid insoluble ash content, t	
37	Sieve shaker Gyratory Type To accommodate 7 nos of sieves of 8" dia having 5 cm height with lid & receiver. It is driven with ¼ HP electric motor through reduction gear. The sieve table doesn't rotate but is inclined from the vertical axis direction. In addition to the gyratory motion of the table there is an upward and	Powder fine ness and sieve test	

	downward movement Supplied complete with adaptors for 8" sieve but without test sieves. Accessories. 1. Adaptor for 12" sieve 2. Automatic 0-60 minute		
38	Glassware set for Microbiology Testing Petridishes – 24, Screw cap bottles – 24, Auto pipettes with tips set Forceps, Spreader of glass Microbiology media set – Each 100/500 gm for – Total Plate count, Yeast and Moulds, E.Coli, Colifomrs, Anaerobic Bacteria, Pseudomonas, Staphylococcus count, packs Cotton rolls, Liquid Disinfectant Fluid Glass bead sterilizer	Complete set	
39	Glassware Set For Chemicals testing – As annexure 01	All chemical tests and Nutritional Value analysis	---==---
40	Set of chemicals requires for Protein, Fat, Total Ash, Acid Insoluble ash, Sodium, Potassium, Calcium, Iron, Vitamin A, Vitamin C, Ascorbic acid, Crude Fibre, Dietary Fiber, Sugar, Leavening Index, Energy Value, pH Value, Acidity Regulator, Food Colours, Uric acid content, Rancidity, Peroxide value of Breads, Rusk, Pau, biscuits, Wheat Flour, Maida	All Chemical Tests	....==....

4.3 Expected Outcome after Intervention

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

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

Table 5: Expected Outcome of CFC

Area	Current Scenario	Expected Outcomes
Production Units	About 50 Micro units	About 60 Micro units
Markets	Mostly micro bakeries in Karnal, selling products in the local market	Supply their products to large format retailers and food chains. The units can also sell under their own brand name
Employment	About 250	About 300
Technology	• No testing lab • No high quality machinery for preparation of dough and industrial bread • No training facility for workers	• Hi-tech accredited testing lab • Availability of high quality machines to aid manufacturing • Training centre for bakery industry
Production	• Small batch size • Material wastage • Delays • High costs • Unskilled workforce • On-the-job training	• High quality • Bulk Production • No material wastage • Quick production • Competitive prices • Trained workforce

Turn Over	About 60 crores	Will increase to about 65 crores in the first year, and is expected to subsequently increase by 10% each year

Special Purpose Vehicle (SPV) for Project Implementation

5. SPV for Project Implementation

The micro units at Karnal Bakery 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 Bakery CFC Private Limited'** with CIN U15130HR2017PTC068833. The SPV was registered on 28th April 2017. The certificate of registration along with Memorandum of Association (MoA) and Articles of Association (AoA) and PAN Card of the SPV are provided in ***Annexure – 2.*** The company has an authorized paid up capital of Rs. 1.00 Lakh which shall be enhanced in the near future. The members are micro-sized firms (registered units) involved in bakery related activities, predominately based in Mangalpur and Mugal Kanal area of Karnal.

DIC, Karnal and state government both played an important role in SPV formation by cluster stakeholders. The SPV includes about 11 members who are subscribing to the necessary equity base of the company. The SPV shall be open for new members to join and for the existing members to leave while maintaining a minimum member base of at least 10 at all times. The proposed CFC will be implemented on public-private partnership basis through SPV 'Karnal Bakery CFC Private Limited' by availing support from Government of Haryana (under EPP 2015) state mini cluster scheme.

The SPV members have a strong track record of cooperative initiatives. SPV members are also members of prominent cluster associations. Cluster members have been autonomously undertaking several soft interventions to enhance knowledge and exposure of the cluster units on new trends in bakery industry 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 bakery industry, lean manufacturing, design interventions and new technologies. These programs were conducted in collaboration with DIC and BDS providers such as National Dairy Research Institute (NDRI), National Institute of Design (NID), Skill consultancy and so on.

The SPV has conducted a series of stakeholder consultations (with various members, DIC, 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 awareness about cluster development under state mini-cluster scheme in Karnal and has also helped in validation of findings and recommendations. It has kept the state government and the DIC 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 three directors. The details of the directors are furnished in the table 6. Other than these directors, the SPV will have provision of having one director each from the state government. The SPV comprises members from micro bakery manufacturing units. It is homogeneous in nature due to similar products and activities performed by the cluster units.

Table 6: List of SPV Directors

S. No.	Director Name	Name of the unit	Unit address
1	Sanjay Kumar	Laadla Bakery	Mugal Canal Market, Karnal
2	Ashok Sachdeva	PP Bakers	Mangalpur Chowk Kunjpura Road Karnal
3	Amit Ahuja	AM Bakers	Ramnagar, Karnal

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

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

The SPV was formed with the objective of taking up cluster level activity in a joint and coordinated manner, wherein all units have equal say. The shareholding pattern of members of the registered SPV includes the contribution from every member of SPV and no individual shareholder holds more than 10% equity stake in the capital of the company. Details of SPV members along with their contact persons, unit details, UAM numbers and products manufactured are provided in table 7.

Table 7: Details of SPV Members of Karnal Bakery Cluster

S.N.	Contact Person	Company Name	Contact No.	Address	UAM No	Products
1	Surendar Kumar	Chawla Bakery	9728888836	Ram Nagar ,Karnal	HR10A0000990	Rusk, Biscuits, Cakes, Pastries etc.
2	Pardeep Ahuja	Ahuja Bakers	7404422222	Ram Nagar ,Karnal	HR10A0000989	Rusk, Biscuits, Cakes, Pastries etc.
3	Amit Ahuja	Am Bakers	9729068068	Kachwa Road ,Karnal	HR10A0000988	Rusk, Biscuits, Cakes, Pastries etc.
4	Kailash sachdeva	PP Bakers	92159-16900	Mangalpur Chowk ,Karnal	HR10A0000987	Rusk, Biscuits, Cakes, Pastries etc.
5	Davinder Kumar	Davindra Bakery	89500-11115	Link Road sec-13 ,Karnal	HR10A0001156	Rusk, Biscuits, Cakes, Pastries etc.
6	Sagar Lamba	Lamba Bakery	70278-88653	246, Shakti Puram Kunjpura Road Karnal	HR10A0000960	Rusk, Biscuits, Cakes, Pastries etc.
7	Pradeep Bharti	Bharti Enterprises	94160-32003	Plot No.1 Budha Khera Karnal	HR10D0000962	Rusk, Biscuits, Cakes, Pastries etc.
8	Prem Khurna	Khurana Confectionery	98962-44886	Sec- 13,Karnal	HR10A0001134	Rusk, Biscuits, Cakes, Pastries etc.
9	Sunita Gupta	Tushar Food Products	98963-07502	Durga Colony, Karnal	HR10A0001152	Rusk, Biscuits, Cakes, Pastries etc.
10	Sanjay Kumar	Laadla Bakery	98963-07502	Link Road sec-13 ,Karnal	HR10A0000969	Rusk, Biscuits, Cakes, Pastries etc.
11	Rajesh Kumar	Karan Bakery	8295212644	Bason Gate, Karnal	HR10A0001153	Rusk, Biscuits, Cakes, Pastries etc.

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, EY, MSME-DI, SKilltech Consultancy, NDRI, KBMA, NIFTEM, AIBTM, NID, NPC etc. The major initiatives are:

- Pursuing initiatives in close coordination with DIC and MSME-DI 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 bakeries in NCR and large factories in 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.

5.3 SPV Roles and Responsibilities

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

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

The Memorandum and by-laws of the Cluster SPV indicates the democratic process in terms of decision making on the basis of votes. All members of SPV will meet once every

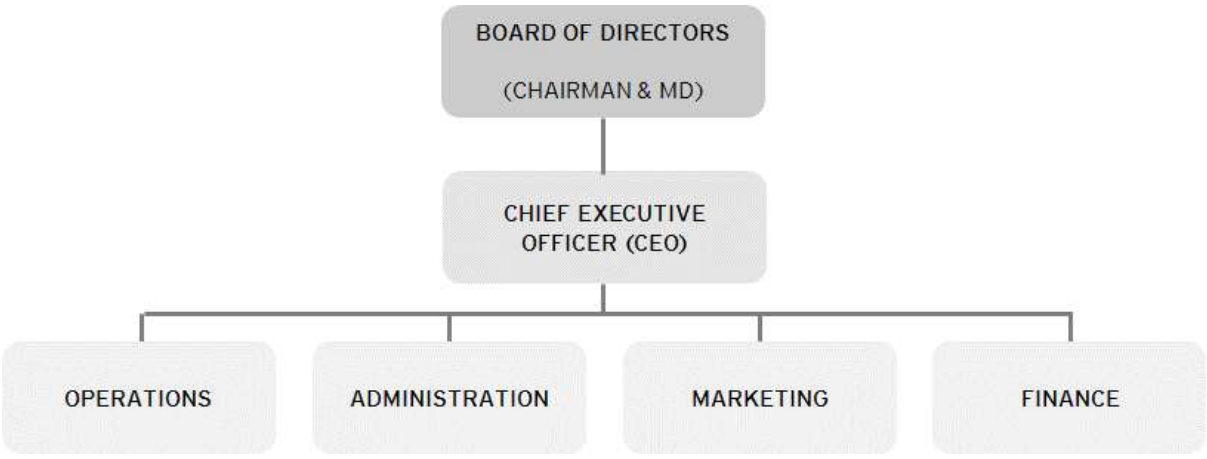
fortnight/month to discuss/resolve operational issues. The management of the CFC will be a two tier structure for smooth and uninterrupted functioning. The executive body i.e. Board of Directors (BoD) will include office bearers elected/nominated from time to time, including one nominee of State Government (DIC). They will also remain present during meetings.

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

1. **Board of Directors**: The BoD will be the main governing body and will oversee the operations of the CFC. They will have the decision making power in terms of fixing user fees (for members and non-members) and usage of reserves etc. for future expansion. The 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 a background in the bakery industry will be appointed as the Chief Executive Officer (CEO), who will look after day-to-day operations of the CFC and shall be directly reporting to the Board of Directors. Each facility (dough making, bread making, cookies making, rush making & packaging) will have its own expert staff (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 7:

Figure 7: Organisational Structure of Proposed CFC



Project Economics

6. Project Economics

6.1 Project Cost

The actual total cost of setting up a CFC Bakery Cluster, Karnal is estimated **at Rs. 285.57 Lakhs.**

The total cost estimation includes the following project components:

1. Land
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:

6.1.1 Land and Building

Land

The proposed CFC would require space for construction of building, installation of machinery and provision for stocking material. A sizable amount of open space is also required considering the industry FAR norms in the state. In line with the space requirements of the proposed facilities in the CFC and the FAR norms, it is estimated that a plot of about 635 square yards would be required.

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

The SPV has identified a plot of 5715 sq ft. (635 sq. yards) that shall be purchased by the SPV completely at their expense. As per the Haryana Urban Development Authority (HUDA) Erection of Buildings Regulations, 1979, the maximum permissible coverage on ground (built up area) is 60% of area of an industrial site. This shall allow an area of 3720 sq. ft. (444.45 sq. yards) for CFC construction.

The SPV is undertaking registration of land. The document highlighting this and establishing the proof for availability of land is provided in ***Annexure 4***. The value for the land is estimated to be Rs. 50.79 Lakhs. **The amount required to purchase land shall entirely be provided by the SPV members as their contribution towards the project cost.**

Building

The built up area of the facility will comprise of a two storied building (mainly RCC considering the nature of products), resulting in total covered area of 7440 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 be Rs. 65.00 Lakhs including electrification & plumbing. The duly certified building estimate is provided in **Annexure 6.**

Total cost of land and building for the proposed CFC is estimated at 115.79 Lakh. However, guidelines for mini cluster scheme specifies that cost of land and building cannot exceed 25% of project cost of max 200 lakhs. Hence, as per the guidelines the total project cost is estimated at Rs 200.13 lakh with value of land and building cap at Rs 50 lakhs and cost of machine at Rs. 150.13 lakh. Table 8 highlights the actual estimated amount and capped as per scheme amount for land & building.

Table 8: Requirement in terms of land and building

Particulars	Actual Amount (INR in Lakhs)	Amount considered as per Scheme guidelines (In Lakh)
Land (5715 sq ft)	50.79	50.00
Building (two storied building) (shop-floor area of 7440 sq. ft.)	65.00	
Total	**115.79**	**50.00**

6.1.2 Plant and Machinery

As detailed in section 4.2 (Hard interventions) a number of modern automatic and high capacity machines for flour kneading, dough making, dividing, rounding, high speed slicing, etc. have been recommended to enable cluster units enhance their competitiveness. The machines have been categorized as primary and secondary. The machines that shall be used primarily for job work have been categorized as primary, whereas, the auxiliary/supporting machines have been categorized as secondary machines. The major facilities proposed at the CFC are dough making, industrial bread making, frozen cookie making & testing facilities of raw materials as well as finished products. The total cost of plant and machinery including secondary machine has been estimated at Rs. 150.13 lakhs and contingency works out to Rs. 7.51 Lakhs.

The details of the proposed machinery items are presented in the table 9. 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 machines during project execution, and selected vendors will be further invited to negotiate.

Table 9: List of Proposed Plant & Machinery

S. No.	Machine Name	Quantity	Supplier Options	Amount Rs. in lacs (Including taxes)
Primary Machinery				
1	One Trolley Machine	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	5.00
2	Four Trolley Oven	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	15.46
3	Two Trolley Oven	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	7.73
4	Flour Sifter	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	1.95
5	Spirl Mixer with Detachable bowl (Model: SPMD-120 kg with Gear Box Capacity)	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers,	7.44
6	Bowl Lifting & Tilting Machine	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	4.01
7	Dough Divider	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	7.44
8	Dough Moulder	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	6.30
9	Mould (4 packet mould for 400 gms bread)	297	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	4.35

S. No.	Machine Name	Quantity	Supplier Options	Amount Rs. in lacs (Including taxes)
	Mould 4 packet mould for Rusk/Toast	432		
10	Bun Divider Machine	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	4.52
11	Proofer	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	8.59
12	High Speed Slicer	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	4.01
13	Sugar Grinder	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	1.26
14	Planetary Mixer Model:PLM-140	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	5.15
15	Cookies Drop Machine Model CD PM-9	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	11.16
16	Packaging Machine	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	8.59
17	Panning Machine	1	Pritul Machines, CS-Aerotherm Pvt. Ltd, Nagpal Brothers	7.04
18	Metal Scanner	1	PMG Equipment's	2.75
19	Chiller with Tank	1	Eureka Forbes Ltd	3.05
20	RO	1	Eureka Forbes Ltd	3.08
21	Testing Lab Machines	19	Envitro Labs	9.96

S. No.	Machine Name	Quantity	Supplier Options	Amount Rs. in lacs (Including taxes)
Secondary Machinery				
22	DG Set	1	Sudhir	6.8
23	Air Conditioner	1	Sargam Electronics	0.39
23	Stainless Steel Table for Puff, Muffins, Dough, Rusk	9	Steel Tables	5.40
24	Transformer	1	Bhatia Electricals	8.70
Total		**770**		**150.13**

6.1.3 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. 2.00 Lakhs. Details are provided in the table 10.

Table 10: Miscellaneous Fixed Assets

Miscellaneous fixed assets Particulars	Amount (INR in Lakhs)
Office items and allied items, furniture, fixtures, firefighting equipment and back-up power supply etc.	2.00
Total	2.00

6.1.4 Preliminary and Pre-operative Expenses

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

Pre-operative expenses include expenses for electricity connection charges, administrative establishment, travelling, bank charges, stationery, telephone, overhead expenses during construction and machinery testing period such as salaries, machine testing cost, bank charges, traveling, etc. It also includes professional project management charges such as consultancy fees. The total expenditure for preliminary and pre-operative expenses are estimated at Rs. 8.91 Lakhs (details provided in the table 11).

Table 11: Preliminary and Pre-Operative Expenses

S. No.	Particulars	Amount Rs. in lakhs
1	Company Registration	0.50
2	Architect Fee	0.50
3	Tender forms & tendering cost	1.00
4	Project Report Preparation (DSR & DPR)	Nil
5	Project Management Charges	Nil
6	Travelling Cost	0.50
7	Machine testing cost	0.25
8	One time electricity connection charges for 96 kW connection @ Rs. 3300 (security + service charge etc.) per kWh	3.16
	Total	**5.91**

6.1.5 Provision for Contingencies

Provision for contingencies has to be made on plant/machinery and buildings. Contingencies estimated @2% on building and civil works amount to Rs. 1.30 lakhs. Contingencies on plant and machinery have been estimated at 5% that amounts to Rs. 7.51 lakh.

6.1.6 Margin Money for Working Capital

The total working capital requirement during the first year of operation at 80% capacity utilization is estimated at Rs. 11.73 lakh with margin money requirement of Rs. 2.93 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.

6.1.7 Summary Project Cost

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

Table 12: Total Project Cost

S. No.	Particulars	Actual Total Project Cost (Rs. Lakhs)	Eligible Project Cost as per guidelines (Rs. lakhs	Remarks
1	**Land** (5715 sq. ft. to be procured by SPV)	50.79	50.00	Max 25% of project cost of INR 200 lakhs
2	**Building** total covered area (7440 sq. ft.) two floors building including electrification & plumbing charges	65.00		
3	**Plant & Machinery**			
	a. Primary Machines	128.84	128.84	
	b. Secondary Machines	21.29	21.29	
4	**Miscellaneous fixed assets** (fixture, furniture, fire-fighting equipment, etc.)	2.00		Not eligible for grant
5	**Preliminary and Preoperative Expenses** (legal & administrative expenses, registration, civil engineering drawings with estimates & tender forms, telephone, stationery, machinery testing etc.)	5.91		
6	**Contingency**			
	a. Building @ 2%	1.30		
	b. Plant & Machinery @ 5%	7.51		
7	**Margin money for working capital** (Working capital required @ 80% C.U.)	2.93		
	Total	285.57	200.13	

6.2 Means of Finance

The project will be financed from two sources: equity from SPV, and grant-in-aid from Govt. of Haryana (under state mini cluster scheme, EPP 2015). Working capital loan will be secured from Corporation Bank. The assistance to the project from Govt. of Haryana under state mini cluster scheme is envisaged to the tune of 90% of max project cost of 200 lakhs. The SPV will be required to contribute 10% of project cost for project cost up to Rs. 200 lakh and any amount in excess of 200 lakhs. Hence, the SPV members have proposed to contribute entire amount beyond Rs. 180 lakhs, taking their overall contribution to about 37% of the total project cost. The total contribution of SPV members will amount to Rs. 105.57 lakhs. Support from State Government is envisaged for Rs. 180.00 Lakhs.

Table 13: Means of Finance

S. No.	Source of finance	Project cost upto INR 200.00 lakhs (max eligible as per scheme)		Project cost over INR 200.00 lakhs		Total Amount (INR in lakhs)
		Percentage Contribution	Amount (INR in lakhs)	Percentage Contribution	Amount (INR in lakhs)	
1	Grant-in-aid under Mini Cluster Scheme (Govt. of Haryana)	90	180	0	0	180.00
2	Contribution of SPV	10	20	100	85.57	105.57
	Total	**100**	**200**	**100**	**85.57**	**285.57**

6.2.1 Share Capital

The contribution of the SPV members will be by 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. 105.57 lakh contributed by the cluster SPV.

The authorized share capital of the company is Rs. 1 lakh 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.

6.2.2 Grant-in-Aid

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

6.3 Expenditure Estimates

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

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

6.3.1 Consumables

Machines installed in the CFC shall require consumables during operations and completion of the job work. Consumables are critical components of project facilities and may be

understood in terms of diesel, hydraulic oil, grease, nozzles, moulding equipment; slicing blade; and others etc.

Table 14: Consumables

S. No.	Machine Name	Hours available daily	Particulars	Amount (@ 80% C.U. in Rs. Lakh)	Amount (@ 85% C.U. in Rs. Lakh)	Amount (@ 85% C.U. in Rs. Lakh)
	Facility/Machine			1	2	3
1	4 Trolley Oven	8	Diesel, grease & oil @ Rs. 37.50 per hour	0.72	0.77	0.77
2	2 Trolley Oven					
3	1 Tray Oven					
Dough Making Facility						
4	Flour Sifter	8	Water, grease, hydraulic oil,Refined oil @ Rs. 10.65 per hour	0.2	0.22	0.22
5	Spiral Mixer with Detachable bowl (Model: SPMD-120 kg with Gear Box Capacity)					
6	Bowl Lifting & Tilting Machine					
7	Dough Divider					
8	Dough Moulder					
9	Mould (4 packet mould for 400 gms bread)					
	Mould 4 packet mould for Rusk/Toast					
10	Bun Divider Machine					
11	Proofer					
12	Panning machine					
Cookies making Facility						
13	High Speed Slicer	8	Water, Cutting blade, grease, machine oil, nozzle @ Rs. 6.04 per hour	0.12	0.12	0.12
14	Sugar Grinder					
15	Planetary Mixer Model:PLM-140					
16	Cookies Drop Machine Model CD PM-9					
Packaging Machine						
17	Packaging Machine	8	Cutter & Blade @ Rs. 1.04 per hour	0.02	0.02	0.02
Testing Facility & Machines						
18	Metal Scanner	8	Memrane,Candle, Nozzles @ Rs. 14.58 per hour	0.28	0.3	0.3
19	Chiller with Tank					
20	RO					
21	Testing Lab Machines					

S. No.	Machine Name	Hours available daily	Particulars	Amount (@ 80% C.U. in Rs. Lakh)	Amount (@ 85% C.U. in Rs. Lakh)	Amount (@ 85% C.U. in Rs. Lakh)
22	Computers & Printers	NA	Software Stationery & tonner @ Rs. 1000 per month	0.1	0.1	0.1
23	DG Set	NA	Diesel, grease & oil @ Rs . 834 per month	0.08	0.09	0.09
24	Misc. & Administrative	NA	Stationery & office related consumables @ Rs. 834 per month	0.08	0.09	0.09
	Total			1.6	1.7	1.7
	Consumables per month			0.13	0.14	0.14

6.3.2 Manpower Requirement

Another major expenditure head is the manpower. Therefore the facilities installed in the 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 20 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. 15.96 lakh and for indirect at 11.40 lakhs. The total expense on manpower is projected at Rs. 2.28 lakh per month or Rs. 27.36 lakh per annum. The details of monthly and yearly expenses for manpower required for running the project is provided in table 15:

Table 15: Expenditure Related to Salary (direct manpower - machine operators and helpers)

Category	No. of Manpower Required	Details of Manpower Required	Salary per month per person (INR)	Total Salary Per Month (INR)	Total salary & wages per Year (INR lakh)
Production related manpower (Direct)					
Dough Making Machines	1	Supervisor-cum- In charge	20000	20000	2.40
	1	Operator	15000	15000	1.80
	2	Helper	8000	16000	1.92
Oven operations	1	Operator	15000	15000	1.80
	1	Helper	8000	8000	0.96
	1	Operator	15000	15000	1.80

Category	No. of Manpower Required	Details of Manpower Required	Salary per month per person (INR)	Total Salary Per Month (INR)	Total salary & wages per Year (INR lakh)
Cookies dropping Machine	1	Helper	8000	8000	0.96
Metal Scanner & Packaging operation	1	Operator	20000	20000	2.40
	2	Helper	8000	16000	1.92
Total	11		1.17	1.33	15.96

Table 16: Expenditure Related to Salary (indirect manpower – administrative and support staff)

Category	No. of Manpower Required	Details of Manpower Required	Salary per month per person (INR)	Total Salary Per Month (INR)	Total salary & wages per Year (INR lakh)
Administration & accounting (Indirect)					
Manager	1	1	25000	25000	3.00
Accountant-cum-computer operator	1	1	10000	10000	1.20
Helper (Loading & unloading)	2	2	8000	16000	1.92
Office assistant	1	1	8000	8000	0.96
Lab assistant	1	1	12000	12000	1.44
Pantry	1	1	8000	8000	0.96
Security Guard	2	2	8000	16000	1.92
Total	**9**		**79000**	**95000**	**11.40**

6.3.3 Utilities

The most important utilities required in 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 110 kW. The table below depicts the machine and equipment wise power requirement in the CFC. The drawn power is conservatively assumed at 75% of the connected load in the case of operating facilities and shop floor.

Table 17: Machine & Equipment (facility) wise power requirement

S. No.	Machine & Equipment	Power Requirement (kW)/ Connected Load	Basic Price (Rs. in lakhs)	Excise Duty @ 12.5%	Total power requirement (75% of drawn power) kWh
1	4 Trolley Oven	7.46	13.50	1.69	5.59
2	2 Trolley Oven	2.24	6.75	0.84	1.68
3	1 Tray Oven	2.00			1.50
4	Flour Sifter	0.75	1.70	0.21	0.56
5	Spirl Mixer with Detachable bowl (Model: SPMD-120 kg with Gear Box Capacity)	13.42	6.50	0.81	10.07
6	Bowl Lifting & Tilting Machine	2.24	3.50	0.44	1.68
7	Dough Divider	2.24	6.50	0.81	1.68
8	Dough Moulder	0.75	5.50	0.69	0.56
9	Bun Divider Machine	13.42	3.95	0.49	10.07
10	Proofer	2.24	7.50	0.94	1.68
11	Panning machine	10.50			7.88
12	High Speed Slicer	3.73	3.50	0.44	2.80
13	Sugar Grinder	5.59	1.10	0.14	4.19
14	Planetary Mixer Model:PLM-140	3.73	4.50	0.56	2.80
15	Cookies Drop Machine Model CD PM-9	5.00	9.75	1.22	3.75
16	Packaging Machine	2.50	7.50	0.94	1.88
17	Metal Scanner	1.00	2.40	0.30	0.75
18	Chiller with Tank	0.50	2.30	0.29	0.38
19	RO	0.50	2.80	0.22	0.38
20	Testing Lab Machines	10.00	4.73	0.00	7.50
21	Administrative Facilities	10.00			7.50
Total		**99.79**	**93.98**	**11.03**	**74.84**
	Buffer Connected Load (10% of Total Connected Load)	**9.98**			
	Total Connected load for CFC	**110.00**			

The power requirement for operation of core machinery and equipment, testing lab and administrative facilities is 74.84 kWh. Electricity required for shop floor activities in terms of operation of core machinery and equipment is 14969 units per month. The facility is heavily based on electricity for operations and will also require additional 10% connected load as a buffer to get the electricity connection. The total connected load for the CFC is estimated to be 110 kW.

Fixed charges for connection of 110 kW @ Rs. 173 per kW = Rs. 19,030 and monthly consumption charge @ 65.48 kWh yields a consumption of 14969 units which amounts to Rs. 1.34 lakh. This has been calculated based on the prevalent rates of the power provider.

Table 18 presents the estimated annual expenditure in terms of power related charges.

Table 18: 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. 19,030 per month)	2.28	2.28	2.28
2	Variable charges (as per consumption of units)	Shop-floor, support facilities & administrative (Rs. 1.34 Lakh per month)	16.17	12.93	13.74
Total			18.45	15.22	16.03

6.3.4 Annual Repairs and Maintenance Expenses

The annual repair and maintenance expenses have been estimated to be Rs. 5.80 lakh. The details are presented in the table below:

Table 19: 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	Repair & maintenance	Building: repair & maintenance @ 2%	1.30	1.04	1.11
2		Plant & machinery: repair & maintenance @ 3%	4.50	3.60	3.83
Total			5.80	4.64	4.93

6.3.5 Insurance and miscellaneous Administrative Expenses

Insurance is a critical component of asset protection at the CFC. Insurance is computed on the basis of 0.5 % on the fixed assets. Cost of insurance shall remain as a fixed cost. Miscellaneous administrative expenses are estimated at a lump-sum of Rs. 1.00 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 below:

Table 20: Insurance and Miscellaneous Administrative Expenses

No.	Expenditure component	Particulars	Amount per annum (@ 100% 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	1.12
2	Miscellaneous administrative expenditure	Stationery, communication, travelling, and other misc. overheads	1.00
Total			**1.95**

6.4 Working Capital Requirements

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

Table 21: Calculation of Working capital requirement

Sr. No.	Particulars	No. of Month	Operating Expenses (as per Capacity Utilization)									
			1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr	6th Yr	7th Yr	8th Yr	9th Yr	10th Yr
1	Consumables	1	0.13	0.14	0.14	0.17	0.17	0.17	0.17	0.17	0.17	0.17
2	Utilities (Power)	1	1.27	1.34	1.34	1.54	1.54	1.54	1.54	1.54	1.54	1.54
3	Working Expenses (Manpower Expenses)	1	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28
4	Bills Receivable (Sales Value)	1	8.05	8.55	8.55	10.06	10.06	10.06	10.06	10.06	10.06	10.06
5	Working Capital		11.73	12.31	12.31	14.04	14.04	14.04	14.04	14.04	14.04	14.04
6	Working Capital Margin		2.93	3.08	3.08	3.51	3.51	3.51	3.51	3.51	3.51	3.51
7	Working Capital Loan		8.80	9.23	9.23	10.53	10.53	10.53	10.53	10.53	10.53	10.53
8	Interest on Working capital @11% p.a.		0.97	1.02	1.02	1.16	1.16	1.16	1.16	1.16	1.16	1.16

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. 11.73 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. 12.31 lakh. The corresponding margin money for working capital requirement at 80% & 85% capacity utilisation amounts to Rs. 2.93 lakh and Rs. 3.08 lakh respectively, and the corresponding loan amounts at Rs. 8.80 lakh and Rs. 9.23 lakh respectively.

6.5 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 the tables below.

Table 22: Depreciation based on SLM

Particulars	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
Land	50.79	50.79	50.79	50.79	50.79	50.79	50.79	50.79	50.79	50.79
Building										
Opening Balance	66.30	62.99	59.67	56.36	53.04	49.73	46.41	43.10	39.78	36.47
Less: Depreciation @ 5 %	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32
Closing Balance	62.99	59.67	56.36	53.04	49.73	46.41	43.10	39.78	36.47	33.15
Plant & Machinery										
Opening Balance	157.63	141.87	126.11	110.34	94.58	78.82	63.05	47.29	31.53	15.76
Less: Depreciation @ 10%	15.76	15.76	15.76	15.76	15.76	15.76	15.76	15.76	15.76	15.76
Closing Balance	141.87	126.11	110.34	94.58	78.82	63.05	47.29	31.53	15.76	0.00
Misc. Fixed Asset										
Opening Balance	2.00	1.80	1.60	1.40	1.20	1.00	0.80	0.60	0.40	0.20
Less: Depreciation @ 10%	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20

Closing Balance	1.80	1.60	1.40	1.20	1.00	0.80	0.60	0.40	0.20	0.00
Opening Balance	276.72	257.45	238.17	218.89	199.61	180.33	161.05	141.78	122.50	103.22
Total Depreciation	19.28	19.28	19.28	19.28	19.28	19.28	19.28	19.28	19.28	19.28
Depreciated value	257.45	238.17	218.89	199.61	180.33	161.05	141.78	122.50	103.22	83.94

Table 23: Depreciation based on WDV

Particulars	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
Land	50.79	50.79	50.79	50.79	50.79	50.79	50.79	50.79	50.79	50.79
Building										
Opening Balance	66.30	59.67	53.70	48.33	43.50	39.15	35.23	31.71	28.54	25.69
Less: Depreciation @ 10%	6.63	5.97	5.37	4.83	4.35	3.91	3.52	3.17	2.85	2.57
Closing Balance	59.67	53.70	48.33	43.50	39.15	35.23	31.71	28.54	25.69	23.12
Machinery and Equipment										
Opening Balance	157.63	133.99	113.89	96.81	82.28	69.94	59.45	50.53	42.95	36.51
Less: Depreciation @ 15%	23.64	20.10	17.08	14.52	12.34	10.49	8.92	7.58	6.44	5.48

Closing Balance	133.99	113.89	96.81	82.28	69.94	59.45	50.53	42.95	36.51	31.03
Misc. Fixed Assets										
Opening Balance	2.00	1.80	1.62	1.46	1.31	1.18	1.06	0.96	0.86	0.77
Less: Depreciation @ 10%	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09	0.08
Closing Balance	1.80	1.62	1.46	1.31	1.18	1.06	0.96	0.86	0.77	0.70
Total Depreciation	30.47	26.25	22.62	19.50	16.82	14.52	12.55	10.85	9.38	8.12
Depreciated value	246.25	220.00	197.39	177.89	161.06	146.54	133.99	123.15	113.76	105.64

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.

6.6 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 charged a premium for availing the CFC services. The major income sources for the CFC are envisaged by the way of providing dough facilities, frozen cookie making facility, industrial bread making facilities and six types cookie dropping 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 below:

Table 24: User Charges for Machinery

S. No.	Machine Name	User Charge Per Hour (In Rs.)	Hours available daily (Single Shift)	No. of days	Amount (@ 80% C.U. in Rs. Lakh)	Amount (@ 85% C.U. in Rs. Lakh)	Amount (@ 100% C.U. in Rs. Lakh)
Primary Machinery							
1	4 Trolley Oven	1410	8	300	27.072	28.764	33.84
2	2 Trolley Oven						
3	1 Tray Oven						
	Dough Making Facility						
4	Flour Sifter	1715	8	300	32.928	34.986	41.16
5	Spiral Mixer with Detachable bowl (Model: SPMD-120 kg with Gear Box Capacity)						
6	Bowl Lifting & Tilting Machine						
7	Dough Divider						
8	Dough Moulder						
9	Mould (4 packet mould for 400 gms bread)						
	Mould 4 packet mould for Rusk/Toast						
10	Bun Divider Machine						
11	Proofer						
12	Panning machine						
	Cookies making Facility						
13	High Speed Slicer	1170	8	300	22.46	23.87	28.08
14	Sugar Grinder						
15	Planetary Mixer Model:PLM-140						
16	Cookies Drop Machine Model CD PM-9						
	Packaging Facility						
17	Packaging Machine	235	8	300	4.51	4.79	5.64

S. No.	Machine Name	User Charge Per Hour (In Rs.)	Hours available daily (Single Shift)	No. of days	Amount (@ 80% C.U. in Rs. Lakh)	Amount (@ 85% C.U. in Rs. Lakh)	Amount (@ 100% C.U. in Rs. Lakh)
	Testing Lab						
18	Metal Scanner	500	8	300	9.60	10.20	12.00
19	Testing Lab Machines						
Total					**96.58**	**102.61**	**120.72**

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

Table 25: Income and Expenditure Statement

Particulars	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
Number of working days	300	300	300	300	300	300	300	300	300	300
Number of shift	1	1	1	1	1	1	1	1	1	1
Capacity Utilization in %	80%	85%	85%	100%	100%	100%	100%	100%	100%	100%
A. Income										
(User/ Service Charge)	**96.58**	**102.61**	**102.61**	**120.72**	**120.72**	**120.72**	**120.72**	**120.72**	**120.72**	**120.72**
B. Cost of Production :										
1. Utilities Power (Fixed +Variable)	15.22	16.03	16.03	18.45	18.45	18.45	18.45	18.45	18.45	18.45
2. Direct labour and wages	15.96	15.96	15.96	15.96	15.96	15.96	15.96	15.96	15.96	15.96
3 Consumable	1.60	1.70	1.70	2.00	2.00	2.00	2.00	2.00	2.00	2.00
4. Repair and Maintenance	4.64	4.93	4.93	5.80	5.80	5.80	5.80	5.80	5.80	5.80
5. Depreciation	30.47	26.25	22.62	19.50	16.82	14.52	12.55	10.85	9.38	8.12
Total Cost of production	**67.89**	**64.86**	**61.23**	**61.71**	**59.03**	**56.73**	**54.76**	**53.06**	**51.59**	**50.33**
C. Administrative expenses :										
7. Manpower (Indirect)	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**	**11.40**
8. Insurance	**1.13**	**0.98**	**0.85**	**0.73**	**0.64**	**0.55**	**0.48**	**0.42**	**0.36**	**0.31**
9. Misc Expense	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

Total Administrative Expenses	13.53	13.38	13.25	13.13	13.04	12.95	12.88	12.82	12.76	12.71
D. Financial expenses :										
10. Interest on Working capital loan @ 11% per annum	0.97	1.02	1.02	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Total Financial Expenses										
E. Total Expenses B+C+D	82.39	79.25	75.49	76.00	73.23	70.84	68.79	67.03	65.51	64.21
F. Profit A - E	14.19	23.36	27.12	44.72	47.49	49.88	51.93	53.69	55.21	56.51
G. P&P Expenses written off	1.18	1.18	1.18	1.18	1.18	0.00	0.00	0.00	0.00	0.00
H. Income before Tax (F-G)	13.01	22.18	25.94	43.54	46.31	49.88	51.93	53.69	55.21	56.51
I. Income Tax (Provision @ 25.90%)	0.16	3.61	5.52	10.85	12.25	14.07	15.10	16.00	16.76	17.43
J. Net Profit for the year	12.84	18.57	20.42	32.69	34.06	35.81	36.82	37.69	38.44	39.09
K. Cumulative Surplus	12.84	31.41	51.83	84.52	118.58	154.39	191.21	228.90	267.35	306.44

As evident from the table above, the project is financially viable. A cumulative surplus of about Rs.306.44 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

The table below represents 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.

Table 26: Income Tax

Particulars	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
Profit as per Income & Expenditure Statement	13.01	22.18	25.94	43.54	46.31	49.88	51.93	53.69	55.21	56.51
Add Depreciation under straight line method	19.28	19.28	19.28	19.28	19.28	19.28	19.28	19.28	19.28	19.28
Less Depreciation under written down value method	30.47	26.25	22.62	19.50	16.82	14.52	12.55	10.85	9.38	8.12
Less P & P written off	1.18	1.18	1.18	1.18	1.18	0.00	0.00	0.00	0.00	0.00
Taxable Profit	0.63	14.03	21.42	42.13	47.58	54.63	58.66	62.12	65.10	67.67
Taxable profit post adjustment of accumulated losses										
Income tax (25.75%)	0.16	3.61	5.52	10.85	12.25	14.07	15.10	16.00	16.76	17.43

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. 0.00 Lakh per annum for year 1 to Rs. 17.43 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. The table below presents the sources and disposal/uses of funds statement of the project.

Table 27: Cash Flow Statement

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 Funds :											
1. Cash Accruals											
(Net Profit + Interest paid)		15.16	24.38	28.14	45.88	48.65	51.03	53.08	54.85	56.37	57.67
2. Increase in capital	105.57										
4. Depreciation		30.47	26.25	22.62	19.50	16.82	14.52	12.55	10.85	9.38	8.12
5. Increase in WC Loan		8.80	0.43	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00
6. Increase in Grant-in-aid from GoH	180.00										
Total Sources	285.57	54.43	51.05	50.75	66.68	65.48	65.56	65.63	65.69	65.75	65.80
B. Use of Funds :											
1. P&P Expenses	5.91										
2. Increase in fixed assets	276.72										
5.Increase in debtors		8.05	0.50	0.00	1.51	0.00	0.00	0.00	0.00	0.00	0.00
6. Increase in other Assets	2.93	17.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
7. Interest		0.97	1.02	1.02	1.16	1.16	1.16	1.16	1.16	1.16	1.16

Particulars	Construction Period	Ist Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
8. Taxation		0.16	3.61	5.52	10.85	12.25	14.07	15.10	16.00	16.76	17.43
Total Use of Funds	285.57	26.24	7.13	8.53	15.52	15.41	17.23	18.26	19.15	19.92	20.58
D. Net Surplus (A -B)		28.18	43.92	42.22	51.16	50.06	48.33	47.37	46.54	45.83	45.21
E. Cumulative Balance		28.18	72.11	114.33	165.49	215.55	263.89	311.26	357.80	403.62	448.83

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 Mini Cluster scheme, 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 the CFC and undertaking other cluster development activities. Decision on deployment of reserves and surplus accumulated will be based on the performance of the project and requirements of cluster firms and members of the SPV. The projected balance sheets are provided in the table below:

Table 28: Balance Sheet

Particulars	At the end of impl. 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	276.72	276.72	246.25	220.00	197.39	177.89	161.06	146.54	133.99	123.15	113.76
Less : Depreciation (WDV)		30.47	26.25	22.62	19.50	16.82	14.52	12.55	10.85	9.38	8.12
Net Block A	**276.72**	**246.25**	**220.00**	**197.39**	**177.89**	**161.06**	**146.54**	**133.99**	**123.15**	**113.76**	**105.64**
B. Current Assets :											
Cash and Bank Surplus (B.F)		28.18	72.11	114.33	165.49	215.55	263.89	311.26	357.80	403.62	448.83
Debtors		8.05	8.55	8.55	10.06	10.06	10.06	10.06	10.06	10.06	10.06
Other Current Assets, Loan & Advances	2.93	20.00	22.00	24.00	26.00	28.00	30.00	32.00	34.00	36.00	38.00
Net Block B	**2.93**	**56.23**	**102.66**	**146.88**	**201.55**	**253.61**	**303.95**	**353.32**	**401.86**	**449.68**	**496.89**
C. P&P Expenses	5.91	4.73	3.55	2.36	1.18						

Total Assets (A+B+C)	**285.57**	**307.21**	**326.21**	**346.63**	**380.62**	**414.68**	**450.49**	**487.31**	**525.00**	**563.45**	**602.53**
D. Current Liabilities :											
Working Capital Loan		8.80	9.23	9.23	10.53	10.53	10.53	10.53	10.53	10.53	10.53
E. Fixed Liabilities											
Shareholders' Contribution	105.57	105.57	105.57	105.57	105.57	105.57	105.57	105.57	105.57	105.57	105.57
Grant from GoH	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00
Reserves and Surplus		12.84	31.41	51.83	84.52	118.58	154.39	191.21	228.90	267.35	306.44
Total Liabilities (D+E)	**285.57**	**307.21**	**326.21**	**346.63**	**380.62**	**414.68**	**450.49**	**487.31**	**525.00**	**563.45**	**602.53**

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 equal 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 years of activity are provided in the table below:

Table 29: Break Even Estimates

Particulars	Amount at operating capacity (80%)	Amount at operating capacity (85%)	Amount at operating capacity (100%)
A. Total Earning by way of user charges	**96.58**	**102.61**	**120.72**
B. Variable costs			
Consumables	1.60	1.70	2.00
Utilities (power- variable charge)	12.93	13.74	16.17
Interest on WC Loan	0.97	1.02	1.16
Repair & Maintenance	4.64	4.93	5.80
Manpower (Direct)	15.96	15.96	15.96
Total Variable Cost	**36.10**	**37.35**	**41.08**
C. Contribution (A-B)	**60.48**	**65.27**	**79.64**
D. Fixed Overheads (Cash)			
Manpower (Indirect)	11.40	11.40	11.40
Utilities (Power - fixed charges)	2.28	1.99	1.99
Insurance	1.00	1.00	1.00
Misc. Expenditure	1.00	1.00	1.00
Sub-total	**15.68**	**15.39**	**15.39**
F. Fixed Overheads (Non-cash)			
Depreciation	19.28	19.28	19.28
Preliminary & Pre-operative expenses written off	1.18	1.18	1.18

G. Total Fixed Overheads	36.14	35.85	35.85
Break-even point (G/C)	59.77%	54.93%	45.02%

Book break-even is achieved at 59.77% (of operational capacity at 80 per cent) and at 54.93% (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 Return on Capital Employed (ROCE), Net Present Value (NPV), Break Even Point (BEP) and the Internal Rate of Return (IRR) is presented in the table below. The indicators validate the financial viability and sustainability potential of the proposed project.

Table 30: Financial Analysis

S. No.	Particulars	Estimates
1	BEP (cash BEP at operating capacity of 80%)	59.77
2	Av. ROCE (PAT/CE) sans Grant	10.73%
3	Av. ROCE (PAT/CE) with Grant	29.03%
4	Internal Rate of Return (IRR)	42.26%
5	Net Present Value (at a discount rate of 10 per cent) - incorporating viability gap funding (grant) by GoH	185.30
6	Payback period	2 Year & 11 months with Grant-in-aid assistance from GoH
7	DSCR	NA

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

Table 31: Calculation of Return on Capital Employed

	1	2	3	4	5	6	7	8	9	10
Adv. ROCE (PAT/CE) sans grant	4.50%	6.50%	11.45%	11.93%	12.54%	12.89%	13.20%	13.46%	13.69%	4.50%
Adv. ROCE (PAT/CE) with grant	12.17%	17.59%	30.96%	32.26%	33.92%	34.88%	35.71%	36.42%	37.03%	12.17%

The average value of ROCE (with grant-in-aid) is 29.03%. 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 GoH, the ROCE works out to an unviable 10.73%.

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 10.0%, the rate at which bank offers debt capital facility and even at higher discount rates. Project IRR is high at over 40.26% (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 the potential of undertaking cluster initiatives to improve the backward and forward linkages of the cluster units.

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

6.13 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 Bakery industry but also in undertaking cluster developmental initiatives.
- **Facility is pre-marketed:** Evidently, complete capacity of the core facility to be established in terms of various facilities may be easily availed by members of the SPV themselves, thus the facility would already have a captive market.

- **Sustainability indicators in terms of the strength of the SPV and the economics of the project:** Evidence of cooperative initiatives of SPV members as articulated in previous chapters; for instance, in terms of pursuing several joint efforts, registering the SPV, 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 state mini cluster scheme and EPP 2015 also serve as evidence of techno-economic viability and sustainability of the project. A sensitivity analysis has been carried out to ascertain the impact on the project, should there be any loss of revenue. This has been calculated assuming drop in user charges. Major financial parameters are still attractive. The important parameters related to the sensitivity analysis are presented in the table below:

Table 32: Sensitivity Analysis

S. No.	Particulars	Base case	With 5% decline in user charge	With 10% decline in user charge	With 15% decline in user charge
1	BEP (cash BEP at operating capacity of 80%)	59.77	64.91	71.03	78.42
2	Av. ROCE (PAT/CE)	29.03%	25.05%	21.06%	17.06%
3	Internal Rate of Return (IRR)	42.26%	38.42%	34.48%	30.40%
4	Net Present Value (at a discount rate of 10%) - incorporating viability gap funding (grant) by GoH	185.30	159.91	134.53	109.14

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. 285.57 Lakh on the basis of estimates and quotations.

2. To finance the project, a total of Rs. 285.57 Lakhs is required. The financing will consist of grant from central government, government to Haryana and contribution by SPV.

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 the State Level Project Steering Committee under Mint-Cluster Scheme. 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

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

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

3. **Project implementation schedule:** The project implementation schedule envisaged over a period of 10 months involves several activities. The schedule is elaborated in the table below:

Table 33: Project Implementation Schedule

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

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

   A total of 11 units are participating in the SPV and all these units have agreed to contribute towards the SPV share of the project cost. The utilization of the common facility will be in line with the proposed shareholding pattern. The consent letter wherein the member units agree for payments of 10% share of cost of CFC will be submitted in due course of time and as per final approval from Government of Haryana.

5. **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 government of Haryana, many more members will be interested to subscribe to the shares of the SPV.

6. **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 635 sq. yards has already been identified by the SPV and shall be purchased by SPV soon.

7. **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.

8. **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. The CDCC will look after the project under Mini Cluster Scheme to be implemented under the state's Enterprise Promotion Policy 2015.

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

The members may comprise the following:

i. Director, Industries and Commerce, Government of Haryana (Chairman)
ii. Concerned Joint Director, Department of Industries and Commerce
iii. GM, DIC Karnal
iv. HSIIDC state officer
v. Commercial bank general Manager

vi. President of related industry association
vii. Directors of related SPV
viii. EY Cluster Development Expert under MSME project

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

In addition, for implementing the Karnal Bakery 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 DIC Karnal.

Conclusion

8. Conclusion

The micro bakery units of Karnal are 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. 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 products for the biggest market segment in the region i.e. Nik bakers, KFC, Dominos & Pizza Hut.

Against this backdrop, it is inevitable to support the micro bakery units in Karnal to adopt modern dough making, cookies making, Bun dividing machines as well as hi quality testing lab machines. This will reduce their processing costs significantly while increasing the quality of their produce.

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

- Value added cookies operations facilities
- Value added Oven Facilities
- Value added Packaging Facilities
- Value added dough making facilities
- Value added finishing & testing facilities

The total project cost (including plant/machinery and buildings) is estimated to be Rs. 260.43 Lakhs. The project shall be implemented by the SPV 'Karnal Bakery 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 DIC and the state government (Department of Industries) under PPP mode. The land for the project has already been identified by the SPV and shall be acquired immediately upon in final approval by State Government. The state industry department is envisaged to provide grant for setting up of the modern machines under the Mini-Cluster scheme, Haryana EPP 2015. The SPV members have proposed to contribute RS.80.43 lakhs of the project cost. Support from Mini Cluster Scheme of the State Government of Haryana is envisaged for Rs. 180 lakh. Working capital requirement for the project will be provided by Corporation Bank. The project is financially viable and is expected to generate enough revenue to ensure its sustainability.

Annexures


celebrate
GROWTH
TAKE
Entrepreneur
passionate
GALA
options
WORLD

9. Annexures

Annexure 1: Minutes of State Level Project Steering Committee

From

The Director of Industries & Commerce, Haryana,
Chandigarh.

To

1. The Special Secretary, Finance Department,
R. No. 49/5th Floor, Civil Secretariat, Haryana,
Email:- asse-hry@nic.in

2. MSME, Development Institute, 11-A,
Industrial Development Colony, Near ITI,
Kunjpura Road, Karnal.
E-mail :- dcdi-karnal@dcmsme.gov.in

3. Managing Director,
Haryana Financial Corporation,
30 Bays Building, Sector - 17,
Chandigarh.
E-mail:- contact@hfcindia.org

4. Mr. S.D. Sharma,
Convener : State Level Bankers Committee, Haryana,
Field G.M. Office: P.N.B. House, Sector - 17-B,
Chandigarh.
E-mail:- slbcharyana@pnb.co.in

5. Joint Director,
District Industries Centre,
Karnal.
E-mail:- gmdickarnal@yahoo.in

6. Joint Director,
District Industries Centre,
Sonepat.
E-mail:- dicsonepat@gmail.com

Memo No. Cluster/Bakery Cluster/Karnal/ 5705-A
Dated Chandigarh, the 20-4-17

Subject:- **Minutes of the meeting of 1st State Level Steering Committee held on 10.04.2017 at 4.00 PM under the Chairmanship of Sh. Devender Singh, IAS, Principal Secretary Industries & Commerce Department, at Knowledge Centre 9th Floor, Haryana Civil Secretariat, Chandigarh for approval of DSR/DPRs under the Mini Cluster Development Scheme of State Govt.**

Please refer to the subject cited above.

Please find enclosed herewith a copy of Minutes of the 1st State Level Steering Committee meeting held under the Chairmanship of Sh. Devender Singh, IAS,

Principal Secretary Industries & Commerce Department, on 10.04.2017 at 4.00 P.M. for information & taking further necessary action.

Encl: As above.

Assistant Director (Cluster)
for Director of Industries & Commerce, Haryana.

Endst No. Cluster/Bakery Cluster/Karnal/ 5106-4 Dated:- 20-4-17

1. PS to PSI for kind information of PSI.
2. PS to DI&C, Haryana for kind information of DI&C.

Assistant Director (Cluster)
for Director of Industries & Commerce, Haryana.

Minutes of the meeting of 1st State Level Steering Committee held on 10.04.2017 at 04:00 PM under the Chairmanship of Sh. Devender Singh, IAS, Principal Secretary to Industries & Commerce Department, at Knowledge Centre, 9th Floor, Haryana Civil Secretariat, Chandigarh for approval of DSRs/DPRs under the Mini Cluster Development Scheme of State Government.

The following were present:

S.No	Name of the Officers	Designation
1	Sh. Devender Singh, IAS	Principal Secretary, Industries & Commerce
2	Sh. Ashok Sangwan, IAS	Director of Industries & Commerce
3	Sh. R.C Dahra	Consultant, O/O DI&C
4	Sh. Sunil Kumar	Assistant Director, MSME DI Karnal
5	Sh. Bhagmal Takshak	Joint Director, DIC Karnal
6	Sh. Ashok Gupta	OSD (R), HFC, Chandigarh
7	Sh. S.D Sharma	SLBC PNB, Chandigarh
8	Sh. Pardeep Goyal	SLBC PNB, Chandigarh
9	Sh. Dhup Singh	Supdt. Finance Department
10	Sh. Chandan Nagasuri	PMU, EY LLP
11	Sh. Upinder Singh Dhingra	PMU, EY LLP
12	Sh. Joginder Kumar Arya	PMU, EY LLP
13	Sh. Deepak Sharma	Access Consultancy Services

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. After the introduction of the members and other representatives, the agenda of the meeting was taken up as under:

Item No. 1.1

DSR in case of M/s Karnal Bakery Cluster

The Project Management Unit (PMU) from E&Y represented by Mr. Upinder Dhingra informed the committee that the DSR in this case was submitted on 03.03.2017 and was

duly validated in the stakeholders meeting held on 16.03.2017 under the Chairmanship of Director of Industries& Commerce. The consultant presented the case explaining the scheme guidelines along with the bakery scenario of the country and Karnal. The consultant highlighted the current processing methodology and major issues & challenges being faced by the members of the cluster. Soft interventions were proposed by the consultant with defined timelines and budget for each intervention. It was also stated that members of the mini cluster have already been identified and SPV is in the process of registration. The Director of Industries & Commerce asked the E & Y consultant to define the type of soft interventions being undertaken by the cluster. The SPV members informed that with the support of consultant, they have already organized a lean manufacturing workshop and visited large bakery units at Kundli and Noida as part of exposure visit. They are also in touch with leading institutions to arrange training programs for the members. The Principal Secretary Industries directed that the SPV may undertake the Soft interventions from reputed or Government approved organisations and grant-in-aid shall be disbursed only after due diligence has been undertaken by the consultant.

After detailed discussions, the DSR accepted by Director Industries & Commerce was approved by the State Level Steering Committee and EY LLP was asked to prepare DPR of the cluster within a period of one month.

Item No. 1.2

DSR in case of M/s General Engineering Cluster, Rai

Mr. Deepak Sharma of M/s Access Consultancy, who has been appointed by the SPV as their consultant, gave brief presentation on the DSR of General Engg. Cluster, Rai. The DSR was validated in the stakeholders meeting under the chairmanship of Director Industries & Commerce on 30-03-2017 at Chandigarh.

The consultant informed that the cluster comprises of 110 micro and small units as well as 5 medium & large units with an annual turnover of 400 crores. Major products of the cluster include aluminium die casting, sat springs, auto components, forging, sheet metal, plastic moulding, rubber parts, machine tools etc. The most of the units of the cluster are tier-II & tier-II suppliers or sell in the open market. These units exist at the low end of the product value chain.

The major problems of the clusters are absence of hi-tech heat treatment (hardening & tempering), absence of raw material testing facilities for chemical/physical testing of material/finished products and absence of adequate tool room facilities. The

consultant informed that they have proposed for Soft Interventions such as training program of the SPV members from reputed organisation & exposure visits to the leading machinery manufacturers. The Principal Secretary Industries directed that the SPV may undertake the Soft interventions from reputed or Government approved organisations and grant-in-aid shall be disbursed only after due diligence has been undertaken by the consultant.

After detailed discussions, the DSR accepted by Director Industries & Commerce was approved by the State Level Steering Committee and Mr. Deepak Sharma from Access Consultancy was asked to prepare DPR of the cluster within a period of one month. He was also informed that since state government has already appointed E&Y as their PMU, no grant-in-aid far the preparation of DSR/DPR shall be allowed.

Meeting ended with the vote thanks to the chair.

Attendance of the representatives of Bakery Cluster, Karnal and General Engg. Cluster, Rai.

S.No.	Name of the representatives	Name of the Organisation
	Bakery Cluster, Karnal	
1.	Sh. Sagar Lamba	Lamba Bakery, Karnal
2.	Sh. Amit Ahuja	Ahuja Bakers, Karnal
3.	Sh. Sanjay Gupta	Laadla Bakery, Karnal
	Engineering Cluster, Karnal	
4.	Sh. Amit Kohli	Delta FAsterners, Rai
5.	Sh. Atul Kohli	Deepro Industries, Rai
6.	Sh. Arun Kohli	Alpha Tech. System, Rai
7	Sh. Sarbjit Singh Saini	Saini Brake System Pvt. Ltd., Rai

Annexure 2 (a): SPV Certificate of Incorporation

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 (18 of 2013) and rule 18 of the Companies (Incorporation) Rules, 2014]

I hereby certify that KARNAL BAKERY CFC PRIVATE LIMITED is incorporated on this Twenty eighth day of April Two thousand seventeen under the Companies Act, 2013 (18 of 2013) and that the company is limited by shares.

The Corporate Identity Number of the company is U15130HR2017PTC068833.

The Permanent Account Number (PAN) of the company is **AAGCK5723K** *

Given under my hand at Manesar this Twenty eighth day of April Two thousand seventeen .

Digital Signature Certificate
Pranay Chaturvedi

For and on behalf of the Jurisdictional Registrar of Companies
Registrar of Companies
Central Registration Centre

Disclaimer: This certificate only evidences incorporation of the company on the basis of documents and declarations of the applicant(s). This certificate is neither a license nor permission to conduct business or solicit deposits or funds from public. Permission of sector regulator is necessary wherever required. Registration status and other details of the company can be verified on www.mca.gov.in

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

KARNAL BAKERY CFC PRIVATE LIMITED
19/10, RAM NAGAR, KARNAL, Karnal, Haryana, India, 132001

Annexure 2(b): Copy of Memorandum of Association (MoA) & Article of Association (AoA)

Annexure 3: Verification of units by DIC, Karnal

Annexure 4: Land Availability Proof

Annexure 5: Building Layout Plan

Annexure 6: Building Estimate

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

Ernst & Young LLP

Assurance | Tax | Transactions | Advisory

About EY

EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. For more information about our organization, please visit ey.com.

Ernst & Young LLP is one of the Indian client serving member firms of EYGM Limited. For more information about our organization, please visit
www.ey.com/in.

Ernst & Young LLP is a Limited Liability Partnership, registered under the
Limited Liability Partnership Act, 2008 in India, having its registered office at 22 Camac Street, 3rd Floor, Block C, Kolkata - 700016

ED 0515

Artwork by: JG

EY refers to the global organization, and/or one or more of the independent member firms of Ernst & Young Global Limited