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Project Proposal for enabling Micro-sized Enterprises in the "Jhula" fabrication Cluster at Nalanda, Bihar, move up the Value Chain through Value-adding, fabrication, time lag optimising and capacity enhancing Facilities

A pioneering initiative to sustainably tap the large skill base and sustainably strengthen and evolve the micro-enterprise segment and contribute to development of an industry that could have National Stature

Submitted to
Department of Industries, Govt. of Bihar

For assistance under the
Chief Minister's Micro and Small Enterprises Cluster Development Scheme

Submitted by
Kanhaiyaganj Jhula Cluster Private Limited
(Prepared with professional inputs from Grant Thornton)
Through the
District Industries Centre, Nalanda
and
Micro Small and Medium Enterprise Development Institute, Patna

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Acknowledging inputs from: Udyog Mitra, Patna; District Industries Centre, Nalanda; Micro Small and Small Enterprise Development Institute, Patna

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List of Abbreviations

BIADA	Bihar Industrial Area Development Authority
CFC	Common Facility Centre
CGTMSE	Credit Guarantee Fund Trust For Micro and Small Enterprises
CM-CDS	Chief Minister's Cluster Development Scheme
DIPP	Department of Industrial Policy and Promotion
FI	Financial Institutions
GoI	Government of India
HH	Household
IIUS	Industrial Infrastructure Up Gradation Scheme
ITI	Industrial Training Institute
MSE's	Micro and Small Enterprises
MSE-CDP	Micro and Small Enterprises Cluster Development Programme
MSME	Ministry of Small Medium Enterprises
NCR	National Capital Region
NID	National Institute of Design
NSIC	National Small Industries Corporation
SIDBI	Small Industrial Development Bank of India
SPV	Special Purpose Vehicle

Executive Summary

The Department of Industries and Commerce, Government of Bihar (GoB) is adopting a cluster development approach for enhancing the productivity and competitiveness of Micro and Small Enterprises (MSEs) and their collectives. This Chief Minister's Micro and Small Enterprises Cluster Development Scheme is led by the Department of Industries and Commerce of the Government of Bihar. In this context, this Detailed Project Report (DPR) seeks grant-in-aid assistance under the programme for a Common Facility Centre (CFC) for "Jhula" fabricating enterprises at Kanhiaganj, Nalanda district.

Profile of a Jhula Cluster operating at the lower end of the value chain

"Jhula" or Ferris wheels have been elements of attraction in different cities across the world. Tourists and local citizens gather to enjoy rides in these wheels round the year and contribute considerable to city revenues. As a matter of fact, wheels like the "London Eye" and "Singapore Flyer" are marked as identities of respective cities. Giant ferris wheels are as big as 150 meters. In fact, there are a number of international level theme parks with iconic wheels in Universal Orlando in Orlando (Florida), Busch Gardens Tampa (Florida), Disney (California), Chime-long Paradise (China), Kings Island (Australia) and Wonderland (Canada). In this context, there is apparently a clustering of firms making Jhula's and a range of related products in several locations in India like Rajkot (particularly in Sundernagar) and Ahmedabad, as well as Kanhaiyaganj, as Nalanda district in Bihar.

Micro-sized firms in many Indian (largely) steel fabrication clusters like Kanhaiyaganj in Bihar and Salem, in Tamil Nadu, and Guntur, in Andhra Pradesh, or Patna in Bihar, confront adverse circumstances. Raw material price have increased by at least 80 per cent. For example, in 2008, raw material M.S. cost in many locations stood at only about Rs. 20,000 per tonne, which has increased to even Rs. 48,000 per tonne by 2013. Increase in other costs such as wages has also been significant, that is, from Rs. 170 per day for skilled manpower five years ago to even (effectively) Rs. 350 per day, today in many locations. In this context, there is a relative stagnation in prices of products and services. For instance earnings of a typical Jhula manufacturing job which stood at 10 percent of sale price in 2010-11 is presently only 5 percent product. The trends poses questions on the potential performance of the sector even in the medium term perspective, despite niche market advantage in terms of ability to cater to customized needs of customers across the country. Apparently, many such clusters confront a gap in terms of several facilities such as quality component development, and machining and primary processing, testing facilities.

Cluster diagnostic study and necessary interventions

The cluster's diagnostic study report had been compiled in 2015. The study was compiled by the IIT, Patna. Cluster enterprises have been pursuing several soft interventions in the past. These include exposure to technology upgrading options, participation in design related training programmes supported by the MSME-DI, Patna etc.

Clusters like Kanhaiyaganj have not yet developed additional factor conditions in terms of related and supporting enterprises like raw material primary processing, quality component development and finishing facilities and have not matured technologically to the extent desired by virtue of the predominantly micro sized nature of operations. Also, as indicated, the potential market in India and for Jhula products is inadequately tapped by units in clusters like Kanhaiyaganj.

Essentially, there is need to upgrade business practices as well as equipment and technology through individual and joint action.

Proposed common facility centre

The proposed CFC will facilitate:

i. Raw material primary processing
ii. Quality component development
iii. Finishing

Such a common facility will not supplement but complement activities of firms in the cluster and there is no similar facility available in the District for use by cluster micro-enterprises. The activity flow vis-à-vis such a common facility may be visualised as follows:

Activity by individual SPV members and cluster micro enterprises: Procurement of raw material; component development of some components and complete fabrication jobs; marketing of products.
Job working Operations within CFC: Primary Processing of raw material; Development of some components and related fabrication; finishing of some jobs/components
The proposed facilities will be utilised by SPV members and will also be open for use by other existing and potential units in the cluster, including those who do not have adequate resources to contribute to necessary equity capital.

Special Purpose Vehicle with a track-record of co-operative action for project implementation

The Kanhaiyaganj Jhula Cluster Private Limited is the proactive SPV of fabrication stakeholders in the District. With inputs from the DIC and MSME-DI and Udyog Mitra, industry has taken the lead to evolve this SPV. Member firms largely comprise micro-sized enterprises in the Jhula fabrication segment. The firms are essentially existing players in the industry. They are firms with a sound track record with financial institutions and most have decades of experience in the industry.

The SPV members have a track record of co-operative initiatives. The project SPV comprises a network of over 20 micro enterprises. The SPV is being registered as a private limited entity with an authorised capital of Rs.0.80 Crore. Most SPV members have EM Part II registration and it is expected that there may be as much as 33 existing and potential units in the SPV soon.

Project parameters, viability and sustainability

The SPV members propose to contribute about 10 per cent of the project cost. The total contribution of SPV members will therefore amount to Rs. 50.13 Lakh. Support under the Chief Minister's Micro and Small Cluster Enterprises Development Scheme of the Government of Bihar is envisaged for Rs. 451.16 lakh (90%).

The dynamic Bank is offering in-principle sanction for necessary working capital. The cost of the project and proposed means of finance are tabulated as under:

The critical components of project cost comprise fixed assets in terms of land, building, machinery, equipments, misc. fixed assets and working capital margin. The dynamic local bankers are interested in offering necessary working capital for the project. The (indicative) total cost of the project is presented below:

Table 1: Project Cost

S.No	Particulars	Amount (in Rs. Lakh)
1	Land and site development (@ Rs.5 Lakh).	14.00
2	Building and civil works (including; shop-floor area and administrative area of 10,600 sft. @ Rs.750 per sft.)	79.50
3	Plant & Machinery and accessories and related equipment (including 5% electrification related expenses on total cost of Rs. 350.22 Lakh)	367.73
4	Miscellaneous fixed assets (furniture, fixtures, firefighting equipment, first-aid equipment)	5.00
5	Preliminary expenses (legal & administrative expenses, registration, detailed civil engineering drawings with estimates and tender forms, tendering cost, telephone, stationery, etc.)	4.00
6	Pre-operative expenses (establishment costs, travel, overheads during construction period including salaries)	4.00
7	Provision for contingencies (2% or Rs. 1.59 Lakh on building and 5% or Rs. 18.38 Lakh on plant and machinery)	19.97
8	Working capital margin (at operating capacity of 80 %)	7.09
	Total	**501.29**

The total project cost is estimated as Rs. 501.29 lakh. As indicated, assistance to the project from the Govt. of Bihar is envisaged to the tune of 90 per cent on project cost. 10 per cent of the project cost will be contributed by the project SPV.

Table 2: Means of Finance

S. No.	Means of finance	Amount (in Rs. Lakh)
1	Contribution of SPV (10% of project cost)	50.13
2	Grant-in-aid under GOB (90% of project cost)	451.16
	Total	**501.29**

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

Table 3: BEP, ROCE, NPV and IRR

S. No	Particulars	Estimates
1	BEP (BEP at operating capacity of 80%)	32%
2	Av. ROCE (PAT/CE)	38.87%
3	Internal Rate of Return (IRR)	37.50% (Project Viable)
4	Net present value (at a discount rate of 10 per cent)	NPV is positive and high (Rs.700.24 lakh) at a conservative project life of 10 years
5	Payback period	2 year and 6 month with grant-in-aid assistance from GoI.
6	DSCR	*Not Applicable (non-availment of term loan in this project).*

As amply evident from the table, with viability gap funding under the CMS-CDS, the project is highly viable and sustainable and generates surplus from the very first year of operation. Risk and sensitivity analyses considering a 5 per cent decline in user charge/capacity-utilisation also validates project sustainability. .

Project implementation

The proposed Project will be implemented in a time-frame of 12 months. Upon receipt of sanction and assistance under the Chief Minister's Micro and Small Enterprises Cluster Development Scheme, the project will be implemented by the SPV in close association with the DIC, Bihar Sharif and MSME-DI, Patna and Udyog Mitra. Implementation will be monitored by a local Project Monitoring Committee (PMC) comprising representatives of the DIC, Nalanda and the SPV under overall co-ordination of the District Committee and the State level committee. Local PMC will report progress to stakeholders including the office of the Department of Industries and Commerce, Patna.

Concluding brief

In the next 4 to 5 years, upon implementation of the envisaged CFC, cluster output is expected to increase from Rs. 33 Crore to Rs. 68.42 crore. Also, it will enable graduation of firms into producing quality products with good finish in low lead times and enhancing capacity utilisation and profitability of units. Direct employment could increase by 100 persons in the next 5 years. Increase in profit margins in sale through value-addition by even 200 per cent. The CFC will remain open to all cluster firms to utilize facilities and cater to demanding market segments..

While over 20 members are directly contributing to the project and will be beneficiaries, the CFC will be open for use by non-members (including those who do not have the resources to contribute to equity capital) also including potential upcoming units /entrepreneurs. Therefore, micro enterprises across the cluster will be benefited. The CFC fits into the long term vision of the cluster in terms of it

enabling cluster enterprises improve productivity quality and reduce lead-times and increase value-addition by means of technology up-gradation and also help them to develop higher degree of capacity utilization. Progressively, the common facility is expected to enhance the levels of co-operation and joint-action amongst cluster stakeholders and SPV members to co-operate more in other areas once technology up gradation and ability to provide more competitive and quality products in shorter lead times and value added products are ensured.

Chapter 1: Cluster Profile

1.1. Cluster and its geographical spread

"Jhula" or Ferris wheels have been elements of attraction in different cities across the world. Tourists and local citizens gather to enjoy rides in these wheels round the year and contribute considerable to city revenues. As a matter of fact, wheels like the "London Eye" and "Singapore Flyer" are marked as identities of respective cities. Giant ferris wheels are as big as 150 meters. In fact, there are a number of international level theme parks with iconic wheels in Universal Orlando in Orlando (Florida), Busch Gardens Tampa (Florida), Disney (California), Chime-long Paradise (China), Kings Island (Australia) and Wonderland (Canada). In this context, there is apparently a clustering of firms making Jhula's and a range of related products in several locations in India like Rajkot (particularly in Sundernagar) and Ahmedabad, as well as Kanhaiyaganj, as Nalanda district in Bihar.

Such "Jhula" clusters are basically engaged in metal fabrication activity. Fabrication typically involves building metal components and structures by cutting, bending and assembling (including welding). The cutting part of fabrication in many clusters in India is often via sawing, shearing or chiselling manually or powered; torching with handheld torches (such as gas torches, or with CNC plasma cutter or water jet) followed by, drilling and grinding as part of finishing activity. This process basically translates the standard size raw material available in the market to the desired input shape for assembling. The bending is via hammering (manually or powered) or via press brakes (only in a few small units largely fabrication clusters like in Faridabad) and similar tools. The assembling (joining of pieces) generally is through welding.

The fabrication segment is large in many of the more prominent urban agglomerations of the country. In fact, the light engineering and fabrication segment is amongst the most important manufacturing sector activity in locations like Chennai, Vadodara, Surat, Rajkot, Ahmedabad, Hyderabad, the National Capital Region (NCR), Visakhapatnam, Bangalore, Ludhiana and Pune.[1] Large urban agglomerations across the country, even in relatively industrially backward regions like Patna (Bihar) have significant light engineering and steel fabrication clusters constituting an important segment of the employment providing local industrial-economic base. Apparently, many clusters have evolved as to specialise in particular activities, for example, the cluster at Trichy in Tamil Nadu and Yamunanagar in Haryana are into heavy engineering and fabrication ranging from boilers and energy turbines steel and related fabricated products are basically made with varying combinations of alloy metals for different applications. Carbon Steel, composed of iron and carbon, accounts for over 90 per cent of steel production. Stainless Steels and surgical Stainless Steel contain a minimum of 11 per cent chromium, often combined with nickel, to resist corrosion or rust. Stainless Steel differs from Carbon Steel by the amount of chromium present. Unprotected Carbon Steel rusts readily when exposed to air and moisture.

[1] Some regions such as Kota, Rajasthan have even grown to specialize in particular products and consumables such as welding rods.

Steel may be classified broadly into two types according to its composition: alloy steel and non-alloy steel. Alloy Steel is produced using alloying elements like manganese, silicon, nickel, chromium, etc. Non-alloy steel has no alloying component in it, but for that which is normally present such as carbon. Non-alloy steel is mainly of three types, viz. Mild Steel (containing up to 0.3 per cent carbon), Medium Steel (containing between 0.3-0.6 per cent carbon) and high steel (containing more than 0.6 per cent carbon). All types of steel other than Mild Steel are called Special Steel[2]. While steel has a strong hold in traditional sectors such as construction, housing and surface-transport, special steels are increasingly used in engineering industries such as power generation, petrochemicals, fertilizers, etc. Today, India has an important position in the global steel map, with the establishment of modern Steel mills and large scale capacity acquisition. In this circumstance, the cluster at Kanhaiyaganj has convenient access to core inputs iron and steel.

Constraints in many Small & Micro Enterprise led Fabrication Clusters

Micro-sized firms in many Indian (largely) steel fabrication clusters like Kanhaiyaganj in Bihar and Salem, in Tamil Nadu, and Guntur, in Andhra Pradesh, or Patna in Bihar, confront adverse circumstances. Raw material price have increased by about 80 per cent. For example, in 2008, raw material M.S. cost in many locations stood at only about Rs. 20,000 per tonne, which has increased to even Rs. 48,000 per tonne by 2013. Increase in other costs such as wages has also been significant, that is, from Rs. 170 per day for skilled manpower five years ago to even (effectively) Rs. 350 per day, today in many locations. In this context, there is a relative stagnation in prices of products and services. For instance earnings of a typical Jhula manufacturing job which stood at 10 percent of sale price in 2010-11 is presently only 5 percent product. The trends poses questions on the potential performance of the sector even in the medium term perspective, despite niche market advantage in terms of ability to cater to customized needs of customers across the country. Apparently, many such clusters confront a gap in terms of several facilities such as quality component development, and machining and primary processing, testing facilities. To elaborate, some sustainability options for firms in such clusters are to go in for undertaking value-chain gap filling initiatives such as establishing quality component making, primary processing and finishing facilities. Hence, there is need for facilities for primary quality processing of metals, quality component development as well as basic quality finishing galvanising equipment to also be established as part of integrated facilities to cater to the needs of cluster firms.

1.2. Cluster and Value-added Products

Indian fabrication clusters like the one at Kanhaiyaganj, Nalanda district produce a variety of products ranging from Jhula's (Ferris wheels), toy trains, merry-go-rounds, roller coasters etc. The cluster firms source inputs like casting products from markets in Bihar-Sharif and Patna. Most manufacturers prefer castings and metal sheets from Kolkata or Delhi. Typical manufacturing process is turning, groove cutting, drilling, sheet metal working, bending and welding. Most firms have a couple of lathes, drill, manual bending equipment etc.

1.3. International Scenario

Typically, the steel fabrication segment is concentrated around Steel production areas. The top ten steel producing countries comprise those like China, Japan, USA, Russia, India, South Korea, Germany, Ukraine, Brazil and Turkey. The Crude Steel production in these countries is tabulated below.

[2] Special care is taken in order to maintain the particular level of chemical composition, in such steel. This process gives different properties to steel according to its composition. In India, non-alloy steel constitutes the bulk of total steel production and Mild Steel (M.S.) has a large share in it.

Table 4: Steel Production in leading Countries (in million tons)

S. No	Country	Year (2010)
1	China	626.7
2	Japan	109.6
3	US	80.6
4	Russia	67.0
5	India	66.8
6	South Korea	58.5

There are a couple of Indian firms and several large Chinese steel companies figuring amongst the large steel companies of the world. The top steel companies of the world include Arcellor Mittal (Luxembourg), Nippon Steel (Japan), Baosteel (China), POSCO (South Korea), Wuhan Iron & Steel Group (WISCO) (China), Tata Steel (India), U S Steel (USA), Severstal (Russia), Thyssenkrupp (Germany), Sumitomo Metal Industries (Japan) and the Steel Authority of India Ltd (India).

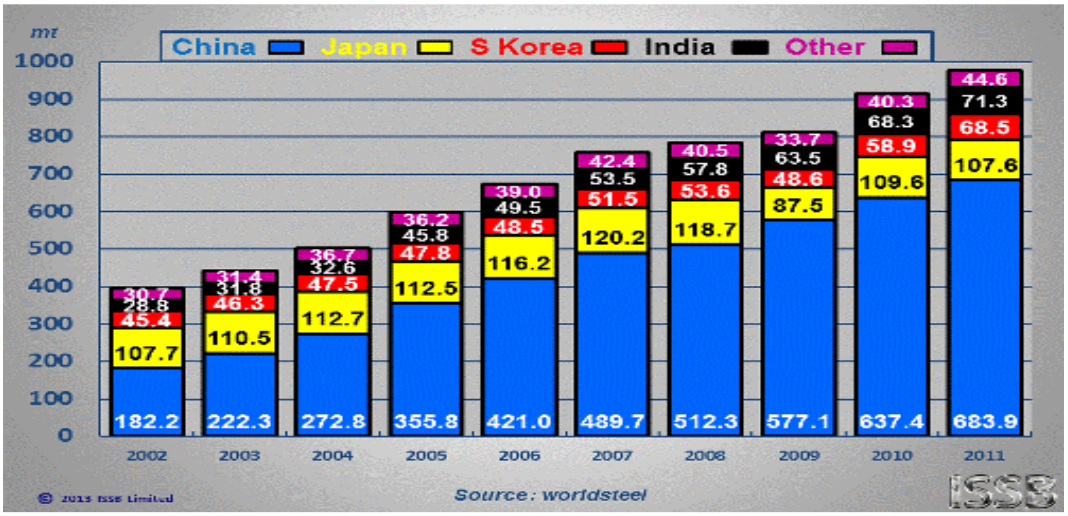
The major steel exporting countries and regions include Japan, China, the EU, S. Korea, USA, China and Turkey.

World steel product exports comprise ingots, rods and semi-finished material, seam less pipes, railway track material, angles, shapes and sections, concrete re-enforcing bars, wire rod, drawn wire, hot-rolled strips, cold-rolled strips, hot-rolled sheets and coils, plates, cold-rolled sheets and coils, electrical sheets and strips, galvanized sheet, other coated sheet, steel tubes and fittings, wheels (forged and rolled) and axles, castings, forgings, etc. India is a major importer, importing about 10.2 million tonnes in 2010.

Contemporary Trends

Of the global production of steel products, Asian countries like China and India are presently taking the lead.

Table 5: ASIA Crude Steel Production (2002 – 2011)



Also, notably, the opportunity for related Stainless Steel and high alloy (P22, P91) products is ever growing. Trend in infrastructure and power sector is shifting towards super critical technology which

emphasizes using high grade alloy steel materials. In this context, it is noteworthy that the Indian Engineering and Fabrication cluster at Salem in Tamil Nadu is establishing a common facility under the MSE-CDP of the Government of India.

1.4. Indian Scenario

Agglomeration of Fabrication Units in Clusters: Local Demand and strong lead firms characterize growing clusters

Basically, demand from 'larger' user industries and strong industry associations characterize more successful clusters. There are several more well-known clusters like Trichy and Ranipet in Tamil Nadu. As indicated, Chennai, Vadodara, Bangalore, Mysore, Hyderabad and Mumbai are also some of the other prominent locations. Apparently, an Indian Credit Rating Agency (ICRA) Management Consultancy Services related study and database indicate that Chennai, Hyderabad, the National Capital Region (NCR), Bangalore, Pune and Ludhiana each have between 15,000-36,000 units operating in the light engineering and fabrication sector, each with cluster turnovers in the range of Rs. 15,000-56,000 crore. Smaller steel fabrication clusters like Salem, in Tamil Nadu and Patna have about 1000 and 2000 units, each, with turnovers of about Rs. 400 and Rs. 625 crore, respectively. In this circumstance the cluster at Kanhaiyaganj is rather small with turnover of barely Rs. 33 crore per annum.

Also, as highlighted, there is, notably, a degree of specialization in many relatively developed clusters such as the ones at Trichy and Ranipet, Tamilnadu, involved in manufacture of sophisticated heavy electrical power generation, boiler components. Many such as the one at Trichy are supported by strong dedicated industry associations. The BIDASS Industrial Services Association (registered as a "Sec 25" Company) in Trichy started steel operations in 1984 and is involved in joint sourcing of consumables like welding rods for member units. The cluster at Trichy is critically supported by its leading buyer, Bharat Heavy Electricals Ltd. The 500 odd units in the region are critically dependent on BHEL for fabrication demand. The cluster of units evolved as a fabrication hub catering to BHEL. The cluster at Kanhaiyaganj however evolved by virtue of another favourable factor condition, namely presence of a skilled manpower pool of entrepreneurs and workers of the "Vishwakarma" community, who over the last few decades focused their skills towards fabrication "Jhula".

To summarise, some of the more important comparative advantages and favourable factor and demand conditions experienced by the clusters such as Trichy and Ranipet, and to an extent, Faridabad are presence of large-sized user/customer or sub-contracting units. The cluster at Kanhaiyaganj does not have this advantage but has an advantage in terms of specialisation in a niche product "Jhula" with a large and growing regional and National market.

Favorable Factor Conditions (and in many cases Lead Firms) Fuelled Growth of the Sub-sector

Favourable demand conditions by way of demand from user industries as well as factor conditions by way of raw material M.S. and S.S. manufacturing/supplying units and supporting enterprises such as foundry and re-rolling units as well as large specialty steel plants and access to pool of skilled labour force fuelled the growth of clusters in specific regions in the country. The sector is also supported by a network of institutions and service providers facilitating training and technology upgrading. Even in less-developed clusters like Kanhaiyaganj, though it does not have the gamut of quality and number of supporting foundry and re-rolling base, has a few government and private vocational training centers offering dedicated courses on basic welding and fabrication related trades, albeit on traditional equipment, as well as engineering colleges and institutions like IIT, Patna that offers value added services to industry.

Less Developed Clusters like Muzaffarpur losing out on Value-accruals and Profitability with limited access to capital intensive technology and equipment by virtue of micro-sized nature of operations

The benefit in moving up the value-chain is apparent. Presently, cluster firms largely operate using a range of largely hand and power tools. Lead times in production as long they do not have access to productivity enhancing CNC and other equipment. Many clusters such as the steel fabrication of Salem, Guntur, Yamunanagar and Panipat have received or are receiving sanction of assistance for establishing common facilities under the MSE-CDP scheme of GoI. However, given the absence of a critical cluster mass of a large number fabrication firms registered with the DIC, units in the region of Kanhaiyaganj may ideally explores assistance under the Chief Minister's Micro and Small Cluster Development Scheme. (CM-CDS)

Gaps despite Government Schemes of Assistance

Some typical constraints experienced by micro-sized units (in the cluster, particularly) in availing of government policy assistance and schemes are.

The predominately micro-sized units in the cluster are yet to significantly avail of assistance supported by credit guarantee under the Credit Guarantee Trust Scheme for Micro and Small Enterprises (CGTMSE) despite links between enterprises, the Small Industries Development Bank of India (SIDBI, Patna), Financial Institutions (FIs) in Nalanda, and CGTMSE in the cluster. Such more effective support could, for instance, help enterprises pursue enterprises upgrading.

Limitations vis-à-vis ties with concerned institutions and instruments by way of term loan and working capital has affected upgrading and also ability of firms to source raw material inputs optimally as to increase capacity utilisation and optimise procurement costs in a competitive manner.

Large Government steel producers offer quantity discounts, however, the absence of adequate consortia initiatives amongst cluster units with or sans availing services of institutions like the NSIC, Patna, in clusters like Kanhaiyaganj has deprived firms of related benefits.

1.5. Evolution of the Cluster and Key Turning Points

The cluster has traditional recognition in Jhula manufacturing throughout the region and even country and units have been operating in the sector for decades. Cluster MSEs and large firm have been basically catering to the requirements of the national level market in India and also partly to export.

Private sector firms led the initiative towards technology upgrading in the past. These firms are essentially micro or small-sized operators.

Figure 1: Micro-sized units in Nalanda

1.6. Geographical spread of the Cluster

The Jhula Fabrication cluster of Kanhaiyaganj predominantly comprises micro-sized enterprises. The enterprises are concentrated in and around Kanhaiyaganj.

The district of Nalanda and more importantly city of Patna located a couple of hours drive awayis also home to a considerable number of related and supporting forms and institutions like IIT, Patna, MSME-DI, Patna etc..

1.7. The Cluster Profiled

The cluster at Kanhaiyaganj is one of the several clusters that the DIC, Nalanda, Udyog Mitra as well as the MSME-DI, Patna and the Department of Industries of the State Government has been supporting for cluster development initiatives in the State.

As indicated, the district is also blessed with a traditional pool of skilled entrepreneurs (of the "Vishwakarma" community), labour force and some support institutions and service providers as well as related and supporting firms in locations such as Patna. Some of the supporting institutions located within or in relative proximity to the cluster and closely involved with operations of cluster firms may be viewed in terms of the DIC and MSME-DI, Patna and Udyog Mitra. There are also other supporting enterprises and service providers in other localities like equipment manufacturers and dealers.

The cluster has micro-sized units in operation. The cluster has been experiencing several constraints in terms of: in-adequate raw material primary processing facilities, quality component development and machining facilities and finishing facilities. Presently, many units are operating at low levels of productivity with long lead times in fabrication.

Constraints on the technology front are particularly in terms of:

- Absence of raw material primary processing facilities
- Absence of quality metal component development and machining facilities.
- Absence of finishing facilities.

The Special Purpose Vehicle (SPV) of the cluster being registered in 2015 since the diagnostic study conducted by the IIT, Patna "Kanhiaganj Jhula Cluster Private Limited", largely comprises jhula fabrications units and are securing a plot in Kanhiaganj for pursuing upgrading projects.

Cluster firms are concentrated in Kanhiaganj in Nalanda District, Bihar.

1.8. Nature of activity and products of the cluster

The cluster is growing with many enterprises being in operation for over a decade.

1.8.1. Principal Markets

Presently, the market is national for fabricated "Jhula" products. Exports are virtually nil.

1.8.2. Products manufactured in the cluster

The cluster firms manufacture a variety of products ranging from Jhula's (Ferris Wheels), toy trains, merry-go-rounds to roller coasters.

Figure 2: Products manufactured in the cluster

1.9. Number and size of units and scale of investment

Data in terms of number of firms, their size, average turnover and manpower are presented below. The 20 odd largely micro-sized units in the cluster have a total turnover of about Rs. 33 crore per annum.

Table 6: Number and Size of MSE Units; Scale of investment

Number of MSE firms	Average investment per unit	Important raw material sourced from within the cluster/adjacent regions	Average turnover per unit	Average Export per unit	Average Manpower per unit
The cluster basically comprises over 20 micro sized units	Investment in plant and machinery is about Rs. 10 lakh on average by micro sized units	Core inputs are sourced directly through traders in Kolkata and Patna.	Average turnover of 20 micro sized units is about Rs. 1.65 crore per annum; (Total cluster turnover is therefore about Rs. 33 Crore	Total export is nil	Average 10 employees per MSE unit and (the total manpower directly employed is therefore 200 persons and directly and indirectly about 400 persons)

The 20 odd units in the cluster have a total turnover of about Rs.33 Crore per annum. These firms provide direct employment to about 200 persons in the District. Exports are nil.

1.10. Output and Markets

As indicated, the core processing units in the cluster have a combined annual turnover in the range of Rs.33 Crore per annum. The annual turnover of the cluster during the last five years is given below.

Table 7: Annual turnover of the cluster during the last five years

Year	Turnover (largely micro, and a few small-sized units, in Rs. Lakh)
2009-10	21.65
2010-11	24.00
2011-12	26.73
2012-13	29.70
2013-14	33.00

The enterprises in the cluster essentially cater to the national market; exports are nil.

1.11. Projected Performance of the cluster after proposed intervention

The cluster has the potential to offer a range of value added products to cluster customers.

Unfortunately, presently, a large volume of regional industrial demand is progressively being catered to by medium and large-sized firms employing capital-intensive equipment in other clusters like Rajkot and Ahmadabad. In this context, the proposed Common Facility Centre (CFC) is expected to help in the transition of cluster firms towards increasing cluster competitiveness as well as value-accruals to firms as well as customers.

As per the intervention plan of cluster stakeholders, about 20 operating micro and small sized firms are (already) accommodated in the project SPV. The common facility is expected to particularly support these enterprises and also others in the cluster. The projected performance of the cluster in terms of direct impact of the CFC is presented below.

Table 8: Projected Performance of the cluster

Production	Employment
The CFC could help cluster firms double capacity utilization and profitability and penetrate premium market segments; Profitability orientation of cluster firms is expected to at least double.	The CFC could enable increase in employment by about 400 persons.

There is an expected turnover rise to Rs. 68 crore during 2019-20 from the existing turnover of Rs. 33 crore for the period 2014-15. Thus the expected turnover after the envisaged intervention is about twice as of now. More importantly the envisaged common facility will help existing MSEs move up the value-chain.

Chapter 2: Diagnostic Study

The cluster's diagnostic study report had been compiled in 2015. The diagnostic study was compiled by the IIT, Patna. The IIT, Patna and MSME-DI as well as DIC, Nalanda have been catalysing several soft interventions in the past. These include, visits to technical institutions to understand technology, training on Auto CAD etc.

2.1. Main Findings

The diagnostic study particularly recommended the establishment of a CFC addressing critical technology and value chain gaps.

The critical observations and recommendations of the study are as follows.

2.1.1. Findings

The cluster has been experiencing several constraints in terms of rising input costs and falling profit margins. In this context, there is need for a CFC.

Beyond establishment of a CFC with relevant advanced facilities, in a broader perspective, for purposes of competitiveness, it is necessary to:

- ✓ Network more with related institutions to ensure greater access to capital for working capital and fixed investment.
- ✓ Appropriately exploit national, particularly, for better quality and value added products which could considerably enhance cluster turnovers and performance.
- ✓ Evolve economies of scale and bargaining power among micro enterprises through consortia/SPV based joint-action.

These are initiatives being progressively undertaken by the cluster SPV as complementary to establishment of a CFC.

The following table summarises some determinants of competitiveness, viz., availability of raw material, manpower, power, basic and specialised industrial infrastructure, support enterprises and institutions and demand conditions. The range of interventions under the circumstance is also presented:

Table 9: Determinants of competitiveness

Competitiveness determinants	Cluster circumstance and options
Marketing and Market Development and Demand conditions	Cluster firms procure about 10T or less per day of angles and flats through traders who in turn source from rolling mills in West Bengal and other regions @ Rs. 45,000/T. A typical larger micro sized enterprise procures about 1 T per day of raw material MS and value adds them into end products sold @ Rs. 110,000/T effectively.
Technology upgrading	Typical manufacturing process involves turning, groove cutting, drilling, sheet metal working, bending and welding. Typical firms have a couple of lathes, drill, manual bending and welding machines and spray painting equipment less than Rs. 25 lakh in cost. Products manufactured include toy trains, giant wheels, merry-go-rounds, roller coasters etc. Some imperatives for technology upgrading that could facilitate competitive transition into quality products are capital intensive and may have to be established as common facilities.
Raw Material and Procurement	Cluster firms source their inputs from across the country and particularly from regions like West Bengal. There is evidently scope for consortium based procurement as is being procured by dynamic industry associations like the one at Rajkot, Gujarat or even the one at Trichy, Tamil Nadu. The scope for consortia based bulk procurement of inputs is evident. In fact, in many other clusters in India, such as Trichy, enterprises use consumables like welding rods, electrode, MIG welding coils and paints sourced jointly through and SPV. This enables a 25 per cent cost reduction in purchase when compared to rates of traders for such consumables. The circumstance implies scope for establishing common procurement networks and for direct bidding in auctions and purchase from plants. Moreover the quality of raw material will be assured through the above stated procurement route. This is initiative that clusters firms and SPV could consider in the medium term context.
Finance and credit	Micro-sized units in the cluster are particularly constrained by resources to upgrade technology and undertake other competitiveness oriented interventions. With regard to small enterprise financing, the Syndicate Bank, serves as the lead bank of the District. However, a gamut of other banks such as the Punjab National Bank, Bank of India, State Bank of India etc. are important financiers for cluster units. However, very few units have availed of assistance from the NSIC due to lack of awareness. Also, few enterprises have explored the option of assistance under collateral free lending schemes. The lead pro-active cluster SPV has been tying up with related institutions in this context.
Manpower and skills	Basically, cluster manpower is largely trained on the job and a large pool of traditionally skilled manpower is available in the region. Manpower deployed by cluster units include local manpower for more skilled jobs as well as manpower from districts in Bihar and UP. With regard to upgrading skills of existing manpower in activities such as welding, tool design and advance CNC machine operations there is need for intervention by the cluster association in association and SPV with machinery and equipment suppliers and large firms.

Competitiveness determinants	Cluster circumstance and options
Supporting Enterprises & Institutions	The clusters of core MSE firms are supported by related and supporting enterprises. The NCR is a hub for related equipment manufacturing such as tool room equipment. In addition, there are a number of dealers representing equipment manufacturing units in Pune, NCR, Bangalore and Rajkot. Testing requirements may be accessed from the IIT, Patna facilities.
Specialized & basic Industrial Infrastructure	The region is well endowed with basic industrial infrastructure with access to rail, air and road transport facilities. Typically, fabrication units require power of 20-100 HP, and power supply is not a cause for major concern in this context.

The cluster association is already pursuing initiatives to redress constraints vis-à-vis factor and demand conditions. The envisaged CFC is expected to complement related initiatives.

2.2. Manufacturing Activity in the Cluster

Firms deploy a range of equipment. "Bhola Engineering Works" has equipment in terms of 2 lathes. 2 drills, welding machine, power hacksaw, paint compressor, slot cutter etc. "Rajni Engineering" has 1 lathe, 2 drills, welding machine, power hacksaw, paint compressor, slot cutter etc., and "Om Sai Industries" has equipment in terms of 2 lathes, 1 drill, 1 power hacksaw, welding machine, paint compressor, slot cutter etc.

2.3. Manufacturing Process

Fabrication typically involves building metal components and structures by cutting, bending and assembling (including welding).

Figure 3: Typical Equipment in a micro-sized processing unit

2.4. Critical gaps identified and stress on need for a Common Facility Centre

The critical constraints experienced by cluster firms meriting establishment of an appropriate CFC are in terms of:

Limitations on the Technology Front: Some limitations that may be redressed in the longer term context due to capital intensity of the facility. Basically even "larger" micro-sized firms in the cluster have equipment in terms of conventional lathe, shaper, radial, drill, etc. but even such "larger" firms do not have access to raw material primary and processing rolling mill, quality component development or finishing facility.

Power Press: A few "larger" micro- sized firm have access to such equipment. Power Press is a very useful machine used in mass production mainly from cold working of ductile materials such as mild steel. The various operations of the power press are performed using the components such as the bed, bolster plate and ram. There is also a mechanism which is known as knock out and its main function is to help eject the finished work piece from the press tool. The operations carried out include a wide variety of processes such as bending, deep drawing, curling, piercing and so forth. Although power presses are quite fast, still they could be made even faster by automating them.

Figure 4: Power Press

Universal Milling Machine: Virtually no cluster firms has access to such equipment. A universal milling machine is a type of milling machine having a table fitted with all motions and a dividing head with change gears so that it can perform any type of milling operation. It covers a wide variety of different operations and machines, on scales from small individual parts to large, heavy-duty gang milling operations. It is one of the most commonly used processes in industry and machine shops today for machining parts to precise sizes and shapes. It contains a built-in rotary table that allows milling at various angles; this feature is called a universal table. While end mills and the other types of tools available to a vertical mill may be used in a horizontal mill, their real advantage lies in arbor-mounted cutters, called side and face mills, which have a cross section rather like a circular saw, but are generally wider and smaller in diameter.

Figure 5: Universal Milling Machine

Hydraulic Press: Few "larger" mill-sized firm have access to such equipment. A hydraulic press is a machine using a hydraulic cylinder to generate a compressive force. It uses the hydraulic equivalent of a mechanical lever. Its working is same as of Power Press but it is commonly used for forging, moulding, deep drawing, and metal forming operations. Hydraulic Presses are found in various forms such as Arbor Press, Laminating Press, C-Frame Press, Pneumatic Press, Assembly Press and H-Frame Press.

Figure 6: Hydraulic Press

Unlike their mechanical counterparts, hydraulic presses can compress any material to a full extent. Also, hydraulic presses take only half of the space that the mechanical ones take because they have the ability to compress a large pressure in a cylinder having a less diameter. Cluster firms have limited access to such equipment.

Shaper: It uses linear relative motion between the work piece and a single-point cutting tool to machine a linear tool path. Its cut is analogous to that of a lathe, except that it is (archetypally) linear instead of helical.
Shapers are mainly classified as standard, draw-cut, horizontal, universal, vertical, geared, crank, hydraulic, contour and traveling head. The horizontal arrangement is the most common. Vertical shapers are generally fitted with a rotary table to enable curved surfaces to be machined. Cluster firms have limited access to such equipment.

Figure 7: Horizontal Shaper Machine

Radial Drill Machine: Radial Drilling machine is a machine fitted with a rotating cutting tool called drill bit. This radial drilling machine is used for drilling holes in various materials such as steel, cast iron etc.

Figure 8: Radial Drill machine

A Radial Drilling machine is a large gear headed drill press in which the head moves along the arm that radiates from the column of the machine. The arm of the machine can swing in relation to the base of the machine. This swing operation helps the drill head to move out of the way so a large crane can place the heavy work piece on the base of the radial drilling machine. Also this helps in drilling holes at different locations of the work piece without actually moving the work piece.
Radial drilling machines can drill holes upto 100 mm and also radial drilling machines with much larger capacity than this are available today.
The above is an illustration of some of related equipment.

Other equipment and technology gaps may be viewed in terms of CNC lathe, Universal Milling Machine, power hacksaw etc. A Bench grinder and bending machine are some other related equipment and technology gaps.
Some basic machines may also be considers a gap in terms of facilitating/encouraging start-ups. More capital intensive equipment and technology gaps may be viewed in terms of rolling mill and galvanising facility.

Chapter 3: Details of the Proposed Common Facility Centre

The Common Facility Centre is to offer facilities in terms of a range of raw material primary processing, quality component development and finishing facilities. It will help cluster firms enhance capacity utilisation and through reducing lead times in manufacture.

Basically, the CFC is envisaged as one that will facilitate competitive orientation of cluster firms and help them offer quality products competitively. The scope for directly accessing new and premium market segments with value added products will also be increased. Basically, productivity and quality could be increased.

The purpose of establishing a CFC is mainly for:

- Facilitating cluster firms to progressively enhance quality and productivity in manufacturing.
- Competitive market orientation of cluster firms vis-à-vis those another locations like Ahmedabad and Rajkot
- Enabling quality and cost competitiveness and higher degree of capacity utilisation in manufacturing activity.

3.1. SWOT of the cluster and SPV in the light of the proposed Common Facility Centre

Evaluation in terms of a SWOT is presented below and comprises aspects relevant to the proposed CFC.

3.1.1. Strengths

Access to inputs: The units in the cluster enjoy convenient access to most critical raw material such as MS angles and flats. There is a strong network of local traders who supply such inputs.

Skilled manpower: Skilled labour force is locally available and entrepreneurs are of the traditional "Vishwakarma" community.

Technology: Cluster firms enjoy convenient access to information on technology by virtue of relationships with technology and equipment service providers in locations such as NCR and Patna. Both, Indian as well as imported equipment may be easily sourced. Cluster and SPV is also benefiting by virtue of their close affiliation with equipment suppliers in this regard.

Strong Market links: Many processors have strong linkages with local, regional and national markets. Further, in terms of potential markets, there is scope to tap the market for value-added products. Demand in the country is high and growing.

3.1.2. Weaknesses

Technology and productivity: Presently, firms are largely into operating at low production levels. This has been eating into the margins of firms and is due to inadequate resources for upgrading of existing facilities or establishing value-adding facilities by many units.

Linkage with FIs: The typical micro-sized units in the cluster have limited linkages with Nationalised and other commercial banks affecting their performance potential.

Small size of firms: The enterprises are largely micro in size and unable to individually reap scale economies on various fronts (procurement, marketing and technology upgrading) as against larger units in other regions.

3.1.3. Opportunities

Finance and credit: Cluster enterprises and local FIs could take initiatives to tie up with the CGTMSE financing instrument to target institution enterprise gaps among firms and complement upgrading action by individual firms. The cluster SPV is taking initiatives in this direction.

Upgrading manpower base and skill Technology: Joint-action by cluster enterprises, availing of assistance under the public-private partnership programmes of the Government of Bihar, could help micro-sized enterprises competitively upgrade manpower skills as well as technology which is more capital intensive. The CFC may be visualised in this context.

3.1.4. Threats

Marketing and market development: Strong market development efforts will have to be made if cluster firms are to penetrate new markets, sans which growth of the cluster will remain relatively stunted and restricted to basic demand which does not give adequate scope for scale economies.

Technology and productivity: The market development initiatives will have to be coupled with activities targeting technology upgrading- particularly by way of raw material primary processing, machining and finishing facilities. In the light of resource constraints amongst typical cluster firms, assistance from the Government is most critical. In the event of non- receipt of such support, cluster enterprises will continue operating at the low end of the value chain and perhaps unsustainable margins.

The CFC intervention assumes utmost significance in these circumstances.

3.2. Brief Description of purpose of major facilities

The gaps on various fronts that the CFC proposes to target, scope and illustration of major facilities are summarized as follows:

Technology Benchmarking

Present Circumstance	Benchmarked Options
CNC Lathe	
Virtually no access to such capital intensive equipment	Convenient access to such equipment
Slotter	
Presently no firms have access to such equipment	Convenient access to such equipment. Such equipment is used for cutting grooves, keys and slots of various shapes making regular and irregular surfaces.
Universal Milling Machine	
Cluster firms have no access to such equipment. This machine is for machining parts to precise shapes and sizes	Convenient access to such equipment

Present Circumstance	Benchmarked Options
Shaper	
Cluster firms have limited access to such equipment that facilitates quality machining.	Convenient access to such equipment
Radial Drill	
Limited access to such equipment used for drilling medium or large diameter holes upto 50 mm in heavy work pieces	Convenient access to such equipment
Power hacksaw	
Some cluster firms typically use conventional hand held hacksaws	Convenient access to such equipment
Bench Grinder	
Limited access to related equipment	Convenient access to such equipment
Bending machine	
Virtually no access to related equipment	Convenient access to such equipment
Rolling Mill	
Virtually no access to related equipment within the cluster	Convenient access to such equipment
Galvanizing Plant	
Virtually no access to galvanizing facilities within the cluster	Convenient access to such facilities which increases product quality and life of finish.

The following sub-section provides an elaboration on necessary machinery and equipment.

3.3. Description of machinery and equipment

The common facility envisages the following more important machinery, equipment and related facilities that could help redress the technology and capacity gaps vis-à-vis MSEs in the cluster[3]. Evidently, there are some gaps in terms of some other facilities such as testing equipment. The gap is largely in terms of larger lead times in securing test reports. Surpluses generated from the envisaged CFC may be leveraged to redress other gaps such as those on the packaging front due to resource limitations by typical micro-sized enterprises in investing individually or jointly in such facilities immediately. The following sub-sections elaborate on related equipment and technology.

Conventional Lathe: The lathe is a machine tool used principally for shaping pieces of metal (and sometimes wood or other material) by causing the work piece to be held and rotated on its axis to perform various operations such as cutting, sanding, knurling, drilling, or deformation, facing, turning with tools that are applied to the work piece to create an object which has symmetry about an axis of rotation. The basic lathe that was designed to cut cylindrical metal stock has been developed further to produce screw threads, tapered work, drilled holes, knurled surfaces, and crankshafts. Modern lathes offer a variety of rotating speeds and a means to manually and automatically move the cutting tool into the work piece.

[3] Specifications are presented in **Annexure XIII.**

CNC Lathe: Presently, virtually no cluster firm has access to such equipment**.** A CNC Lathe Machine is an abbreviated form of a Computer Numerical Control Lathe Machine. It is generally operated by precisely programmed commands encoded on a storage medium. A CNC lathe has 3-5 axis's, the spindle holds the part and spins as the turret which holds the tool and moves in and makes the cut depending on how the user programmed the machine. The cutter in the turret doesn't spin but it does move to make the cut on the part in the spindle. The main parts are the spindle, the tailstock, the computer, the tool turret and the frame.

Slotter: Presently, virtually no cluster firm has access to such equipment. The slotting machine is a reciprocating machine tool in which, the ram holding the tool reciprocates in a vertical axis and the cutting action of the tool is only during the downward stroke. The slotting machine is used for cutting grooves, keys and slots of various shapes making regular and irregular surfaces both internal and external cutting internal and external gears and profiles.

Universal Milling machine: Presently, virtually no cluster firm has access to such equipment. Milling machines are tools designed to machine metal, wood, and other solid materials. Often automated, milling machines can be positioned in either vertical or horizontal orientation to carve out material based on a pre-existing design. These designs are often CAD directed, and many milling machines are CNC-operated, although manually and traditionally-automated milling devices are also common. Milling machines are capable of dynamic movement, both of the tool and the work piece, and many milling machines can perform multi-axis machining.

Shaper: A shaper is a type of machine tool that uses linear relative motion between the work piece and a single-point cutting tool to machine a linear tool path. Its cut is analogous to that of a lathe, except that it is (archetypally) linear instead of helical. (Adding axes of motion can yield helical tool paths(as also done in helical planing.)

Radial Drill: A Radial Drill is a machine in which the drilling head is mounted to slide along a radial arm which can be rotated, raised, or lowered on a vertical mast to adjust the position of the drill above the work piece, used for drilling medium or large diameter holes up to 50 mm in heavy work pieces.

Power Hacksaw: Presently, virtually no cluster firm has access to such equipment. A hacksaw is a fine-toothed saw, originally and principally for cutting metal. Power hacksaws are used to cut large sizes (sections) of metal such as steel. Cutting diameters of more than 10/15mm is very hard work with a normal hand held hacksaw. Therefore power hacksaws have been developed to carry out the difficult and time consuming work.

Hydraulic Multipurpose Cutting Press

Welding: Metal Inert Gas (MIG) welding, also sometimes called Gas Metal Arc Welding (GMAW) is a process that was developed in the 1940s for welding aluminum and other non-ferrous metals. MIG welding is an automatic or semi-automatic process in which a wire connected to a source of direct current acts as an electrode to join two pieces of metal as it is continuously passed through a welding gun. A flow of an inert gas, originally argon, is also passed through the welding gun at the same time as the wire electrode. This inert gas acts as a shield, keeping airborne contaminants away from the weld zone. This is an option that may also be considered.

Bench Grinder: A bench grinder is a type of bench_top grinding machine used to drive abrasive wheels, commonly used to hand grind cutting tools and perform other rough grinding. Depending on the grade of the grinding wheel it may be used for sharpening cutting tools such as lathe tools or drill bits. Alternatively it may be used to roughly shape metal prior to welding or fitting. A wire brush wheel or buffing wheels can be interchanged with the grinding wheels in order to clean or polish work-pieces. Grinding wheels designed for steel should not be used for grinding softer metals, like Aluminum. The soft metal gets lodged in the pores of the wheel and expands with the heat of grinding. This can dislodge pieces of the grinding wheel.

Bending Machine: A bending machine is a forming machine tool. Its purpose is to assemble a bend on a work piece. A bends is manufactured by using a bending tool during a linear or rotating move.

Rolling Mill: Presently, virtually no cluster firm has access to such equipment A rolling mill is mill where metal is passed between rolls to give it a certain thickness or cross-sectional form. The machine is a or set of rollers for rolling out or shaping metal.

Galvanizing Plant: Presently, virtually no cluster firm has access to such equipment. Galvanizing is the process of applying a protective zinc coating to steel or iron, to prevent rusting. The most common method is hot-dip galvanization, in which parts are submerged in a bath of molten zinc.

3.4. Financial summary of the proposed CFC[4]

The total cost of project has been estimated at Rs.501.29 Lakh towards fixed investment and margin for working capital. It is envisaged that the project will be financed by way of equity and grant-in-aid.

The Special Purpose Vehicle (SPV) proposes to contribute Rs. 50.13 Lakh and Rs. 451.16 Lakh is expected as assistance under the CM-CDS. Working capital loan will be availed of by the project.

Table 10: Financial summary of the proposed CFC

S. No.	Elements of CFC	Investment Required (Rs In Lakh)	Beneficiaries/SPV Contribution (Rs. In Lakh)	Loans from banks, etc. (Rs. In Lakh)	Grant in aid expected from GoI (Rs. In Lakh)

[4] Amounts in Rs. Lakh.

S. No.	Elements of CFC	Investment Required (Rs In Lakh)	Beneficiaries/SPV Contribution (Rs. In Lakh)	Loans from banks, etc. (Rs. In Lakh)	Grant in aid expected from GoI (Rs. In Lakh)
	(1)	(2)	(3)	(4)	(5)
1	Land building		-	-	-
(a)	Year 1	95.09	30.04	-	65.05
(d)	Total	95.09	30.04	-	65.05
2	Plant & Machinery				
(a)	Year 1	386.11	-	-	386.11
(d)	Total	386.11	-	-	386.11
3	Misc. Fixed Assets	5.00	5.00		
4	Working Capital for Year 1	28.37	7.09	21.28	-
5	Prelim. and Pre-operative expenses for Year 1	8.00	8.00		
6	Projected losses before viability	-	-	-	-
	Total	- (501.29)	50.13	21.28	451.16

3.5. Broad parameters of financial viability of CFC

With grant-in-aid assistance under the Chief Minister's Micro and Small Cluster Development Scheme, the CFC is expected to break even and earn profits from the first year of operation itself. Therefore, the proposed CFC is expected to be financially viable from a very nascent stage. Further, it is expected to effectively pay-back investment to its stakeholders in about 2 year and 6 months' time with viability gap funding by the government under the scheme. The working expenses and projected revenues of the CFC (year 1) are as follows:

Working Expenses		Revenues	
1. Consumables	30.40	1. User charges	661.44
2. Manpower (direct)	103.20		
3. Manpower (indirect)	29.40		
4. Electricity charges (fixed)	22.71		
5.Electricitycharges (variable)	122.12		
6. Water charges	0.30		
7. Repairs and maintenance	20.00		
8. Insurance	2.33		
9. Misc. Exp.	10.00		
10.Interest on working capital	3.09		
11. Depreciation	43.17		
12. P&P (and contingency) written-off	0.80		
Total	**387.52**		661.44

Estimates reflect the financial viability of the project even allowing for depreciation for continuous replacement of assets and therefore indicate sustainability orientation.

Chapter 4: Benefits to the Cluster

4.1. Envisaged benefits of the project

- ✓ Higher degree of competitiveness of cluster enterprises vis-à-vis medium and large sized enterprises also in other locations; progressively tapping even export demand for value added products.
- ✓ Scope for the cluster to develop higher degree of quality and productivity by deploying appropriate technology and equipment.
- ✓ Cluster MSEs will move up the value chain into higher value added products by means of ensuring continuous supply of raw material.
- ✓ The project could evolve into a demonstration model project to enhance sustainability orientation of enterprises in the region and country.
- ✓ The requirements of SPV members are adequate to utilize capacity of the CFC; nevertheless all cluster firms may use the facility. Therefore, upgrading of more such units will be possible.

Similar facilities not available in the cluster

The facilities envisaged under the proposed CFC are presently not available for MSEs in the cluster

4.2. CFC and long term vision for the growth of the Cluster

In essence, the cluster vision that has been progressively evolved is:

"The Jhula fabrication cluster of Kanhaiyaganj would have evolved into the preferred centre for fabrication of "Jhula" for Indian and global customers by means of co-operative action, manpower and technology upgrading by the year 2018."

The mission of the project is closely twinned with cluster vision:

- Enhance productivity and efficiency in the raw material primary processing and machining and finishing facilities on an SPV/consortia mode.
- Add value to service offered to customers and consumers by virtue of offering competitive and value-added products through SPV/consortia mode contributing both towards consumer benefits as well as sustaining and improving performance of fabricator cluster enterprises.

The CFC fits into the long term vision of the cluster in terms of it enabling cluster enterprises improve quality and efficiency by means of enhancing quality and reducing cost of inputs, technology up gradation and also help them to develop cost and quality advantage, even while enhancing capacity utilization through reducing lead times in production.

The common facility is expected to enhance the levels of co-operation and joint-action amongst cluster stakeholders and SPV members to co-operate in the areas of marketing and procurement once

technology up gradation and ability to provide competitive and better quality products year-round is ensured.

Also, it will complement the efforts of the State Government in promoting clusters in the State and serve as a model for upgrading in micro enterprise clusters in the fabrication segment.

Chapter 5: Strategic Objectives of the Project

The project is expected to competitively restructure operations of cluster SMEs and particularly SPV members. The facility will considerably increase value-accruals to cluster enterprises and facilitate offer of value added products year round by cluster enterprises.

5.1. Vision of the project and strategic objectives

The vision of cluster actors in the specific context of the CFC project is

"**The proposed CFC would facilitate graduation of cluster MSEs in to offering value-added products competitively by means of enhancing and optimising supply of inputs quality machining and fabrication and finish and reducing production lead times by the year 2018." Also,**

5.1.1. Strategic objectives of the Project

The envisaged project has a few strategic objectives that are outlined below:

- Successfully complement the competiveness oriented initiatives of cluster MSE enterprises in Nalanda District.
- Implement facilities that contribute towards upgrading technology and value addition by micro enterprises through public-private partnerships.
- Foster co-operative efforts amongst cluster enterprises as to help them reap the benefits of joint-action in terms of establishing critical industrial infrastructure, pursuing joint procurement and marketing.
- Contribute towards competitive value-added production in the sector.

5.1.2. Objectives and value-chains

The critical strategic objectives of the project is restructuring of the value chain. Greater value will accrue to smaller manufacturers and stakeholders. This in turn implies sustainable employment opportunity to the hundreds of labour force currently employed by SPV members and also other cluster enterprises who may also avail of the proposed facility at CFC.

The envisaged facility will in the longer term help SPV members to competitively progress towards even export orientation.

The likely value chain circumstance in the cluster is indicatively presented in the elaboration following.

The present as well as post intervention value-activities and accruals are presented below**.**

5.1.3. Value-chain of enterprises

As a brief illustration in terms of value-chains:

Basically, considering manufacture of a "Break-dance Jhula" presently involves raw material procurement @ about Rs. 8,95,000 which is value-added into end product over a period of 90 days at an operating cost of about Rs. 2,50,000 (in terms of manpower, power, consumables + other overheads). The product is sold to customers @ about Rs. 12 lakh. This yields a profit of barely Rs. 55,000 per unit.

The establishment of a common facility could result in reduction in operating costs of manpower and time involved in processing. The operating costs could reduce considerably and time involved only 60 days. Profit margins could increase to even Rs. 1,50,000**.**

5.2. Activity flow vis-à-vis the CFC

The activity flow of the restructured operations of SPV and related cluster firms are as follows:

The activity flow vis-à-vis such a common facility may be visualised as follows:

Activity flow-chart in the context of the CFC

(i) <u>Activity by individual SPV members and cluster micro and small enterprises</u>:

- Purchase of raw material and consumables
- Finishing of fabricated components and products in some jobs.
- Marketing and sale of products.
- Traditional machining and fabrication activity for some components.

(ii) <u>Operations within CFC</u>:

- Raw material primary processing into sheets
- Quality machining of some jobs
- Finishing of some components

Chapter 6: The Special Purpose Vehicle (SPV) for Project Implementation

The project is to be implemented on public-private partnership schema through an SPV "Kanhaiyaganj Jhula Cluster Pvt. Ltd."

The entity is being incorporated under the Companies Act, 1956.

As a matter of fact, the SPV for project implementation has been evolved by cluster stakeholders and support institutions through the catalysing role of the MSME-DI and DIC. The SPV is being incorporated in 2015 and already includes over 20 members who are subscribing to the necessary equity base of the company. The SPV believes in a policy of free entry and exit.

The company is to have an authorised capital of Rs.40 Lakh. The members are largely micro-sized firms (registered units) involved in Jhula fabrication and related activities. Some are startups

A few of them are potential start-ups in the segment.

6.1. Shareholder profile and shareholding-mix

The private micro/small enterprise shareholders, and in effect their enterprises are legally independent entities.

There is no related party relationship with each other as described under Accounting Standard (AS) 18 of the Companies (Accounting Standard) Rules, 2006

6.1.1. List of directors

The SPV has 12 directors. The details of the directors are furnished below.

The SPV basically food processing firms.

Table 11: List of Directors

S. No.	Name	Name of the unit
1	Pintu Vishwakarma(Bod)	Kanhiaganj Bihar 9939395969
2	Vijay Vishwakarma (Bod)M.D.	Kanhiaganj Bihar 9939394603
3	Pardeep Kumar (Bod)	Kanhiaganj Bihar 9798685388
4	Arvind Vishwakarma (Bod)	Kanhiaganj Bihar 9835592154
5	Vinay Kumar (Bod)	Kanhiaganj Bihar 9931404063
6	Rajeev Vishwakarma	Kanhiaganj Bihar 9835068556
7	Mahesh Vishwakarma	Kanhiaganj Bihar

S. No.	Name	Name of the unit
		9709415575
8	Pankaj Vishwakarma(Bod)	Kanhaiyaganj Bihar 8051861064
9	Ranjeet Vishwakarma	Kanhiaganj Bihar 9771726877
10	Ashok Vishwakarma	Kanhiaganj Bihar 8051665614
11	Bablu Vishwakarma	Kanhiaganj Bihar 9570730455
12	Md.Naimuddin	Kanhiaganj Bihar 9931890344

The lead promoters/shareholders have several years of successful experience in marketing related products, have established links with marketing channels and are financially sound.

6.1.2. Members and contribution to paid-up capital

SPV members have strong track record in **Jhula manufacturing related trades**.

Core members of the SPV have a good track record with bankers and have experience of several decades in successful business.

They have also taken the lead in pioneering joint-action projects in the region.

SPV directors/members of the SPV have considerable experience in the marketing and/or manufacture of fruit products. These directors/members have close interactions with technical experts in the field including those representing technical and related private and government institutes and machinery suppliers.

Initially SPV members are contributing towards paid up capital in the following contribution mix:

Table 12: Individual Shareholding

S No.	Name of Promoter	Name and Address of Unit	Proposed shareholding (Rs.1000/Share)
1.	Pintu Vishwakarma(B)	Kanhiaganj Bihar 9939395969	160
2.	Vijay Vishwakarma (Bod) M.D.	Kanhiaganj Bihar 9939394603	160
3.	Pardeep Kumar (Bod)	Kanhiaganj Biha 9798685388	160
4.	Arvind Vishkarma (Bod)	Kanhiaganj Biha 9835592154	160
5.	Vinay Kumar (Bod)	Kanhiaganj Bihar 9931404063	160
6.	Rajeev Vishwakarma	Kanhiaganj Bihar 9835068556	160
7.	Mahesh Vishwakarma	Kanhiaganj Bihar 9709415575	160
8.	Pankaj Vishwakarma(Bod)	Kanhiaganj Bihar	160

S No.	Name of Promoter	Name and Address of Unit	Proposed shareholding (Rs.1000/Share)
		8051861064	
9.	Ranjeet Vishwakarma	Kanhiaganj Bihar 9771726877	160
10.	Ashok Vishwakarma	Kanhiaganj Bihar 8051665614	160
11.	Babu Vishwakarma	Kanhiaganj Bihar 9570730455	160
12.	Md.Naimuddin	Kanhiaganj Bihar 9931890344	160
13.	Vikram Vishwakarma	Kanhiaganj Bihar 8877662746	160
14.	Mukesh Vishwakarma	Kanhiaganj Bihar 9931026503	160
15.	Guddu Vishwakarma	Kanhiaganj Bihar 927923485	160
16.	Anand Vishwakarma	Kanhiaganj Bihar 9905494292	160
17.	Vikas Vishwakarma	Kanhiaganj Bihar 9570730458	160
18.	Upendra Vishwakarma	Kanhiaganj Bihar 9279234885	160
19.	Krishna Vishwakarma	Kanhiaganj Bihar 9905494292	160
20.	Mahendra Vishwakarma	Kanhiaganj Bihar 9162216450	160
21.	Shiv Kumar Vishwakarma	Kanhiaganj Bihar 9709416063	160
22.	Vishnu Dev Vishwakarma	Kanhiaganj Bihar 9304615846	160
23.	Shekar Vishwakarma	Kanhiaganj Bihar 9534800934	160
24.	Ajay Vishwakarma	Kanhiaganj Bihar 7549676161	160
25.	Pappu Vishwakarma	Kanhiaganj Bihar 9570428515	160
26.	Dharmendra Vishwakarma	Kanhiaganj Bihar 9570730472	160
27.	Sunil Vishwakarma	Kanhiaganj Bihar 8298965516	160
28.	Anil Vishwakarma	Kanhiaganj Bihar 8051090010	160

S No.	Name of Promoter	Name and Address of Unit	Proposed shareholding (Rs.1000/Share)
29.	Ranjeet Vishwakarma	Kanhiaganj Bihar 9546627859	160
30.	Manoj Kumar	Kanhiaganj Bihar 8541990876	160
31.	Md.Salim	Kanhiaganj Bihar 9931026375	160
32.	Sudhir Kumar	Kanhiaganj Bihar 9534341404	160
33.	Dipu Kumar	Kanhiaganj Bihar 7250902313	160
			520000

6.2. Joint-action and operational review of the SPV

6.2.1. Cluster development initiatives and outcomes

This section presents the track record of joint-initiatives by SPV members. It also offers a review of the operational parameters of the SPV.[5]

6.2.2. Track record of joint-initiatives by SPV members

SPV members have already taken the lead to pursue several joint and co-operative initiatives.. The major initiatives may be visualised in terms of:

- Pursuing initiatives in close co-ordination with the MSME-DI to facilitate networking with institutions.
- Spearheading some programmes related to industry needs
- Progressively securing land for upgrading plans

Annexure IV presents sample press-clippings and snapshots. Further, **Annexure V** presents the minutes of related District Committee meetings. Both exemplify the pro-active role of local stakeholders and the SPV as well as their joint-initiatives as well as close co-operation of support institutions and the Government in cluster development activities.

6.2.3. Joint-activities by the Cluster Association

Annexure III presents other related sample press-clippings and snapshots.

Further, **Annexure IV** presents the minutes of relevant stakeholder meetings. Both exemplify the pro-active role of local stakeholders and the SPV as well as their joint-initiatives.

6.2.4. Operational review of the SPV and management and decision making framework

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 majority shareholders.

The Articles of Association of the company also indicates the democratic process in terms of decision making on the basis of votes- proportionate to share in paid-up equity capital.

All shareholders will meet once every fortnight to discuss / resolve operational issues.

There shall be one nominee of the State Government (DIC) as member of the SPV.

[5]The certificate of incorporation, memorandum and articles of association of the SPV are presented as Annexure **II.**

In the specific context of the project, the SPV will play the following role:

- Raise its contribution towards project cost through equity
- Obtain any statutory approvals/clearances including release of funds from the government (including the State Govt.)
- Implement various interventions as indicated and approved in DPR
- Recruit appropriate professionals to ensure smooth execution of the project
- Sustainably operate assets created under the project through levy of user charges and submit progress reports to the government in formats required

Chapter 7: Role of Support Institutions and Service Providers

Many support institutions within and outside the cluster play a key role in developing the cluster as well as in complementing initiatives of the cluster SPV.

7.1. Institutions and service providers within the cluster

District Industries Centre (Bihar Sharif): The DIC serves as the field-level co-ordination and implementing arm of the industries department of the State Government. It promotes registers and routes subsidy to micro enterprises in the region. The General Manager of the pro-active DIC serves as a member of the District Committee. The Unemployed Youth Employment Generation Program (UYEGP) is being aggressively implemented by this institution. In additions to cluster development programmes.

BIADA: The Bihar Industrial Area Development Authority (BIADA) has been establishing and maintaining industrial estates across the state. Jhula fabrication units however operate outside BIADA estates in the region.

Commercial Banks: The lead bank in the district is the State Bank of India and there are a range of commercial and co-operative banks in the region. However, as mentioned the circumstance calls for roles of these institutions are to be more effectively twinned with cluster firms through leveraging assistance under the CGTMSE. Despite the presence of a gamut of commercial banks in the cluster, credit links with banks are yet to be adequately developed.

Industry Associations and WGOs: There are a number of industry associations in the region like the Bihar Chambers of Commerce..

MSME-DI: The MSME-DI is the field outfit of the Office of the DC-MSME under the Ministry of MSME, Gol. The institute supports techno managerial consultancy services and offers training inputs to facilitate promotion of small enterprises. The MSME-DI located at Patna, for instance, has also been successfully intervening in several clusters including Kanhaiyaganj. The dynamic officers of this institution have been also working closely with some officers of the DIC and Udyog Mitra in developing a few clusters in Bihar.

Urban Local Body and related programme: The municipal council at Patna and the Support Programme for Urban Reforms (SPUR) has been facilitating and pioneering several related developmental activities in terms of conducting studies related to City Development Plan preparation followed by City Business Plan preparation (in Patna and cities and towns across the State).

Udyog Mitra: This institution serves as the implementing agency on behalf of the Department of Industries of the State government under the CM-CDS. The institution has been working on developing several clusters in the state including the RMG cluster at Patna district. This institution is also represented in the State Level Committee.

7.2. Other Service Providers located outside the cluster

There are a number of other service providers and institution in locations such as the NCR whose roles are being adequately coupled with those of the SPV cluster firms.

There are a number of other service providers and institution in other locations whose roles may be progressively coupled (to greater degree) with that of cluster firms over implementation of the envisaged CFC in the longer term. These include:

Chapter 8: Project Economics

8.1. Project cost and means of finance

Basically, the critical elements of project cost in terms of fixed assets and investment include:

- land and site development
- building and civil works
- machinery and equipment
- miscellaneous fixed assets such as furniture and fittings
- P&P expenses
- contingency margin
- margin for working capital

(i) **Land and building:** Upon considering the requirement by way of buildings, installation of machinery and provision for stocking material, it is perceived that a plot of land of 1 acre of land in area would be appropriate.

(ii) **Site Location:** The facility is proposed to be located in Bihar, dist. Nalanda. The SPV is procuring necessary land. About 10,600 sft of this land will be the built-up area of the site. Annexure VII presents the site layout plan.

(iii) **Land Ownership:** Agreement for purchase of land has been entered into by the SPV. Land space of about 1 acre on 30 year lease basis procured on lump-sum payment of Rs. 9 lakh is to be provided by the SPV members as part of their contribution to project cost.

(iv) **Building Layout and land use plan**: The built-up area of the facility will essentially comprise largely single storied buildings. Indicative building and layout plan are presented in the annexure.

To elaborate:

- **Administrative facilities:** The facilities, essentially comprising reception area, office space and pantry will also accommodate a wash room.
- **Primary processing facilities:** These facilities are also to be housed on a single storied building on the premises. This facility will encompass 4,500 sft.
- **Value added component development facility:** This facility will also be housed in a single-storied building across space of about 2100 sft.
- **Finishing Facility:** The finishing facility will also be housed in a single storied building spread across 4000 sft.

To summarize, land has been acquired by the SPV at lump-sum lease basis of Rs. 9,00,000 for a total of about 1 acre. Site development is expected to cost Rs.5 Lakh. Hence, the total cost of land and site development amounts to Rs.14.00 Lakh.

The total cost of construction of building is estimated at Rs.0.79 crore (Rs.79.50 lakh). Hence, the total cost of land and site development as well as construction of buildings is pegged at Rs. 41.00 Lakh. (Excluding provision for contingencies)

Table 13: Requirement in terms of land and buildings

Particulars	Amount (in Rs. Lakh)
Land on lump-sum lease basis and site development (@ Rs.14 Lakh).	14.00
Building and civil works (built up area of 10,600 sft.@ Rs.750 sqft.)	79.50
Total	**93.50**

(v) Existing on site features, climatic circumstances: The proposed site has appropriate topography for establishment of the project. Basically, the site enjoys different types of climate like winter, summer and the South West Monsoon. Temperatures average a max. of 40^0C and a minimum of 4^0c. The region becomes hot in the summer months of March – July and cools during November - February. The South West Monsoon sets over Bihar in early July and fades out by September. The region receives most rainfall during these monsoons.

(vi) Core plant, machinery and equipment: Important machinery and equipment necessary for the proposed projects is raw material primary processing, quality component development and finishing facilities.

The details of machinery items are presented in the following table (elaboration, specifications and some quotations in **Annexure XIII).** The SPV has considered quotations from some machinery suppliers upon considering parameters like price, service support and quality.

Nevertheless, an open-tendering system will be incorporated for finalising suppliers as to negotiate most attractive terms over project implementation.

(vii) Miscellaneous Fixed Assets

The requirements by way of miscellaneous fixed assets such as furniture, fixtures, firefighting equipment and first-aid equipment is pegged at Rs. 5.00 Lakh.

Table 14: Preliminary and pre-operative expenses

Preliminary expenses	Pre-operative expenses
Preliminary expenses are envisaged in terms of legal & administrative expenses, registration, detailed civil engineering drawings with estimates and tender forms, tendering cost, telephone, stationery, etc.	Establishment costs, travel, overheads during construction period including salaries

(viii) Provision for contingencies

Contingencies estimated @ 2 % on building (totalling Rs.79.50 Lakh) amounts to Rs.1.59 Lakh and 5% on plant and machinery (totalling Rs. 367.73 Lakh) amounting to Rs. 18.38 Lakh.

(ix) Margin for working capital

The total working capital requirement during the first year of operation at 80% capacity utilisation is estimated at Rs. 28.37 lakh with margin money requirement of Rs. 7.09 Lakh. The working capital requirement has been calculated based on requirement of 1 month of operational expenses. The margin money has been estimated on this basis.

(x) Summary project cost

A summary of the estimated project cost is presented below.

The cost of plant and machinery including electrification, installation and contingencies works out to about Rs. 386.11lakh or the bulk proportion of project cost.

Table 15: Detailed Project Cost

S.No	Particulars	Amount (in Rs. Lakh)
1	Land on lump-sum lease basis and site development (@ Rs.5 Lakh).	14.00
2	Building and civil works (including; shop-floor area and administrative area of 10,600 sft. @ Rs.750 per sft.)	79.50
3	Plant & Machinery and accessories and related equipment (including 5% electrification related expenses on total cost of Rs. 350.22 Lakh)	367.73
4	Miscellaneous fixed assets (furniture, fixtures, firefighting equipment, first-aid equipment)	5.00
5	Preliminary expenses (legal & administrative expenses, registration, detailed civil engineering drawings with estimates and tender forms, tendering cost, telephone, stationery, etc.)	4.00
6	Pre-operative expenses (establishment costs, travel, overheads during construction period including salaries)	4.00
7	Provision for contingencies (2% or Rs. 1.59 Lakh on building and 5% or Rs. 18.38 Lakh on plant and machinery)	19.97
8	Working capital margin (at operating capacity of 80 %)	7.09
	Total	**501.29**

The total project cost is estimated at Rs. 501.29 Lakh.

(xi) Means of Finance

It is envisaged that the project will be financed by a mix of equity and grant-in-aid. Working capital loan is to be secured from the Bank. The Assistance to the project from the Govt. of Bihar is envisaged to the tune of 90% per cent of project cost and balance by project SPV is 10 per cent. The following tabulation summarizes the mix:

Table 16: Means of Finance

S. No.	Means of finance	Amount (in Rs. Lakh)
1	Contribution of SPV (10% of project cost)	50.13
2	Grant-in-aid under GOB (90% of project cost)	451.16
	Total	**501.29**

(xii) 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. 50.13 Lakh contributed by the cluster SPV.

The authorised share capital of the company is Rs. 100 lakh.

(xiii) Grant-in-aid

Grant-in-aid of Rs.451.16 lakh is expected from the Government of Bihar.

8.2 Expenditure estimates

This section considers annual cost of production and expenditure estimates. The critical components related to expenditure comprise consumables, manpower, electricity and also expenditures by way of repairs and maintenance, insurance and administrative overheads.

Other elements comprise expenditures by way of servicing loans, administrative overheads and non-cash depreciation expenditure.

(i) Consumables

Consumables required for the project facilities may be critically visualised in terms of furnace oil and stationery etc. The annual requirement of consumables is tabulated as under:

Table 17: Annual requirement of consumables

S. No.	Facility	Particulars (Requirements by way of consumables)	Amount (requirement @ 100% C.U. in Rs. lakh)	Amount (@ 80% C.U. in Rs. lakh)	Amount (@ 85% C.U. in Rs. lakh)
A	Raw material primary processing facility	Consumables like oil, grease etc. @ Rs. 2,00,000 per month	24.00	19.20	20.40
B	Quality component development facility	Consumables @ Rs. 10,000 per month	1.20	0.96	1.02
C	Quality finishing facility	Consumables in terms of furnace oil @ Rs. 30,000 per month; 1.5% zinc @ Rs. 70,000 per month	12.00	9.60	10.20

S. No.	Facility	Particulars (Requirements by way of consumables)	Amount (requirement @ 100% C.U. in Rs. lakh)	Amount (@ 80% C.U. in Rs. lakh)	Amount (@ 85% C.U. in Rs. lakh)
		Sub Total	**37.2**	**29.76**	**31.62**
Administrative Facilities					
A	Administrative Facilities	Stationery, office equipment related consumables etc. (Rs.10000 p.m.)	0.80	0.64	0.68
		Sub Total	**0.80**	**0.64**	**0.68**
		Total	**38.00**	**30.4**	**32.30**

(ii) Manpower requirements

The total manpower requirement for the project would be about 102 persons. The details of monthly and yearly expenses for manpower required for running the project is provided in the following tables. The immediately following tabulation presents expenditures related to "direct" salary and wage related expenditures. This component of annual salary bill amounts to Rs.129 Lakh.

Table 18: Expenditure related to salary and wages (direct and shop-floor expenses)6

S. No.	Category	No. of persons	Salary per month per person (in Rs.)	Total salary per month (in Rs.)	Salary p.a. (in Rs. Lakh)
1	**Raw Material Primary Processing**				
A	Operators	15	15,000	2,25,000	27
B	Helpers	30	10,000	3,00,000	36
2	**Quality Component Development Facility**				
B	Operators	15	15,000	2,25,000	27
C	Helpers	15	10,000	1,50,000	18
3	**Finishing Facility**				
A	Operator	5	15,000	75,000	9.00
B	Helper	10	10,000	1,00,000	12.00
	Total	**90**	**75,000**	**10,75,000**	**129**

The table following summarizes expenses towards salaries and wages for indirect-cost components, that is, for specifically administrative and related overheads. The annual salary bill on this count amounts to Rs. 29.40 Lakh.

[6] As a matter of fact, salary is inclusive of fringe benefits. In the context of the developmental nature of the project, Some salaries have been pegged to the extent of even 30 per cent above local market rates in the light of the developmental agenda of the SPV and therefore additional annual increments are not explicitly provided for.

Table 19: Expenditure related to salaries and wages (indirect expenses related to administrative and support staff)

Sl. No.	Category	No. of persons	Salary per month per person	Total salary per month	Salary p.a. (in Rs. Lakh)
1	CEO	1	50,000	50,000	6.00
2	Chief Accountant	1	20,000	20,000	2.40
3	Accountants	1	15,000	30,000	1.80
4	Procurement officer	1	25,000	25,000	3.00
5	Marketing	1	25,000	25,000	3.00
6	Support staff	2 watchmen; 1 office assistant, 4 maintenance electricians and mechanics	10,000, 10,000, 20,000	1,10,000	13.20
	Sub Total				**Rs. 29.40 Lakh**

The total expense on manpower is therefore projected at Rs. 158.40 Lakh per annum.

(iii) Utilities

The more important utilities required by the project comprise power supply and water.

(iv) Power

The broad asset-wise requirement of power for operation of machinery as well as critical air-conditioning equipment for smooth operation of equipment is presented in this sub-section.

(v) Machine and equipment-wise requirement of power

The table in annexures elaborates on the machine and equipment-wise power requirement in the proposed common facility. The drawn power may be conservatively assumed at 60-80 per cent of the connected load in the case of different operating facilities and machine shop-floor.

From the table presented, it is evident that:

- The power requirement for operation of core machinery and equipment, administrative facilities is 631 kVA. The minimum demand charges is 631 kVA x Rs. 300 = Rs. 1,89,300 p.m.
- The drawn power works out to 90% of 504.8 kWh (connected load of 631 kVA) or 454.32 kWh for facilities.

  Therefore, the demand charges is 454.32 kWh x 16hrs x 300 days x Rs. 7 per kWh = Rs. 152.65 lakh

The table presented summarizes the envisaged annual expenditure in terms of power related charges.

Table 20: 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 (minimum connected load)	-Shop-floor and administrative and support facilities (Rs. 1.89 lakh per month)	22.71 (Rs. 1.89 lakh per month)	22.71	22.71
2	Variable charges	Shop-floor as well as administrative facilities	152.65	122.12	129.75
	Total		175.33	144.8	152.43

(vi) Electricity transmission & distribution

Required power will be conveniently drawn from existing lines and stations located in the region.

(vii) Water Supply

Water requirement is largely for personal consumption is 5000 lts per day. Hence, total requirement of water is 5 KLD per day or Rs. 37,500 per annum i.e. water charges @ Rs.25 per KL on conservative basis.

(viii) Annual repairs and maintenance expense

The annual repairs and maintenance expenses have been pegged at Rs.10 Lakh. These are based on judgment and expert estimates.

Table 21: Annual repairs and maintenance expenditure

Sl. No.	Raw material	Particulars	Amount (@ 100% C.U. in Rs. Lakh)	Amount (@ 80% C.U. in Rs. Lakh)	Amount (@ 85% C.U. in Rs. Lakh)
1	Repairs and maintenance	Conservative lump-sum estimate	20.00	20.00	20.00

(ix) Insurance and other miscellaneous administrative expenses

Asset insurance is computed on the basis of 0.5 per cent on the value of concerned fixed assets. Cost by way of insurance will basically remain a fixed cost. Miscellaneous administrative overheads are pegged at a lump-sum of Rs.10.00 Lakh per year. In the interest of conservativeness in project preparation, this cost is also considered to be basically fixed irrespective of scale of operation.

Table 22: Insurance and miscellaneous administrative expenses

S. No.	Head	Particulars	Amount (@ 100% C.U. in Rs. Lakh)	Amount (@ 80% C.U. in Rs. Lakh)	Amount (@ 85% C.U. in Rs. Lakh)
1	Insurance	Estimate @ 0.5 % on fixed assets (plant and m/c including related contingency expenses of approx. Rs. 467.20 lakh)	2.33	2.33	2.33
2	Misc. Exp.	Stationery, communication, travelling and other misc. overheads (and lease rentals pegged at Rs. 12,00,000 per annum)	10.00	10.00	10.00
		Total	**12.33**	**12.33**	**12.33**

8.3. Working capital requirements

Working capital has been considered in terms of one month's expenditure requirements.

Table 23: Assessment of working capital

S. No.	Particulars[7]	Annual expenditure at installed capacity of 100% (in Rs. Lakh)	Annual expenditure at operating capacity of 80% (in Rs. Lakh)	Annual expenditure at operating capacity of 85% (in Rs. Lakh)
1	Consumables	38.00	30.40	32.30
2	Salary and wages (direct expenses)	129.00	103.20	109.65
3	Salary and wages (indirect expenses)	29.40	29.40	29.40
4	Utilities (power – fixed charges)	22.71	22.71	22.71
5	Utilities (power – variable charges)	152.65	122.12	129.75
6	Utilities (water)	0.38	0.30	0.32
7	Repairs and maintenance	20.00	20.00	20.00
8	Insurance	2.33	2.33	2.33
9	Misc. administrative expenditure	10.00	10.00	10.00
	Total[8]	**404.47**	**340.46**	**356.46**

[7] Expenditures related to (indirect) manpower are for purposes of conservativeness, envisaged as salaries and are therefore fixed costs. So also is the fixed connection charge with respect to cost of power.

[8] Estimates in tables are rounded-off to the nearest '000.

As the project achieves cash break-break-even in the first year of activity, working capital margin for this year is considered for estimation of project cost. Essentially, the total necessary working capital (one month's operating expense) requirement for the project at 80 % capacity utilisation is Rs. 28.37 Lakh as per details presented. Further, total working capital required at an operating capacity of 85% works out to Rs. 29.70 Lakh. In this context, the corresponding working capital margin requirement at 80% and 85% capacity utilisation amounts to Rs. 7.09 Lakh and Rs.7.43 Lakh respectively, and the corresponding loan amounts at Rs. 21.28 Lakh and Rs. 22.28 Lakh respectively. The interest on bank loan (@ 14.5 per cent per annum) amounts to Rs. 3.09 Lakh at 80 per cent capacity utilisation and Rs. 3.23 Lakh at an operating capacity of 85 per cent. As mentioned, a bank is expected to offer in-principle, to sanction the required working capital to the CFC. Computation of working capital and margin money requirement for 10 years is detailed below.

Table 24: Computation of Working Capital and Margin Money requirements[9]

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Consumables, etc. Other recurring exp.	30.40	32.30	32.30	32.30	32.30	32.30	32.30	32.30	32.30	32.30
Manpower (direct)	103.20	109.65	109.65	109.65	109.65	109.65	109.65	109.65	109.65	109.65
Manpower (indirect)	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40	29.40
Electricity charges (fixed)	22.70	22.70	22.70	22.70	22.70	22.70	22.70	22.70	22.70	22.70
Electricity charges (variable)	122.12	129.75	129.75	129.75	129.75	129.75	129.75	129.75	129.75	129.75
Water	0.30	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Repairs & maintenance	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Insurance	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Misc. Expenses	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Total	**340.45**	**356.45**	**356.45**	**356.45**	**356.45**	**356.45**	**356.45**	**356.45**	**356.45**	**356.45**
Working capital (for 1 month's expenses)	28.37	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70
Working capital margin [10]	7.09	7.43	7.43	7.43	7.43	7.43	7.43	7.43	7.43	7.43
Working capital loan[11]	21.28	22.28	22.28	22.28	22.28	22.28	22.28	22.28	22.28	22.28
Interest on working capital loan @ 14.3 % p.a.	3.09	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23

[9] Amounts in Rs. Lakh.

[10] @ 25% of working capital requirement.

[11] @ 75% of working capital requirement.

8.4 Depreciation estimates

Estimates of depreciation are non-cash expenditures and presented in this section on the basis of both Straight Line (SL) as well as 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 replacement of such assets towards the end of the envisaged asset life of 10 years. Depreciation of buildings is considered at the rate of 5 per cent per year, depreciation of plant and machinery at 10 per cent a year (envisaged project life of 10 years prior to replacement of assets) and depreciation of miscellaneous fixed assets also at the rate of 10 per cent a year as per the SL method.

Under the WDV method depreciation is considered at the rate of 10 per cent a year on buildings, 15 per cent on plant and machinery and 10 per cent on miscellaneous fixed assets.

The depreciated value of assets as per SL and WDV methods is presented in the tables following.

Table 25: Depreciation employing the Straight Line Method[12]

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Land	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
Building and civil works										
Opening Balance[13]	81.09	77.04	72.98	68.93	64.87	60.82	56.76	52.71	48.65	44.60
Less Depr. @ 5%	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
Closing Balance	77.04	72.98	68.93	64.87	60.82	56.76	52.71	48.65	44.60	40.55
Machinery and Equipment										
Opening Balance[14]	386.11	347.50	308.89	270.28	231.67	193.06	154.44	115.83	77.22	38.61
Less Depr. @ 10%	38.61	38.61	38.61	38.61	38.61	38.61	38.61	38.61	38.61	38.61
Closing Balance	347.50	308.89	270.28	231.67	193.06	154.44	115.83	77.22	38.61	-
Misc. Fixed Assets										
Opening Balance[15]	5.00	4.50	4.00	3.50	3.00	2.50	2.00	1.50	1.00	0.50
Less Depr. @ 10%	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Closing Balance	4.50	4.00	3.50	3.00	2.50	2.00	1.50	1.00	0.50	-
Opening Balance	486.20	443.03	399.87	356.70	313.54	270.37	227.21	184.04	140.88	97.71

[12] Amounts in Rs. Lakh.
[13] Opening balances includes provision for contingencies/escalation.
[14] Opening balances includes provision for contingencies/escalation.
[15] Opening balances includes provision for contingencies/escalation.

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Depr.	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17
Depr. Value	443.03	399.87	356.70	313.54	270.37	227.21	184.04	140.88	97.71	54.55

Table 26: Depreciation employing the WDV Method

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Land	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
Building and civil works										
Opening Balance[16]	81.09	137.00	123.30	110.97	99.87	89.89	80.90	72.81	65.53	58.97
Less Depr. @ 10%	8.11	13.70	12.33	11.10	9.99	8.99	8.09	7.28	6.55	5.90
Closing Balance	72.98	123.30	110.97	99.87	89.89	80.90	72.81	65.53	58.97	53.08
Machinery and Equipment										
Opening Balance[17]	386.11	328.19	278.96	237.12	201.55	171.32	145.62	123.78	105.21	89.43
Less Depr. @ 15%	57.92	49.23	41.84	35.57	30.23	25.70	21.84	18.57	15.78	13.41
Closing Balance	328.19	278.96	237.12	201.55	171.32	145.62	123.78	105.21	89.43	76.02
Misc. Fixed Assets										
Opening Balance[18]	5.00	4.50	4.05	3.65	3.28	2.95	2.66	2.39	2.15	1.94
Less Depr. @ 10%	0.50	0.45	0.41	0.36	0.33	0.30	0.27	0.24	0.22	0.19
Closing Balance	4.50	4.05	3.65	3.28	2.95	2.66	2.39	2.15	1.94	1.74
Total Depreciation	66.53	63.38	54.58	47.03	40.55	34.98	30.20	26.09	22.55	19.51
Depreciation Value	419.67	420.31	365.73	318.71	278.16	243.18	212.98	186.89	164.34	144.84

8.5 Income estimates

In this DPR, estimates of income are projected on the basis of user charges to be levied for provision of various inputs and services to SPV member units and other cluster firms. The major income sources are envisaged by way of provision of various facilities.

As a matter of fact, emphasis has been on maintaining conservativeness in projection of incomes. The charges levied in some private facilities in other locations such as the NCR who offer services are

[16] Opening balances includes provision for contingencies/escalation.
[17] Opening balances includes provision for contingencies/escalation.
[18] Opening balances includes provision for contingencies/escalation.

generally more than the charges pegged for this project. In fact, medium and large private units in the NCR charge more for some related services. The circumstance substantiates the appropriateness of user charges levied as well as viability of the project.

The relevance and appropriateness of user charges is also evident from the fact that the rates prescribed help meet operating expenditures as well as provide for sustainable replacement of assets even while ensuring adequate profitability as required in a bankable DPR.

Charges and envisaged income accruals are presented in the table following.

Table 27: Projected annual income statement[19]

S. No.	Category	Particulars	User Charges @ 100% C.U.	User Charges @ 80% C.U.	User Charges @ 85% C.U.
1	Raw Material Primary Processing Facility	Capacity of 25 T in 16 hrs shift @ user charge of Rs. 8000/MT or Rs. 200000/day	60000000	48000000	51000000
2	Galvanising Plant with Effluent Treatment Plant	Capacity of 4TPD @ Rs. 15500/MT or Rs. 62000/day	18600000	14880000	15810000
3	Quality Component Development Facility	CNC Lathe (Charge @ Rs. 350 per hour); Radial Drill (Charge @ Rs. 400 for 2 radial drills or Rs. 200 per hour); Bending Machine @ Rs. 200 per hour; Shaper Machine, welding machine, slotter, UMM, power hacksaw (5 m/c) @ Rs. 100 each or total Rs. 500 per hour; hydraulic multipurposse	7142400	5713920	6071040

[19] Amounts in the table are in Rs. Lakh per annum.

S. No.	Category	Particulars	User Charges @ 100% C.U.	User Charges @ 80% C.U.	User Charges @ 85% C.U.
		cutting m/c @ Rs.189 per hour			
		Total	**85740000**	**66144000**	**70278000**

Essentially, total gross revenue in-flow therefore works out to Rs.661.44 lakh per annum on the basis of operating capacity (on continuous shift basis) of 80 per cent.

For projection purposes, operating capacity of 80% is considered for the first year of operations, and 85% subsequently.

8.6 Estimation of profitability: Income and Expenditure statement

Statement of income and expenditure has been prepared on the basis of estimates above. Projections have been made for a period of 10 years.

Table 28: Estimation of profitability: Income and expenditure statement[20]

S. No.	Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	No. of Working days	300	300	300	300	300	300	300	300	300	300
	No. of shifts	1	1	1	1	1	1	1	1	1	1
	Capacity utilisation in %	80%	85%	85%	85%	85%	85%	85%	85%	85%	85%
A	**Income (user / service charge)**	661.44	702.78	702.78	702.78	702.78	702.78	702.78	702.78	702.78	702.78
B	**Expenditure (annual cost of production)**										
	Consumables	30.40	32.30	32.30	32.30	32.30	32.30	32.30	32.30	32.30	32.30
	Manpower (direct)	103.20	109.65	109.65	109.65	109.65	109.65	109.65	109.65	109.65	109.65
	Utilities (power – fixed charges)	22.71	22.71	22.71	22.71	22.71	22.71	22.71	22.71	22.71	22.71
	Utilities (power – variable charges)	122.12	129.75	129.75	129.75	129.75	129.75	129.75	129.75	129.75	129.75
	Utilities (water)	0.30	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
	Repairs & maintenance	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
	Depreciation	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17

[20] Amounts in Rs. Lakh.

S. No.	Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Cost of production		**341.90**	**357.90**	**357.90**	**357.90**	**357.90**	**357.90**	**357.90**	**357.90**	**357.90**	**357.90**
	Administrative exp.										
C	Manpower (indirect)	29.40	29.40	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80
	Insurance	**2.33**	**2.33**	**2.33**	**2.33**	**2.33**	**2.33**	**2.33**	**2.33**	**2.33**	**2.33**
	Misc. Exp.	**10.00**	**10.00**	**10.00**	**10.00**	**10.00**	**10.00**	**10.00**	**10.00**	**10.00**	**10.00**
Total Admn exp.		**41.73**	**41.73**	**41.73**	**41.73**	**41.73**	**41.73**	**41.73**	**41.73**	**41.73**	**41.73**
	Financial expenses										
D	Working capital loan (@ 14.5%) interest	**3.09**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**
Total Financial Expenses		**3.09**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**
	Total Expenses B+C+D	386.71	402.86	402.86	402.86	402.86	402.86	402.86	402.86	402.86	402.86
	Profit (A-E)	**274.73**	**299.92**	**299.92**	**299.92**	**299.92**	**299.92**	**299.92**	**299.92**	**299.92**	**299.92**
	P&P exp. written off	**0.80**	**0.80**	**0.80**	**0.80**	**0.80**	**0.80**	**0.80**	**0.80**	**0.80**	**1.20**
	Income tax (provision @ 30.90%)	85.17	94.80	97.79	100.36	102.56	104.45	106.08	107.48	108.68	109.71
	Net profit for the year	**188.76**	**204.32**	**201.33**	**198.77**	**196.56**	**194.67**	**193.04**	**191.65**	**190.44**	**189.01**
	Cumulative Surplus	188.76	393.08	594.41	793.18	989.74	1,184.41	1,377.46	1,569.10	1,759.55	1,948.56

Evidently, project economics are sound as a cumulative surplus of about Rs.1948.56 Lakh is earned by project stakeholders even after accounting for taxation and depreciation.

This surplus generated could also be used for further developmental activity of the Project SPV. It could also be deployed for expansion and subsequent upgrading activities.

8.7 Computation of income tax

The following table presents details with respect to the computation of income tax implications of the SPV that is legally constituted as a private limited entity. Income tax has been considered at 30.90 per cent on taxable profit as rated keeps fluctuating between years.

Table 29: Computation of income tax

Sl. No.	Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1	Profit as per Income and Expenditure statement	274.73	299.92	299.92	299.92	299.92	299.92	299.92	299.92	299.92	299.92
2	Add depreciation under straight line method	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17
3	Less depreciation under WDV method	66.53	63.38	54.58	47.03	40.55	34.98	30.20	26.09	22.55	19.51
4	Less P&P expenses written off	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Taxable Profit		250.57	278.91	287.71	295.26	301.74	307.31	312.09	316.20	319.74	322.78
Income Tax (**30.9%)**		85.17	94.80	97.79	100.36	102.56	104.45	106.08	107.48	108.68	109.71

As mentioned, the income tax implication is computed at a rate of 30.9 per cent that is, 30 per cent plus education cess @ 3 per cent. The incidence of tax ranges from Rs.109.71 lakh per annum for year 1 to Rs. 131.26 Lakh per annum in year 10.

8.8 Cash flow statement

The table below presents the sources and disposal/uses of funds statement of the project.

Such a funds or cash flow statement is also indicative of the cash balance and to that extent the liquidity position of the project over the years.

As indicated by the estimates the position with respect to cash balance is strong with ability to withstand possible adversities.

Table 30: Cash Flow statement[21]

S. No	Particulars	Const .Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
I	Source of Funds											
	1.Cash accruals		277.81	303.15	303.15	303.15	303.15	303.15	303.15	303.15	303.15	303.15
	2.Increase in capital	7.09	-	-	-	-	-	-	-	-	-	-
	3.Increase in WC margin	43.04	-	0.22	-	-	-	-	-	-	-	-
	3.Depreciation	-	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17
	4.Increase in WC Loan	-	21.28	1.00	-	-	-	-	-	-	-	-
	5. Increase in Grant in aid from the GoS	451.16	-	-	-	-	-	-	-	-	-	-
	6. Increase in grant in aid from the GoI	-	-	-	-	-	-	-	-	-	-	-
	Total Sources	**501.29**	**342.26**	**347.54**	**346.32**	**346.32**	**346.32**	**346.32**	**346.32**	**346.32**	**346.32**	**346.32**
II	Use of Funds											
	1. P & P exp.	8.00	-	-	-	-	-	-	-	-	-	-
	2.Increase in fixed assets	486.20	-	-	-	-	-	-	-	-	-	-
	3.Decrease in TL	-	-	-	-	-	-	-	-	-	-	-
	4.Decrease in working capital loan	-	-	-	-	-	-	-	-	-	-	-
	5.Increase in investments	7.09	21.28	0.86	-	-	-	-	-	-	-	-

[21] Amounts in Rs. Lakh.

S. No	Particulars	Const .Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	6.Increase in current assets and inventory	-	-	-	-	-	-	-	-	-	-	-
	8.Interest	-	3.09	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23	3.23
	9.Taxation		85.17	94.80	97.79	100.36	102.56	104.45	106.08	107.48	108.68	109.71
	Total Use of Funds	**501.29**	**109.53**	**98.89**	**101.02**	**103.59**	**105.79**	**107.68**	**109.31**	**110.71**	**111.91**	**112.94**
III	Net Surplus (A-B)	-	232.73	248.65	245.30	242.73	240.53	238.64	237.01	235.61	234.41	233.38
	Closing Balance		232.73	481.37	726.67	969.40	1,209.93	1,448.57	1,685.58	1,921.19	2,155.60	2,388.97

Basic analysis in this context is presented as sensitivity analysis in the following sub-sections.

8.9 Projected Balance Sheets

The annual balance sheets for the project may be projected in the light of the 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, the reserves and surplus accumulated is considerable. These may also be utilised for future expansion and upgrading plans.

Decision on deployment of reserves and surplus' accumulated will be based on the performance of the project and requirements of cluster firms and shareholders. The projected balance sheets are as under:

Table 31: Projected Balance Sheets[22]

S.No	Particulars	At end of impl. Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
A	**Fixed Assets:**											
	Gross block	486.20	486.20	443.03	399.87	356.70	313.54	270.37	227.21	184.04	140.88	97.71
	Less Depr. (Straight Line)	-	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17	43.17
	Net Block A	**486.20**	**443.03**	**399.87**	**356.70**	**313.54**	**270.37**	**227.21**	**184.04**	**140.88**	**97.71**	**54.55**
B	Current											

[22] Amounts in Rs. Lakh.

S.No	Particulars	At end of impl. Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Assets:											
	1. Recurring exp.	43.04	28.37	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70	29.70
	2. Cash and bank surplus		232.73	481.37	726.67	969.40	1,209.93	1,448.57	1,685.58	1,921.19	2,155.60	2,388.97
D	P&P exp.	8.00	7.20	6.40	5.60	4.80	4.00	3.20	2.40	1.60	0.80	-
Total Assets		**501.29**	**711.33**	**917.35**	**1,118.68**	**1,317.44**	**1,514.01**	**1,708.68**	**1,901.72**	**2,093.37**	**2,283.81**	**2,473.22**
E	**Current Liabilities:**											
	Working Capital Loan	-	21.28	22.28	22.28	22.28	22.28	22.28	22.28	22.28	22.28	22.28
F	**Fixed Liabilities*:**											
	1.Shareholders contribution	50.13	50.13	50.13	50.13	50.13	50.13	50.13	50.13	50.13	50.13	50.13
	2. Grant from the GoI	-	-	-	-	-	-	-	-	-	-	-
	3. Grant from the GoS	451.16	451.16	451.16	451.16	451.16	451.16	451.16	451.16	451.16	451.16	451.16
G	**Reserves and surplus**		188.76	393.78	595.11	793.88	990.44	1,185.11	1,378.15	1,569.80	1,760.24	1,949.65
Total Liabilities		**501.29**	**711.33**	**917.35**	**1,118.68**	**1,317.44**	**1,514.01**	**1,708.68**	**1,901.72**	**2,093.37**	**2,283.81**	**2,473.22**

Working capital margin is also, in effect, considered in the fixed liabilities related entries.

8.10 Break-even analysis

Break even (BE) estimates indicate the level of activity at which total revenues in operation equals total cost. It is a no profit no loss zone and is also indicative of risks in business.

The common facility achieves break even and earns considerable profits from the first year itself. Hence, BE estimates at level of activity relevant to the first year and subsequent year of activity is detailed below.

Table 32: Indicative Break -Even estimates[23]

Particulars	Amount at operating capacity (80%)	Amount at operating capacity (85%)
A. TOTAL EARNINGS BY WAY OF USER CHARGE	661.44	702.78
B.VARIABLE COSTS		
Consumables	30.40	32.30
Utilities (power – variable charge)	122.12	129.75
Interest on WC Loan	3.09	3.23
Manpower (direct)	103.20	109.65
Utilities (water)	0.30	0.32
Total Variable Costs	**259.11**	**275.25**
C.CONTRIBUTION (A-B)	**402.33**	**427.53**
D. FIXED OVERHEADS (Cash)		
Repairs and maintenance	20.00	20.00
Manpower (indirect)	29.40	29.40
Utilities (power – fixed charges)	22.71	22.71
Insurance	2.33	2.33
Misc. Expenditure	10.00	10.00
Sub-Total	**84.44**	**84.44**
FIXED OVERHEADS (Non-cash)		
Depreciation	43.17	43.17
Preliminary and pre-operative expenses written-off	0.80	0.80
Total Fixed Overheads	**128.41**	**128.41**

Book break-even is achieved at 32.00% of operational capacity at 80 per cent and at 30.00% of operational capacity at 85 per cent. The operation of the CFC is expected to break-even and realise profit from the first year of operations. As evident from the break even estimates the risk in the project is low.

Also, the break-even levels are reasonable particularly because SPV members have the Potential and requirement to operate much of the facilities at beyond indicated capacity per day as is currently the practice by competing SMEs in other clusters. Also, the costs have been assumed at a higher side and (user charge) revenues at lower side in the interest of preparation of a conservative DPR.

[23] Amounts in Rs. Lakh.

8.11 Summary feasibility analysis and sustainability indicators

The feasibility analysis is summarily presented below in the form of BE estimates, ROCE (Return on Capital Employed), Net Present Value (NPV) and the Internal Rate of Return (IRR). The indicators validate the sustainability potential of the proposed project.

Table 33: BEP, ROCE, NPV and IRR

S. No	Particulars	Estimates
1	BEP (BEP at operating capacity of 80%)	32%
2	Av. ROCE (PAT/CE)	38.87%
3	Internal Rate of Return (IRR)	37.50% (Project Viable)
4	Net present value (at a discount rate of 10 per cent)	NPV is positive and high (Rs.700.24 lakh) at a conservative project life of 10 years
5	Payback period	2 year and 6 month with grant-in-aid assistance from GoI.
6	DSCR	*Not Applicable (non-availment of term loan in this project).*

The annual estimates in the context of ROCE[24] estimation are presented in the tabulation following:

Table 34: Annual estimates of ROCE

S. No.	Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1	ROCE(PAT/CE)[25] in %	37.65	40.76	40.16	39.65	39.21	38.83	38.51	38.23	37.99	37.70

The average value of ROCE (with grant-in-aid) is 38.87%. This indicates the high techno-economic viability of the project.

The BEP estimates at about 32 per cent indicate a relative margin of comfort to SPV members.

As a matter of fact, BEP which has been estimated at a conservative estimate with respect to capacity utilization is relatively low.

NPV is positive and high indicating strong financials: Estimates at a discount rate of 10% = Rs. 1201.53 lakh (PV of cash inflows) – Rs. 501.29 Lakh (PV of cash outflow) = Rs. 700.24 lakh. This estimate incorporates the benefit of grant in effectively reducing outflow.

The Net Present Value is estimated at a discount rate of 10 %. However, as reflected from the high values of NPV, it is positive at even 14%, that is, the rate at which bankers typically offer debt capital facility and at even higher discount rates. Project IRR is high at over 37.5% (at a conservative project life of 10 years). This substantiates the viability of the project.

(i) Additional revenue sources

Additional sources of revenue may be envisaged in terms of SPV offering procurement and marketing services in future to more enterprises. However, in order to ensure conservativeness in income estimates, in the initial years, the tangible income earning possibilities of such revenues are not captured in this DPR.

[24] Return is defined as net profit drawn from the income and expenditure or profitability statement. CE is defined in terms of fixed investment plus working capital margin. This works out to about Rs. 501.29 lakh.

[25] Profit After Tax (PAT) divided by Capital Employed (CE).

(ii) 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 many experienced promoters represented in the SPV. They have considerable experience in project management.
- **Facility is pre-marketed**: Evidently, complete capacity of the core facility to be established in terms of various facilities may be easily availed of by members of the SPV themselves.
- **Pay-back period low:** The payback period of the project viz. pay-back on investments is about 2 year and 6 months. This is on conservative projections assuming higher costs as well as lower incomes. The latter is by way of lower user charges in many of the envisaged facilities. Evidently, user charges are lower than that charged by operators elsewhere.
- **Sustainability indicators in terms of the strength of the SPV and the economics of the project:** Evidence of co-operative initiatives of SPV members, for example, in terms of pursuing joint efforts, registering the SPV and proceeding towards procurement of land, and securing commitment from members' vis-à-vis progressively mobilising necessary paid-up capital all reflect the strength of the SPV.

  High economic viability indicators upon considering the benefit of grant-in-aid from GoB also serve as evidence of techno-economic viability and sustainability of the project. A sensitivity analysis has been carried out assuming variation in some parameters that is a 5 to 10 per cent drop in user charges. Major financial parameters are still attractive. The important parameters related to the sensitivity analysis are as under:

Table 35: Sensitivities vis-à-vis ROCE and project pay-back period

Particulars	ROCE (considering PAT)	NPV (considering PAT values of inflows)	IRR (considering PAT values of inflows)	BEP
Base Case	38.87%	700.24	37.50	32%
With decline in user charge by 10 per cent	29.60%	390.26	26%	38%

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

Chapter 9: Project Implementation and Monitoring

9.1. Envisaged implementation framework

(i) Time frame

Project implementation is envisaged to involve a time-frame of about 12 months upon receipt of final approval of grant-in-aid assistance from the Govt. of Bihar.

(ii) Enhancement of size of SPV and use of capacity by non-SPV members

The facilities may be used by new entrants subject to their subscribing to the shareholding of the SPV, that is, they should be genuinely pro-active and interested cluster stakeholders. Non-SPV members may also use the facilities subject to a special reservation quota.

(iii) Project implementation schedule

The project implementation schedule envisaged over a period of 12 months involves several activities. They are elaborated upon in the tabulation below.

Table 36: Project Implementation Schedule

Activity/Month	1	2	3	4	5	6	7	8	9	10	11	12
Tying up of contribution of SPV / stakeholders	*											
Transfer/lease of land in favour of SPV	*	*										
Receipt of final sanction from GoB	*	*										
Preparation of detailed drawings		*										
Formation of purchase committee		*										
Seeking tenders/quotations from manufacturers			*									
Construction of facilities			*	*	*	*	*	*	*	*	*	
Obtaining statutory clearances/approval	*	*	*									
Purchasing of Machinery and equipment				*	*	*	*	*	*	*		
Installation and trial run of machinery and equipment									*	*	*	*

Activity/Month	1	2	3	4	5	6	7	8	9	10	11	12
Disbursement of CC limit from bank for working capital												*
Submission of monthly progress reports by SPV and overall monitoring of the project by the RPMC.	*	*	*	*	*	*	*	*	*	*	*	*
Commencement of operations of the facility												*

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

(iv) Contractual arrangements/agreements/MoU with member / beneficiary units

Agreements have been indicatively finalized in terms of utilisation of assets in respect of shareholders. Annexure **XI, XII** presents the agreement with respect to subscription to share capital as well as agreement vis-à-vis payment of user charges.

The article of association (presented as Annexures) is indicative of the management and decision making structure of the SPV. Shareholders have right for use of facilities and decisions in areas with disputes (if any) resolved on the basis of majority-vote on the basis of shareholding patterns.

Till date, over 20 members (about 33) are subscribing to shares and are paying an advance. More will be encouraged to subscribe to shares as the project goes on steam.

(v) Availability of Land & Status of Acquisitions:

Land is being procured for the project by the SPV at Nalanda district.

(vi) Availability of requisite clearances

Necessary land with all required clearances is being procured by the SPV. Electricity lines may easily be drawn to the facility. Connections for other utilities may also be easily made.

(vii) O & M Plan

The Operation & Maintenance plan is as follows:

The revenue stream for O&M is critically dependent on levy and realisation of user charges from amongst users/MSMEs in the case of various facilities. As evident from the estimates presented earlier, the cash incomes are amply adequate to meet operating expenditures, overheads as well as depreciation for sustainable replacement of assets.

The role of the SPV will also include -

- O&M of assets created by way of collecting user charges from the members/ users.
- Ensuring that the services of the facilities created under the scheme are extended to maximum number of existing and potential enterprises.

(viii) Utilisation of capacity and evidence of usage / demand

The operating capacity of important facilities is assumed most conservatively on continuous shift basis at 80% in the first year and 85% thereafter. The depreciation allowance will facilitate replacement of assets for sustainability.

In this project schemata, user charges are pegged conservatively at levels relatively lower than typical rates in similar facilities operated by medium and large sized operators in other locations such as the NCR.

Actually, SPV members have current and potential capacity requirement beyond envisaged operating capacity per day (on double-shift basis) of value added facilities during season. Presently, in the context of the location of the facility at Nalanda there is no other similar facility accessible to micro operators in the district. The proposed facility will therefore be sustainable.

9.2 Monitoring Mechanism

Monitoring of the project will be through a District Level Committee (CDCC) constituted under the MSME-DI and DIC, to monitor implementation of cluster development interventions at the cluster level. This will operate under the overall monitoring and guidance of the State Level Steering Committee. Several key representatives of support institutions and some cluster level industry associations and chambers have been inducted into the committee.

The current members of the district committee comprise:

- ***District Magistrate***
- ***GM, DIC***
- ***District Planning Officer***
- ***Lead Bank Manager***
- ***Director, MSME-DI***
- ***Head of Panchayat Committee etc.***

Typically, the meetings of the District Committee may be held at least once every quarter. The District Committee will guide monitoring and implementation of the project. However, a Project Monitoring Committee constituting the Director, MSME-DI, representative of the Bank (who propose to provide working capital assistance to the project), representative of IIT and representative of the SPV will at the cluster level directly oversee effective monitoring and implementation.

The project SPV through the PMC will report progress of implementation to the District Level Committee as well as to the State Level Steering Committee. The box summarily presents:

Table 37: Name of agencies and SPV

Implementing Agency
SPV – Kanhaiya Jhula Cluster Private Limited

Chapter 10: Note in Conclusion

The Jhula fabrication cluster is a micro enterprise led cluster with a mix of units. Cluster firms have been successfully catering (largely) to local and district level industrial demand for products. Cluster firms suffer in terms of ability to upgrade in terms of capital intensive equipment. Also, it is not feasible for firms to individually invest in necessary equipment.

Various "soft" interventions have been in progress in the cluster led by the cluster SPV in close association with the DIC and MSME-DI. Several exposure visits and interactive meets to/with institutions and units in Bihar and machinery and technology service providers in the NCR and Haryana have been organised.

Autonomously, an individual micro-sized enterprise can hardly invest in necessary equipment related to more capital-intensive equipment. Nor can they utilise such lumpy assets optimally and to full capacity. Hence, there is need for joint-action for upgrading equipment and process technology. The proposed CFC should be viewed in this context.

In order to augment their competitiveness position, cluster MSEs have networked by way of an SPV "Kanhaiyaganj Jhula Cluster Pvt. Ltd." The SPV members have been pursuing joint-action.

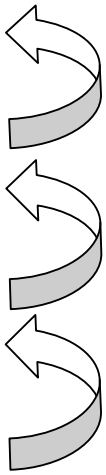
The cluster SPV that comprises a mix of stake-holding firms will contribute 10 per cent (Rs. 50.13 Lakh) of the slated project cost of the CFC. The project envisages 90 per cent (Rs. 501.29 Lakh) grant-in-aid under the CMS-CDS. Necessary working capital is to be provided by the pro-active Bank.

Assistance is hence requested for this pioneering initiative that could serve to demonstrate competitive upgrading of micro and small enterprise clusters in terms of improving product quality, reducing lead times in production and increasing capacity utilization etc.

Annexure I: Value Chain Analysis

Present Value Chain

Activity	Gross value per 16 seat "break dance Jhula" of 11 T; yielding net profit margin of barely 4% and time frame of 90 days
Processing and sale to customers: Sale to customers upon undertaking value addition activities and incurring cost in terms of Rs. 1,50,000 for manpower and Rs. 1,00,000 for power + DG set expenses and consumables etc.	Rs. 12,00,000 per Jhula (gross value on undertaking fabrication activity @ Rs. 2,50,000 per Jhula)
Procurement: Procurement of raw material (iron of 9T @ Rs. 4,95,000; Steel of 1T @ Rs. 2,00,000; "fibre" @ Rs. 2,00,000	Rs. 8,95,000 per Jhula (gross value on procurement of raw material for manufacturing of one "breakdance Jhula")



Post Intervention Value Chain

Activity	Gross value per 16 seat "break dance Jhula" of 11 T; yielding net profit margin of over 12 % and time frame of 60 days)
Processing and sale to customers: Sale to customers upon undertaking value addition activities and incurring cost in terms of Rs. 1,00,000 for manpower and Rs. 60,000 for power + DG set expenses and consumables etc.	Rs. 12,00,000 per Jhula (gross value on undertaking fabrication activity @ Rs. 1,60,000 per Jhula)
Procurement: Procurement of raw material (iron of 9T @ Rs. 4,95,000; Steel of 1T @ Rs. 2,00,000; "fibre" @ Rs. 2,00,000	Rs. 8,95,000 per Jhula (gross value on procurement of raw material for manufacturing of one "breakdance Jhula")

Annexure II: Summary tabulation of key project parameters

Project Cost

S.No	Particulars	Amount (in Rs. Lakh)
1	Land on lump-sum lease basis and site development (@ Rs.5 Lakh).	14.00
2	Building and civil works (including; shop-floor area and administrative area of 10,600 sft. @ Rs.750 per sft.)	79.50
3	Plant & Machinery and accessories and related equipment (including 5% electrification related expenses on total cost of Rs. 350.22 Lakh)	367.73
4	Miscellaneous fixed assets (furniture, fixtures, firefighting equipment, first-aid equipment)	5.00
5	Preliminary expenses (legal & administrative expenses, registration, detailed civil engineering drawings with estimates and tender forms, tendering cost, telephone, stationery, etc.)	4.00
6	Pre-operative expenses (establishment costs, travel, overheads during construction period including salaries)	4.00
7	Provision for contingencies (2% or Rs. 1.59 Lakh on building and 5% or Rs. 18.38 Lakh on plant and machinery)	19.97
8	Working capital margin (at operating capacity of 80 %)	7.09
	Total	**501.29**

Means of Finance

S. No.	Means of finance	Amount (in Rs. Lakh)
1	Contribution of SPV (10% of project cost)	50.13
2	Grant-in-aid under GOB (90% of project cost)	451.16
	Total	**501.29**

Key Project Parameters

S. No	Particulars	Estimates
1	BEP (BEP at operating capacity of 80%)	32%
2	Av. ROCE (PAT/CE)	38.87%
3	Internal Rate of Return (IRR)	37.50% (Project Viable)
4	Net present value (at a discount rate of 10 per cent)	NPV is positive and high (Rs.700.24 lakh) at a conservative project life of 10 years
5	Payback period	2 year and 6 month with grant-in-aid assistance from GoI.
6	DSCR	*Not Applicable (non-availment of term loan in this project).*

Annexure III: Copy of the certificate of incorporation, Memorandum and Articles of Association of the SPV

Annexure IV: Support documentation on track-record of pro-active and co-operative initiatives:

Annexure V: Minutes of meetings of the District Committee

Annexure VI: Assumptions underlying financial projections

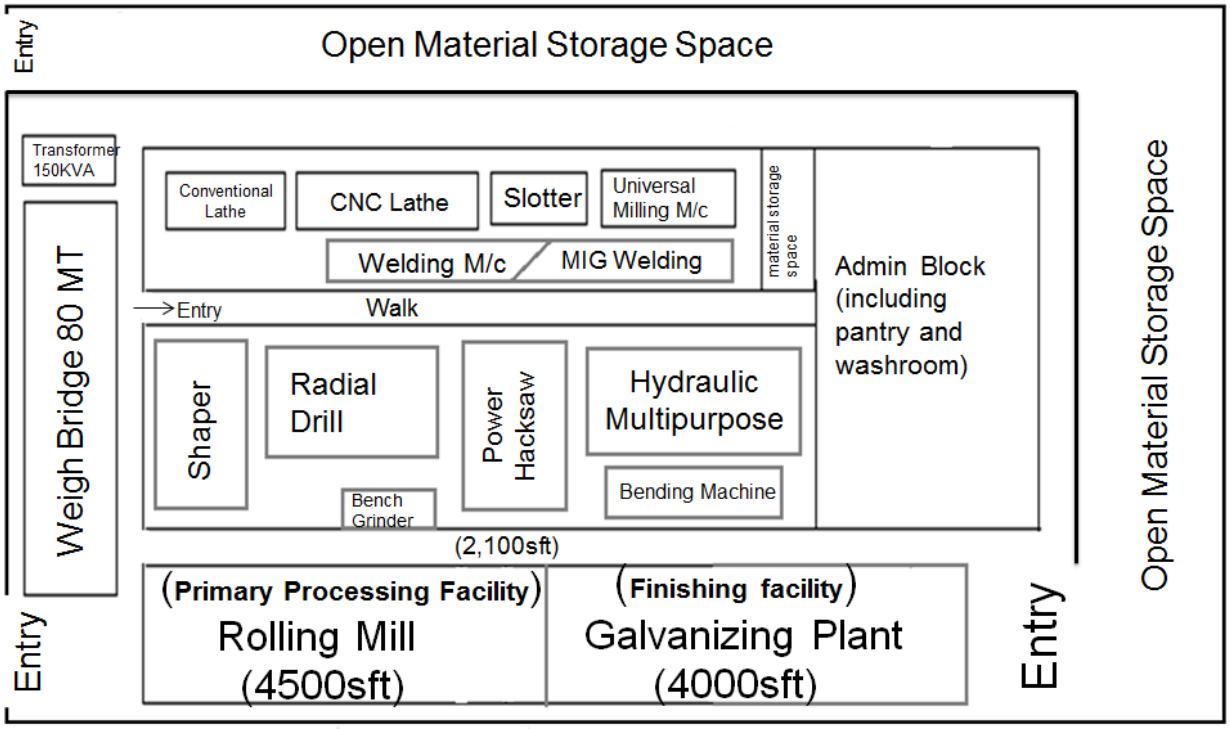
Assumptions underlying financial projections

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

1. The total project cost is pegged @ Rs. 501.29 Lakh on the basis of estimates and quotations.
2. The project is proposed to be financed by a mix of promoter (SPV) contribution of 10 per cent, grant-in-aid from GoB of 90 per cent. Given the micro-sized nature of SPV members, project viability is critically dependent on such viability-gap funding by the Central and State Governments.
3. Contingencies are assumed at 2% of building cost and 5% of the cost of plant and machinery and are added to the cost of the respective asset for depreciation purposes.
4. Preliminary and pre-operative expenses include several components that are elaborated in the relevant statement/table. These expenses are written-off during the first ten operating years.
5. In the financial projections and analysis, year "0" 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 sanction of grant-in-aid from GoB. The financial projections thereafter are prepared for 10 years of operation.
6. The SPV will manage common facility services in terms of providing value-added services. These services are to be provided by the SPV to member as well as non-member units. The latter will benefit SPV as well as non-member firms who (in some cases) may not afford to contribute to necessary equity capital. 20 per cent is reserved for Non-SPV members.
7. The CFC will operate for 25 days a month, that is, for 300 days a year on double-shift basis. Operation on continuous shift basis is assumed for purposes of conservativeness in projecting income estimates.
8. Capacity utilisation is assumed at 80% in the first year and 85% thereafter. This is a conservative estimate as SPV members alone could actually even avail of over 100 per cent of the installed capacity on single-shift basis.
9. The workings with regard to expenses related to the project have been tabulated and categorized in terms of those related to consumables, manpower, electricity, insurance and miscellaneous administrative expenditures.
10. Repairs and maintenance is provided @ lump-sum Rs.10 lakh at installed capacity.
11. Miscellaneous administrative expenses are provided for @ Rs.10 lakh.
12. Income estimates have been projected most conservatively on the basis of continuous shift operation. 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 profit ability and on written down value (WDV) method for income tax purposes.
14. Provision for income tax has been made @ 30.90% including surcharge. As there is no term loan component in the means of finance, DSCR has not been computed.
15. Profitability estimates in terms of ROCE, NPV, IRR are computed considering operating results for first 10 years of operation.
16. Sensitivity analysis has been undertaken assuming 10 per cent reduction in user charges or utilisation of capacity.

Annexure VII: Indicative lay-out plan

SITE (31,280 sqft)/BUILDING LAYOUT PLAN



* Drawing not to scale

Annexure VIII: Copy of the subscription agreement for shares

May 16, 2015

The Managing Director/Chief Executive Officer
Kanhaiyaganj Jhula Cluster Pvt. Limited
Nalanda, Bihar

Sub: Willingness to pay user charges proposed for services offered at the CFC

I on behalf of my unit reiterate our commitment to be part of the initiative to establish a CFC under the Chief Minister's MSE Cluster Development Scheme. The user charges proposed for various facilities and services offered by the CFC are acceptable to us.

We once again assure you of our complete co-operation in the project.

Yours sincerely,

This is to certify that I propose to contribute towards the common facility centre project at Kanhaiyaganj in the following manner:

Commitment towards specification of shares (Rs. 1000 per share)

S. No	Name of the SPV member	No. of shares (Rs. 1000/share)	Signature
1.	Pintu Vishwakarma(Bod)	160	
2.	Vijay Vishwakarma (Bod)M.D.	160	
3.	Pardeep Kumar (Bod)	160	
4.	Arvind Vishkarma (Bod)	160	
5.	Vinay Kumar (Bod)	160	
6.	Rajeev Vishwakarma	160	
7.	Mahesh Vishwakarma	160	
8.	Pankaj Vishwakarma(Bod)	160	
9.	Ranjeet Vishwakarma	160	
10.	Ashok Vishwakarma	160	
11.	Babu Vishwakarma	160	
12.	Md.Naimuddin	160	
13.	Vikram Vishwakarma	160	
14.	Mukesh Vishwakarma	160	
15.	Guddu Vishwakarma	160	
16.	Anand Vishwakarma	160	
17.	Vikas Vishwakarma	160	
18.	Upendra Vishwakarma	160	
19.	Krishna Vishwakarma	160	
20.	Mahendra Vishwakarma	160	
21.	Shiv Kumar Vishwakarma	160	
22.	Vishnu Dev Vishwakarma	160	
23.	Shekar Vishwakarma	160	
24.	Ajay Vishwakarma	160	
25.	Pappu Vishwakarma	160	
26.	Dharmendra Vishwakarma	160	
27.	Sunil Vishwakarma	160	
28.	Anil Vishwakarma	160	
29.	Ranjeet Vishwakarma	160	
30.	Manoj Kumar	160	
31.	Md.Salim	160	
32.	Sudhir Kumar	160	

S. No	Name of the SPV member	No. of shares (Rs. 1000/share)	Signature
33.	Dipu Kumar	160	
	Total		

Annexure IX: Format of agreement towards payment of user charges and requirement of facilities by SPV members – Evidence of demand

Requirement of facilities – Evidence of Demand

S.No	Name of the company and SPV member	Rolling Mill = 25 T per day i.e. 625 T per month	Galvanizing Plant= 4 TPD i.e. 50*25 days = 1250 TPM	CNC Lathe = 16*25 hrs per month = 400 hrs
1.	Pintu Vishwakarma(B)	31	0.2	20
2.	Vijay Vishwakarma (Bod) M.D.	31	0.2	20
3.	Pardeep Kumar (Bod)	31	0.2	20
4.	Arvind Vishkarma (Bod)	31	0.2	20
5.	Vinay Kumar (Bod)	31	0.2	20
6.	Rajeev Vishwakarma	31	0.2	20
7.	Mahesh Vishwakarma	31	0.2	20
8.	Pankaj Vishwakarma(Bod)	31	0.2	20
9.	Ranjeet Vishwakarma	31	0.2	20
10.	Ashok Vishwakarma	31	0.2	20
11.	Babu Vishwakarma	31	0.2	20
12.	Md.Naimuddin	31	0.2	20
13.	Vikram Vishwakarma	31	0.2	20
14.	Mukesh Vishwakarma	31	0.2	20
15.	Guddu Vishwakarma	31	0.2	20
16.	Anand Vishwakarma	31	0.2	20
17.	Vikas Vishwakarma	31	0.2	20
18.	Upendra	31	0.2	20

S.No	Name of the company and SPV member	Rolling Mill = 25 T per day i.e. 625 T per month	Galvanizing Plant= 4 TPD i.e. 50*25 days = 1250 TPM	CNC Lathe = 16*25 hrs per month = 400 hrs
	Vishwakarma			
19.	Krishna Vishwakarma	31	0.2	20
20.	Mahendra Vishwakarma	31	0.2	20

Annexure X: Machinery and equipment: Elaboration and specifications and sample quotations

S. No	Name of the Machine	Specification	No of Machines envisaged	Amount per unit (in lakhs)	Total Amount (in lakhs)	Supplier options
Quality Component Development						
1	Conventional Lathe	10', 8' and 12' Lathe machine with width of bed 18", 16" and 20" respectively.	3	237300; 307650; 394800	939750.00	PAC, Faridabad; Alfa Enterprises, Batala.
2	CNC Lathe	1500 mm length	1	3500000.00	3500000.00	PAC, Faridabad; Alfa Enterprises, Batala.
3	Slotter	250 mm	1	102900.00	102900.00	Alfa Enterprises, Batala.
4	Universal Milling Machine	10"	1	1111000.00	1111000.00	PAC, Faridabad; Alfa Enterprises, Batala.
5	Shaper	36" stroke capacity heavy duty shaper with V- belts driven system with standard accessories	1	339675.00	339675.00	PAC, Faridabad; Alfa Enterprises, Batala.
6	Radial Drill	50 mm drilling capacity machine; 1 ½" capacity pillar type drilling machine with v-belts driven system with standard annexures	2 + 1	827000 (2) + 87000	1741000.00	PAC, Faridabad; Alfa Enterprises, Batala.
7	Power hacksaw	18" blade size hydraulic power hacksaw machine	1	79275.00	79275.00	PAC, Faridabad; Alfa Enterprises, Batala.
8	Hydraulic multipurpose cutting press		2	134400.00	134400.00	PAC, Faridabad; Alfa Enterprises, Batala.

S. No	Name of the Machine	Specification	No of Machines envisaged	Amount per unit (in lakhs)	Total Amount (in lakhs)	Supplier options
9	Welding Machine	450 AMP3 phase welding transformer jet Air cool, pin type	2	29400+46200	75600.00	PAC, Faridabad; Alfa Enterprises, Batala.
10	Mig Welding	250 AMP and 400 AMP	2	87150+102900	190050	PAC, Faridabad; Alfa Enterprises, Batala.
11	Bench Grinder		1	7875.00	7875.00	PAC, Faridabad; Alfa Enterprises, Batala.
12	Bending Machine	6 ft	1	1000000.00	1000000.00	PAC, Faridabad; Alfa Enterprises, Batala.
Primary Processing						
13	Rolling mill	Capacity 260 mm/10" rolling mill complex	1	160.00	16000000.00	J.C. Steel Products, Mandi Gobindgarh
Finishing Facility						
1	Galvanising Plant	2T per day	1	60.00	6000000.00	Hind Engineering Works, Kolkata
Support equipments						
1	Transformer (with cabling)	1000 kVA	1	20	2000000	ABB, Havell's, Crompton
2	Weigh Bridge	80 MT	1	10.00	1000000.00	Alfa Enterprises, Batala.
3	DG Set	62.5 kVA	1	8	800000	Sudhir,
	Total				**35021525.00**	

Annexure XII: Power Requirements

S. No	Machinery & Equipment	Power Equipment per m/c - Connected Load in kVA	Total power requirement in kWh (Drawn power of 90%)
Quality Component Fabrication Facility			
1	Conventional Lathe (3)	10	7.2
2	CNC Lathe	15	10.8
3	Slotter	6	4.32
4	Universal Milling Machine	10	7.2
5	Shaper	5	3.6
6	Radial Drill (2)	10	7.2
7	Power hacksaw	5	3.6
8	Hydraulic multipurpose cutting press (2)	10	7.2
9	Welding Machine (2)	4	2.88
10	Mig Welding	2	1.44
11	Bench Grinder	2	1.44
12	Bending Machine	7	5.04
Primary Processing Facility			
13	Rolling mill	500	360
Finishing Facility			
14	Galvanizing Plant	40	28.8
Supporting Equipments			
15	Weigh Bridge	5	3.6
	Total	**631**	**454.32**


Grant Thornton