

Project Report

Setting up of Common Facility Centre in Jaggery

Under One District One Product


Submitted by
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funded by

Muzaffarnagar Vikas Prdhikaran
Muzaffarnagar



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कार्यालय मुजफ्फरनगर विकास प्राधिकरण, मुजफ्फरनगर

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पत्रांक -

1016/मु0वि0प्रा0/2019

दिनांक - 06/06/2019

डॉ एस. सी. कुलश्रेष्ठ
चेयरमैन
श्री राम कॉलेज, मुजफ्फरनगर

प्रिय महोदय ,

उत्तर प्रदेश सरकार की योजना 'एक जिला एक उत्पाद' के अंतर्गत जनपद मुजफ्फरनगर हेतु चयनित उत्पाद 'गुड' के उत्पादन को प्रोत्साहन देने के उद्देश्य से आपके संस्थान को 'एक जनपद एक उत्पाद' के अन्तर्गत गुड महोत्सव पर गुड के सामान्य सुविधा केन्द्र की स्थापना हेतु परियोजना प्रतिवेदन तैयार करने के लिए चयनित किया जाता है।

इस कार्य के निष्पादन हेतु आपको एकमुश्त रु 1,00,000/- की धनराशि इस पत्र के साथ चेक के माध्यम से प्रेषित की जा रही है।

कृप्या पावती की सूचना भेजने का कष्ट करें।

भवदीय

(महेंद्र प्रसाद)

सचिव

मुजफ्फरनगर विकास प्राधिकरण

संलग्न :

चेक संख्या : 085289

बैंक: इलाहाबाद बैंक

तिथि: 6/6/2019

राशि: रु 1,00,000/-

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Utilization Certificate

S.N.	Detail of sanction of Fund with Project name and Duration	Amount
1.	90-Day project on Setting up of common Facility centre in Jaggery Under One District One Product, Date of Sanction of Fund- 06-06-2019 as per Sanction Letter	100000.00
	TOTAL	100000.00

It is Certified that out of Rs. 100000.00 (Rs. One Lakh Only) of grants sanctioned by **Muzaffarnagar Vikas Pradhikaran, Muzaffarnagar** during the year 2019-20 in favor of **Shri Ram College, Muzaffarnagar**, a sum of Rs. 100000.00 has been utilized for the purpose of the project for which it was sanctioned and that the balance of Rs. **Nil** remaining unutilized at the end of the year has been surrendered. The Extra amount (If any) is met out by Shri Ram College.

2. Certified that we have satisfied our self that the conditions on which the grant was sanctioned have been duly fulfilled/are being fulfilled and that we have exercised the following checks to see that the money was actually utilized for the purpose for which it was sanctioned.

Kinds of checks exercise-

1. Checking of cash book
2. Checking of payment vouchers.
3. Checking of expenses bills.

For Shri Ram College

Secretary

Place: Muzaffarnagar

Date- 10-11-2019


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For Goel Rakesh & Co.
Chartered Accountants



M. No. 071858
FRN : 003374C

Background



Government of Uttar Pradesh has launched One District One Product scheme to promote visibility and sale of indigenous and specialized products/crafts of Uttar Pradesh. Under this scheme Uttar Pradesh government has decided to set up Common Facility Centers (CFC) in each of 75 districts of the state. The CFC is ODOP targeted scheme and is likely to benefit the micro and small entrepreneurs. Muzaffarnagar has been assigned 'Jaggery'/ Gur as selected product as part of One District One Product scheme.

About Jaggery (Gur)

Gur or Jaggery means the product obtained by boiling of sugarcane juice pressed out of sugarcane or extracted from palmyra palm, date palm or coconut palm. Jaggery / Gur is the most ancient sweetening agent in India. This is a low grade non-

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centrifugal sweetener consumed in India, Pakistan, Bangladesh, Africa, Myanmar, China and other countries.

Jaggery (Gur) is a pure, traditional, unrefined form of sweetener and is mostly confined to rural areas. Jaggery (Gur) contains total sugar (Glucose, fructose and sucrose) not less 90% and within this limit sucrose not less than 60%, besides other minerals like Calcium, Iron, Phosphorous and Protein are also present. This product is seasonal in nature i.e. it's production takes place only during November to April in a year but its consumption takes place throughout the year. Most of the Gur business suffers from losses due to poor quality of product. It is based on traditional Kolhus in which recovery of juice from sugarcane is very poor. It is also observed that the Kolhu owners, mostly farmers, are using harmful chemicals to clean cane juice and providing colors to the product. They are also quite ignorant to the latest technologies developed for making Jaggery.

The development of different value added products from Gur like confectionary products, liquid gur, Aurvedic Jaggery, Jaggery Powder (Khand), Gur-Patti, Gur-Chocolate, Gur Burfi and Gur containing Nutritional and Medicinal substances may be prepared to enhance the profit of the unit.

Main Problems of Muzaffarnagar Jaggery Cluster

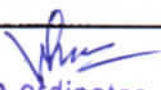
- ❖ The improper Moulding and Packaging of Jaggery is imposing problems of reduced storage life and poor aesthetic.
- ❖ Non homogenous granular and powder jaggery with improper drying due to lack of automatic dryers has reduced storage life.
- ❖ Improper packaging of the powder and liquid jaggery leads to reduced storage life, and poor aesthetic look.
- ❖ The product is facing stiff competition from sugar industries.

- ❖ The Kolhu owners are not scientifically equipped with the testing machineries as a result is not able to upgrade the quality of the product to match the BIS and EU standards for export.
- ❖ The dominance of traders (middlemen) is reducing the profit of the producers.
- ❖ The lack of storage facility in the region is leading to degradation of the Jaggery and its production.
- ❖ There is very little value addition taking place, though there is good scope of value added products that can be produced using the jaggery.
- ❖ There is no branding taking place by which the demand is to be accelerated.
- ❖ There is no training and skill upgradation taking place as a result there is continuous migration of work force.

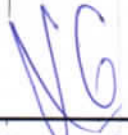
Justification for CFC

The issues of productivity and efficiency of production needs to be addressed in a systematic manner.

- ❖ There could be scope for direct supplies to bulk jaggery for segments such as organized large retail, confectionery industry, and also ayurvedic and health foods industry among others.
- ❖ The potential for direct exports and futures trading has also to be considered in the growth plan.
- ❖ Promotion of product quality-testing and certification facilities could be a useful intervention contribution both to quality and marketing efforts.
- ❖ With the support of technology upgradation the jaggery industry in the cluster will be able to compete globally and will be able to further progress and provide huge employment.

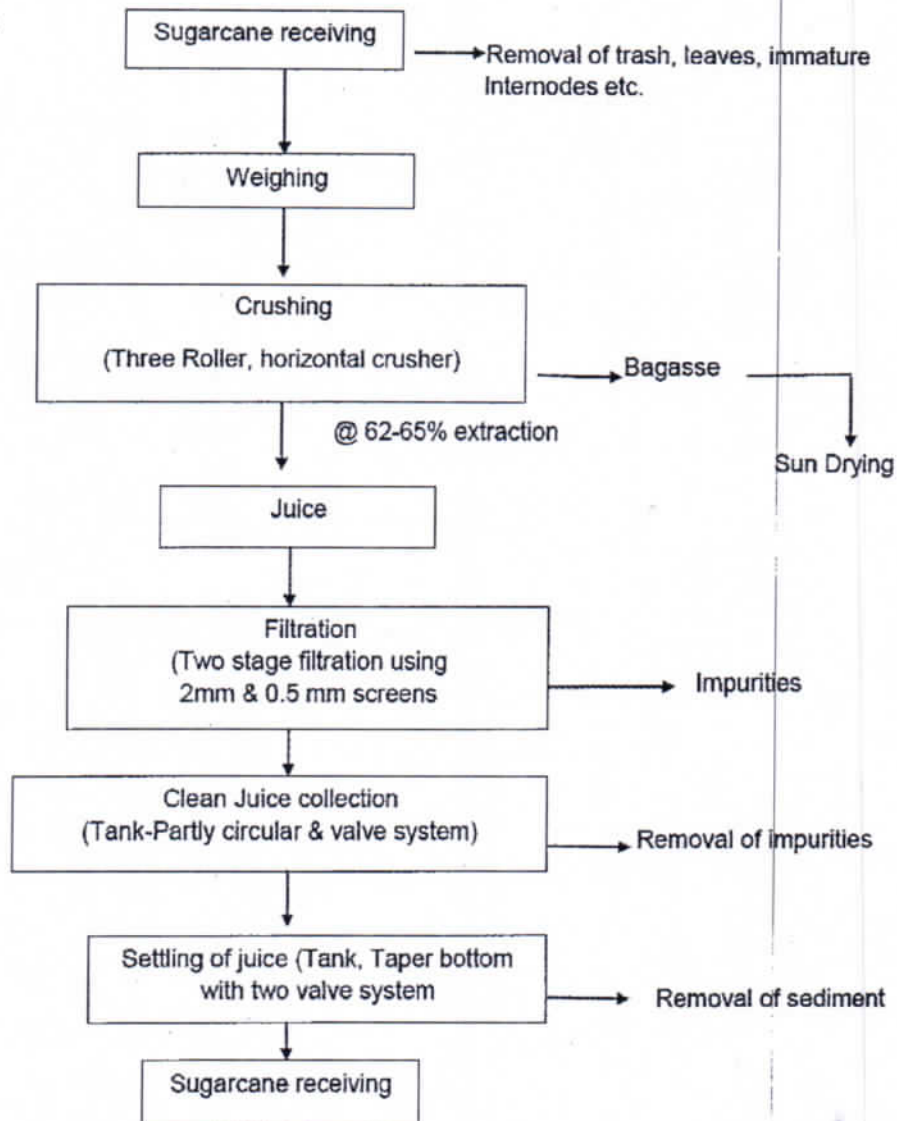

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- ❖ The Establishment of CFC is expected to bring about holistic change in the cluster and will be a factor of Socio economic Development of Region.

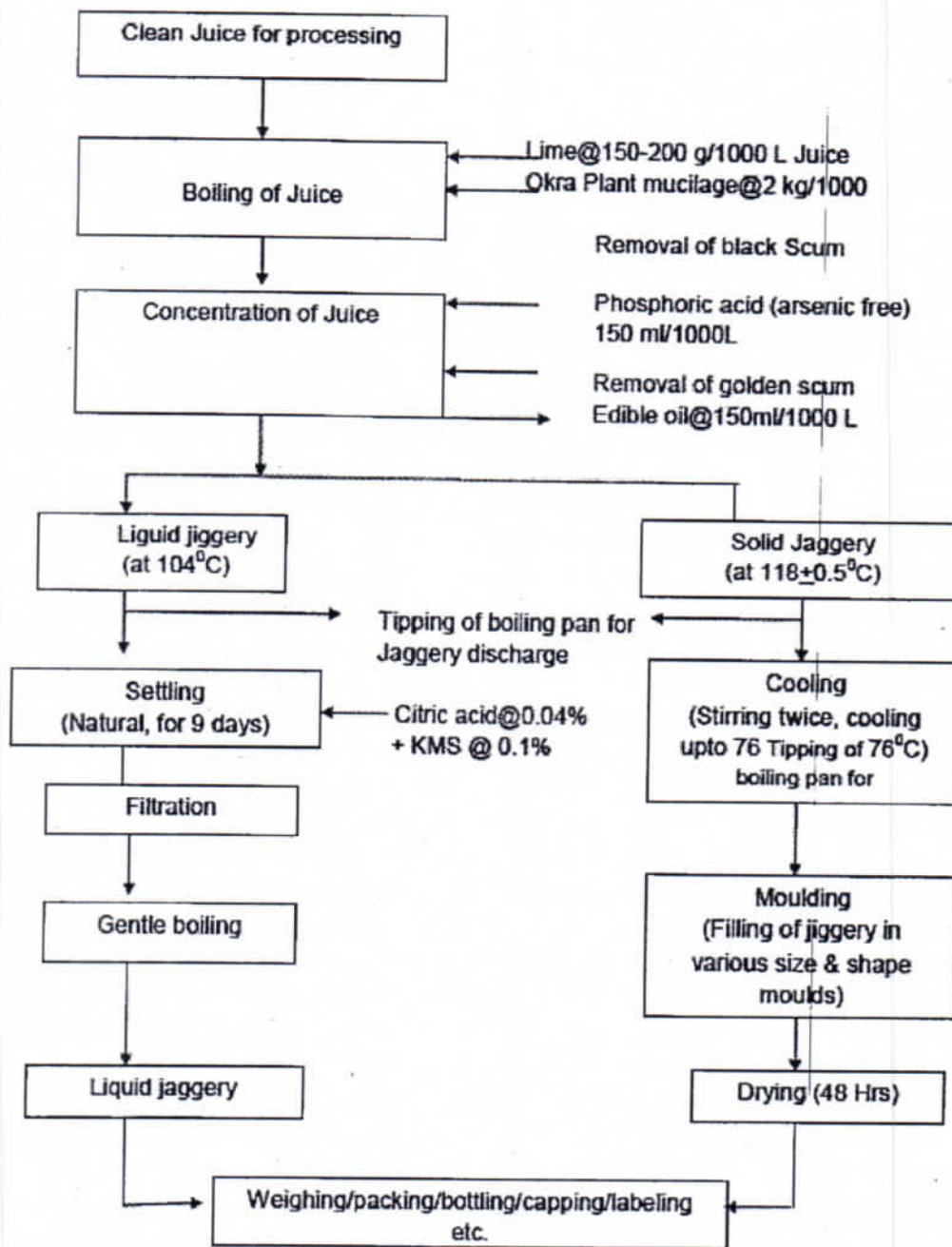
FLOW PROCESS CHART FOR JAGGERY (GUR) PRODUCTION



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Establishing a CFC


Proposed CFC will encompass the following activities:

- Production/ Processing facilities
- Testing facilities and Lab
- Packaging, Labelling and Bar-coding facilities
- Design Development and Training Centre
- Product exhibition cum Selling Centre

Production/Processing Set-up

- ❖ Steam Generator Boiler and Setup 5000 kg/Hour
- ❖ Turbo Alternator and Power Generation Setup
- ❖ Slurry Jaggery-Steam Treatment-Purification-150KLD Tubular Slurry Heater, Gravity Settler, Floation Clarifier, Micro – Filter
- ❖ Slurry Concentrator Setup for Jaggery Molding/Powder Jaggery/Liquid -150KLD Evaporator – Boilers, Jaggery Concentrator for Small Jaggery Injection Molding Vapour Extractor, Receiving Tanks with accessories
- ❖ Powder Jaggery Processing Equipments-5 tons/day Jaggery Powder Miller, Powder Jaggery Jacketed Tray, Jaggery powder dryers, Re-circulation conveyors, Air Heaters, Blower Fan, Instrumentation and Control
- ❖ Automatic Jaggery Injection Moulding, Demoulding and packing machine-18tons/day
- ❖ Jaggery Enrober-Machine for Jaggery Coated Dry Fruits processing-1Ton/day
- ❖ Chikki Roller and Cutting Machine-4 tons/day

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Testing Facilities and Lab

Setting up of common testing facilities is very important issue. For holistic quality checks, there is need to have the complete facilities of quality evaluations. The basic requirements of the laboratories are given below:

1. Sensory Laboratory
2. Physical Laboratory
3. Chemical Laboratory
4. Microbiological Laboratory
5. Toxic substance analysis Laboratory
6. Pesticides residues Laboratory

Requirements


i. Chemicals and Glassware

All the laboratories need laboratory/analytical grade chemicals, Glassware and other essential materials needed in the laboratory.

ii. Instruments

Khandsari and gur products may have elements contamination due to many stages of processing of the end products. This contamination may also occur due to agro practices of cultivation. To carry out the instrumental testing specially metal, microbiological, pesticides residual etc. needs highly sophisticated instruments (chromatographic and spectroscopy etc.) with PPB level accuracy.

iii. Traceable Standards for Testing


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To maintain the credibility of the testing laboratory, accuracy is the prime factor for which laboratory need to have NIST / or other standards for in house calibration as per the accreditation body norms is mandatory.

iv. Requirements of Calibration

Laboratory can get their equipments/ instruments and glassware etc, calibrated from the National Metrological Laboratory in the knowledge that the calibration is of internationally traceable.


Packaging, Labelling and Bar-coding facilities


Jaggery is packaged traditionally under different packaging materials like paddy straw, banana leaves, gunny bag, polythene sheet, etc., which possess poor barrier properties against moisture, light, air, etc., leading to spoilage or deterioration of Jaggery quality. Now a days Jaggery is packed in food grade material which guarantees the safety and integrity of the product. In case of smaller consumer packs, the product need to be packed in food-grade plastics conforming to relevant Indian Standard or any other suitable non-toxic material. The fill of each package shall comply with weights and measures legislation and legal metrology.

Packaging Machinery

- ❖ Chikki packing machine
- ❖ Pillow pack machine for coated dry fruits
- ❖ Automatic Liquid Jaggery Bottle Filling setup with rotary capping system
- ❖ Liquid Jaggery Bottle Labeling Machine and Sealing Setup-2 tons/day
- ❖ Automatic Powder Jaggery Packing Machine-5 tons/day
- ❖ Labelling Machine
- ❖ Bar Coding Machine

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Design Development and Training Centre

This unit will develop low cost, energy efficient jaggery production and storage technology from sugarcane. It will work for enhancement of quality of jaggery manufacturing through improved post-harvest processes, technology, management and value addition. It will offer training in the areas of productivity, quality and storability of jaggery and demonstrate the improved post-harvest processes and equipment/gadgets to the users for adoption.


It will upgrade the knowledge and skill of farmers and jaggery manufacturers through specialized training programmes/live demonstrations.

Major Activities

- Improvement in juice recovery in sugarcane crushers.
- Effective juice clarification techniques and development/identification of clarifiers of vegetative origin.
- Improved furnaces/devices for juice heating, boiling and concentration with fuel economy and reduced drudgery.
- Improved packaging of jaggery for enhanced shelf life.
- Development of sugarcane juice/jaggery based value-added products for consumers' acceptability and fighting mal/under nutrition.
- Development of small and medium storage structures for reduction of storage losses.
- Semi-automation of jaggery making process.

Facilities

- Crusher shed housing vertical and horizontal crushers for juice extraction
- Furnace house having improved IISR furnaces
- Land for growing vegetative clarificants
- Facility for juice sampling
- Jaggery drying-cum-storage godown
- Juice processing Lab having
- Vacuum oven


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- Texture analyzer
- Band sealer with nitrogen flushing
- Mechanical jaggery drier
- Hot air oven
- Environment control chamber
- Dehumidifier
- Laboratory crushers
- Bomb calorimeter
- Digital refractometer
- Anemometer

Product exhibition cum Selling Centre

The Common Facility Centre will offer the facility to exhibit the Jaggery products. Though exhibitions are expensive, but they can give really great returns if we put them properly. Common Facility Centre will offer Kolhu owners a furnished place for the face-to-face exhibit and selling. It is one of the best ways to connect with people, especially when you get access to a highly-targeted group of people who have come to the place actively looking for your type of product or service. It will provide a place to Kolhu owners to sell their products.

Basic Information of Cluster

Name of Cluster : Jaggery Processing Cluster

District : Muzaffarnagar

Location of Cluster : Village: Dhandhera (Tehsil Sadar)

Lok Sabha Constituency : Muzaffarnagar

Main Product : Granular Jaggery, Jaggery based Snacks Items, Liquid Jaggery, Powder Jaggery, Solid Jaggery


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Number of Enterprises including break up (Micro, Small, Medium)

Micro :45

Small :0

Medium:0

Turn- Over for the Last Five Years:

Year	Amount (Rs. in Crore)
2012-13	38.26
2013-14	49.29
2014-15	50.79
2015-16	66.80
2016-17	78.59


Exports for the last five years (Rs. in Crore): Nil

Employment in Cluster: 4810 nos. (Direct – 810 and Indirect – 4000)

Technology Details: The Cluster Members are using Traditional Methods mostly Conventional Technology.

Main Problems of Cluster:

- The improper Moulding and Packaging of Jaggery is imposing problems of reduced shelf life and poor aesthetic.
- Non homogenous granular and powder Jaggery with improper drying due to lack of automatic dryers has reduced shelf life
- Improper packaging of the powder and liquid Jaggery leads to reduced shelf life, and poor aesthetic look.
- The product is facing stiff competition from sugar industries.
- The cluster members are not scientifically equipped with the testing machineries as a result is not able to upgrade the quality of the product to match the BIS and EU standards for export.
- The dominance of traders is resulting in reduced profit to the cluster units.
- The lack of storage facility locally in the cluster region is leading to degradation of the Jaggery.


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- There is very little value addition taking place, though there is good scope of value added products that can be produced using the Jaggery.
- There is no branding taking place.
- There is no training and skill upgradation taking place in the Cluster as a result there is continuous migration of work force.
- **Other Information:** Muzaffarnagar district plays a predominant role in production of sugarcane. In India Uttar Pradesh stands 1st in cane production. There is Huge Domestic and International Market demand as Jaggery is regarded as Ayurvedic Medicine and is better substitute to sugar. The Demand for Gur/Jaggery in African, European, and Gulf Countries are rapidly increasing. But international market, need high quality Jaggery qualifying the EU/BIS Standards, with standard and uniform size, aesthetic packaging.

Information about Proposed CFC

(a) Justification for CFC:

- The issues of productivity and efficiency of production needs to be addressed in a systematic manner.
- There could be scope for direct supplies to bulk jaggery for segments such as organized large retail, confectionery industry, and also ayurvedic and health foods industry among others.
- The potential for direct exports and futures trading has also to be considered in the growth plan.
- Promotion of product quality-testing and certification facilities could be a useful intervention contribution both to quality and marketing efforts.
- With the support of technology upgradation the jaggery industry in the cluster will be able to compete globally and will be able to further progress and provide huge employment.


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- The Establishment of CFC is expected to bring about holistic change in the cluster and will be a factor of Socio economic Development of Muzaffarnagar Region.

(b) Location of CFC

Muzaffarnagar district is part of Saharanpur division headquarters. This district is the part of National Capital Region.

% age of units in radius of 5km: 80

% age of units in radius of 10km: 20

(c) Land for CFC:


- Whether land acquired Yes. Lease deed for a period of 30 years has been submitted.
- Title is in name of :Land on Lease for 30 years
- Valuation and its basis: Rs. 60 lakhs for 30 years lease, as per guidance value and market value.
- Land is sufficient :Yes
- Change of land use :Yes
- If on lease, duration of lease: 30 years
- Whether lease is legally tenable: Yes

(d) Total Building area (sq ft): 9300 sq. ft.

(e) Rate of construction of building: Rs.1018 per sq. ft.

(f) Main Facility Proposed:

- Production/ Processing facilities
- Testing facilities and Lab
- Packaging, Labelling and Bar-coding facilities
- Design Development and Training Centre
- Product exhibition cum Selling Centre


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(g) **Prod capacity of CFC:** Presently, the targeted production capacity of CFC will be 1 to 1.5 ton /day


(h) **Major Outputs/Deliverables of CFC, Projected performance of the cluster after proposed Intervention (in terms of production, export/domestic sales and direct/indirect:**

Sl. No	Parameters	Present intervention	After Intervention
1	Units	45 units	70 units
2	Employment	Direct – 810 Indirect- 4000	Direct – 1500 Indirect- 6000
3	Exports	Nil	Direct export likely by 5 units
4	Turnover	Rs. 78.59 Crore	Rs. 100 Crore in 2-3 years of CFC
5	Profits	Inconsistent profit margins	Consistent and 20-25% higher profits for producers due to better quality and price and increased production efficiencies
6	Marketing	Domestic and village / local market	Urban, National and international market
7	Capacity	1 to 1.5 ton /day	2 to 2.5 tons/day


(i) **Pollution clearance required or not:** Yes

(j) **Man Power in CFC:** 42

(k) **Revenue generation mechanism for sustainability of assets (service/user charges to be levied, any other-to be specified)**


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Proposed Revenue Generation from Training Section is Rs. 41.20 Lacs from 125 participants

Details

(a) Name and Address : Shri Ram Charitable Trust, 1298, Circular Road, Muzaffarnagar-251001 (UP)

(b) Nature of SPV(company or Society or Trust): Registered Trust

(c) Name of the state Govt.and MSME officials in SPV:
GM-DIC Muzaffarnagar,UP

(d) Trust Building of SPV, previous track record of cooperative initiatives pursued by SPV members need to be highlighted with support documentation.

The Cluster members propose to conduct majority of the Soft Interventions activities like Trust Building and capacity building activities, visits of other Clusters, Awareness about cluster development and other Schemes /Policies.

(e) CFC may be utilised by SPV members and others also in a cluster. However, evidence should be furnished with regard to SPV member ability to utilise at least 60 percent of installed capacity.

The SPV is an open type and has provision for incorporation of newer members. The capacity proposed is as per the requirement of SPV and members will be able to use the required capacity.

(f) Power requirement for commercial/domestic purpose: 149 KW

Water: The water require by the CFC is estimated to be about 5000 liters per day and the same will be made available through borewell as the cluster region has very good ground water availability.

Gas/Oil/Other Utilities: Not required

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Financial Analysis of CFC

BEP-Break Even Point (Proposed): 41% As per MSEC DP guidelines.

IRR (Internal Rate of Return), Payback period: 30%

DSCR (Debt Service Coverage Ratio) :N/A

Return on Capital employed (ROCE): 32%

NPV (Net Present Value):30%

DER (Debt Equity Ratio): Not Applicable

Sensitivity Analysis:

Yes, the figures are positive as required by guidelines The ratios with sensitivity of 5% reduction in revenue:

- IRR 27%
- NPV 29 %
- Breakeven Point 43 %
- ROCE 29%


The ratios with sensitivity of 10% reduction in revenue:

- IRR 25 %
- NPV 25 %
- Breakeven Point 46%
- ROCE 26 %.

Status of CFCs approved in the State

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List of the Common Facility Centres taken under MSE-CDP (Micro & Small Enterprises - Cluster Development Programme)

a) Cluster Implemented

- Modern Carpet Backing Plant for Tufted Carpets, Bhadohi
- Pottery Cluster, Khurja
- Scissors Cluster, Meerut
- Stainless Steel, Brass & German Silver Utensils Cluster, Mirzapur

b) Clusters Under implementation

- Carpet & Durri Industry Cluster, Shahjahanpur
- Wollen Duree Cluster, Jaunpur
- Textile Printing Cluster, Pilakhua, Ghaziabad
- Brassware Cluster, Moradabad
- Chikankari Cluster, Barabanki

Proposed Means of Finance:

S. No.	Particulars	Percentage	Amount (Rs. in Lakh)
1	SPV Contribution	10	14.55
2	Grant-in-Aid from Govt. of UP	90	1440.39
	Total	100	1454.94

Proposed Project Cost:

No.	Particulars	Total Cost
1	Land and its Development	60.00
2	Building and other Civil Constructions	102.75
3	Plant & Machinery(including Electrification)	1203.11
4	Misc. Fixed Assets	16.00
5	Preliminary & Pre-Operative Expenses, Maximum 2% of Project Cost	18.00
6	Contingency (2% Building and 5% on Plant and Machinery)	43.24

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7	Margin Money for Working Capital	11.84
8	Total Project Cost	1454.94

Plant and Machinery (with Brief Specification):

S. No.	Description	No.	Power Requirement (HP/KW)	Cost (Rs. in Lakh)
1	Steam Generator Boiler and Setup 5000kgs/Hour	1		76.62
2	Turbo Alternator and Power Generation Setup	1	300 KW	58.51
3	Slurry Jaggery-Steam Treatment-Purification-150 Kilo Liter per Day, Tubular Slurry Heater, Gravity Settler, Floation Clarifier, Micro – Filter	1	11.325 KVA	74.18
4	Slurry Concentrator Setup for Jaggery Molding/Powder Jaggery/Liquid -150 Kilo Liter per Day Evaporator – Boilers, Jaggery Concentrator for Small Jaggery Injection Molding Vapour Extractor, Receiving Tanks with accessories		18.625 KVA	47.48
5	Powder Jaggery Processing Equipments- 5 tons/day, Jaggery Powder Miller, Powder Jaggery Jacketed Tray, Jaggery powder dryers, Re-circulation conveyors, Air Heaters, Blower Fan, Instrumentation and Control	1	14.9 KVA	74.81
6	Jaggery Hygienic Storage Setup: Cold Storage/Clean Room – 1000 tons capacity,Clean Room Storage with HVAC System	1	22.35 KVA	95.63


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7	Automatic Jaggery Injection Moulding, Demoulding and Packing Machine-18tons/day	1	6.7 KVA	103.03
8	Automatic Liquid Jaggery Bottle Filling setup with Rotary Capping System	1	1.76 KVA	67.80
9	Liquid Jaggery Bottle Labeling Machine and Sealing Setup-2 tons/day	1	2.2 KVA	38.22
10	Automatic Powder Jaggery Packing Machine-5 tons/day	2	2.425 KVA	73.44
11	Testing Machinery and apparatus	1		250.17
12	Information, Communication and Broadcasting Centre Equipments, Packaging, Labelling and Bar-coding facilities			170.00
13	Jaggery Enrober-Machine for Jaggery Coated Dry Fruits processing-1Ton/day	1	7.265 KVA	21.60
14	Pillow pack machine for coated dry fruits	1	2.59 KVA	7.20
15	Chikki Roller and Cutting Machine-4 tons/day	1	11.36 KVA	5.40
16	Chikki packing and Labelling Machine	1	2.95 KVA	7.20
17	Computers, Windows Software	5	4.61 KVA	2.70
18	Digital Interactive Classroom Board	1	1.92 KVA	1.75
19	High Resolution Projector with Auto Lock Screen Projector with Auto Lock Screen	1		0.58
20	Audio System Amplifier, Speakers with Cordless and Podium Mic-set	1	4.49 KVA	0.63
21	All in One Laser Colour Printer-Scanner-Copier	1	2.72 KVA	0.56

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22	Accounting Software-Tally	1		3.42
23	Website and ERP Software Design	1		2.22
24	CCT Camera and DVR and EPABX Intercom setup	1	3.49 KVA	0.79
25	Firefighting Equipment-set	1		0.90
26	Air conditioner A/C	2	10.35 KVA	1.48
27	DG Set	1	160 KVA	16.79
	Total			1203.11

Conclusion

The traditional Jaggery/Gur production industry of Muzaffarnagar district has been selected under the ambitious 'One District One Product scheme' started by the Uttar Pradesh government. The initiation of the CFC (Common Facility Centre) at Muzaffarnagar, under the ODOP scheme, will bring a big change in the standard of living of sugarcane producers, farmers, labourers, kolhu owners, entrepreneurs and businessmen of the district and the employment avenues will also be opened-up for the youth. This will open the channels of progress in the entire region.

Every stake holder associated with the Jaggery industry will be benefitted by the use of new technologies in terms of production, packaging, and marketing of jaggery etc. The beginning of Common Facility Centre will resolve the problems of improper moulding and packaging of jaggery which is imposing problems of reduced storage life of gur. It will also remove the existing problem of improper drying in powder jaggery due to lack of automatic dryers. Apart this, the powder and liquid jaggery will be properly packed.

Once the Common Facility Centre starts working, the entire region will be benefitted by the scientifically equipped testing machineries which will upgrade the quality of the product to match the BIS and EU standards for export.

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The lack of storage facility will not be there and degradation of the jaggery will be stopped. There is good scope of value added products that can be produced using the Jaggery. Once the technology enters, more value addition will taking place in gur products.

Till date, there is no significant branding taking place in jaggery/gur products. Once the Common Facility Centre starts working, the training and skill upgradation will take place in the district, as a result the continuous migration of work force will come to an end.

At the end, we conclude that the establishment of CFC is expected to bring about holistic change in the entire region and will be a factor of socio economic development of Muzaffarnagar Region. It will create new avenues with the support of technology and thereby the jaggery industry will be able to compete globally.

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