

Clean Production Scoping Report

ADDRESSING
AIR
POLLUTION
FROM
MSMES



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OVERVIEW OF THE PROJECT

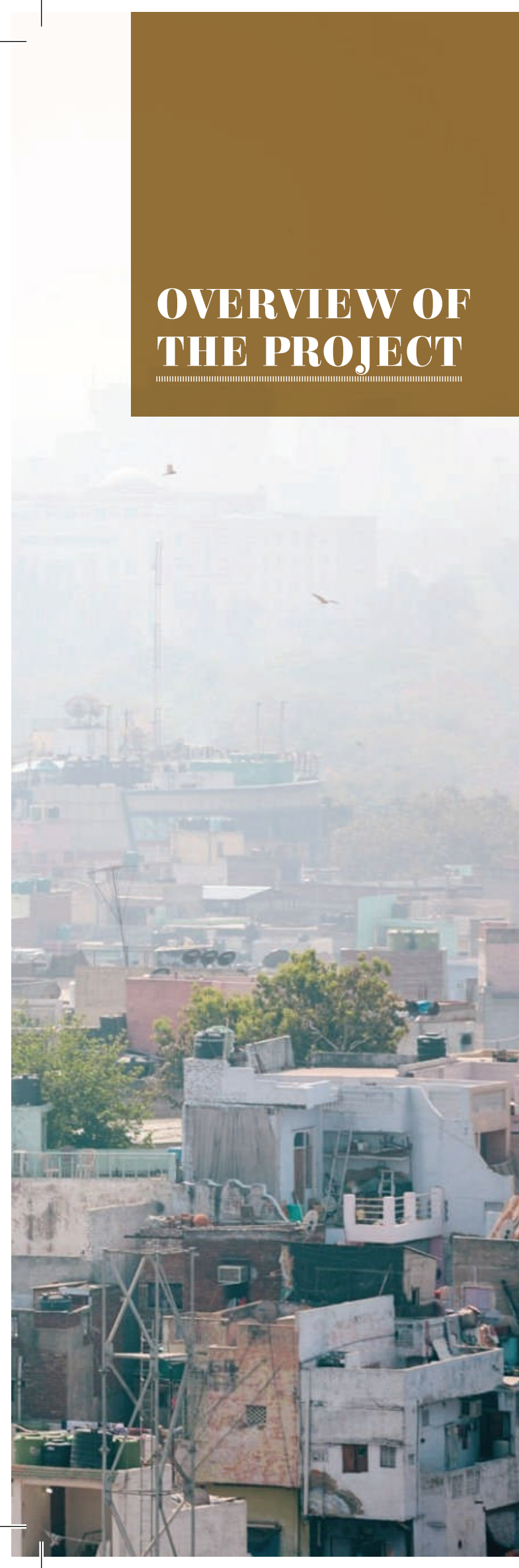
Most air pollution studies in India monitor average ambient pollutant concentrations at a city or regional level. However, management at this level alone does not allow proper protection of vulnerable communities in highly polluted areas. Large cities, like Delhi, require micro data and specific plans to implement effective clean air action. For this reason, hotspot action is becoming a global regulatory trend.

In 2019, the Central Pollution Control Board (CPCB) identified 13 main hotspot areas in National Capital Region (NCR), based on data from monitoring stations situated either in or around these areas. Six of these 13 hotspot areas, Okhla, Wazirpur, Bawana, Narela, Mundka and Jahangirpuri, are among the major industrial areas of Delhi. Variety of pollutants from industries, roads, DG sets, fueling stations, garbage burning etc. are expected to be contributing to the reduced air quality leading to high chances of impacts on the health and wellbeing of people working in residing in these areas.

Clean Air Asia (CAA) has been awarded with the project “Addressing Air Pollution from MSMEs through Hotspot Approach in Delhi NCR” by Clean Air Fund. CAA will build a dialogue with micro, small and medium scale industries to address the emissions and propose clean energy interventions to reduce air pollution.

To begin with the clean energy transition, CAA initiated a study of the industrial zones located in the air pollution hotspots, identified by CPCB, in Delhi, to determine the industrial emissions and challenges faced by the Micro, Small and Medium Enterprises (MSMEs) in implementation of the clean air schemes, policies and technologies. MSMEs in the six identified hotspots were studied and stakeholder mapping was done for these areas and the list included DSIDC, DPCC, CETP, IIEC, UNIDO, CII, FICCI, IWA and owners of the industries in these six hotspots. After identifying industries, a questionnaire was prepared to collect data on the micro level information on key air pollutants from these MSMEs. Questionnaire is an inquiry into the industrial manufacturing and services details, fuel consumption and about clean air technologies available and the challenges faced in their implementation.

From this field survey with industrial personnel and multiple stakeholder consultations information on fuel usage, monthly electric consumption and challenges faced by MSMEs was obtained which will further be analyzed for proposing clean air technologies and building pathways for their implementation.



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1

Introduction

Rapid and uncontrolled urbanization coupled with population growth, rising vehicle population, and growth of industries has been fueling the problem of air pollution. Delhi has been consistently ranked amongst the top polluted cities in the world over the last few years by World Health Organization. Air pollution in Delhi is mainly caused by high pollutants from industries, vehicular traffic and burning fossil fuels. Additionally, garbage burning and dust pollution from construction and demolition projects contribute significantly to the emissions in the air shed.



1.1 AIR POLLUTION SCENARIO IN DELHI

During both the phases of the lockdown period, because of combination of reduced vehicles on roads and prevailing weather conditions, significant reduction in PM2.5, PM10 and NO2 levels were observed. The graphs in Figure 1 show the PM10 and PM2.5 emissions in summer and winter of 2018, recorded by TERI and ARAI. During summers, dust & construction activities (38-42%), transport sector (15-17%) and industry (22%), are major source of particulate matter whereas in winters dust & construction activities (17-25%), transport sector (24-28%) and industry (27-30%), are major source of particulate matter in Delhi.

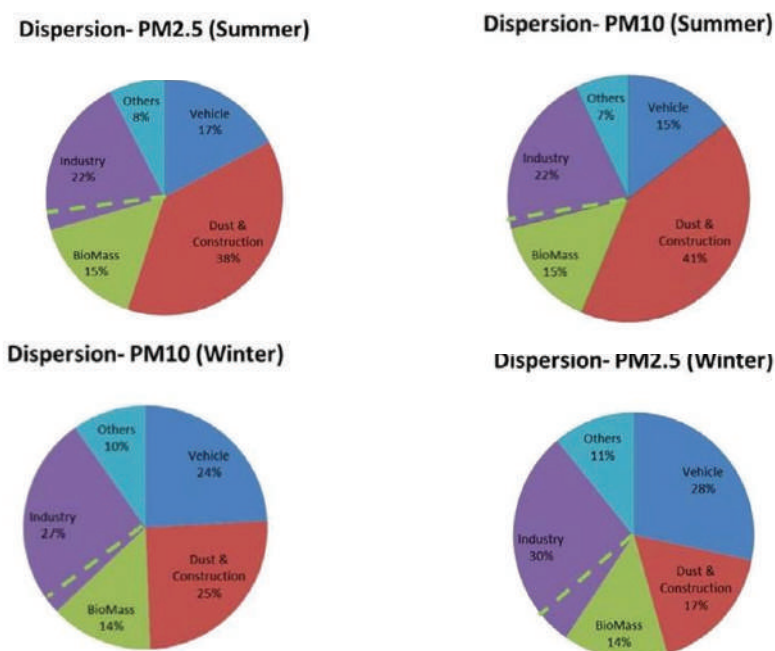


Figure 1 Graphs showing PM emission levels in Delhi in 2018

But as these activities do not take place in a uniform fashion throughout the city, they create hotspots of air pollution in certain regions. “A location where emissions from specific sources may expose individuals and population groups to elevated risks of adverse health effects including but not limited to cancer and contribute to the cumulative health risks of emissions from other sources in the area.”¹ The pollution levels in these areas are higher than the background concentrations in the region. The main reason for this is the geographical location of Delhi. During the winter season meteorological conditions become adverse causing severe air quality conditions. The level of PM2.5 reaches more than 23 times higher than the corresponding WHO air quality guidelines around November.

1.2 WHY MSMEs?

Source apportionment studies indicate that secondary particles are a significant contributor to PM10 and PM2.5 concentrations in Delhi (IITK, 2015) (NEERI, 2017) with industrial point sources being among the top four major contributors to PM2.5. Another study reported that the transport and industrial sectors were the two biggest sources of air pollution in National Capital Region (IITM, 2018). The environmental challenge of air pollution in the greater National Capital Region of India has led to a slew of measures across sectors – industry, agriculture, energy generation – aimed at curbing air pollution load.

The MSMEs use a variety of fuels that include coal, Low Sulphur Heavy Stock (LSHS), Light Diesel Oil (LDO), wood, bagasse, rice husk and other biomass fuels, high-speed diesel (HSD), natural gas, and others (apart from electricity).

¹ California Air Resources Board Glossary of Air Pollution Terms <https://ww2.arb.ca.gov/glossary>

1.3 APPROACH TOWARDS AIR QUALITY MANAGEMENT

1.3.1 EXISTING APPROACH

Research and action on air quality in Delhi is proposed to be achieved through a city action plan. At the national level, the Government of India's (GoI) National Clean Air Plan (NCAP) recommends the preparation of Air Quality Management Plans for non-attainment cities, guided by a science-based approach. Whereas, at the local level, the state of Delhi has two Clean Air Action Plans, the comprehensive action plan for air pollution control and a graded response action plan (GRAP) that defines actions to be taken in response to varying severity of PM_{2.5} and PM₁₀ levels. However, a hotspot based clean air action approach is not specified in any of these national or local plans, nor there is a focus on the vulnerable communities. These action plans are also often very generic and do not propose specific interventions that can reduce air pollution at its source.

1.3.2 HOTSPOT APPROACH AND ITS NEED

Most air pollution studies in India monitor average ambient pollutant concentrations at a city or regional level. However, management at this level alone does not allow proper protection of vulnerable communities in highly polluted areas. Large cities, like Delhi, require micro data and specific plans to implement effective clean air action. For this reason, hotspot action is becoming a global regulatory trend.

As a result, Clean Air Asia (CAA) was approached by the government of NCT Delhi to prepare a winter action plan that takes a hotspot approach into consideration and hence aligns their implementation work within a theoretical framework. Governments are using it not only to reduce peak and overall pollution, but also to ensure the protection of the poorest and most vulnerable communities, who are most often located in the worst affected areas. Additionally, 4.4 million children in Delhi are adversely affected by air pollution. Increased monitoring of hotspot air quality should therefore be a priority in Delhi, particularly in high exposure locations where large numbers of people spend significant amounts of time outdoors.

In 2019, central pollution control board identified 13 hotspots with severe air quality in Delhi namely Narela, Bawana, Mundka, Wazirpur, Rohini, R.K. Puram, Okhla, Jahangirpuri, Anand Vihar, Vivek Vihar, Punjabi Bagh, Mayapuri and Dwarka, marked in Figure 2. These hotspots have been identified depending upon the annual average of PM₁₀ and PM_{2.5} levels (exceeding 300µg/m³ and 100 µg/m³ respectively), based on the air quality data recorded by CAAQM monitoring stations of DPCC located in or around these areas.



Figure 2 Map showing the 13 air pollution hotspots of Delhi identified by CPCB

Six of these 13 hotspot areas, Okhla, Wazirpur, Bawana, Narela, Mundka and Jahangirpuri, are among the major industrial areas of Delhi, variety of pollutants from industries, roads, DG sets, fueling stations, garbage burning etc. are expected to be contributing to the reduced air quality. Also, there are high chances of impacts of air pollution on the health and wellbeing of people working in residing in these areas.

Table 1 Average Pollution levels recorded at key industrial hotspots²

Name of Industrial Area	PM ₁₀	PM _{2.5}	SO ₂	NO _x
Okhla	94.36	84.93	1239.1	373.38
Wazirpur	138.85	124.97	1785.47	587.02
Bawana	431.3	388.35	211.85	102.05
Narela	468.66	401.98	162.77	78.72
Mundka	235	94.5	19.1	36
Jahangirpuri	272	135	15.1	48.5

1.4 VISION FOR THE PROJECT

The goal of the project is to integrate measures to address air pollution in the context of vulnerable communities and emissions from MSMEs in the government's clean air action planning. This work will assess existing industrial hotspots in Delhi to determine the levels and sources of contributing industrial emissions. Through a collaborative approach of engaging micro, small and medium industry, local urban bodies, and the environment and pollution departments in Delhi, a strategy for effectively reducing air pollution in these areas will be created. By doing so, this project will reduce exposure to harmful levels of pollutants for the millions of people living in and around these hotspots. This study will be a unique intervention through a local approach to achieve clean air by reducing industrial emissions in the Delhi National Capital Region, that can be replicated across India and globally.

1.5 OBJECTIVES FOR THE RESEARCH

1. Identify the key micro, small and medium scale industries for research in the selected industrial hotspots of Delhi and collect data on their major air pollutants
2. Utilize the micro level information on key air pollutants from identified MSMEs and to create an emissions inventory
3. Generate a baseline data using emissions inventory and existing air quality data available with the Delhi Pollution Control Board
4. Use the baseline data to identify key micro, small and medium-scale industries contributing significantly to air pollution in the areas
5. Build pathways for the identified MSMEs to adopt clean energy sources to address the emissions
6. Provide solutions to address SME's emissions by building the knowledge (financial and sustainability) and lay out strategies for building capacity of SMEs to adopt new clean energy technologies

² Central Control Room for Air Quality Management Portal

2

Introduction to MSME Sector

In India, Micro, Small and Medium Enterprises (MSMEs) are large in numbers, diverse in type of business and are spread across the country. This sector has come up as a dynamic and strong sector of the Indian economy. The labor intensity of this sector is much higher than that of the large enterprises. It plays significant role in providing employment opportunities at comparatively lower capital cost than the large industries and helps in industrialization of rural & backward areas as well, thereby, reducing regional imbalances, assuring more equitable distribution of national income and wealth. MSMEs are complementary to large industries as ancillary units and this sector contributes enormously to the socio-economic development of the country. There are approximately 63.3 million Micro, Small and Medium Enterprise sector enterprises across various industries, employing 110.9 million people³.

Ministry of MSME runs various schemes aimed at financial assistance, technology assistance and upgradation, skill development, enhance competitiveness and market assistance of MSMEs. Following statutory and non-statutory bodies work under the aegis of the ministry of MSMEs:

7. Khadi and Village Industries Commission
8. Coir Board
9. National Small Industries Corporation Limited
10. Technology Centres
11. Mahatma Gandhi Institute for Rural Industrialization
12. National Institute for Micro, Small and Medium Enterprises

³ Annual Report, Govt. of India, Ministry of Micro, Small and Medium Enterprises, 2020-21, p. 34-35.



2.1 CLASSIFICATION OF MSMES

As per the MSME Act 2006, micro, small, and medium enterprises are defined based on their investment in plant and machinery for manufacturing enterprises and on equipment for enterprises providing or rendering services⁴. Manufacturing enterprises are engaged in the manufacturing or production of goods pertaining to any industry specified in the first schedule to the industries (Development and Regulation) Act, 1951 whereas, service enterprises are engaged in providing or rendering of the services.

The government of India has introduced new MSME definition in accordance with Aatmanirbhar Bharat package which came into effect from 1st July 2020. In these revised guidelines, the financial limits for both the sectors, manufacturing⁴ and services, have been increased and both sectors shall now have the same limit of investment and turnover which varied before.

Table 2 Investment ceilings for micro, small and medium enterprises at present in India⁵

Former MSME Classification						
Manufacturing	Micro Enterprise		Small Enterprise		Medium Enterprise	
	Investment		Investment		Investment	
	< Rs 25 lakh		< Rs 5 crore		< Rs 10 crore	
Services	Investment		Investment		Investment	
	< Rs 10 lakh		< Rs 2 crore		< Rs 5 crore	
Revised MSME Classification						
Manufacturing and Services	Micro Enterprise		Small Enterprise		Medium Enterprise	
	Investment	Turnover	Investment	Turnover	Investment	Turnover
	< Rs 1 crore	< Rs 5 crore	< Rs 10 crore	< Rs 50 crore	< Rs 50 crore	< Rs 250 crore

2.2 STATUS OF MSMES IN DELHI

The National Capital Territory of Delhi has emerged as one of the biggest centers of MSMEs in the country. It has recorded a rapid growth in production, exports, and employment. This Sector has proven vast potential to play a leading role in the overall development of the national economy. The government of Delhi has evolved over the years the role of a facilitator in the development of the industries in the NCT of Delhi⁶. The mission is to promote, encourage and develop environment friendly MSMEs in Delhi. In Delhi there are 0.55 million MSMEs employing about 2 million people.⁷ Today, this sector produces a variety of products, from simple consumer goods to high-precision, sophisticated finished products. It has emerged as a major supplier of mass consumption goods as well as a producer of electronic and electrical equipment. An impetus to the sector is likely to have a multiplier impact on economic growth.

2.3 MSMES AND AIR POLLUTION IN DELHI

The industrial clusters in Delhi have pushed the MSMEs towards growth but no compliance towards environmental norms have also made them the top pollution hotspots. The environmental degradation caused because of deplorable sanitary conditions like open stinking drains, smoking towers, choked sewers and the polluted effluent waste from these MSMEs is affecting the health and wellbeing of the people.

⁴ https://msme.gov.in/msme_aboutus.html

⁵ Annual report, Govt. of India, Ministry of micro small and medium enterprises, 2019-20, p. 3., Annual report, Govt. of India, Ministry of micro small and medium enterprises, 2021-22, p. 2.

⁶ Joint Director of Industries, "Industrial Profile Delhi", Govt. of India, New Delhi, 2011, p. 1. ⁷ Micro, small medium enterprises (MSMEs) in Delhi: Problems and prospectus

3

Identification and Scoping Study of Key Micro, Small and Medium Scale Industries for interventions

Delhi, like many cities globally, has experienced rapid development and population growth in the last few decades. Delhi has been a seat of various industrial and semi-industrial activities which take place within the city boundary. Delhi has 29 industrial estates maintained by the Delhi State Industrial and Infrastructure Development Corporation Ltd (DSIIDC), Municipal Corporation of Delhi (MCD), Public Works Department (PWD) and other agencies. These areas cater to many kinds of industries, including plastic, metal, textile, etc. The city also has one of the largest recycling markets in the world catering to all sorts of wastes and material, with a vast population engaged in formal and informal processing of a mix of toxic and non-toxic waste. This study focuses on six industrial areas, Narela, Bawana, Jahangirpuri, Wazirpur, Mundka and Okhla industrial areas which are also among the 13 air pollution hotspots. The distribution of industries in Delhi and these six industrial areas are under 17 categories.⁷

⁷ <https://dashboard.msme.gov.in>



Table 3 Functional Industries as per type of work in NCT of Delhi⁸

S.No.	Category	Units
1	Food processing & allied products	1550
2	Drugs and Pharmaceuticals	181
3	Electronics & telecommunication	2030
4	Textile and wearing apparels	4716
5	Electronics goods & appliances	5058
6	Auto parts, light eng. & service industries	11867
7	Printing, paper product and allied packaging	5170
8	Plastics & polymers	4144
9	Rubber based products	1011
10	Leather goods	391
11	Coir & jute products	67
12	Furniture, fixture & others	1314
13	Petroleum based products	3977
14	Ceramics & allied products	76
15	Machinery & machine tools	2246
16	Chemical products	586
17	Others	7313

3.1 THE SELECTED SIX INDUSTRIAL AREAS

3.1.1 OKHLA INDUSTRIAL AREA

Okhla Industrial Estate is an industrial area of New Delhi. The area was established by National Small Industries Corporation. It was one of the 12 industrial estates developed across India with the focus to encourage small industries. Construction work at the site was started in 1952 and it was inaugurated in 1958. The masterplan of 2001 of Delhi includes Okhla Industrial Phase I and Phase II as one of the total 28 notified industrial areas of Delhi. Okhla Industrial Estate is spread over the area of 110 acres. The industries in Okhla Industrial Area includes ready-made garment export and leather garment export, there is also a segment of the pharmaceutical manufacturing units, plastic and packaging industries, printing presses, machinery manufacturers, call centers, MNC Offices, Bank, and other small industry units. Okhla industrial area is primarily known for its factory units of garment exporters, pharmaceutical manufacturers, printing presses, machinery manufacturers, and plastic and packaging manufacturers.⁹

3.1.2 NARELA INDUSTRIAL AREA

The Narela Industrial Area is located towards north Delhi district inside the NCT of Delhi, the industrial area supports the population of 48164. Delhi Industrial Development Corporation (DSIDC) developed the Narela industrial area on 612 acres of land. The Narela Industrial area is developed in conformity to the industrial policy statement of Delhi. The Narela industrial complex designed is based on the modern infrastructure including the provision for adequate green spaces, shopping complexes, idle parking, common effluent treatment plant etc. The Narela Industrial area is an environmentally friendly industrial

⁸ <http://dsiidc.org/dsidc/general.html>

⁹ https://en.wikipedia.org/wiki/Okhla#cite_note-3

development. About 50,000 trees are planted in the Narela Complex and area of 10 acres which is covered under the central park is proposed to be developed as central plaza.¹⁰

3.1.3 BAWANA INDUSTRIAL AREA

DSIIDC undertook the development of Bawana Industrial Area in 1999. The objective of developing this Industrial estate was to provide the industries with all requisite infrastructure. It also provided a planned industrial setup with appropriate infrastructure for the relocation of non-conforming industries (Industries operating in residential/ non-conforming areas in violation of provisions of Master Plan of NCT of Delhi). The Bawana Industrial Area is divided into 5 sectors these five sectors are further divided into clusters of 7 ha each, this division helps in providing the hierarchy of necessary facilities and services to approximate 27,000 industrial workers in each sector. The clusters of Bawana industrial area have industrial plots with sizes varying from 100 to 250sqm.¹¹

3.1.4 WAZIRPUR INDUSTRIAL AREA

Wazirpur Industrial Area is situated in northern part of Delhi at the extreme end (towards the eastern side) of the Northwest district, sharing boundary with North and Central Delhi districts. The area is known for its steel units. The steel units produce tons of steel vessels for domestic consumption and export to other countries. A few units also produce industrial steel containers like boilers vessels and other steel pots. As per DPCC records, there are total 2294 industries, which are in different blocks in Wazirpur Industrial Area, out of which only 7 industries fall under Red Category, 1030 under Orange Category, 1023 under Green Category and rest 234 under White Category. As per the observations of NGT assessment report about 81 % of the total area in WIA is occupied by the Built-up class. Since it is an industrial area, most of the land is used by the industrial/commercial establishments, however some of its open space/ common public space is also occupied by slums. About 5.5% of its land is covered by vegetation and 13.5% by open space.¹²

3.1.5 JAHANGIRPURI INDUSTRIAL AREA

Jahangirpuri Industrial Area is a locality in Northeast Delhi comprising of mainly steel manufacturing enterprises. These enterprises are identified under clusters like Rajasthan Udyog Nagar (RUN), Shahadra Manufacturing Associations (SMA), Small Scale Industries (SSI), etc.

3.1.6 MUNDKA INDUSTRIAL AREA

The Mundka Industrial Area is situated in West Delhi district within the NCT of Delhi. To develop the Mundka industrial area the Delhi State Industrial and Infrastructure Development Corporation Ltd. (DSIIDC) acquired the land at Mundka as per the provisions of industrial policy for Delhi 2010-21. The DSIIDC planned to develop a Multi- Level Manufacturing Hub (Flattened Group Factory). The industries in the Mundka industrial area mostly of non- hazardous

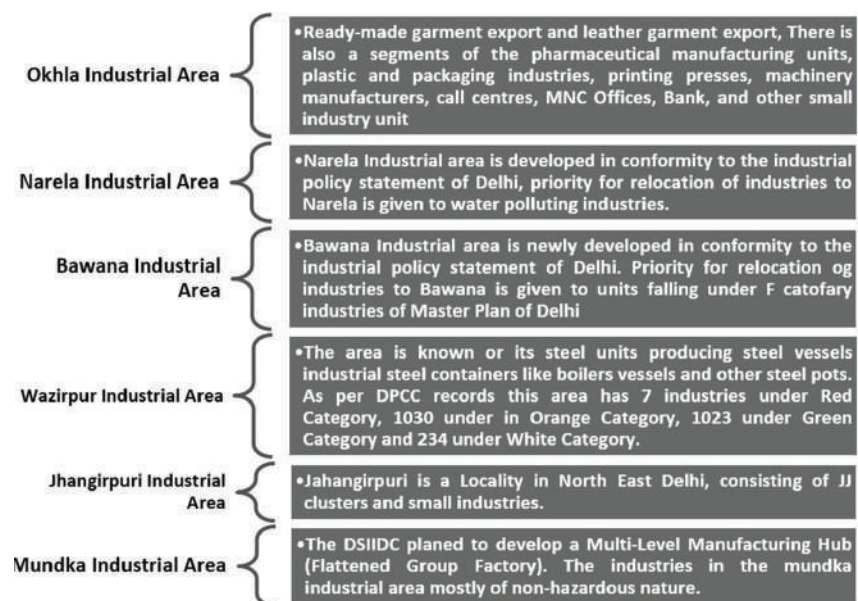


Figure 3 Information on industries in the six industrial hotspots

10 <http://www.dsiidc.org/Narela-Industrial-Complex>

11 <http://bawanainfra.com/project-details.php>

12 Assessment of Carrying Capacity of Wazirpur

Industrial Area with Possibility of Existence of Pickling Industries in the Region in Environmentally Sustainable Manner, CSIR-NEERI, 2020

nature. Most of the industries in this area does not involve water demand for the manufacturing purpose. The of the multi-level manufacturing hub will be spread on the plot area of approximately 5,94,800 sqm with the built-up area including of around 12,60,089.72 sqm.¹³

3.2 PROFILE OF KEY INDUSTRIES IN THE SELECTED HOTSPOTS AREAS

The table below provide the overview of key industry sectors and products in selected hotspots; The list is derived from the master list of cluster development program by govt. of India and UNIDO.

Table 3: Profile of industries in industrial areas of Delhi¹⁴

S. No	Location	Product	Sector	Potential for Technology Upgradation	Export Potential	No of Units in the Cluster
1)	Wazirpur, Badli	Stainless Steel Utensils & Cutlery	Base metals, Products thereof & Machinery equipment and parts thereof. axel Transport equipment.	M	M	500 - 1,000
2)	Okhla, Mayapuri	Chemicals	Chemical and Allied products	H	M	100 – 500
3)	Naraina & Okhla	Electrical Engineering Equipment	Base metals, Products thereof & Machinery equipment and parts thereof. Axel Transport equipment.	M	M	500- 1,000
4)	Naraina & Okhla	Electronic Goods	Base metals, Products thereof & Machinery equipment and parts thereof. Axel Transport equipment.	M	H	100 – 500
5)	Lawrence Road	Food Products	Animal, Vegetable, Horticulture, Forestry products, Beverages, Tobacco and Pan Masala and non-edible Water / Spirit & Alcohol chiefly used in Industry.	H	H	100 – 500
6)	Okhla, Wazirpur Flatted Factories Complex	Leather Products	Rubber, Plastic, Leather & products thereof.	H	H	100 – 500
7)	Okhla, Mayapuri, Anand Parbat	Mechanical Engineering Equipment	Base metals, Products thereof & Machinery equipment and parts thereof. Axel Transport equipment.	M	M	1,000 - 10,000
8)	Naraina, Okhla, Patparganj	Packaging Material	Wood, Cork, Thermocol & Paper and articles thereof.	H	L	100 – 500
9)	Naraina & Okhla	Paper Products	Wood, Cork, Thermocol & Paper, and articles thereof.	M	H	100 – 500
10)	Naraina Udyog Nagar & Okhla	Plastic Products	Rubber, Plastic, Leather & products thereof.	M	H	500 - 1,000
11)	Naraina, Okhla, Shivaji Marg, Najafgarh Road	Rubber Products	Rubber, Plastic, Leather & products thereof.	M	H	100 - 500
12)	Wazirpur	Electro Plating	Other manufactured articles and services, n.e.c.	M	L	

13 Environment Clearance report for conceptual plan of Multi Level Manufacturing Hub

14 <http://www.laghu-udyog.gov.in/clusters/clus/smelist.htm>

S. No	Location	Product	Sector	Potential for Technology Upgradation	Export Potential	No of Units in the Cluster
13)	Okhla, Mayapuri, Naraina, Wazirpur Badli & G.T. Karnal Road	Auto Components	Railway, Airway, Ship & road transport related equipment & parts	H	H	100 - 500
14)	Okhla & Shahdara	Readymade Garments	Textile and Textile Articles.	M	H	500 - 1,000
15)	Okhla	Sanitary Fittings	Other manufactured articles and services, n.e.c.	M	M	Less than or equal to 100

3.3 EXISTING CLEAN ENERGY & CLEAN TECHNOLOGICAL SCHEMES

3.3.1 MISSION SOLAR CHARKHA

The Solar Charkha Mission is a Ministry of Micro Small & Medium Enterprises (MSME) initiative launched during June 2018. The Khadi and Village Industries Commission (KVIC) is implementing the programme.¹⁵

The target is to cover 50 solar clusters across the country, whereby approx. 1,00,000 artisans/beneficiaries are to be covered under the various scheme components. The scheme shall be implemented in all States of India. The geographical distribution of the clusters throughout the country, with at least 10% located in the Northeastern Region (NER), J&K and hilly states, will also be kept in view. Special focus will be given to 117 aspirational districts for soliciting project proposals under the scheme. One cluster of Solar Charkha would involve a maximum subsidy of Rs. 9.599 cr.

Scheme objectives:

- To ensure inclusive growth by generation of employment, especially for women and youth, and sustainable development through solar charkha clusters in rural areas.
- To boost rural economy and help in arresting migration from rural to urban areas.
- To leverage low-cost, innovative technologies and processes for sustenance

Interventions:

- Capital subsidy for individual and for Special Purpose Vehicle (SPV)
- Interest subvention for Working Capital
- Capacity building

3.3.2 GEF-UNIDO-BEE PROJECT “PROMOTING EE & RE IN MSME IN INDIA”

The project aims to develop and promote market environment for introducing energy efficient technologies and enhancing the use of renewable energy technologies in process applications in energy intensive MSMEs in 5 sectors (brass, ceramics, dairy, foundry, and hand tools). The project further envisions scaling up the activities to national level to reduce energy usage per unit of product, improve the productivity and competitiveness of units, thereby reducing overall carbon emissions and improving the local environment.

Project Components:

13. Increased capacity of suppliers of EE/RE product suppliers/ service providers/ finance providers.

¹⁵ <https://www.kviconline.gov.in/msc/eligibility.jsp>

14. Increasing the level of end-use demand and implementation of EE and RE technologies and practices by MSMEs.
15. Scaling up of the project to a national level.
16. Strengthening policy, Institutional and decision-making frameworks

3.3.3 PROMOTING MARKET TRANSFORMATION FOR ENERGY EFFICIENCY IN MSMEs.

The scheme is targeted to develop and promote MSMEs by introducing energy efficient technologies and enhancing the use of identified technologies in the clusters. The programme focuses on ten clusters from seven sectors (Pulp & Paper, Textile, Food Processing, Pharma, Chemical & Dye, Foundry & Forging, Iron & Steel). The project is under GEF programmatic framework for energy efficiency in India and includes United Nations Industrial Development Organization (UNIDO) as the Implementing Agency (IA) and Ministry of MSME as the Lead

Executing Agency (EA). The key executing partner for the project is Energy Efficiency Services Ltd (EESL). Small Industrial Development Bank of India (SIDBI) and Bureau of Energy Efficiency (BEE) are the guiding agencies for the project.

The project specific objectives are as follows:¹⁶

1. Promote implementation of energy efficiency in the MSME sector.
2. Create and sustain a mechanism that would ensure replication of energy efficiency measures in the sector.
3. Create a revolving fund that would sustain the activities beyond the life of this project; and
4. Address the identified barriers for scaling-up energy efficiency measures.

3.3.4 ZED CERTIFICATION SCHEME

The ZED scheme is an integrated and comprehensive certification system that will account for productivity, quality, pollution mitigation, energy efficiency, financial status, human resource, and technological depth including design and IPR in both products and processes.

Table 4: ZED Certification Scheme and Details

S. N.	Particulars	Details
1.	Name of the Scheme	ZED Certification Scheme
2.	Eligibility	All manufacturing Micro, Small and Medium enterprises (MSME) having Udyog Adhar Memorandum can apply.
3.	Scope	The scheme is an extensive drive to create proper awareness in MSMEs about ZED manufacturing and motivate them for assessment of their enterprise for ZED and support them. After ZED assessment, MSMEs can reduce wastages substantially, increase productivity, expand their market as IOPs, become vendors to CPSUs, have more IPRs, develop new products and processes etc.
4.	Offered by /provided by	Quality Council of India (QCI) is the implementation agency

¹⁶ <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1786356>

S. N.	Particulars	Details
5.	Terms / Conditions	<p>a. Assessment/Rating by empanelled Credit Rating Agencies/other Agencies valid for 4 years. (Ministry of MSME will subsidize* 80% of Micro, 60% of Small, 50% of Medium Enterprises' Certification Fee: average 70% of Fee) (Assessment Fee Rs. 10,000/- & Rs 80,000/- per enterprise respectively for Desktop Assessment and ZED rating Complete Assessment)</p> <p>b. Gap Analysis, Handholding, Consultancy for improving rating of MSMEs by Consultants through QCI/NPC. (Ministry of MSME will subsidize* 80% of Micro, 60% of Small, 50% of Medium Enterprises' Consultancy charges: average 70% of Fee) (Hand holding charges Rs. 1.9 Lakh per enterprise whereas in case of MSMEs owned by SC/ST entrepreneurs additional support of Rs 10,000/- will be provided.)</p> <p>c. Re-Assessment/Re-Rating by Credit Rating Agencies & Other Agencies (Ministry of MSME will subsidize* 80% of Micro, 60% of Small, 50% of Medium Enterprises' Certification Fee: average 70% of Fee) (Assessment Fee Rs. 40000/- per enterprise.)</p>
6.	Collateral	N/A
7.	Other Details	Apply to NMIU/Concerned MSME-DIs for participating under the scheme for availing the benefits. MSMEs may register free of cost.
8.	Success and implementation of Scheme	As per the ZED annual report 2017-18 the scheme has registered 17258 MSME units. Around 330 training and capacity development programs conducted for stakeholders and 25 sector specific e-learning modules are created. ¹⁷

3.4 EXISTING CLEAN ENERGY & CLEAN TECHNOLOGICAL MSME PROGRAMS

3.4.1 PRIME MINISTER'S EMPLOYMENT GENERATION PROGRAMME (PMEGP)

The scheme is implemented by Khadi and Village Industries Commission (KVIC) functioning as the nodal agency at the national level. At the state level, the scheme is implemented through State KVIC Directorates, State Khaadi and Village Industries Boards (KVIBs), District Industries Centres (DICs) and banks.

S. N.	Particulars	Details
1.	Name of the Scheme	Prime Minister's Employment Generation Programme (PMEGP)
2.	Eligibility	<p>Any individual, above 18 years of age. At least VIII standard pass for projects costing above Rs.10 lakh in the manufacturing sector and above Rs. 5 lakhs in the business / service sector.</p> <p>Only new projects are considered for sanction under PMEGP. Self Help Groups (including those belonging to BPL if they have not availed benefits under any other Scheme), Institutions registered under Societies Registration Act, 1860; Production Co-operative Societies, and Charitable Trusts are also eligible.</p>

¹⁷ https://qcin.org/nbqp/knowledge_bank/uploads/2018/10/1540538302_ZED%20Annual_Report_2017-2018.pdf

S. N.	Particulars	Details
3.	Scope	<p>The maximum cost of the project/unit admissible in manufacturing sector is ₹ 25 lakhs and, in the business, /service sector, it is ₹ 10 lakhs.</p> <p>Categories of Beneficiary's Rate of subsidy under PMEGP (of project cost)</p> <p>Area (location of project/unit) General category 15%(Urban), 25%(Rural), Special 25%(Urban), 35%(Rural)</p> <p>(Including SC/ ST/ OBC/ Minorities/Women, Ex-servicemen, physically handicapped, NER, Hill and Border areas, etc.)</p> <p>The balance amount of the total project cost will be provided by the banks in the form of term loan and working capital.</p>
4.	Offered by /provided by	<p>The scheme is implemented by Khadi and Village Industries Commission (KVIC).</p> <p>At the State level, the Scheme is implemented through State KVIC Directorates, State Khadi and Village Industries Boards (KVIBs) and District Industries Centres (DICs) and banks.</p>
5.	Terms / Conditions	<p>The maximum cost of the project/unit admissible under manufacturing sector is Rs. 25 lakhs.</p> <p>The maximum cost of the project/unit admissible under business/service sector is Rs. 10 lakhs.</p> <p>The balance amount of the total project cost will be provided by</p>

S. N.	Particulars	Details
		Banks as term loan.
6.	Collateral	NA
7.	Other Details	<p>The State/Divisional Directors of KVIC in consultation with KVIB and Director of Industries of respective states (for DICs) will give advertisements locally through print & electronic media inviting applications along with project proposals from prospective beneficiaries desirous of establishing the enterprise/ starting of service units under PMEGP.</p> <p>The beneficiaries can also submit their application online at https://www.kviconline.gov.in/pmegpeportal/pmegphome/index.jsp and take the printout of the application and submit the same to respective offices along with Detailed Project Report and other required documents.</p>
8.	Success and implementation of Scheme	<p>2018-19, the KVIC, the nodal agency of PMEGP, had been given a target of setting up 70,386 new PMEGP projects disbursing margin money of Rs 1,968.80 crore for creating 5,62,351 employments. the KVIC achieved 105.05 percent success in this process as it had set up 73,408 new projects, disbursing margin money of Rs 2068.31 crore and creating 5,87,264 new employments.</p> <p>KVIC in the last five financial year. Barring 2015-16, it has always achieved more than 100 percent success in execution of PMEGP1</p>

3.4.2 INFRASTRUCTURE DEVELOPMENT PROGRAMME

The Ministry of Micro, Small and Medium Enterprises (MSME), Government of India (GoI) has adopted the cluster development approach as a key strategy for enhancing the productivity and competitiveness as well as capacity building of Micro and Small Enterprises (MSEs) and their collectives in the country.

S. N.	Particulars	Details
1.	Name of the Scheme	Micro & Small Enterprises Cluster Development (MSE-CDP)
2.	Eligibility	State Govt./State Agencies, Clusters, Industrial Associations/ Consortia.
3.	Scope	Hard interventions, i.e., setting up of CFCs with maximum eligible project cost of Rs 15.00 cr with GoI contribution of 70% (90% for special category States and for clusters with more than 50% women/micro/village/ SC/ST units). Infrastructure development in the new/ existing industrial estates/areas in which the maximum eligible project cost is Rs 10.00 cr, with GoI contribution amounting to 60% of project cost (80% for special category States and for clusters with more than 50% women/micro/SC/ST units).
4.	Offered by /provided by	MSME (approved by National Level Steering Committee of MSE-CDP)
5.	Terms / Conditions	<p>CFCs: Grant will be restricted to 70% of the cost of Project of maximum Rs. 20.00 Crore GoI grant will be 90% for special category projects (located in North-East & Hilly States, Island territories, Aspirational Districts/ LWE affected Districts, Clusters with more than 50% (a) Micro/Village, (b) Women owned, (c) SC/ ST units). The cost of Project includes cost of Land (Subject to maximum of 25% of Project Cost).</p> <p>Infrastructure Development: Grant will be restricted to 60% of the cost of project (Rs. 10.00 Crore for Industrial Estate & Rs. 15.00 Crore for Flatted Factory Complex). GoI grant will be 80% for special category projects as mentioned above.</p> <p>Marketing Hubs/Exhibition Centres by Associations: The GoI grant will be restricted to 60% of the cost of project of maximum Rs. 10.00 crore for Product Specific Associations with BMO rating of Gold Category and above from NABET(QCI) and 80% for Associations of Women Entrepreneurs. Remaining project cost is to be borne by SPV/State Government.</p> <p>Thematic Interventions: Grant will be restricted to 50% of total cost of maximum 5 activities not exceeding Rs. 2.00 lakh for each activity. GoI grant under this component for each CFC would be Rs. 10.00 lakh.</p> <p>Support to State Innovation Cluster Development Programme: The GoI fund would be limited to State Government share or Rs. 5.00 Crore whichever is lower, and the assistance would be 90% of project cost in respect of CFC projects in North-East/Hilly States, 10 Island territories, Aspirational Districts/ LWE affected Districts, as well as for projects where beneficiaries are SC/ ST/ Women owned enterprises.</p>
6.	Collateral	No collateral
7.	Other Details	All the proposals should be sent to the office of DC (MSME) through concerned state government.

S. N.	Particulars	Details
8.	Success and implementation of	<p>The networking approach through the MSE-CDP has helped the MSE Clusters to overcome barriers such as technological obsolescence, supply chain incompetence, global competition, and investment shortages. It has reached out to many enterprises, facilitating economics of scale in terms of deployment of resources, such as testing facility, design centre, production centre, effluent treatment plant, training Centre, R & D centre, raw material bank/sales depot, product display centre, information centre etc.</p> <p>As of March 2020, total 35 Common Facility Centres (CFCs) and 27 Infrastructure Development (ID) Projects have been commissioned under Micro and Small Enterprises Cluster Development Programme (MSE-CDP) during last three years.</p>

3.4.3 CLUSTER DEVELOPMENT PROGRAMME

The Ministry of Micro, Small and Medium Enterprises (MSME) has adopted the Cluster Development Approach for enhancing the productivity, competitiveness, and capacity building of MSEs.

Objectives of the Scheme:

1. To support the sustainability and growth of MSEs by addressing common issues such as improvement of technology, skills, quality, market access, etc.
2. To build capacity of MSEs through formation of self-help groups, associations, etc.
3. To create or upgrade infrastructural facilities in the new/existing Industrial Areas/Clusters of MSEs.
4. To set up Common Facility Centres.
5. To Promote green & sustainable manufacturing technology for the clusters.

3.4.4 LEAN MANUFACTURING COMPETITIVENESS FOR MSMES

The objective of this scheme is to enhance the manufacturing competitiveness of MSMEs through application of various Lean Manufacturing (LM) techniques.

The scheme is open to all manufacturing MSEs. The units are required to form MC, ideally of 10 units each with a minimum 6, by signing among themselves a Memorandum of Understanding (MoU) to participate in the scheme.

The objective of the Scheme is to enhance the manufacturing competitiveness of MSMEs through the application of various Lean Manufacturing (LM) techniques by¹⁸

1. Reducing waste.
2. Increasing productivity.
3. Introducing innovative practices for improving overall competitiveness.
4. Inculcating good management systems; and V. Imbibing a culture of continuous improvement.

3.4.5 TECHNOLOGY UPGRADATION AND QUALITY CERTIFICATION SCHEME

The scheme advocates the use of energy efficient technologies (EETs) in manufacturing units to reduce the

¹⁸ <https://msme.gov.in/sites/default/files/guidelines%20lean.pdf>

cost of production and adopt clean development mechanism.

The above objectives of the Scheme will be achieved through the following major activities:¹⁹

1. Capacity Building of MSME Clusters for Energy Efficiency/Clean Development Interventions and other technologies mandated as per the global standards.
2. Implementation of Energy Efficient Technologies (EET) in MSME units.
3. Setting up of Carbon Credit Aggregation Centres (CCA) for introducing and popularising clean development mechanism (CDM) in MSME clusters.
4. Encouraging MSMEs to acquire product certification/licences from National/International bodies and adopt other technologies mandated as per the global standards.
5. Study of Impact of the scheme, administrative and other miscellaneous items.

3.4.6 CREDIT LINKED CAPITAL SUBSIDY FOR TECHNOLOGY UPGRADATION (CLCSS)

The Credit Linked Capital Subsidy Scheme provides 15% subsidy for additional investment up to ₹ 1 cr for technology upgradation by MSEs. As per the scheme guideline technology upgradation includes induction of state-of-the-art or near state-of-the-art technology. In the varying mosaic of technology covering more than 7,500 products in the Indian small-scale sector. The Small Industries Development Bank of India (SIDBI) and the National Bank for Agriculture and Rural Development (NABARD) act as the Nodal Agencies for the implementation of this scheme.

After running for nearly 20 years and supporting about a lakh of units in modernization with a total grant of more than 8000 crores, the scheme has been recently wound up. The Ministry of MSME is considering a new scheme in place of the recently closed CLCSS.²⁰

S. N.	Particulars	Details
1.	Name of the Scheme	Credit Linked Capital Subsidy for Technology Upgradation (CLCSS)
2.	Eligibility	Any Micro and Small Enterprise (MSE) having valid Udyam Registration and availing institutional credit to buy new Plant & Machinery approved under the scheme. The eligible beneficiaries for this scheme are Private and Public Limited Companies in the SSI sector, Co-operative societies, Partnerships, Proprietorships.
3.	Scope	To facilitate technology to MSEs through institutional finance for induction of well-established and proven technologies in the specific and approved 51 sub-sector/products. Both upgradation projects (with or without expansion) and new projects are eligible. Upfront subsidy of 15% on institutional Credit upto Rs. 1.0 Crore (i.e., subsidy cap of Rs. 15.00 lakh) for identified sectors/ subsectors/ technologies. However, to be considered as eligible, for special benefits there is no restriction for identified sectors.
4.	Offered by /provided by	SIDBI, NABARD, SBI, BoB, PNB, BOI, TIICL, Andhra Bank, Corporation Bank, Canara Bank, and Indian Bank

19 https://msme.gov.in/sites/default/files/technology_quality.pdf

20 <https://knnindia.co.in/news/newsdetails/msme/government-contemplates-clcss-20-scheme-for-technology-upgradation-of-msmes>

S. N.	Particulars	Details
5.	Terms / Conditions	<p>The capital subsidy of 15% rate in eligible plant and machinery under the scheme shall be available only for projects, where term loans have been sanctioned by the eligible PLI</p> <p>The ceiling on the subsidy would be Rs. 15 lakh or 15% of the investment in eligible plant and machinery, whichever is lower.</p> <p>Subsidy under CLCSS shall not avail any other subsidy for technology up-gradation from the Central/State/UT Government. Except Cases covered under National Equity Fund (NEF) Scheme and Units in North-Eastern region are eligible under CLCSS can also be covered under this scheme</p>
6.	Collateral	Not applicable
7.	Other Details	<p>At present the Scheme is under revision and will be launched soon after obtaining the necessary approvals.</p> <p>Special Benefits are applicable in case of SC/ST, Women, NER / Hill States / Aspirational Districts /LWE Districts. The subsidy shall be admissible for investment in acquisition / replacement of Plant & Machinery/equipment's & Technology up-gradation of any kind (Core plant & Machinery). Second hand & fabricated will not be eligible</p>
8.	Success and implementation of Scheme	<p>The scheme has benefited a total number of 76759 Micro and Small Enterprises since its inception by providing them with the capital subsidy to the tune of Rs. 4867.58 crore to enable them to upgrade their technology.</p> <p>As per the approval given by the Government, the Credit Linked Capital Subsidy Component of Credit Linked Capital Subsidy - Technology Up-gradation Scheme was in operation only up to 31.03.2020. Ministry of MSME had sought additional allocation under this component in the Financial Year 2020-21 to clear the accumulated past subsidy claims for the reference year 2018-19 and 2019-20. Allocation of Rs 200 crore in the BE of Financial Year 2021-22 is kept only to cater to the balance requirement of funds for pending claims, contingent liabilities etc.</p>

3.4.7 TOOL ROOMS & MSME TECHNOLOGY CENTRES

Ministry of Micro, Small, and Medium Enterprises (MSME) has established Tool Rooms & MSME

Technology Centres as part of the Infrastructure Development & Capacity Building scheme. Tool Room & Technical Institutions are focused on integrated development of the relevant sector of industries to help MSME.²¹

The primary objective of the Tool Rooms & MSME Technology Centers is as follows:

1. To improve access of MSMEs to tooling facilities and providing skilled manpower by conducting the training programs.
2. To provide assistance in process and product development in the relevant sector.
3. To provide Consultancy and job works service in the relevant sector.

3.4.8 THE GLOBAL CLEANTECH INNOVATION PROGRAMME (GCIP) - INDIA

GCIP India was launched in May 2013 as a partnership between the Ministry of Micro, Small &

Medium Enterprises (MSME), GEF and UNIDO, with the Federation of Indian Chambers of Commerce & Industry (FICCI) as main executing partners. The Programme aims at creating an ecosystem of clean technology innovations in the MSME sector to catalyze low carbon industrial growth in the country. The GCIP promotes an innovation and entrepreneur ecosystem by identifying and nurturing cleantech innovators

²¹ <https://msme.gov.in/brief-about-msme-tool-rooms>

and entrepreneurs; by building capacity within national institutions and partner organizations for the sustainable implementation of the cleantech ecosystem and accelerator approach; and by supporting and working with national policy makers to strengthen the supportive policy framework for SMEs and entrepreneurs.

The project aimed to strengthen the policy and institutional framework and build national capacity to promote innovations in clean energy technologies in SME clusters in India. It will strive to support innovative startups and promote entrepreneurship in selected SMEs identified through the national/regional competition. It will also mobilize investment and develop the national capacity of SME sector in India to promote clean low carbon technologies linking to global value chain resulting in the reduction of GHG emissions and carbon footprints of the selected SME clusters.

The Program conducted Four annual competitions and received more than 700 applications. 84 small businesses and entrepreneurs who qualified the selection process benefitted from the programs support.

4

Key Technologies & Interventions for Air Quality Control & Smart Energy Management

Air pollution in MSME is mainly attributed towards process emissions, energy consumption and material handling. The techniques and technologies related to air pollution abatement in MSMEs or in industries in general can be grouped in following categories:

- Emission control technologies
- Energy efficiency technologies
- Clean energy and fuel switching
- Emission monitoring systems

The MSME sector often work on old technologies and does not upgrade unless necessary for business operations. The air pollution control technologies are often incorporated to meet the regulatory compliance on environmental protection. The technology adoption in MSME sector is largely limited due to limited technical know-how, flexibility in operations and management, and limited financial resources.

The air pollution control systems often increase the energy consumption, maintenance, and operation cost of industries as most of the common control devices has auxiliary energy consumption and require periodic cleaning and inspection which is a major setback for MSMEs as the sector operates on marginal revenues and limited resources in terms of skilled staff add finances. The most suitable techniques for reduction of air pollution from MSME sector involve energy efficiency techniques and smart energy management. The energy efficiency technologies reduce the energy consumption thus providing savings on fuel cost. The newer technologies reduce the emissions by reducing fuel consumption as well as by enhancing the combustion process.



4.1 TECHNOLOGIES AND TECHNIQUES FOR REDUCTION OF EMISSIONS FOR MSMEs

The selection of right technology for any industry is always done on case-to-case basis as it depends on multiple factors including nature of pollutant, concentration, regulations, exhaust flow rates, cost effectiveness etc. A list of technological interventions applicable to Micro, small and medium business in general for air pollution abatement is provided below.

Table 5 technologies and techniques for reduction of emissions causing air pollution

S. N.	Technology /Technique	Potential Target Industries	Category	Target Pollutants
1	High Efficiency Scrubbers	Combustion processes Soil remediation	Emission control technologies	PM
		Oil refineries Wastewater treatment plants Paint, powder coating, and finishing shops Metallurgical plants Power plants Construction material manufacturing Fertilizer plants Chemical manufacturing and processing		
2	Gas-fired boilers	Food processing Agriculture Oil and gas refineries Pharmaceuticals Textile	Fuel switching and clean energy technologies	PM, SO _x , NO _x
3	Fabric Filters	Combustion processes Power plants Metallurgical plants Foundries Fertilizer plants Pharmaceuticals Automotive Mining Construction material manufacturing	Emission control technologies	PM
4	Inertial Separators	Cotton gins Aggregate and construction material manufacturing Metallurgical plants Woodworking shops Pharmaceuticals Food and chemical processing Combustion processes	Emission control technologies	PM

S. N.	Technology /Technique	Potential Target Industries	Category	Target Pollutants
5	Centrifugal Collectors	Combustion processes Automotive Bulk processing Chemical and pharmaceutical manufacturing Machining, fabrication, and finishing shops	Emission control technologies	PM
6	Flue gas desulfurization	Combustion processes Automotive Bulk processing Chemical and Pharmaceutical manufacturing	Emission control technologies	Sox
7	Low NOx burners	Power plants	Emission control	NOx
		Construction material manufacturing Food processing Agriculture Oil and gas refineries Pharmaceuticals Textile	technologies	
8	Integrated gasification combined cycle (IGCC) and Pressurized fluidised bed combustion (PFBC)	Power plants	Energy efficiency technologies	PM, SOx, NOx
9	Carbon capture & Sequestration	power plant Combustion processes manufacturing	Emission control technologies	
10	Thermal Oxidation	polymer and resin manufacturing, food processing, printing, pharmaceuticals, painting, roof manufacturing	Emission control technologies	VOC
11	Catalytic Oxidation	metal decorating, printing, coating, laminating, converting Engineered wood manufacturing, Bakery and Food Processing, Soil Vapor extraction, pharmaceutical applications	Emission control technologies	VOC
12	Adsorption systems beds	Food processing, Pulp and paper making, Agriculture. Aquaculture	Emission control technologies	VOC
13	Condensation, Refrigeration and Cryogenics	Chemical industries Pharmaceutical industries Biotechnology industries	Emission control technologies	VOC
14	Biological Oxidation	Pulp and paper industry. Textile industry. Food industry, including dairy industry	Emission control technologies	VOC

S. N.	Technology /Technique	Potential Target Industries	Category	Target Pollutants
15	Combustion Optimisation	Power plants Construction material manufacturing Food processing Agriculture Oil and gas refineries	Energy efficiency technologies	PM, SOx, NOx
16	Coal Drying	Power plants Construction material manufacturing Food processing Agriculture Oil and gas refineries Pharmaceuticals Textile Combustion processes Automotive Bulk processing Chemical and Pharmaceutical manufacturing	Energy efficiency technologies	PM, SOx, NOx
17	Optimisation of Soot-Blowers	Food processing Agriculture Oil and gas refineries Pharmaceuticals Textile Power plants Construction material manufacturing Food processing	Energy efficiency technologies	PM
18	Steam Turbine Overhaul	Power plants	Energy efficiency technologies	PM, SOx, NOx
19	Flue Gas Heat Recovery	Power plants Construction material manufacturing Food processing Agriculture Oil and gas refineries Pharmaceuticals Textile	Energy efficiency technologies	PM, SOx, NOx
20	Condenser Vacuum	Power plants	Energy efficiency technologies	PM, SOx, NOx
21	Higher Steam Parameters	Power plants Construction material manufacturing Food processing Agriculture Oil and gas refineries Pharmaceuticals Textile	Process improvement and enhanced material handling	PM, SOx, NOx
22	Fluidised Bed Combustion	Power plants Construction material	Energy efficiency technologies	PM, SOx, NOx

S. N.	Technology /Technique	Potential Target Industries	Category	Target Pollutants
	(FBC) Boilers	manufacturing Food processing Agriculture Oil and gas refineries Pharmaceuticals Textile Combustion processes Automotive Bulk processing Chemical and Pharmaceutical manufacturing		
23	Real time local air monitoring sensors	All industries	Emission monitoring systems	Monitoring PM, Sox, NOx
24	Mobile monitoring sensors	All industries	Emission monitoring systems	Monitoring PM, Sox, NOx
25	Low-cost monitoring systems	All industries	Emission monitoring systems	Monitoring PM, Sox, NOx
26	Microclimate monitoring systems	All industries	Emission monitoring systems	Monitoring PM, Sox, NOx
28	Developing common infrastructure in industrial clusters	All industries	Emission monitoring systems	Monitoring PM, Sox, NOx
29	Installation of renewable energy system for production and consumption of clean energy. 1. Solar Energy 2. Waste to Energy 3. Biogas 4. Switching to cleaner fuels	All industries	Emission monitoring systems	Monitoring PM, Sox, NOx

4.2 INFERENCES

Out of the set of technologies, available and implemented by various small and medium industries in India and around the world it has been noted that certain modifications in the use of technologies can make them more relevant for local industry to make a positive impact on air quality management. Thus, for MSMEs in India the functioning can be improved and made more efficient through suggested interventions below while deploying different commonly available technologies.

It is important that MSMEs deploy the technologies of multipurpose usages for reduction of energy consumption and abatement of air pollution. The interventions suggested below would be useful for MSMEs as the adoption and implementation of these interventions will help MSMEs to comply with regulations imposed by pollution control board and other environmental authorities for control and management of air pollution. In addition, the MSMEs will also be able to reap the additional monetary benefits from reduction in fuel costs and electricity bills.

5

Scoping of Financial Need Assessment of MSMEs in Delhi

NCT of Delhi has total 70299 registered MSME units out of which 54965 are micro enterprises,

14720 small and rest are medium enterprises as per the data reported in economic survey of Delhi 2020-21 ²². It is evident that the Micro and small industries are major part of the MSME sector of Delhi. As per Udhyaam dashboard data as on Jan 06, 2022, the state has total 193867 registered MSME units. Out of which 171553 are Micro, 19692 small and rest are medium industries.

²² <http://delhiplanning.nic.in/sites/default/files/9.%20Industries.pdf>



Registered MSME Units

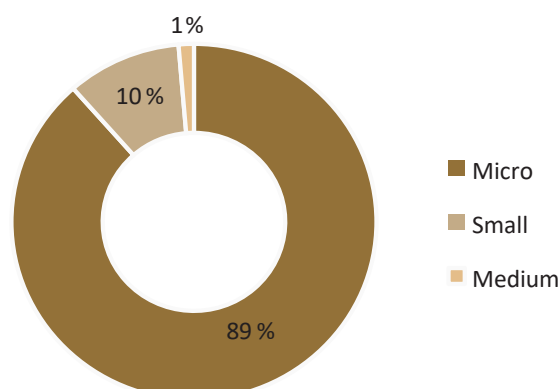


Figure 4 MSME units in Delhi registered on Udhyaam portal

The MSME sector contributed towards 30% GVA in GDP of FY 19-20 of India. The sector has a huge potential for exponential growth. Access to timely and adequate finance at reasonable cost is a key factor in the growth of the MSMEs, the lack of finance is a continuous challenge restricting the growth of the sector. The source of finance in SMEs in India is generally the own resources. Access to mainstream finance is outside the reach of most of the SMEs as most of the sector is not adequately managed and organized. As per the world bank report almost 85% MSME industries are not registered and do not file the enterprise output and performance related data periodically. This further increase the challenges for the MSME's access to finance and various government schemes. The MSME's source of finance in India can be categorised into two segments viz. Instructional financing and noninstitutional financing. The non-institutional financing includes loan from friends, family, local money lenders. Whereas the institutional finance is regulated by Reserve Bank of India (RBI) include Scheduled Commercial Banks (Public Sector Banks, Private Sector Banks including Small Finance Banks, Foreign Banks, Co-operative Banks, and Regional Rural Banks) and Non-Banking Financial Companies including NBFC- MFIs. The MSME's can also raise equity finance through SEBI regulated instruments such as SME Exchanges, Angel Investors, Venture Capital, and Private Equity.

According to sixth economic census data India's total 78% non-agriculture MSME establishments are self-financed. Second major financing source is the donation or transfer from other organizations and support from government schemes which have a share of around 18%. Many SME establishments rely on the non-institutional finance even if it has a higher cost. The reliance on non-institutional finance can be attributed to the fact that most of institutional finance takes time and require to prove credit records which often not available with new, unorganized, and informal establishments.

The total investment of SMEs is increasing remarkably and is further expected to increase given the recent traction towards make in India and Aatmanirbhar initiatives by government. As per the RBI handbook of statistics of Indian states, the total investment of micro small and medium industries stood at INR 10164.54 Crore (101.645 billion) whereas total production from MSME sector in Delhi was recorded at INR 29672.34 Crore (296.72 billion)²³.

²³ <https://m.rbi.org.in/scripts/AnnualPublications.aspx?head=Handbook+of+Statistics+on+Indian+States>

Table 6 MSME growth trend in DelhiError! Bookmark not defined.

Parameter	First Census (1972-73)	Second Census (1987-88)	Third Census (2001-02)	Fourth Census (2006-07)
Total Number of Units (Lakh)	0.05	0.1	1.77	5.52
Total Production (₹ Crore)	136.98	2530.63	15277.29	29672.34
Total Investments (₹ Crore)	52.68	401.22	6960.9	10164.54

5.1 FINANCIAL NEED OF MSMES IN DELHI

The financial need or finance demand of an MSME can be defined as sum of working capital and capital expenses of the establishment where the capital expense is the finance required to increase the fixed assets and working capital is average operating expenses in a quarter.²⁴

RBI estimates that MSME sector In India, has total addressable demand for external credit of ₹37 trillion, while the overall supply of finance from formal sources is estimated to be ₹14.5 trillion Therefore, the overall credit gap in the MSME sector is estimated to be ₹20 – 25 trillion.

The Delhi has large MSME base, and it accounts to around 18% of total finance demand in the country amounting to approximately ₹7 trillion. According to the Ministry of MSME Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) Has extended the Credit Guarantee Amount of 1360.66 crore (13.6 billion) in FY 20-21 and 2158.11 Crore (21.5 billion) in FY 19-20.²⁷ whereas the TransUnion CIBIL,

RBI reports that total commercial lending to MSME corporate in FY19 stood at 17.6 trillion out of which Delhi has a share of 7.7% (1.35 trillion)²⁵. The finance accessed by MSMEs in Delhi through PMMY scheme is 5069.32 Crore (50.6 billion) in FY 19-20.²⁶

²⁴ Financing India's MSME, IFC-2017

²⁵ <https://www.transunioncibil.com/resources/tucibil/doc/insights/reports/report-msme-pulse-june-2019.pdf>

²⁶ https://www.mudra.org.in/Default/DownloadFile/StateWise_Performance_2019-20.pdf

6

Scoping of Existing Financial Mechanisms at Delhi & National Level

The State Governments are primarily responsible for planning and implementation of policies related to MSME sector. However, the Government of India, supplements efforts of the State Governments through various policy measures. The NCT of Delhi implement the centre government schemes through the department of industries GNCTD. The Department of Industries is nodal agency to plan, promote and develop industries in Delhi. The NCT of Delhi has the focus of development environment-friendly small-scale industries and knowledge based industrial units as those industries do not stretch meager resources such as land, water, and electricity. The focus of GNCTD is to develop industrial areas and facilitate industrial units through capacity development, vocational trainings, promotion of industries through support in marketing and export, development of single window clearance system under the framework for ease of doing business.

The schemes and policy measures of GNCTD revolves around promoting the small industries through development of industrial areas with cluster approach. The Government of National Capital Territory of Delhi has special programme for promotion of Handloom and Handicrafts Industries sectors. In terms of access to finance the GNCTD implement all the schemes and programs of central government for providing financial assistance and access to finance to MSME sector.



6.1 SCHEMES FOR ENABLING ACCESS TO FINANCE IN MSME SECTOR CURRENTLY BEING IMPLEMENTED IN DELHI

6.1.1 PRADHAN MANTRI MUDRA YOJANA (PMMY)

In April 2015, the Government of India launched the Pradhan Mantri Mudra Yojana SME loan. The main objective of this loan for SMEs is funding the unfunded, reducing jobless economic growth and monitoring and regulating microfinance institutions.

S N.	Particulars	Details
1.	Name of the Scheme	Pradhan Mantri Mudra Yojana SME loan
2.	Eligibility	Any Indian Citizen, who is eligible to avail of loan and has a business plan for an income generating activity can avail of MUDRA loan under PMMY
3.	Scope	programme is directed towards supporting income generating micro enterprises engaged in manufacturing, trading, and services sectors with a loan requirement up to ` 10 lakh. Recently, the activities allied to agriculture are also included as eligible under PMMY.
4.	Offered by / provided by	Micro Units Development and Refinance Agency Limited (MUDRA). These loans are given by Commercial Banks, RRBs, Small Finance Banks, MFIs and NBFCs. The borrower can approach any of the lending institutions or can apply online through this portal www.udyamimitra.in
5.	Terms / Conditions	Working Capital and Term Loan amount Upto Rs 10 lacs, Repayment Period of 3 to 5 years. Loans upto Rs.50,000 are categorised as SHISHU Loans from Rs.50,001 to Rs.500,000 are categorised as KISHORE Loans from Rs.500,001/- to Rs.10,00,000/- are categorised as TARUN
6.	Collateral	The micro enterprises loans upto `10 lakhs are collateral free and they can be covered under Credit Guarantee Fund for Micro Units (CGFMU)
7.	Other Details	Pradhan Mantri Mudra Yojana (PMMY) is a programme directed towards supporting income generating micro enterprises engaged in manufacturing, trading, and services sectors with a loan requirement up to ` 10 lakh. Recently, the activities allied to agriculture are also included as eligible under PMMY
8.	Success and implementation of Scheme	As on 31.03.2021, over 29.55 crore loans amounting to Rs. 15.52 lakh crore have been sanctioned under PMMY across the country since inception of the Scheme in April 2015. ²⁷ The national level targets under the PMMY scheme have been consistently met since inception of the scheme, except for FY 2020-21 due to ongoing COVID-19 pandemic.

6.1.2 CREDIT GUARANTEE TRUST FUND FOR MICRO & SMALL ENTERPRISES

Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) is jointly set up by

Ministry of Micro, Small & Medium Enterprises (MSME), Government of India and Small Industries Development Bank of India (SIDBI) to catalyze flow of institutional credit to Micro & Small Enterprises (MSEs).

²⁷ <https://rtsprofessionalstudy.com/entrepreneurs-availed-over-29-55-crore-loans-of-rs-15-52-lakh-crore-under-pradhanmantri-mudra-yojana-pmmy-since-2015/>

S. N.	Particulars	Details
1.	Name of the Scheme	Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTSMSE)
2.	Eligibility	Both new and existing MSMEs engaged in manufacturing and service activities are eligible. MSMEs involved in retail trade or operating as educational institutions, self-help groups or training institutions are not eligible.
3.	Scope	MSMEs can borrow collateral-free fund-based and non-fund-based SME loans up to Rs. 200 lakhs from banks and NBFCs.
4.	Offered by /provided by	Gol and SIDBI
5.	Terms / Conditions	CGTSMSE pays a guaranteed fee to the lender in exchange for financial assistance Guarantee coverage ranges from 85% (For Micro Enterprise up to Rs 5 lakh) to 75% (For others). 50% coverage is for Retail Activity. Loan up to a limit of Rs. 200 lakh is available for individual MSE on payment of guaranteed fee to bank by the MSE The interest rate of the loan is as per the RBI guidelines
6.	Collateral	collateral free
7.	Other Details	MSME, Gol and SIDBI have established a Trust named Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTSMSE) to implement the Credit Guarantee Scheme for Micro and Small Enterprises.
8.	Success and implementation of Scheme	100% acceptance for all eligible proposal under this scheme so far. Up to June 30, 2021, CGTSMSE has approved 53,86,739 guarantees cumulatively for an amount of Rs. 2,72,007 crore. During the first quarter of Financial Year 2021-22 CGTSMSE has reported that guarantee approvals with respect to Banks and NBFCs are Rs. 6,693 crore and Rs. 6,603 crores respectively during first quarter of Financial Year 2021-22 as against Rs. 6,041 crore and Rs. 2,934 crores respectively during first quarter of Financial Year 2020-21.

6.1.3 CREDIT LINKED CAPITAL SUBSIDY SCHEME

The objective of the Scheme is to facilitate technology up-gradation in MSEs by providing an upfront capital subsidy of 15 per cent (on institutional finance of upto Rs 1 crore availed by them) for induction of well-established and improved technology in the specified 51 subsectors/products approved. In other words, the major objective is to upgrade their plant & machinery with state-of-the-art technology, with or without expansion and for new MSEs which have set up their facilities with appropriate eligible and proven technology duly approved under scheme guidelines.

S. N.	Particulars	Details
9.	Name of the Scheme	Credit Linked Capital Subsidy for Technology Upgradation (CLCSS)
10.	Eligibility	Any Micro and Small Enterprise (MSE) having valid Udyam Registration and availing institutional credit to buy new Plant & Machinery approved under the scheme. The eligible beneficiaries for this scheme are Private and Public Limited Companies in the SSI sector, Co-operative societies,
S. N.	Particulars	Details
		Partnerships, Proprietorships.

11.	Scope	To facilitate technology to MSEs through institutional finance for induction of well-established and proven technologies in the specific and approved 51 sub-sector/products. Both upgradation projects (with or without expansion) and new projects are eligible. Upfront subsidy of 15% on institutional Credit upto Rs. 1.0 Crore (i.e., subsidy cap of Rs. 15.00 lakh) for identified sectors/ subsectors/ technologies. However, to be considered as eligible, for special benefits there is no restriction for identified sectors.
12.	Offered by /provided by	SIDBI, NABARD, SBI, BoB, PNB, BOI, TIICL, Andhra Bank, Corporation Bank, Canara Bank, and Indian Bank
13.	Terms / Conditions	The capital subsidy of 15% rate in eligible plant and machinery under the scheme shall be available only for projects, where term loans have been sanctioned by the eligible PLI The ceiling on the subsidy would be Rs. 15 lakh or 15% of the investment in eligible plant and machinery, whichever is lower. Subsidy under CLCSS shall not avail any other subsidy for technology up-gradation from the Central/State/UT Government. Except Cases covered under National Equity Fund (NEF) Scheme and Units in North-Eastern region are eligible under CLCSS can also be covered under this scheme.
14.	Collateral	Not applicable
15.	Other Details	At present the Scheme is under revision and will be launched soon after obtaining the necessary approvals. Special Benefits are applicable in case of SC/ST, Women, NER / Hill States / Aspirational Districts /LWE Districts. The subsidy shall be admissible for investment in acquisition /replacement of Plant & Machinery /equipment's & Technology up-gradation of any kind (Core plant & Machinery). Second hand & fabricated will not be eligible.
16.	Success and implementation of Scheme	The scheme has benefited a total number of 76759 Micro and Small Enterprises since its inception by providing them with the capital subsidy to the tune of Rs. 4867.58 crore to enable them to upgrade their technology.

6.1.4 SIDBI MAKE IN INDIA LOAN FOR ENTERPRISES

SIDBI Make in India Loan for Enterprises (SMILE) scheme was also launched by Government of India. The Scheme is intended to take forward the Make in India campaign of Government of India and help MSMEs take part in the campaign. The focus will be on identified twenty-five sectors under 'Make in India' programme' with emphasis on financing smaller enterprises within the MSME sector. SMILE scheme provides financial resource for the 25 identified sectors.

S. N.	Particulars	Details
1.	Name of the Scheme	SIDBI Make in India Loan for Enterprises (SMILE)
2.	Eligibility	All MSMEs as per MSME Act 2006. Emphasis on financing smaller enterprise within the MSME and new enterprises in manufacturing as well as service sectors Existing enterprises undertaking expansion, modernisation, technology upgradation and other projects for growing the business.

3.	Scope	Quasi – Equity (Soft Loan) to support new & existing MSMEs for purchasing growth opportunities. program is designed to facilitate foster innovation, investment, protect intellectual property, enhance skill development, and build best-in-class manufacturing infrastructure for MSMEs by providing financial support to meet the required debt-equity ratio for the formation of an enterprise.
4.	Offered by /provided by	SIDBI, Interested MSMEs can directly approach SIDBI or its zonal offices. Online Application Form for SMILE schemes
5.	Terms / Conditions	<p>Minimum Loan Size- Rs. 25 lakhs</p> <p>Loans extended under the scheme cannot be used for repayment of earlier loans.</p> <p>The eligible MSME sectors need to pay 0.50% of the loan amount as an upfront fee.</p> <p>Promoters' Contribution of minimum 15% of Project Cost upto Rs.100 lakh or 20% for the rest subject to DER norms</p> <p>Repayment Period, upto ten years inclusive of moratorium upto three years.</p>
6.	Collateral	<p>First charge over all the assets created under the project Personal guarantees of the Promoters.</p> <p>Fixed asset coverages at least 1.40 times including the collateral security.</p>
7.	Other Details	

6.1.5 MSME BUSINESS LOAN FOR START-UPS IN 59 MINUTES

Launched as part of the Atmanirbhar Bharat Campaign, under this scheme, MSMEs receive in- principal approvals for loans of Rs. 1 lakh to Rs. 5 Crore within 59 minutes. Entrepreneurs can utilize the loan for business expansion, scaling operations, purchasing raw materials, diversification etc.

S. N.	Particulars	Details
1.	Name of the Scheme	MSME Business Loans in 59 Minutes
2.	Eligibility	Any individual above 18 years and non-individuals such as existing firms and businesses with GST registration and other required documents, such as IT return for at least one year and
S. N.	Particulars	Details
		bank statements of last six months, are eligible for this loan.
3.	Scope	Loans are in the range of INR 1 Lakh up to INR 5 crores, from most authorized banks and takes about eight to twelve days to be processed. The approval is received within 59 minutes, which is why the scheme is named as such.
4.	Offered by /provided by	SIDBI, SBI, BoB, PNB, Indian Bank, BoI, BoM, Canara Bank, Central Bank of India, IDBI Bank, Indian Overseas Bank, Punjab and Sind Bank, UCO Bank, Union Bank, Kotak Mahindra Bank, IDFC First Bank, Saraswat Bank, Indusind Bank, ICICI Bank, Yes Bank, Federal bank

5.	Terms / Conditions	The repayment tenure is flexible, and the interest rates are usually upwards of 8.5% p.a.
6.	Collateral	Not required for CGTMSE eligible borrower
7.	Other Details	Can be applied online through psbloansin59minutes.com In-principal loan approval in less than 59 minutes, simple process with single application direct disbursement to applicant's account
8.	Success and implementation of Scheme	Total 2,00,660 applications are received under this scheme as of July 2019 since the launch of the loan portal psbloansin59minutes.com , out of which 1,59,583 applications for loans have been accorded in principle approval since the launch and sanctions have been made in respect of 1,33,448 cases.

6.1.6 INFRASTRUCTURE DEVELOPMENT PROGRAMME

The Ministry of Micro, Small and Medium Enterprises (MSME), Government of India (GoI) has adopted the cluster development approach as a key strategy for enhancing the productivity and competitiveness as well as capacity building of Micro and Small Enterprises (MSEs) and their collectives in the country.

S. N.	Particulars	Details
9.	Name of the Scheme	Micro & Small Enterprises Cluster Development (MSE-CDP)
10.	Eligibility	State Govt./State Agencies, Clusters, Industrial Associations/ Consortia.
11.	Scope	Hard interventions, i.e., setting up of CFCs with maximum eligible project cost of Rs 15.00 cr with GoI contribution of 70% (90% for special category States and for clusters with more than 50% women/micro/village/ SC/ST units). Infrastructure development in the new/ existing industrial estates/areas in which the maximum eligible project cost is Rs 10.00 cr, with GoI contribution amounting to 60% of project cost (80% for special category States and for clusters with more than 50% women/micro/SC/ST units).
12.	Offered by /provided by	MSME (approved by National Level Steering Committee of MSECDP)

S. N.	Particulars	Details
13.	Terms / Conditions	<p>CFCs: Grant will be restricted to 70% of the cost of Project of maximum Rs. 20.00 Crore. Gol grant will be 90% for special category projects (located in North-East & Hilly States, Island territories, Aspirational Districts/ LWE affected Districts, Clusters with more than 50% (a) Micro/Village, (b) Women owned, (c) SC/ ST units). The cost of Project includes cost of Land (Subject to maximum of 25% of Project Cost).</p> <p>Infrastructure Development: Grant will be restricted to 60% of the cost of project (Rs. 10.00 Crore for Industrial Estate & Rs. 15.00 Crore for Flatted Factory Complex). Gol grant will be 80% for special category projects as mentioned above.</p> <p>Marketing Hubs/Exhibition Centres by Associations: The Gol grant will be restricted to 60% of the cost of project of maximum Rs. 10.00 crore for Product Specific Associations with BMO rating of Gold Category and above from NABET(QCI) and 80% for Associations of Women Entrepreneurs. Remaining project cost is to be borne by SPV/State Government.</p> <p>Thematic Interventions: Grant will be restricted to 50% of total cost of maximum 5 activities not exceeding Rs. 2.00 lakh for each activity. Gol grant under this component for each CFC would be Rs. 10.00 lakh.</p> <p>Support to State Innovation Cluster Development Programme: The Gol fund would be limited to State Government share or Rs. 5.00 Crore whichever is lower, and the assistance would be 90% of project cost in respect of CFC projects in North-East/Hilly States, 10 Island territories, Aspirational Districts/ LWE affected Districts, as well as for projects where beneficiaries are SC/ ST/ Women owned enterprises.</p>
14.	Collateral	No collateral
15.	Other Details	<p>All the proposals should be sent to the office of DC (MSME) through concerned state government.</p> <p>Online applications can be filled at https://cluster.dcmsme.gov.in</p>
16.	Success and implementation of Scheme	<p>The networking approach through the MSE-CDP has helped the MSE Clusters to overcome barriers such as technological obsolescence, supply chain incompetence, global competition, and investment shortages. It has reached out to many enterprises, facilitating economics of scale in terms of deployment of resources, such as testing facility, design centre, production centre, effluent treatment plant, training Centre, R & D centre, raw material bank/sales depot, product display centre, information centre etc. As of March 2020, total 35 Common Facility Centres (CFCs) and</p> <p>27 Infrastructure Development (ID) Projects have been commissioned under Micro and Small Enterprises Cluster Development Programme (MSE-CDP) during last three years.</p>

6.1.7 EQUITY INFUSION FOR MSMES THROUGH FUND OF FUNDS

SRI Fund, in the form of Fund of Funds (FoF), will be oriented towards providing funding support to the Daughter Funds for onward provision to MSMEs as growth capital, in the form of equity or quasi-equity.

S. N.	Particulars	Details
1.	Name of the Scheme	Self-Reliant India (SRI) Fund
2.	Eligibility	<p>The funding would be provided to all existing and interested MSMEs which, after assessment, are found viable, whose growth trajectory is positive, and who have a defined business plan for growth indicating positive funds flow.</p> <p>MSMEs, defined as per the MSMED Act, as amended from time to time, shall be eligible for consideration</p> <p>Non-Profit institutions, NBFCs, financial inclusion sector, micro credit sector, SHGs and other financial intermediaries shall not be eligible for consideration</p>
3.	Scope	<p>The target group of FoF funding, through the Daughter Funds, would be those MSMEs which have marked potential to grow, but are not able to grow because their requirement for growth capital remains unfulfilled. They do not have access to the market and debt funding is difficult to come owing to borrowing cost, inability to provide security, over leveraging etc</p> <p>As regards leveraging, the Mother Fund of Rs. 10,000 crores provided by the Government of India, shall stand leveraged to the extent of Rs. 50,000 crores (Rs. 10,000 crores from Gol and Rs. 40,000 crores from Daughter Funds).</p>
4.	Offered by / provided by	NSIC, Gol
5.	Terms / Conditions	<p>Previous 3 years CAGR will be considered, and due weightage will be given to potential for growth</p> <p>Commitment Period: upto 6 years from the date of first closing. The FoF would be a revolving fund as earnings of the fund from investments made in AIFs would be re-invested</p> <p>SRI Fund will have a life of 15 years and it will be a revolving fund</p>
6.	Collateral	collateral-free
7.	Other Details	<p>FoF will seek to actively encourage different term sheets with a view to ensuring non-linear returns envisaged from venture capital funding. It will also factor in the non-monetary aspects, in terms of employment, reduction in regional disparity, overall economic development and establishing supply chains with depth and resilience</p>
		<p>Govt. of India will be the sole anchor investor and provide an initial budgetary support of Rs. 10,000 crores to the Mother Fund in phased manner. No other outside investment will be entertained in the Mother Fund. Mother Fund will have Daughter Funds empanelled with it, subject to fulfilment of conditions as may be laid down and following due process</p> <p>Daughter Funds, after being empanelled with the Mother Fund, will mobilise funds and for each 4 units of funds so mobilised, they will be eligible to solicit 1 unit of fund, back ended from the Mother Fund. The entire 5 units will then be available to the Daughter Fund for investment. Thus, 80% of the funds will have to be mobilized by the Daughter Funds and 20% will be provided back ended by the Mother Fund. The minimum fund to be released to a Daughter Fund would be Rs. 50 crore and in multiples of Rs. 10 crores thereafter</p>
8.	Success and implementation of Scheme	<p>The scheme is expected to facilitate equity financing of Rs.50,000 crore in the MSME Sector. The infusion of equity will provide an opportunity to get MSMEs listed in stock exchanges. Further, it will also facilitate MSMEs to scale-up their business & growth and will help creating more jobs in the MSME sector. The MoMSME has issued the Approved Guidelines on 'Self Reliant India (SRI) Fund' for MSMEs Communication on 05.08.2020 to initiate necessary action for completion of formalities for roll out of the scheme.</p>

6.2 FINTECH COMPANIES' SUPPLY CHAIN FINANCING INNOVATIONS:

Two common SCF methods factoring, and reverse factoring are being used to finance suppliers by using invoices and receivables as intermittent collaterals.

6.2.1 TRADE RECEIVABLES DISCOUNTING SYSTEM (TREDS)

Electronic platform for facilitating the financing / discounting of trade receivables of Micro, Small and Medium Enterprises (MSMEs) through multiple financiers.

6.2.2 RBI ACCOUNT AGGREGATOR (AA) FRAMEWORK

The framework and its centralized data management can enable suppliers and buyers to access financing options with the transaction data stored on a centrally managed and regulated framework Targets prescribed for lending by banks to MSMEs under overall Priority Sector Lending.

6.2.3 AFFORDABLE LOAN REPAYMENT FACILITY THROUGH DAILY SETTLEMENTS ON POS LOANS

FinTechs provide a point of sale (PoS) financing mechanism for marketplace buyers and suppliers.

6.2.4 GROWTH CAPITAL AND EQUITY ASSISTANCE SCHEME (GEMS) SIDBI

SIDBI's Growth Capital and Equity Assistance Scheme for MSMEs (GEMs) provides capital investment credit to MSMEs. In return, aiding to invest in marketing, brand building, distribution network conception, research and development, production, export, and so on.²⁸

6.2.5 PROMOTING ENERGY EFFICIENCY AND RENEWABLE ENERGY IN SELECTED MICRO, SMALL AND MEDIUM ENTERPRISES (MSME) CLUSTERS IN INDIA.²⁹

The aim of the project is to develop and promote a market environment for introducing energy efficiencies and enhanced use of RE technologies in process applications in 12 selected energy intensive MSME clusters in India with expansion to more clusters later, in order to improve the productivity and competitiveness of units as well as to reduce overall carbon emissions and improve the local environment. The program is funded by Global Environment Facility, Regular Programme of Technical Cooperation.

6.2.6 PROMOTING MARKET TRANSFORMATION FOR ENERGY EFFICIENCY IN MICRO, SMALL & MEDIUM ENTERPRISES

The project aims to divert industry from the business-as-usual track by strengthening the market "push" and "pull" forces that contribute to industrial energy efficiency, while the model of capacity building and technology adoption will ensure that the project has sustainable benefits beyond the project term. The proposed approach will lead to development of local technological capacity and adoption through training and awareness raising of industrial technical personnel and end-users; consequently, leading to spin-offs beyond the project period. The proposed project also aims to "fill the gaps" of previous projects focusing on energy consumption improvements in MSMEs through the provision of an innovative financing mechanism, namely an EESL-MSME Revolving Fund (EMRF). The availability of the Fund, combined with trainings for the development of bankable project proposals and awareness raising, will simplify and improve financing

²⁸ <https://www.grainmart.in/news/growth-capital-and-equity-assistance-scheme-gemssidbi/#:~:text=SIDBI's%20Growth%20Capital%20and%20Equity,%2C%20export%2C%20and%20so%20on.>

²⁹ <https://open.unido.org/projects/IN/projects/103029>

options for MSMEs in the targeted clusters.

6.2.7 FACILITY FOR LOW CARBON TECHNOLOGY DEPLOYMENT

The main objective of the project is to facilitate deployment and scaling up of low-carbon technologies in India that can address technology gaps to mitigate climate change and promote use of clean energy applications in selected sectors. Main function of FLCTD, will be to identify high-impact challenges that if solved has potential for large-scale carbon emission reductions. Often, solutions to such challenges are unavailable in the market due to a gap between demand, supply, and financing.

6.3 FINANCIAL PATHWAYS FOR MSMEs TO ADOPT CLEAN ENERGY AND CLEAN TECHNOLOGIES

The Government of India is taking many steps for promoting MSME sector in the country. Ensuring the adequate credit flow is one of the key focus areas among various program and schemes of center and state governments. The MSME sector under RBI policy is a priority sector lending area, further RBI has assigned sub-target of 7.5% of Adjusted Net Bank Credit (ANBC) or Credit Equivalent of Off-Balance Sheet Exposure (CEOBE), whichever is higher, towards lending to the Micro-enterprises under overall Priority Sector Lending for Domestic commercial banks, foreign banks with 20 branches and above, Regional Rural Banks and Small Finance Banks³³. The state governments are increasingly working towards simplifying the regulatory requirement and process for achieving ease of doing business. Amid all these focus areas there is a big push towards adoption of clean technologies and clean energy in MSMEs for reduction in industrial pollution and emissions from MSME sector for mitigation of harmful impacts on environment, climate, and natural resources. The government have defined both direct and indirect financing solutions for enabling the MSMEs to access the required finance.

The access to fund, subsidies and support through different schemes is available for MSME.

Financing options are available for working capital finance, equity infusion, venture capital etc. There are also some specialized energy efficiency and renewable energy financing products offered to MSMEs from both public and private institutes. With the available financing solutions and schemes following financial pathways are evolved based on the different categories, requirement, and nature of support available for MSMEs.

Target Area	Financing Pathways	Applicability and Relevant Information		
		Micro	Small	Medium
Energy Efficiency	ESCO Finance	EESL offers selected energy efficient technology implementation through ESCO mode with 20% upfront cost 34		
	MSME Loan	Financing upto 10 Lakh (1 million) available in form of collateral free Mudra loan under PMMY.		Standard loan schemes form banks and NBFCs available

	Credit Guarantee, Fund of Funds, Grant	85% credit guarantee for loan amount upto 5 Lakh and 75% Guarantee (maximum of 150 Lakh) for loan amount above 5 lakhs up to 200 lakhs under CGTMSE	75% credit guarantee (Maximum of 37.5 lakh for loan amount upto 50 Lakh and 75% Guarantee (maximum of 150 Lakh) for loan amount above 5 lakh upto 200 lakhs under CGTMSE ²⁸
	Equity Finance / Venture Capital	Public and private VC funds for financing energy efficiency in MSMEs are available. Small & Medium Enterprises Advantage Fund (SMEAF-II): The corpus size of the fund is INR 500 Crore with Green Shoe option of Rs. 250 Crore GREEN INDIA VENTURE FUND – II: The corpus size of the fund is INR 500 Crore with Green Shoe option of Rs. 250 Crores. The fund will support industries engaged in promoting green economy. ²⁹	
	Subsidy	Upto 15% capital subsidy is available under CLCSS for technology upgradation	
Renewable Energy /Clean Energy	Aggregation, Association, Cluster level finance	Financing for infrastructure development, solar park can be availed by group of MSMEs, or association for common infrastructure development.	
	RESCO	Renewable Energy Service Companies offer PPA based/ fixed monthly payment financing solutions for installation of renewable energy system. This option become beneficial for MSMEs as power tariff is often very high as compared to the PPAs of monthly payments set under the financing contract.	
	Loan	SIDBI Term-Loan Assistance for Rooftop Solar PV Plants (STAR): Loan amount of ₹10 lakh to ₹250 lakh with 25 KW to 500 KW plants (indicative) plant capacity	Standard loan schemes form banks and NBFCs available
Capacity Building, Infrastructure development	Common Infrastructure development	Micro & Small Enterprises Cluster Development (MSE-CDP): 70% to 80% financing support for development of common facility centres, Marketing hubs, Exhibition centres, State innovation cluster development; in terms of Grant is available under Infrastructure Development Programme.	
	Aggregation, Association, Cluster level finance		

7

Inquiry into MSMEs of Delhi

The research began with building a basic understanding of micro, small and medium enterprises in Delhi through literature study on its significance, classification, and functioning. Further, research aim, and objectives were set to initiate the field surveys and achieve desirable outcomes.



7.1 FIELD SURVEY

EPCA and CPCB identified 13 industrial hotspots in Delhi, in 2020, based on their annual average levels of PM10 and PM2.5 levels, exceeding 300 µg/m³ and 100 µg/m³ respectively. Among these hotspots are the industrial areas of Narela, Bawana, Mundka, Wazirpur, Rohini, R.K. Puram, Okhla, Jahangirpuri, Anand Vihar, Vivek Vihar, Punjabi Bagh, Mayapuri and Dwarka. Out of these 13 identified hotspots, 6 hotspots, are the industrial areas of Delhi.

The purpose of this field research is to identify micro, small and medium enterprises in the six air pollution hotspots of Delhi to address the air pollution by introducing clean air technologies in these MSMEs.

7.2 SURVEY OBJECTIVES

1. Identifying MSMEs for initiating conversation around clean air technologies and select participants for the survey
2. Inquiring about the fuel usage patterns and understanding the challenges faced by the participants in implementation of clean air technologies through the questionnaire
3. Analyzing the data collected and finding the data gaps for further interventions

7.3 SCOPE AND LIMITATION

1. Multiple micro and small industries functioning in the same space made the approach difficult
2. Participant recruitment depends on the process of interest and so does the information obtained
3. Time constraints are applicable since it is a field research study

7.4 METHODOLOGY OF THE SURVEY

To identify key micro, small and medium enterprises, in the six hotspots (that are also industrial zones) out of identified thirteen, for clean energy interventions, a field study was initiated. MSMEs in the six identified hotspots, Okhla, Mundka, Wazirpur, Jahangirpuri, Bawana and

Narela, were studied. Stakeholder mapping was done for these areas and the list included DSIDC, DPCC, CETP, IIEC, UNIDO, CII, FICCI, IWA and owners of the industries in these six hotspots.

With this information in hand, a pilot survey was done to gather information on these hotspots, the scope of intervention and to consult with the identified stakeholders.

After identifying industries, a questionnaire was prepared to collect data on the micro level information on key air pollutants from these MSMEs. Questionnaire is an inquiry into the industrial manufacturing and services details, fuel consumption and about clean air technologies available and the challenges faced in their implementation. 150 MSME owners were approached for the survey, out of which 71 responded.

From this field survey with 71 industrial personnel and multiple stakeholder consultations information on fuel usage, monthly electric consumption and challenges faced by various MSMEs was obtained. This data will further be analyzed for proposing clean air technologies and building pathways for their implementation.

7.5 SURVEY OUTCOMES

Most of the participants in these industrial areas were reluctant to share information. A lack of information

³⁰ <https://www.cgtmse.in/Home/VS/3>

³¹ <https://www.ifcventure.com/small-medium-enterprises-advantage-fund>

and awareness around air pollutants, clean energy technologies and government schemes and policies was observed.

Figure 3 is a graph showing the number of industries in each hotspot and their fuel usage whereas graph in Figure 4 shows the usage segment wise. It can be observed that most of the MSMEs have electricity or PNG as their main source and food processing industries have high power consumption.

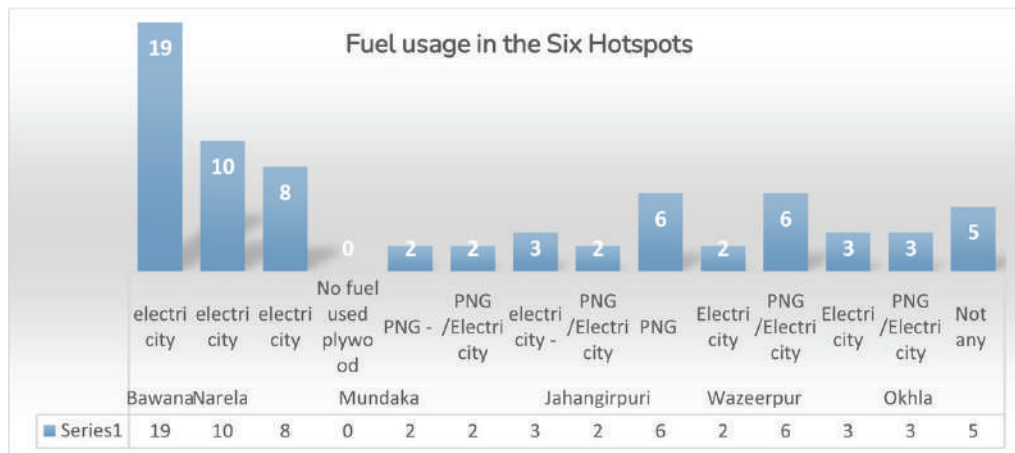


Figure 5 Energy consumption by MSMEs of the six air pollution hotspots

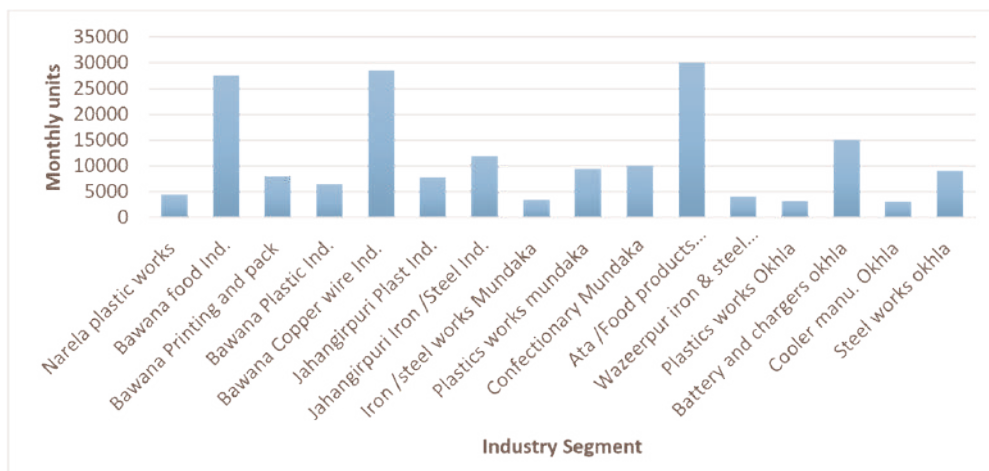


Figure 6 Segment wise energy consumption (units/month)

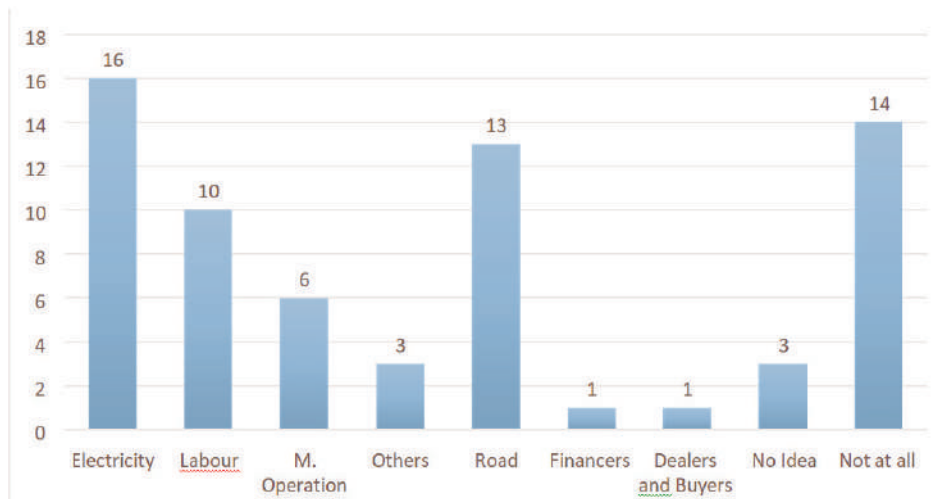


Figure 7 Common challenges faced in 4 industrial areas -Bawana, Narela, Mundka and Jahangirpuri

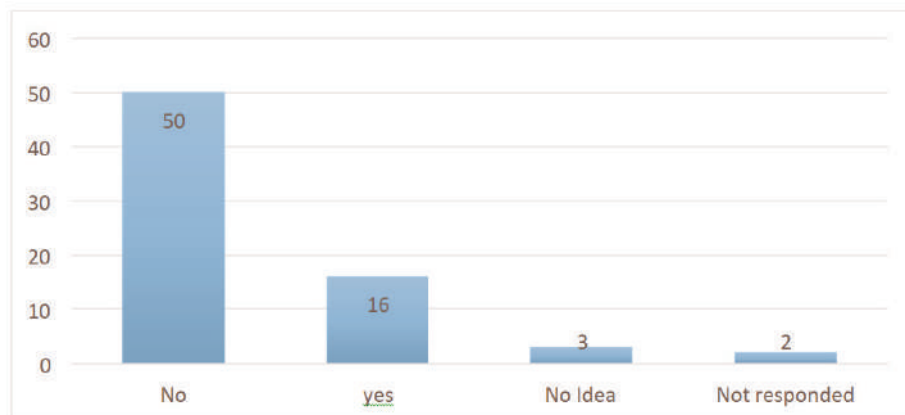


Figure 8 Bar graph showing number of industries associated with government schemes or benefits

7.6 CHALLENGES FACED BY MSMES

From the survey it was brought under the knowledge that a lot of MSMEs are not even aware of the clean air technologies and hence faced challenges with the old technologies that are still utilized

7.6.1 LACK OF INFORMATION AND AWARENESS

Most of the respondents were unaware of the Ministry of Micro, Small and Medium Enterprises and of the various MSME policies that provide financial, marketing, and technological support

7.6.2 OUTDATED TECHNOLOGIES

A lot of industries work on outdated technologies and are unaware about the process of adopting green technologies

7.6.3 POOR INFRASTRUCTURE OF THE MSMES

Industries have to bear with uneven roads, electricity cut outs, absence of backup systems etc. Lack of infrastructure highly affects exporting companies. Multiple industries are functioning at one place

7.7 OPPORTUNITIES

A few respondents expressed keen interest in discussing challenges and possible clean energy interventions. Some were aware of the clean air technologies available but require help in the transition.

7.8 STAKEHOLDER CONSULTATION

Stakeholders were consulted at various stages to incorporate different perspectives on MSMEs. Stakeholders were from state government organizations, central government bodies, industrial associations, and sector experts.

7.8.1 OKHLA INDUSTRIAL ASSOCIATION

In the absence of association heads, administrative officer and the office staff was consulted. Industrial survey directory of Okhla Industrial Association was shared, and they also listed out the major industries that are present in the area.

Most of the MSMEs in Okhla are service providers. Manufacturing units are very less because of water

scarcity in the area. According to the association, there are 2900 industries in the area, most of them being printing press followed by automobile services, office spaces, pharmaceuticals, fashion, and plastic industries. Most of the plastic industries have been shut since the pandemic. We were advised to approach DSIIDC office for further details.

7.8.2 DPCC, VIGYAN BHAWAN

According to the Senior Environment Engineer, almost all the industries have made a shift to

PNG. He shared contacts of Bawana Industrial Area Welfare Society and suggested we start with one industrial area for the clean energy intervention. As the industrial areas are not well developed, dust from the streets is said to be the cause of air pollution and not the industries. An inquiry into the fuel usage of residential areas might add to the study, as he suggests.

7.8.3 BAWANA INDUSTRIAL ASSOCIATION



Figure 9 CAA in conversation with Mr. Sandeep Aggarwal, General Secretary, Bawana Prints and Pack Association

President of Bawana manufacturers welfare association who is also the owner of a flour mill talked about the cleaning process of grains. Electricity is used for both cleaning and grinding process resulting in high consumption of the source. Approximately there are 15000 MSME's in Bawana out of which more than 4000 industries manufacture plastic-based products. These plastic industries release high amounts of emissions during manufacturing process along with dyeing and printing industries.

Mr. Sandeep Aggarwal, General Secretary of Bawana prints and pack association expressed his willingness on transitioning to clean energy. Manish Bansal, owner of a dal mill and General Secretary of Bawana factories welfare association informed about the

16312 MSMEs functioning in Bawana, which run on clean energy sources like electricity and PNG.

7.8.4 NARELA INDUSTRIAL COMPLEX WELFARE ASSOCIATION

General Secretary of Narela Relocation Industrial Welfare Association (NRIWA) broadly discussed the issues faced by MSMEs in the Narela Industrial Area. He informed that in Narela there are only micro and small-scale industries in the area and release no pollutants into the air as all the industries have been upgraded with PNG fuel.

7.9 A DIALOGUE WITH THE COMMUNITY PEOPLE, LIVING IN CLOSE PROXIMITY TO THE INDUSTRIAL AREAS

We made a visit to the formal and informal settlements and the slum areas, located around the industrial area of Bawana. We enquired the locals about their perception towards air pollution due to industries. We initiated conversations with the families living there and also the people who are employed in those factories.

Premchand, age 51, mentions the young ones being healthy in his household but says his uncle has Asthama and often struggles with his health. A persistent cough is considered to be a result of age rather than polluted air. His son works in a factory where electronics are tested. There is no possibility of pollution there, he insists.

Abdul, age 23, who lives with his wife, parents and a child, works in a factory that ensembles batteries. He wears gears - face cover, while at work and faces no difficulties with respect to his health. MSMEs are small-scale industries and pollution occurs only where the chimneys are, says his father.

Rajendra, age 70, along with his friend complained about eyes watering, difficulty in breathing and frequent coughing. The smog conditions are to be blamed for this.



Figure 10 CAA team understanding how concerns and blamed the garbage disposal practices communities perceive air pollution from MSMEs as a cause of smell and emissions.

Mohammad Haneef, age 58, who has been living across the industrial area for 20 years has never noticed any change in the air quality. For him, air pollution due to industries does not exist. He recommends we visit areas with large scale industries where major production of goods takes place, where the towers and chimneys release smoke clouds.

Baby, age 26, whose husband works in a plastic moulding factory denies any health concerns arising due to emissions from the plastic moulding. She claims the whole community faces no such issues and has never heard of any other factory employee facing any of the respiratory diseases or skin allergies.

A few others who were surveyed discussed similar

In Sector 10, Sector B4, communities around Narela Industrial Area, as Glass and paint industries have been relocated out of non-conforming areas, communities believe the issue has been taken care.

Sripal, age 57, has been residing in the area since 2004. He listed a few allergy symptoms like cough, burning of eyes and itching that he has to bear due to the location of industrial area in close proximity. He insists if masks are taken off our faces we would also have troubles breathing. He is retired and spends most of his time in leisure sitting in a chair outside of his house. He has to make runs inside multiple times to wash his eyes to sooth them. This cannot be just because of the road dust, he claims.

Heena, age 19, who resides in Sector 10 but often travels around for education and leisure asked us to inquire th elderly instead. Since she is still young, she suffers no troubles due to the air pollution. But about 10 years ago, when her family has just moved near the industrial area, they could feel the difference in the air.

About 5-7 years ago, this may have been an issue, but now with the closure and relocation of polluting industries, the air is cleaner than before. The open drains, contaminated drinking water and no waste collection facility has made our lives difficult. Air Pollution is nowhere close to being an issue.

Sector B4 mostly consists of offices of transport service providers. Most of them here claimed to have no issues with the presence of industries. The harmful toxic industries have been relocated and the ones present do no harm to us or the labourers, they claimed. But Sanjay Kumar, age 48, who also works in the transportation sector, has his house in Tikdi. He mentioned how he can feel the difference in the air in Narela as compared to his hometown.

Yatees, age 52, has a grocery store in the area. He thinks all the residents and business owners in Narela are just used to the polluted air, hence it is hard to say if it is troublesome and toxic or not.

Most of the people surveyed believe that if the air is polluted, it will be visible to their eyes, referring to

smoke from chimneys. The industries located within a kilometer of their residential area cannot impact their health as they are distantly located. Waste accumulation, gas refilling centre, vehicles, waste burning are their major concerns. Health issues if any, are prevalent due to inefficient garbage and wastewater systems.

7.10 RECOMMENDATIONS BY THE STAKEHOLDERS: ONLINE VIRTUAL MEET

An online virtual stakeholder consultation was conducted to take inputs and address the perspectives of various stakeholders. It was attended by 19 stakeholders from different government, non-government, and industrial organizations.

Mr. Sandeep Bhatnagar, Director, National Institute of MSME, discussed about challenges and impacts faced by MSMEs post pandemic and how clean energy transition might have to face these hurdles as well. Clean energy transition according to him might not be feasible in near future. But research on finding the appropriate technologies for various segments of MSMEs should be initiated now.

Framework for stakeholder engagement was shared with Mr. Gopichandran from NTPC School of Business. He discussed public policy instruments, importance of awareness programs and urgency of technological upgradation. He suggested to initiate a detailed study on type and volume of gaseous pollutants emitted by various MSMEs.

Mr. Mohit Sharma, a counsellor from CII talked about the linkages between capacity building and implementation of clean air technologies. As MSMEs provide livelihood to a large section of the population, pilot projects should be built and run to make sure of the success. A bifurcation is required between energy usage and emissions released because of manufacturing processes.

Senior Environment Engineer at DPCC, Dr. BMS Reddy expressed his interest in collaborating with Clean Air Asia India for awareness programs around government schemes and policies and engaging the stakeholders, as they are already in process of building a program for the same.

Mr. Sachin Joshi, Faculty head at ICISID, UNIDO has the same concern towards the lack of outreach of government financial schemes for MSME since, it is not easy to implement energy efficient technologies as it requires a lot of financial assistance. He also favored a cluster wise approach rather than loose sector approach which would help us create a model example. He emphasized the need of strict regulations to restrict the consumption of fuels with polluting emissions and suggested subsidy and other financial incentives should be introduced to accelerate the energy transition and efficiency.

The major issue with the associated industries is that we are not able to avail the benefits of the schemes and policies which Government has rolled out, said Rajiv Kumar Goel, President of Bawana Manufacturers welfare association. He mentioned the need of training and capacity building on Ease of Doing (EoD) Business and environmental issues that concern the industrial sector.

Sandeep Kapoor, General secretary, Narela Relocation Industries Welfare Association, should his concern on government policies and schemes not being conveyed to the MSME sector. If frequent interactions with the technical institutions and government departments are initiated, it would help MSMEs to contribute to a better economy and also to bring down the environmental pollutions.

Real cause of air pollution by MSMEs should be studied in detail to address the major pollutants and their sources was recommended by Amit Kumar Singh Parihar, Program Manager, ISC.

Vaibhav Chowdhary, Country Head of Clean Air Fund, emphasized on case studies to improve the research and take learning from those cases.

7.11 INFERENCES FROM THE FIELD SURVEY AND CONSULTATIONS

In Delhi many micro and small establishment owners are aware about the importance of energy efficiency measures and the associated monetary benefits. However, most of them are unaware that the energy efficiency measures also have significant impact on reduction of air pollution.

During the discussions almost all the units expressed that micro and small industries have limitation of funds and access to finance for incorporation of upgraded and energy efficient technologies. Some expressed that despite knowing the fact that low-cost machine will consume more energy and will increase the energy bill; they are forced to select the inefficient equipment due to lack funds. M/S Pansari Manufacturing explained that they invested in the efficient servo-controlled molding machinery. This resulted in the increased competitiveness of their products as the cost of energy directly reflects in the cost of manufacturing. He explained that many micro industry owners fail to consider the future benefits of current expenditure.

The common perception is that amount of time and effort required for energy efficiency financing is very high. If the same amount of time and energy is applied on marketing and promotion the return will be higher. M/S new allied appliance also shared similar experiences in terms of common perception. They explained that the benefits and necessity of energy efficiency is a common knowledge. Those who take steps towards energy efficient and clean energy solutions stands out in their business. However, most of the small business are still afraid to switch from the conventional path. The micro and small industrial units require a strong handholding support in this continuously changing policy, technology, and economic environment. The government policies and programs are available to support the MSMEs. Still the limited knowhow of new technologies and processes to get benefits from various financing pathways restricts the growth of MSMEs.

The project team has initiated the discussions with few MSME units for sharing the information on various available schemes, program, and associated financing pathways to test their understanding and willingness to work on energy efficiency, clean energy, and reduction of air pollution. The above mentioned two units have specifically shared that they are interested in

exploring energy efficiency and clean energy options given the proper finance, technical support and post implementation handholding is provided.

7.12 RECOMMENDATIONS FOR ACHIEVING EE AND CLEAN ENERGY ADOPTION IN MSMES

MSME has a very high potential for implementation of energy efficiency and clean energy technologies. However, the capacity and knowhow of single MSME units is very limited. For successful adoption of clean energy and energy efficiency technologies following interventions are suggested.

7.12.1 DEVELOP CLUSTER LEVEL STANDARD OFFERING FOR MSMES

MSME cluster development program and common facility centres can play a major role for identification, facilitation and implementation of clean energy and clean technology interventions. The cluster level standard products for facilitation and financing the intervention will help in large scale adoption and implementation.

7.12.2 DEVELOPMENT OF COMMON INFRASTRUCTURE FOR RENEWABLE ENERGY, CLEAN ENERGY, AND FUEL SWITCHING

Common facilities for common need can help in reducing the cost, and associated emissions. The aggregated facilities are often requiring less capacity as compared to sum of aggregated demand.

7.12.3 DEVELOP MECHANISMS FOR MSME LIKE PAT AND ECERTS TO ENCOURAGE THE ENERGY EFFICIENCY INITIATIVES

A simplified version of mechanism similar to PAT scheme adopted for key MSME subsectors for transforming the MSME towards clean energy and energy efficiency can lead towards significant adoption of EE and Clean technologies.

7.12.4 CREATE SPECIALIZED FINANCING PRODUCTS FOR EE AND CLEAN ENERGY TECHNOLOGY ADOPTION IN MSME

Most of MSME financing schemes for working capital finance and equity finance include energy efficiency as focus area; however, the specific EE and Clean energy technology schemes are very limited. ESCO financing for MSME is one option for EE and clean technology financing, other financing instrument such as project financing, lease, loan products can help in increased adoption of such interventions.

7.12.5 ENERGY MANAGEMENT CENTERS TO FACILITATE MSME UNITS

The common facility centers can work as energy management centers for each cluster for managing the energy efficiency, accounting emission from energy use in clusters and developing energy efficiency measures for member MSME units.

7.12.6 AWARENESS PROGRAMS

Organization of Technology conclaves, workshops, business meets, and technology / product demonstration events for spreading awareness regarding new technologies, success stories of peers and development in similar industries.

7.12.7 SETUP SPECIAL AWARDS AND RECOGNITIONS

Awards such as NECA, MSME awards etc. help small industries in getting goodwill and outreach. Special award for energy efficiency, clean energy, and clean technology adoption, etc. shall be started for different categories of SME units.

8. Appendix

8.1 QUESTIONNAIRE FOR MSME OWNERS

A. Industry Profile	
1 Name of the Industry	
2 Address	
3 When this industry was established:	
4 Industrial Association associated with:	
<input type="radio"/> Narela Relocation Industrial Welfare Association	<input type="radio"/> Wazirpur Small and Medium Industrial Association
<input type="radio"/> Narela Industrial Complex Welfare Association	<input type="radio"/> Bawana Manufacturer's Welfare Association
<input type="radio"/> Bawana Prints and Pack Association	<input type="radio"/> Bawana Factories Welfare Association
<input type="radio"/> Association of Small Industries	<input type="radio"/> Association of Bawana Industries
<input type="radio"/> SPM Industrial Park Welfare Association	
5 No. of people working	
6 At present, running on full/ partial capacity with respect to staff	

B. Respondents Profile	
7 Name	
8 Designation	
9 Associated with industry (Years)	

C. Production details	
10 What is produced/ manufactured?	
11 Quantity of production (per month/ year)	
12 Detail on Manufacturing process?	
13 Which fuel is used in manufacturing and for running machines etc.:	

a) Diesel b) Electricity c) PNG d) Other:	
14 Energy consumption per month:	
15 Any challenges to run the industry	Technical: Financial: Environmental: Infrastructural: Others
16 Are you associated with any government authority for any kind of benefit	
17 If any Clean fuel technology is presented to you that would help in reducing emission as well as financial, would you be interested in switching to those?	
18 If yes, are you willing to start working on clean air technology after how many months?	3 months 6 months 9 months More than 9 months

8.2 SURVEY DEMOGRAPHIC

No. of Industries surveyed: 70

Areas: Bawana, Narela, Mundaka, Jahangirpuri, Wazeerpur and Okhla

Survey conducted during: 15th Aug to 25th Sept, 2021

Time: 10:00 AM to 6:30 PM

Name of the Respondent	Name of the the Industry	Associated with the association	Address
Sandeep Aggarwal	Bawana prints and pack	Bawana prints and pack association	E-16, Sector -3, Bawana
Manish Tanwar	Shakti tamba tar Pvt. Ltd.	Bawana manufacturer welfare association	P - 48, Sector -1, Bawana
Manoj Garg	Manoj Food product industry	Bawana Food processing industrial association	
Manish Bansal	Pratap food industry	Bawana food processing industrial association	121 - sector 4 , Bawna
Sanjay Bnasal	Packing box product	Bawana manufacturer welfare association	L- 136, Sector -1, Bawana
Rajive Goyal	Ata flour mills	Bawana manufacturer welfare association	P- 74, Sector -3, Bawana
Bazeer Singh	Opsate Printings	Bawana manufacturer welfare association	C-18, Sector -3 , Bawana
Sandeep Kapoor	S.S plastics	Narela relocation industrial welfare association	H-1205, DSIIDC Narela

Name of the Respondent	Name of the the Industry	Associated with the association	Address
Vinod arora	Raj Laxmi Industry	Bawana manufacturer welfare association	N-234, Sector-1, Bawana
Vishal Bansal	Vishal food products	Bawana food processing association	
Harshit jain	New Jai chandra auto ind.	Bawana factories welfare association	B-166, Sector -4, Bawana
Subham plastics	Sunil Darshan	Bawana factories welfare association	F-54, Pocket -B, Sector -4, Bawana
Rajesh Sharma	Royal Mould tax.	Bawana manufacturer welfare association	C-38, Sector - 3, Bawana
Ajmer singh	Bombay plastics	Bawana manufacturer welfare association	Sector 4, Bawana
Kuldeep formain	Surya Plastics	Narela relocation industrial welfare association	E - 702, Narela
Prateek Jindal	Jindal footwear Industry	Narela industrial complex welfare association	E - 759, Narela
Balbeer vsingh	Baba vishwakarma Mould die	Bawana factories welfare association	1-219,sector -4, Bawana
Rajan Yadav	Bala ji Plastics	Narela industrial complex welfare association	D-1502, Narela
Mayank Aggarwal	Shakti plastics	Narela relocation industrial welfare association	I-1260, Narela
Ramesh Chand	Radhey Plast	Narela relocation industrial welfare association	B- 2562, Narela
Pro Moulds engineering	Jaswinder singh	Bawana factories welfare association	F-117, Sector -1, Bawana
harmilap plastic industry	Sanjiv Bhatia	Narela relocation industrial welfare association	C-521, Narela
Santosh Kumar	Nikita Moulds	Bawana factories welfare association	N-44,, section -1, Bawana
Sanjay Sharma	Lucky moulds	Bawana factories welfare association	A-75, Sector-4, Bawana
Prabhat	Gautam Plastics	Bawana factories welfare association	J- 262, sector -1, Bawana
Lakshman Sharma	Adarsh engg.works	Bawana factories welfare association	O- 38, Sector -3, Bawana
Mahesh Gupta	S.M. Agro	Mundaka industrial area welfare society	Khasra no. 87/20, Mundaka
Rajesh	S.S. Tins Pvt. Ltd	Mundaka industrial area welfare society	Khasra no. 88/15, Mundaka

Name of the Respondent	Name of the the Industry	Associated with the association	Address
Rajiv Aggarwal	N.R. Enterprises	Mundaka industrial area welfare society	Khasra 86/19, Mundaka
Arsh	Shri Balaji Laminates	Mundaka industrial area welfare society	87/22/31, Mundaka
Pankaj Singh	Bhagwat Plywood	Mundaka industrial area welfare society	Gali no. 9 , 88/13
K.L.Sharma	Pashupati Udhog	Mundaka industrial area welfare society	87/26, Mundaka
Tarun	Rebel International	Mundaka industrial area welfare society	86/19, Mundaka
Om Praksah	Premium steel works Mundaka	Mundaka industrial area welfare society	86/14
Kailash Singh	Star Bharat Industries	Mundaka industrial area welfare society	Kh. 83 /13, gali no. 1, Mundaka
Gagan	Shanti packwell		785/1/2, Mundaka
Bakhsi Aerosoles	Sandeep arora	Mundaka industrial area welfare society	Kh. 45/25, Mundaka
Rohtash goyal	Automatic balers		58/56, Mundaka
Arjun Aggarwal	Surya industries		5, street -1, Mundaka
Pawan Mishra	Neelkanth India Inetrworld	S.S.I	S.S.I - 45, jahangirpuri
Pankaj Sharma	Shankar Moulding Ltd.	RUN	36-A, RUN, Jahangirpuri
Gaya Ram	Giri Raj Industry	S.S.I	S.S.I - 16, jahangirpuri
Aman	Stanless steel india Pvt Ltd.	S.S.I	D-1, Jahangirpuri
Rajnish Kumar	Manjeet Engineering works	S.S.I	D-9, Jahangirpuri
Amandeep	Paradise Plastopack Pvt. Ltd.	RUN	57- RUN, Jahangirpuri
Rakesh Gupta	Ashoka Prodcut pvt Ltd.	RUN	48-RUN, Jahangirpiuri
Jayanti jain	North steel impex	SMA	D-25,SMA ,Jahangirpuri
Rajesh Mittal	Surya Kiran metals PVT. Ptd.	RUN	77- RUN, Jahangirpuri

Name of the Respondent	Name of the the Industry	Associated with the association	Address
Sourabh Bihani	Bihani Manufacturing co.	OIA	B-184, OIA
S. K. Taneja	Techno plastic & Engineering works	OIA	Y-2, OIA, Phase -2
Yadav	Kohli & Co.	OIA	T – 5, OIA, Phase -2
Sanjeev Kumar	Kapoor & company	OIA	E – 49/9,OIA Phase -2
Umesh Vasundhara	Eagle flusk industries limited	OIA	F – 6, OIA, Phase -1
Ajay Jain	Paras Mechanical industry		C-10, OIA Phase -1
S.K. Sharma	Shri Hari Industries	OIA	1, DSIIDC, OIA, Phase -2
Chandan	Electric Industries	EIAI	B-121, OIA
Vinod Garg	Perl Polymer LTD	OIA	A- 97/2, OIA , Phase - 2
R. Sharma	Pioneer plastic industries Ltd.	OIA	A-135, OIA –Phase -2
Vishal Kapoor	Indigo Prints Pvt. Ltd	OIA	B-95, OIA – Phase -2



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