

ADVANCING CLEAN AIR WITH APPROPRIATE TECHNOLOGY
A POLICY BRIEF FOR ADDRESSING NEEDS
OF MICRO, SMALL AND MEDIUM ENTERPRISE



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ABBREVIATIONS

AQ	Air Quality
AQM	Air Quality Management
CEPI	Comprehensive Environmental Pollution Index
CPGRAMS	Centralized Public Grievance Redress and Monitoring System
GDP	Gross Domestic Product
GOI	Government of India
IBAQ	Integrated Better Air Quality Programme
MoEJ	Ministry of Environment, Japan
MSME	Micro, Small and Medium Enterprise
MSMED	Micro, Small and Medium Enterprise Development Act, 2006
PM	Particulate Matter
R&D	Research and Development
YCAN	Youth Clean Air Network

PREFACE

One of the specific areas of the work proposed under government of India’s National Clean Air Programme is use of appropriate air pollution abatement technology as a solution for clean air. There is also a proposal to set up a Technology Assessment Cell to evaluate and validate technology.

We at Clean Air Asia have been working with cities to support the preparation and implementation of city air action plans. One of the focus areas of our work has been towards making technology solutions accessible to cities so that cities can gain from the plethora of solutions being provided by companies and innovators to make the right “local” choice for the city. We understand that effective reductions of air pollution levels need to balance emission control across all source sectors, and it is based on this premise that we are looking across various sectors that contribute to air pollution in the city. We also realise that local solutions can come from innovation of start ups and these need to be showcased so that cities can critically assess their choice of solutions from tried and tested technology with new ideas that are locally developed and could be more suitable to the local conditions.

The micro medium and small industry are a critical sector when we speak of air pollution. Not only it is large but also many of these industries need energy and technology transition. The Government of India in 2018 introduced Support and Outreach

Initiatives for the Micro, Small and Medium Enterprise sector. One of the key initiatives was technology upgradation, under which Government announced 20 Hubs and 100 Spokes in form of tool rooms to facilitate product design across country. Later, under the Atal Innovation Mission, the Government introduce a Scheme ‘ASPIRE – A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship’ to set up a network of technology centres; to set up incubation centres of accelerate entrepreneurship and promote start-ups for innovation in MSME industry. Mainstreaming air quality in these initiatives is crucial to effectively address air pollution.

Policies and investments supporting clean technology and solutions in the micro medium and small industry can serve as a catalyst for local economic development and at the same time help in mitigation of air pollution. This policy brief prepared by Clean Air Asia India, is a result of our work on understanding technology for clean air and an assessment of the MSME sector. It highlights the challenges of supporting the MSME sector to address air pollution by transitioning to cleaner technology and presents strategies for the way forward.

We at Clean Air Asia India, hope that it will be useful to all our partners and friends who are concerned about clean air and working towards blue skies in Indian cities.

1. INTRODUCTION

The Micro, Small and Medium Enterprises (MSMEs) play a significant role in the social, economic, and political growth of the country. MSME sector not only generate the global value of the products and services, it creates various employment opportunities in the country too. MSMEs receive more governmental focus as their role in the economic and social growth is inclusive and employment oriented.

Since the first Industrial Policy Resolution in 1956 itself, priority was given to agricultural growth along with the establishments well as the growth and development of village and small-scale industries. Further, seeing the potential of growth in MSME and their contribution to Indian

economy, the Parliament enacted the Micro, Small and Medium Enterprises Development Act, 2006 to facilitate the promotion, development and enhancing the competitiveness of micro, small and medium enterprises.

In the current scenario of promoting MSMEs, the Indian government is providing various facilities and credits to this sector, in order to ensure smooth working and eventual growth of MSMEs in India. Further, to ease the regulatory burden on the industry and assist MSMEs in complying with the legal requirements and mandatory disclosures, a single window compliances and online mechanism of registration and compliance has been initiated for them.

emission in certain industry such as the chemical industry. A Comprehensive Environmental Pollution Index was formulated in 2009 that exhibited that 43 industrial areas/clusters out of the 88 investigated were critically polluted, with respect to one or more environmental component².

There is a significant number of MSMEs that belong to categories recognized as highly polluting industries. These are; chemical and allied industries, leather industries, textile processing, drugs and pharmaceuticals, agro-chemicals, and food processing industries³. MSMEs are unable to comply with environmental standards due to factors such as lack of information, lack of access to capital, lack of adaptation of environmental regulations to the social, economic, and technical reality of local businesses and effective possibilities of control bodies, difficulty in recruiting qualified personnel, less awareness about environmental issues, and less environmental pressures from stakeholders. Building capacity of MSMEs in these areas is therefore key to the achievement of the goal⁴.

In the industry sector, natural gas is well suited to provide energy solutions for needs currently being met by more polluting fuels such as coal, diesel, heavy fuel oil, and pet coke. However, the share of natural gas in India's energy mix continues to be much lower than other large economies. In 2018, it was merely 6.17%⁵ as compared to 10.63% in 2010⁶. It is envisaged that by 2030, the share of natural gas in the primary energy mix would reach 15%⁷. 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). The regulations in the MSME sector have provisions for upgrading technology and application of new technologies, and there is scope for capitalising on it. Improvisation and innovative ideas for air pollution

prevention control and monitoring are the requirement of the day. With proper know-how it is possible to improve the performance of existing industries. This policy brief aims to highlight such solutions, assist, and support the MSMEs to be informed on such policies and technological solution to improve their performance.

3. REVIEW OF LITERATURE

Degradation of air quality at several places in the world is one of the major concerns today⁸. The problem has been more complex and severe in developing countries like India, mainly due to rapid urbanization, fast-paced industrial development and use of traditional fuels and combustion technologies. 241 out of 313 Indian cities (76%) where air quality is being monitored violate the prescribed standards of ambient PM10 concentrations in 2017⁹.

The Working Group Report published by Ministry of Micro, Small, and Medium Enterprise estimated 26 million MSME enterprises account for about 45 percent of India's industrial production and 40 percent of exports; out of 400 manufacturing clusters, nearly half comprise of energy intensive sectors (metallurgy ceramics, glass, textiles, etc.). According to the report, a majority of the MSME clusters use conventional and inefficient technologies. The total energy saving potential of MSMEs in 36 clusters was identified as about 16 percent of their total energy consumption. The report noted that although the importance of energy efficiency was recognized by most MSMEs, the uptake of energy efficient measures remains low and is attributable to non-availability of technologies, lack of local service providers, poor technical capacities of MSMEs, and limited access to credit¹⁰.

To bring about such a major shift in developmental strategies and methods to measure green growth, India's policy planners and industry would require

2. AIR POLLUTION AND MICRO, SMALL AND MEDIUM ENTERPRISE



Deterioration in air quality due to pollution is a pertinent global problem. Reducing industrial emission to minimize its environmental effects is a major concern in developing economy like India.

The MSMEs attribute towards 70% of total industrial air pollution¹. The main causes of industrial pollution are the emissions from energy use and improper material handling and process



to take the following measures:

- Substantial step-up in public and private investments in R&D to design and develop new “green products and services”
- Develop appropriate “green technologies” for their manufacturing.
- Put in place a mechanism that will ensure that these new technologies are available to the manufacturers, especially the MSMEs, at an affordable cost.
- Extend a package of support and services in an integrated manner to sectoral MSME Clusters to implement green technologies.
- Make consumers aware of the benefits of such “green products and services” so that there is increasing demand in the market for them and they get priced appropriately.

Environmental practice in market mechanism of SME is a serious concern for firm and government. They need to take corrective steps for long run environmental practices and sustainable growth will be equal to the cost of environment in future¹¹.

There are several research studies which have examined the MSME sector through various lenses, environmental, technological, financial etc. All the research studies have highlighted there are various factors which need to be taken into consideration for the growth of MSME sector.

Noci and Verganti¹² highlighted that the growing importance of environmental dimensions represent major challenge for Research and Development practice. Improvement of product environmental performance is complex management task for SMEs. They emphasized on implementation of green innovations through actions in different levers of the technology strategy, the levers are: intelligence system, key competencies, key technology, network infrastructure and green image. These levers may change reactive strategies, anticipatory strategies, and innovation-based strategy.

Christopher J. Green, Colin H. Kirkpatrick, and Victor Murinde¹³, in their paper have examined

the ways in which financial sector development policy might contribute to poverty reduction, particularly by supporting the growth of micro and small enterprises (MSEs). This paper highlights the changing role of MSEs in the development process and the access of MSEs to informal and formal finance, including the role of microfinance. Nanda, Ramana & William R. Kerr¹⁴ have expressed the view that financing constraints are one of the biggest concerns impacting potential entrepreneurs around the world.

Lee and Klassen¹⁵, revealed that, public policy must facilitate and encourage SME suppliers to improve their environmental performance. The government agencies provide financial and technical support as well as facilitate coordination to buyers and their suppliers in nationwide green initiatives. These agencies may also play an important role in initiating the turning of large buying firms’ attention to supply chain-wide environmental management.

Export-Import Bank of India¹⁶, has critically analysed the present situation of MSMEs and support systems available in India as well as in the global context. It has suggested that MSMEs in India should have access to alternative sources of capital like angel funds/risk capital etc. and that existing laws should effectively address issues like insolvencies/bankruptcies; need to redefine the ceiling limits to encourage MSMEs to move up the value chain and need for cluster development approach to increase the level of competitiveness.

Gorzeń-Mitka¹⁷ study aimed to identify risk identification tools in Polish MSMEs. The study showed that the risk identification techniques are previous experience, documentation review and brainstorming. The researcher suggested that MSMEs have a problem with this issue. It may be the result of poor knowledge about it, usefulness, or possibilities of use.

Srinivas KT¹⁸, has studied the performance of micro, small and medium enterprises, and their contribution in India’s economic growth and concluded that MSMEs play a significant role in inclusive growth of Indian economy.

K.C. Chakrabarty¹⁹ in his study emphasized that the environmental issues are usually not a matter of primary concern for banks, it is a secondary issue but important for long run business. According to him, the industry should try and adopt sustainable practices and reduce industrial wastes via encouraging in-house recycling and waste reduction. The role of all concerned stakeholders is crucial for this movement. He highlighted on the achievement of a green economy, which should be without harming underprivileged people. Green economy must be bottom-up and democratized. In case of Indian SMEs, all stakeholders including government are least concerned about the environmental practices. The government of India has conducted four censuses of SME in which management aspects, organization policy & behaviour, market status, finance position, economic issues, technical parameters, banking norms, legal aspects, sickness conditions, output, export, employment, and investment were asked to the owner/manager of firm. But authorities have not asked any question on environmental practice and views on adoption of drivers in environmental practice, and reduction of environmental pollution and externalities. India is a developing nation. It is essential to uptake responsibility of environmental practices compulsorily in all businesses including SMEs for ethnic, ethical, sustainable, and inclusive growth. From the above literature it is observed that the issue of environmental practice in market mechanism (i.e., from procurement of factors of production to distribution of finished goods), SME’s present condition is a cause for concern and the government must address the situation timely otherwise in the long run, our society and government will bear the cost of environmental loss by equating GDP of country.



4. THE CURRENT POSITION OF MSMEs IN INDIA'S POLICY LANDSCAPE

Government of India's role in addressing the environmental issues are inevitable for sustainable inclusive growth strategy. In order to effectively manage the environmental issues, action is required at several areas that lie under the purview of several ministries. This requires internalisation of environmental concerns in policy making for large number of sectors.

Micro, Small and Medium Scale Enterprises (MSMEs) are governed by a single law in India – MSME Act, 2006. Any manufacturing and service industry with an investment upto 10 crores are under the ambit of MSME Act, 2006. Thus, legal environmental compliance is more sought after than concerned pollution control efforts. National and international studies on MSMEs' environmental issues points at lack of technology upgradation, financing, and awareness in manufacturing MSMEs²⁰.

The Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 seeks to facilitate the development of these enterprises as well as enhance their competitiveness. It provides the first-ever legal framework for recognition of the concept of "enterprise", which comprises of both manufacturing and service entities. It defines medium enterprises for the first time and seeks to integrate the three tiers of these enterprises, namely, micro, small and medium. The Act also provides for a statutory consultative mechanism at the national level with balanced representation of all sections of stakeholders, particularly the three classes of enterprises; and with a wide range of advisory functions.

To ease the monitoring process, MoEF&CC has categorized industries as "Red", "Orange", "Green" and "White" with the purpose of facilitating decisions related to location of these industries

and surveillance/inspection of pollution levels from these industries.

The criteria of categorization of industrial sectors are based on the Pollution Index which is a function of the emissions (air pollutants), effluents (water pollutants), hazardous wastes generated and consumption of resources. According to the Comprehensive Environmental Pollution Index (CEPI) of the Central Pollution Control Board shows that 35 out of 43 industrial clusters fall in 'Red' Category i.e., highly polluting industries²¹.

With government push towards local production, start-up ecosystem and ease of business policies the number of new MSMEs is expected to increase significantly. Government of India announced **12 key initiatives** for improvement and betterment of MSMEs²²

1. Grant of loans upto Rs. 1 crore to MSMEs in-principle approval through this portal, in just 59 minutes without visiting a bank branch repeatedly.
2. 2% interest subvention for all GST registered MSMEs, on fresh or incremental loans. An increase in interest rebate from 3% to 5% for exporters who receive loans in the pre-shipment and post-shipment period will provide competitiveness and a level-playing field to MSME exporters.
3. Companies with a turnover more than Rs. 500 crores, must now compulsorily be brought on the Trade Receivables e-Discounting System (TReDS), as it will enable entrepreneurs to access credit from banks, based on their upcoming receivables.
4. Mandatory procurement of 20 per cent from MSMEs by Public Sector Undertakings has now been increased to 25 per cent.
5. 3% out of 25% procurement mandated from MSMEs must now be reserved for women entrepreneurs.
6. All public sector undertakings of the Union Government must now compulsorily be a part

of Government e-Marketplace (GeM).

7. 20 hubs of technology upgradation will be formed across the country, and 100 spokes in the form of tool rooms will be established.
8. Clusters will be formed of pharma MSMEs. 70% cost of establishing these clusters will be borne by the Union Government.
9. The Return under 8 labour laws and 10 Union regulations must now be filed only once a year.
10. The establishments to be visited by an Inspector will be decided through a computerised random allotment.
11. Laws related to air pollution and water pollution have been merged as a single consent, and the return will be accepted through self-certification.
12. The entrepreneur will no longer have to approach the Courts, but can correct them through simple procedures.

Apart from the above initiatives there are other initiatives which are available for MSMEs:

- Udyog Aadhar Memorandum (UAM) one-page registration form to promote ease of doing business for MSMEs in India.
- A scheme for Promoting Innovation Rural Industry and Entrepreneurship (ASPIRE), promotes innovation and rural entrepreneurship through rural livelihood business incubator (LBI) and Technology Business Incubator (TBI) and fund of funds for startup creation in the agro-based industry
- Credit Guarantee Fund Scheme to facilitate easy flow of credit guarantee cover is provided for collateral free credit extended to MSMEs
- Prime Minister's Employment Generation Programme (PMEGP), credit linked subsidy scheme, for setting up of new micro enterprises and to generate employment opportunities in rural as well as urban areas in the country.
- Scheme of Fund for Regeneration of Traditional Industries (SFURTI) scheme aims to make traditional industries more productive and



- competitive by organizing the traditional industries and artisans into clusters
- Credit Linked Capital Subsidy Scheme (CLCSS) for Technology Upgradation of Micro and Small Enterprises by providing 15% capital subsidy for purchase of plant and machinery.

Two new engagement platform have been launched by the government, **MSME Sambandh Portal** for monitoring the public procurement policy of govt. for MSME units. **MSME Samadhaan Portal** to register cases for delayed payments.

Post COVID – 19 lockdowns under the scheme 'Atmanirbhar Bharat, six measures²³ were introduced for easing the economic losses suffered by the MSMEs during the lockdown period, to help them restart and make themselves self-reliant and self-sufficient. These measures were:

- Rs. 3 lakh crore Emergency Working Capital Facility for MSMEs

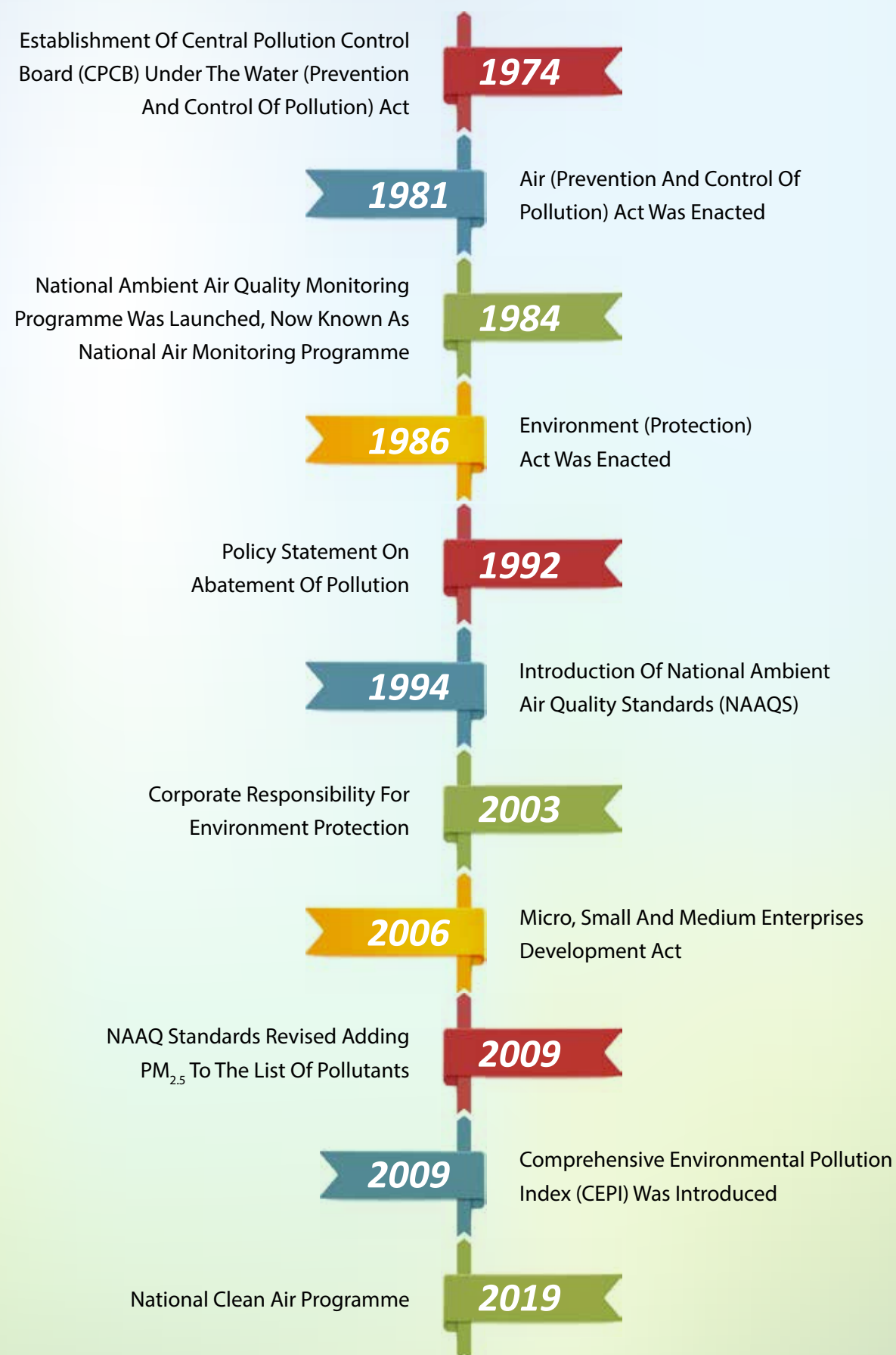
- Rs. 20,000 crore Subordinate Debt for stressed MSMEs
- Rs. 50, 000 crores equity infusion through MSME fund of funds
- There will be a new definition of MSMEs which will be revised raising the Investment limit. An additional criterion will also be introduced.
- E-market linkage for MSMEs will be promoted to act as a replacement for trade fairs and exhibitions.
- No global tenders for government tenders of up to Rs. 200 crores

MSME revival packages provide the additional push for cleaner and greener growth leading to clean air. Along with government rolling out financial benefits, there are also many national and international organisations who back financing of green production.

Table 1: Key Initiatives for Air Quality Management

S. NO.	KEY INITIATIVES TAKEN IN INDIA FOR AIR QUALITY MANAGEMENT
Transport Sector	
1.	Notifying advanced vehicle emission and fuel quality Standards – BS IV to BS VI
2.	Introducing CNG as automotive fuel
3.	Vehicle Scrappage Program
4.	National Electric Mobility Mission Plan 2020
Residential Sector	
5.	Push to accelerate the LPG penetration program for cooking in households
6.	Completing electrification to reduce kerosene consumption for lighting
7.	Introducing energy efficiency labelling program for energy intensive home appliances like air conditioners
Power Sector	
8.	Power generation through renewables – Solar Energy
9.	Shift towards high efficiency super critical technology for power generation
10.	Converting coal-based power station to gas based
11.	Notifying new stringent standards for PM and new standards for gaseous pollutants for coal-based plants
12.	Notifying new stringent standards for diesel generator sets for stand by power generation
Industrial Sector	
13.	Notifying and revising standards for highly polluting industries
14.	Pilot testing of emission trading scheme
15.	Zig – Zag technology for brick kilns
16.	Banning pet-coke and Furnace Oil use in industries
Others	
17.	Constitution of Environment (Prevention and Control) Authority
18.	Imposition of ban on open agricultural residue burning
19.	Imposition of ban on open burning of waste
20.	Air Quality Index
21.	Development of GRAP
22.	Formulation of National Clean Air Programme (NCAP)

Figure 1: Air Pollution Management Policy In India



5. TECHNOLOGY RELATED POLICIES IN INDIA

Government of India has rolled out **Technology Upgradation and Quality Certification and Financial Support to MSMEs in ZED Certification Scheme**, the objectives of the scheme include inculcating Zero Defect & Zero Effect practices in manufacturing processes, ensure continuous improvement and supporting the Make in India initiative. The ZED Certification 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.

The scheme envisages promotion of Zero Defect and Zero Effect (ZED) manufacturing amongst MSMEs and ZED Assessment for their certification to: Develop an Ecosystem for Zero Defect Manufacturing in MSMEs. Promote adaptation of Quality tools/systems and Energy Efficient manufacturing. Enable MSMEs for manufacturing of quality products. Encourage MSMEs to constantly upgrade their quality standards in products and processes. Drive manufacturing with adoption of Zero-Defect production processes and without impacting the environment. Support 'Make in India' campaign. Develop professionals in the area of ZED manufacturing and certification.




In the present business ecosystem, most global entrepreneurs talk about adopting cutting edge technologies like Artificial Intelligence (AI), Machine Learning (ML), data-enabled systems, internet-based businesses, etc. to become more efficient, gain more trust from consumers and

stand high over the competitions. However, there is still a need for more for Indian MSMEs to transform their traditional and conventional method businesses into an updated and contemporary business. From small towns to metro cities, a lot of MSME entrepreneurs are harnessing technology to innovate their products and services, thereby giving a boost to their business and encourage slow MSME sector to grow faster. Though MSMEs may have been slow to technological adoption, they are now actively embracing technology to revamp old businesses and even start technology-based businesses such as e-commerce, online services, etc²⁴.

To widen the scope of Information technology, the Ministry of MSME has been actively working towards ways to facilitate MSMEs and assist them through all the stages in the business cycle. For ease of doing business, the Ministry has launched a robust Information and Communications Technology (ICT) based Internet Grievances Monitoring System portal called 'Champions'²⁵. The 'Champions' stands for Creation and Harmonious Application of Modern Processes for Increasing the Output and National Strength. The 'Champions' portal is a combination of technologies formed to help, guide, empower, ease and support the MSME sector of the country. Besides ICT tools incorporating telephone, internet and video conference, the system is enabled with Artificial Intelligence, Data Analytics and Machine Learning, to bring and tackle all grievances and suggestions under one-stop to help MSMEs. It is also fully integrated on a real-time basis with GOI's main grievances portal CPGRAMS and MSME Ministry's own other web-based mechanisms.

Table 2: Areas And Ministries For Assistance And Benefit Of MSME's²⁶

	Market	<ul style="list-style-type: none"> Ministry of Micro, Small and Medium Enterprises Development Commissioner Ministry, Small and Medium Enterprise National Manufacturing Competitiveness Programme National Small Industries Corporation (NSIC) Schemes ARI Division Schemes Coir Vikas Yojana Ministry of Health and Family Welfare Ministry of Food Processing Industries Ministry of Textiles Ministry of Tourism
	Technology Upgradation/ Quality Management/ R&D	<ul style="list-style-type: none"> Development Commissioner Ministry of Micro, Small and Medium Enterprise National Manufacturing Competitiveness Programme Ministry of New and Renewable Energy North Eastern Development Finance Corporation Limited Ministry of Environment, Forest and Climate Change Ministry of Commerce and Information Technology Ministry of Science and Technology Ministry of Textile
	Finance/Credit/ Equity Support	<ul style="list-style-type: none"> Development Commissioner Ministry of Micro, Small and Medium Enterprise National Small Industries Corporation Schemes North Eastern Development Finance Corporation Limited Ministry of Commerce and Industry Ministry of Finance Ministry of Social Justice Ministry of Tribal Affairs
	Credit Guarantee/ Insurance	<ul style="list-style-type: none"> Development Commissioner Ministry of Micro, Small and Medium Enterprise ARI Division Schemes Coir Vikas Yojana Ministry of Commerce and Industry

	Infrastructure	<ul style="list-style-type: none"> Development Commissioner Ministry of Micro, Small and Medium Enterprise National Small Industries Corporation Scheme ARI Division Schemes Coir Vikas Yojana Ministry of Heavy Industries and Public Industries North Eastern Development Finance Corporation Limited Ministry of Health and Family Welfare Ministry of Agriculture Ministry of Chemicals and Fertilisers Ministry of Commerce and Information Technology Ministry of Food Processing Industries Ministry of Textile
	Capacity Building/ Incubation Centre/ Skill Training/ Entrepreneurship	<ul style="list-style-type: none"> Ministry of Micro, Small and Medium Enterprise National Manufacturing Competitiveness Programme ARI Division Schemes Coir Vikas Yojana Ministry of Skill Development and Entrepreneurship Schemes Ministry of Labour and Employment Ministry of Development of North Eastern Region North Eastern Development Finance Corporation Limited Ministry of Minority Affairs Ministry of Human Resource Development Niti Aayog Scheme Ministry of Agriculture Ministry of Commerce and Information Technology Ministry of Housing and Urban Poverty Alleviation Ministry of Rural Development Ministry of Science and Technology Ministry of Tourism Ministry of Women Development
	International Market	<ul style="list-style-type: none"> Ministry of Micro, Small and Medium Enterprise Coir Vikas Yojana Ministry of Health and Family Welfare

6. CHALLENGES FACED BY THE MSME SECTOR

6.1 Finance

Finance is a major obstacle in the growth of micro, small and medium enterprises. The lower and middle class is capable to drive itself out of poverty; it is ambitious and active in taking up new ventures and starting businesses but most ideas are being nipped in the bud because of lack of capital. Not only does it discourage aspiring entrepreneurs but also plays a huge role in holding back the growth of existing firms. Infact many other factors slowing down growth arise due to lack of finance. For example, technological upgradation becomes a problem only because firms lack enough capital to install new machines, skilled labour can be hired and retained by giving them higher wages etc.²⁷

It costs most of the MSME owners initial four to five years of their entrepreneurial life to gain quality contacts and make their place in the market. Some of them incur huge losses or keep floating on a zero-balance sheet²⁸ during this initial period. Even later they lag-behind the larger enterprises- due to lack of knowledge and money- in packaging and advertising their products or services.

6.2 Marketing

Being a small entity and having a perpetual shortage of finance, the MSMEs are unable to market their product as compared to the large enterprises which works to their disadvantage. They do not focus on packaging methods or sales and advertising. Most of the firms undergo losses during first five to six years due to lack of consumer demand. But eventually they make a place in the market based primarily on the quality of their product and contacts that they

gather during business transactions. They also use different kinds of marketing techniques such as Campus Ambassador Programmes and influential marketing. They tie up with trading agencies to learn the latest trends in the market and get in touch with brokers to get initial contracts. Marketing also greatly differs from business to business. For example, to market food products media campaigns are used and to market intermediate products distributors are assigned that sell the product in different areas. Although, the Government has launched many schemes and has several mechanisms in place to help small firms in the marketing domain, it continues to be a major problem.

6.3 Research and Development

According to a report by FICCI, share of innovating firms in India was only 19%. It is ranked 62nd on the Global Innovation Index and 8th in its income group—after China, Moldova, Jordan, Thailand, Vietnam, Ukraine, and Guyana²⁹. The problem is that most of the MSME owners do not realise the importance of R&D and do not feel the need for this department. Moreover, the owners do not generally have the knowledge, education, capital and sometimes capability to drive a research and development department in the right direction.

6.4 Infrastructure

Delhi has defined industrial areas where you can get property and set up a firm. These are the only areas in which a manufacturing firm can be set up otherwise special permissions are needed from the MCD. The Industrial areas are divided into North, South, West, and East Zone comprising of G.T. Karnal road Industrial area, Okhla Industrial area, Naraina Industrial Area, Patparganj Industrial Area etc.³⁰ These areas specified to conduct production activities must have an environment conducive for manufacturing. These industrial areas have inadequate infrastructure such as poor roads,

electricity shortage, lack of backup systems etc. Lack of infrastructure affects exporting companies in a big way as the Indian railway freight and handling charges are very high and services very slow as compared to other countries which puts Indian MSMEs at a competitive disadvantage.³¹

6.5 Lack of Awareness

Almost all the stakeholders agreed that small and medium entrepreneurs are generally unaware of the registration procedures, requirements, and licensing system. Most of them do not even know that there is a ministry called the Ministry of Micro, Small and Medium Enterprises and that there are various policies to help them with financial, marketing, technological and managerial problems.

6.6 Need for Technology Upgradation

The use of technology is a significant factor in deciding the competitiveness of an enterprise. Most MSME's practice the use of outdated technological systems and inefficient machine utility due to the availability of limited funds, and thus have low productivity which makes their business weak as compared to their competitors. Another significant observation is that MSME's are mainly users of technology rather than adaptors of technology.³² There is a lack of awareness amongst the owners and managers of these businesses and added to that they do not have the financial capability to upgrade their technology.

The technological status and its usage greatly influence the position of enterprises in the market. Thus, to keep the domestic firms technologically at par with international firms, especially as economies are now globalised, advancement and upgradation of technology for MSME's must be one of the most immediate concerns of the government.

7. RECOMMENDATIONS AND SUGGESTIONS



7.1 Existing Recommendations

Over the last few years, major attempts have been made to transform MSMEs into more sustainable companies. In essence, these attempts aim at improving the organisational and technical capabilities of companies. Whereas larger companies have been able to appropriate the concept of pollution prevention, in many cases MSMEs lack the resources to develop this new capability. MSMEs may have to rely on the initiatives, knowledge, and capacities of other actors. S.L. Hart in his study 'A Natural Resource based view of the Firm' (1995) identifies three strategic capabilities at the core of a firm's environmental management that contribute to sustained competitive advantage: pollution prevention, product stewardship and sustainable development. In order to acquire these capabilities, companies increasingly need to employ more complex collaborative strategies.

The opportunities in the MSME sector are enormous due to the following factors³³:

- Less Capital Intensive
- Extensive Promotion & Support by Government
- Reservation for Exclusive Manufacture by small scale sector

- Project Profiles
- Funding - Finance & Subsidies
- Machinery Procurement
- Raw Material Procurement
- Manpower Training
- Technical & Managerial skills
- Tooling & Testing support
- Reservation for Exclusive Purchase by Government
- Export Promotion
- Growth in demand in the domestic market size due to overall economic growth
- Increasing Export Potential for Indian products
- Growth in Requirements for ancillary units due to the increase in number of green field units coming up in the large-scale sector. Small industry sector has performed exceedingly well and enabled our country to achieve a wide measure of industrial growth and diversification.

Environmental initiatives in MSMEs, such as the start-up of pollution prevention, are frequently impeded by a lack of resources, capacity, and capability. It is suggested that partnerships can play an important role in overcoming some of these obstacles. MSMEs may form partnerships with various organisations such as trade associations, public and private institutions as well as local business networks. The objectives of these partnerships range from implementing environmental management systems, incorporating the concept of pollution prevention, to providing information on environmental business opportunities and technological options.

Pollution prevention involves optimal use of resources and minimisation of emissions along with technology that requires tacit skills. Product stewardship centres on the minimisation of the life-cycle costs of products and involves socially complex skills and involvement of (and collaboration with) external stakeholders. Sustainable development requires minimisation of

the environmental burden of the firm's activities, development, and product systems. It involves dialogue, consultation, and collaboration with stakeholders regarding company performance and company values at both the local level and the global level. Furthermore, these three capabilities are interconnected and support each other.

With improvements in digital infrastructure and lower costs of data, along with structural reforms such as the implementation of the Goods and Services Tax (GST), digital lending is transforming the MSME lending landscape. With the proliferation of new MSME digital data streams in recent years, digital MSME financing using alternative data provides a significant opportunity to address the most crucial bottlenecks – lack of reliable information for lenders and loan turnaround time for debtors.

7.2 Clean Air Asia's Recommendations

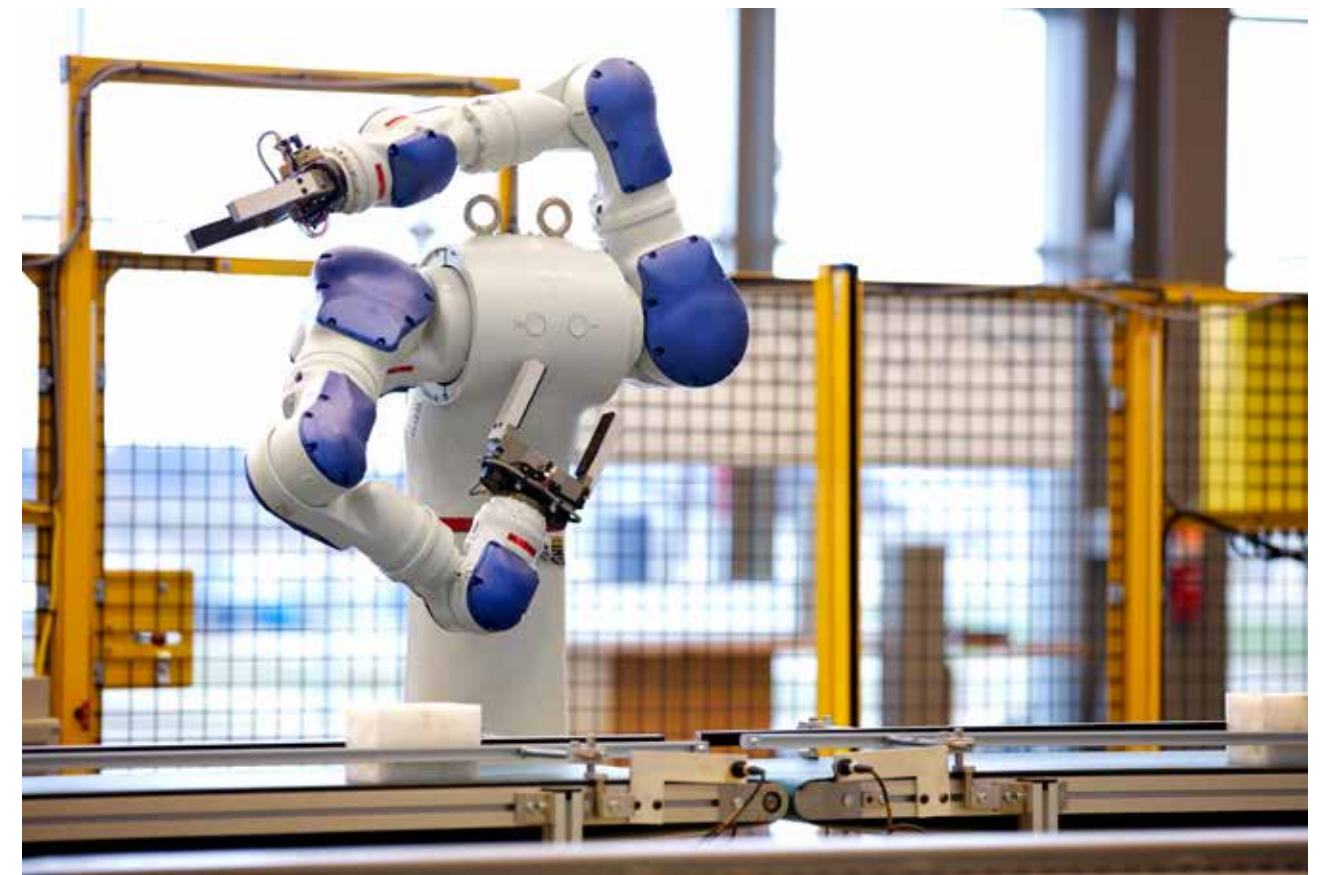
Clean Air Asia India has published a policy brief on 'Enabling Environments for Technology Transfer'³⁴. The aim of the policy brief to discuss and create a dialogue for:

- Adopting technology solutions towards prevention, control, and abatement of pollution.
- Technologies for reducing black carbon from industries.
- Technologies for utilization and recovery of gases from fossil fuel combustion
- Strategies for waste management.

The policy brief recommended various suggestions which can be applied to the MSMEs also and help promote sustainable environment with help of Technology.

A. City Assessment

Technology introductions need to follow local level city assessment with introduction to pilot projects to assess the scale for adequate impact on the air quality.



B. Providing maximum options in technology

Developing a mechanism to showcase technology solutions by synergising between various stakeholders, business houses and showcasing innovation. This will act as a repository for technology solutions for air pollution which can serve as a good resource base for cities looking for opportunity to address air pollution.

C. There is a requirement for ease of procurement and shorter gestation period supporting market for start-ups and technological innovation

A single window system shall be developed for enabling collection of information and the procurement of technologies, this will be very helpful for start-ups and technological innovations working towards air pollution mitigation and adaptation.

D. The co-benefits of the technologies should be promoted with inclusion of social benefits and achievement of SDGs and NDCs

The Technology Providers need to include objectives laid under Sustainable Development Goals and National Determined Contributions, this will enable the sustainable environment for growth of technology and it is socially and economically feasible to adopt technologies that focus on co-benefits.

Adding to these following are few recommendations which can help in benefitting the MSME sector:

7.3 Additional Recommendations

7.3.1 Industrial Cluster Assessment

One of the recommendations that is suggested is that there shall be a city/state industrial cluster assessment of all the MSMEs present and introduce pilot projects in industries to scrutinize/examine which solution works the best for the MSMEs and has scope of intervention.

7.3.2 *Establishing a databank to enhance MSME lending*

A databank that would house a wide-ranging set of data points, acting as a custodian of data for its customers – individuals, MSMEs, and corporates. Customers would have consent rights to their own data (e.g., data generated on their mobile devices) to be shared with the databank. In addition, customers would have the right to determine which “data service providers” the databank could link with to collate data attributed to them. Relevant “data service providers” for an MSME customer would be the ecosystem stakeholders that the MSME transacts with as part of its operations (e.g., government entities the MSME registers with and reports to, utility companies the MSME transacts with, suppliers of the MSME, the MSME’s downstream customers).

7.3.3 *Sectoral Interventions*

Various Stakeholders can have sectoral or ministerial intervention and find solutions in their respective fields. Like stakeholders can intervene in specific areas where they would be able to provide solutions for MSMEs.

7.3.4 *Training and Development, Awareness Programs*

There must be conduction of training and development programs by the MSME ministry. The currently running programs are not so effective and sufficient. One of the important reasons for slow intake in the utilization of schemes is the lack of knowledge about schemes and their likely benefits. The current knowledge dissemination system is limited in its outreach. There is a need to develop a better communication strategy and use of new age media tools.

7.3.5 *Focused Research and Development*

There should be focused research and development in respect to innovative methods of production and service rendering. The innovative solutions will result in development of good quality cheaper products and the MSMEs will be able to afford them and cope with the situation.

7.3.6 *Identifying Technological Needs*

Several appropriate technologies for the MSME sector have developed in various sectors. Each MSME has its individual areas of strengths and weaknesses, therefore, it would be mutually valuable if existing, advanced technologies are shared with each other. A comprehensive list of all existing technologies should be prepared and made available for use as per the requirement of the MSMEs. There should be a detailed survey to assess the technical and financial needs of the MSME. So that, the appropriate arrangements could be made to fulfill the needs of the MSMEs.

7.3.7 *Constitution of Consultant Panels*

For the purpose of technological advancement and guidance, a panel of experts and consultants should be set up, who can help the MSMEs within the specified region for effective transference of the available technologies. These panels could be constituted keeping in mind the nature of diverse activities of the MSME's, and should include owners from different sectors of MSMEs.

7.3.8 *Promotion of Information and Communication Tools (ICT)*

It focuses on encouraging the adoption of ICT technology by SME clusters, which have been delivering world-class products and, therefore, have potential

for growth in exports. The scheme covers building E-readiness infrastructure³⁵ and web portals and linking it to national level portals for reaching global markets, training MSME personnel for ICT applications, and the development of software solutions for efficient management of production at clusters, among other measures.

8. CONCLUSION AND WAY FORWARD

The Micro, Small and Medium Enterprise (MSMEs) are an important sector and plays a critical role in the Indian economy. MSME sector is well equipped to grow, and the fundamental drivers are in the right place. Continued empowerment of MSME's will enable them to attain high and sustainable growth in the long-run. MSME's potential environmental impact can be proportionate with the large companies in similar sectors. Growing economic activity (production and consumption) requires larger inputs of energy and material, and generates larger quantities of waste by-products. Increased extraction of natural resources, accumulation of waste and concentration of

pollutants will therefore overwhelm the carrying capacity of the biosphere and result in the degradation of environmental quality and a decline in human welfare, despite rising incomes.

There is a need for capacity building in this important sector that can drive green growth. The current discussions on air quality and industrial pollution are restricted to power generating industries, DG sets and brick kilns. It is time to reach out to the MSMEs as well. Micro level research, monitoring of emissions from MSMEs and its inclusion in the NCAP should also be considered.

MSMEs should work on ways to optimize resources and conserve energy and should look at the techno-economic feasibility for various technological interventions for sustainable production. For having a strong financial backing for adopting sustainable production intervention, MSMEs should plan a robust economic model considering several economic packages available through the Govt. of India, international NGOs, and private investments.







INDUSTRIAL PREPAREDNESS TO MAINTAIN AIR QUALITY AMIDST AND POST COVID 19

WEBINAR

15TH MAY, 2020 | 11:30 AM - 12:30 PM on  **zoom**

Lockdowns in India and throughout the world due to the COVID-19 pandemic have curtailed industrial activity and resulted in fewer emissions and better air quality. In many cities in India, this has been reflected in the Air Quality Index, with levels reaching either good or satisfactory. To help continue the momentum, Clean Air Asia and the Vidharbha Industries Association are organising a webinar to discuss post-COVID19 industrial preparedness to ensure the air quality gains that have been made can be sustained in the long-term.

Speakers



Mr. Ashish Kulkarni
E&Y




Ms. Prarthana Borah
Clean Air Asia



Prof. Mukesh Sharma
IIT Kanpur



Hema Deshpande
MPCB



Suhas Buddhe
VIA

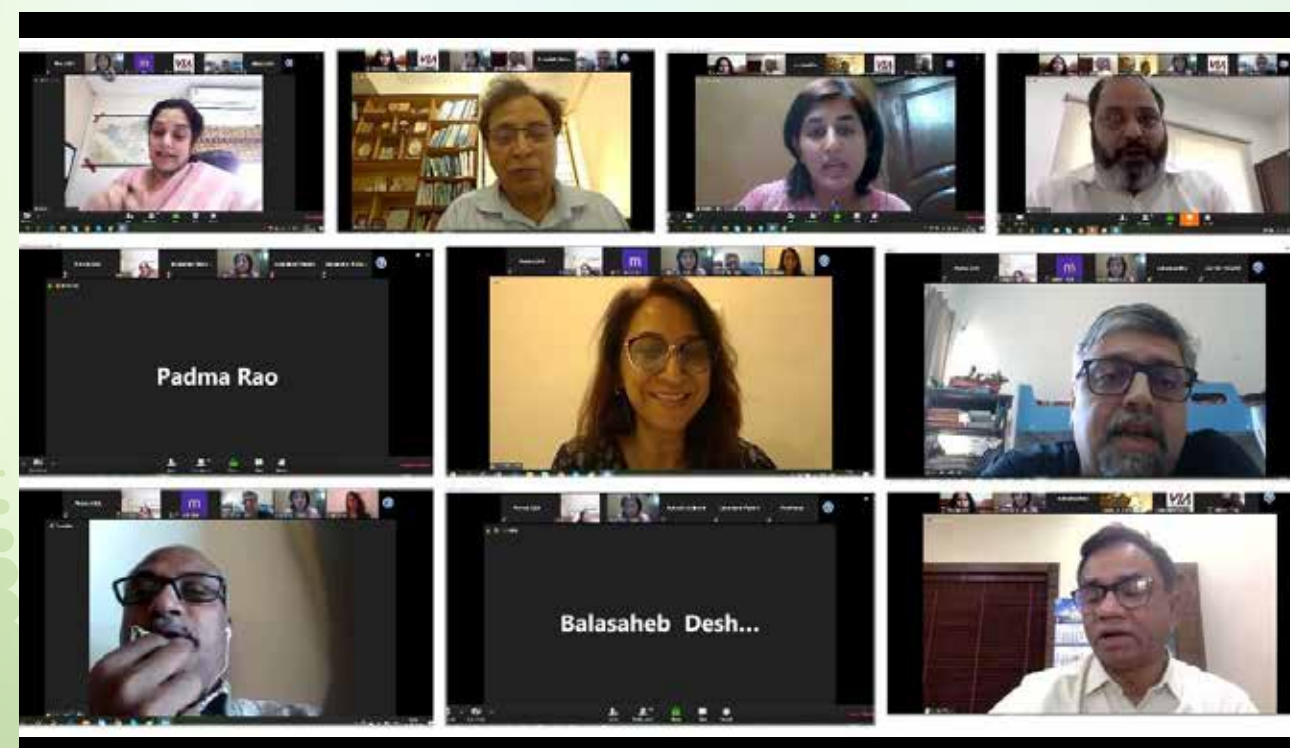
Moderator



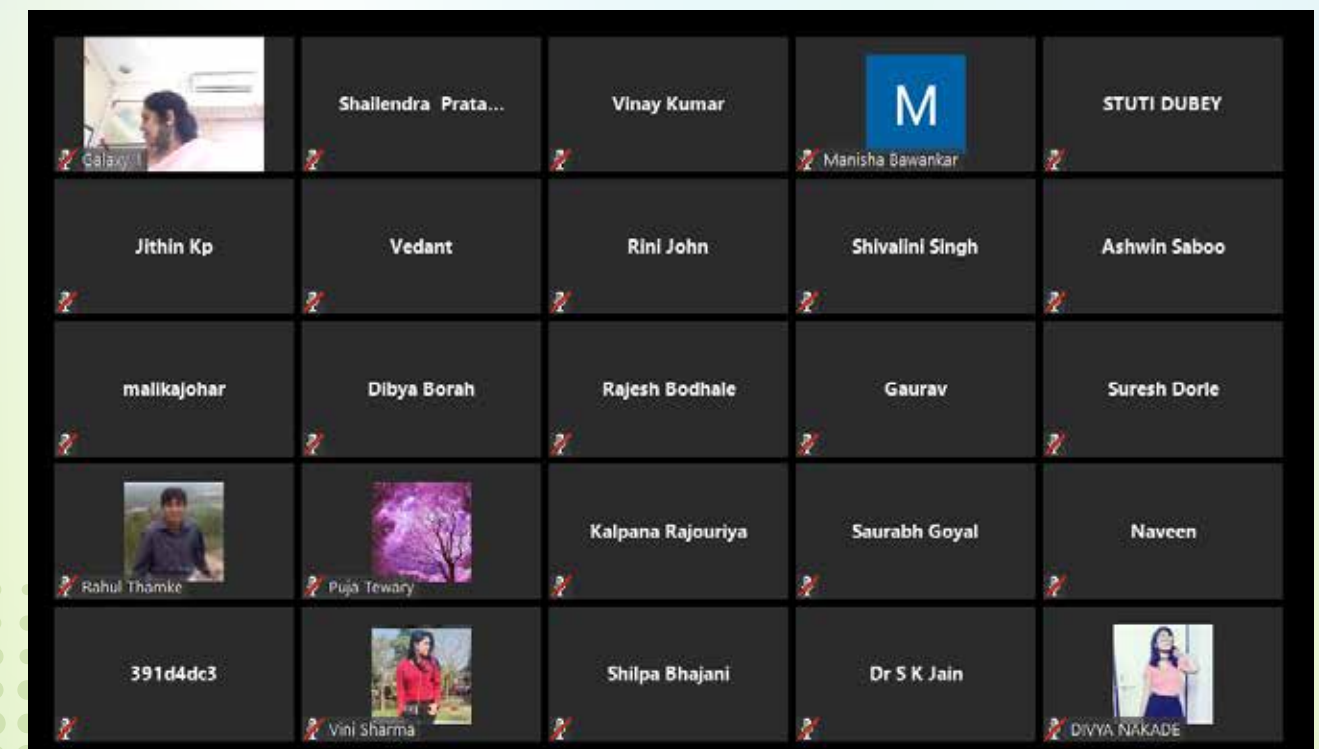
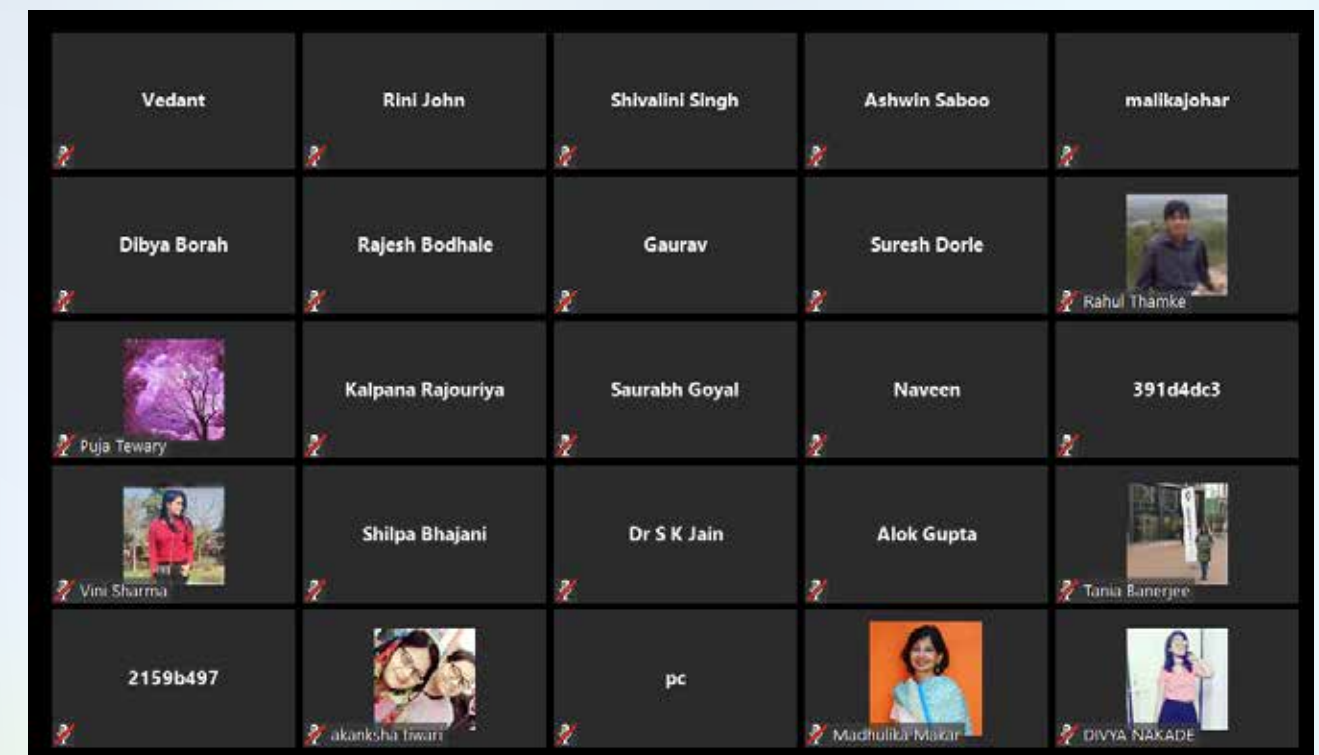
Ruchi Tomar
Clean Air Asia

Link to Join Zoom Meeting: <https://us02web.zoom.us/j/82488973404>
Meeting ID: 824 8897 3404




Prior registration is required



Panelist - Industrial Preparedness to Maintain Air Quality Amidst and Post COVID-19




Participants during Industrial Preparedness to Maintain Air Quality Amidst and Post COVID-19






“Reducing Emissions by Sustainable Production: An opportunity for MSMEs to Clean Air”


#Post Covid 19 Lockdown#

10th June, 03:00 PM Onwards on 


Speakers




Debajit Das
National Project Coordinator
UNIDO




Dr. R. Gopichandran
Professor
NSB-NTPC School of Business



Utsav Sharma
Regional Officer
UPPCB
Ghaziabad




Anand Shukla
Senior Thematic Advisor
Swiss Agency for Development and Cooperation (SDC)




Sanjay Dube
CEO
International Institute for Energy Conservation (IIEC)


Jointly Moderated by



Prarthana Borah
India Director
Clean Air Asia



Suhas Buddhe
Vice President
Vidharbha Industries Association



Ruchi Tomar
Environment Researcher
Clean Air Asia

For Registration:

Contact: Pankaj Bhokare- 9998559288, Amogh Tijare- 9561061991

Link: <https://us02web.zoom.us/j/89019442783>

Prior registration is required

| 24

ABOUT CLEAN AIR ASIA

Clean Air Asia was established in 2001 by the Asian Development Bank, the World Bank, and USAID. Today, we are registered as an international non-governmental organization that leads the regional mission for better air quality and healthier, more livable cities in Asia. We aim to reduce air pollution and greenhouse gas emissions in 1000+ cities in Asia through policies and programs that cover air quality, transport, industrial emissions, and energy use. We work with ministries (energy, urban development, environment, health, and transport), cities in Asia, the private sector and development agencies to provide leadership and technical knowledge for Air Quality Management. Clean Air Asia is headquartered in Manila and has offices in Beijing and New Delhi.

Clean Air Asia (CAA)'s work in India involves engaging with Indian cities for better air quality management (AQM). This aligns with the overall CAA work program on broad air quality (AQ) interventions. Our expertise lies in providing scientific inputs to city governments for better air quality management, sustainable transport, low emissions, urban development, and education/communication for clean air in India. The focus of our work in India is in cities with high impact potential, as well as potential for leveraging wider change.

We are supporting Indian cities in improving air quality management through capacity building and direct support to preparing air action plans. We have also launched the Clean Air Knowledge Network (cities4cleanair.com), a forum that connects AQ experts and practitioners from across India and city officials with an objective to promote knowledge sharing across cities on AQ issues and share best practices. A major component of our India Program is education for better air quality. Our Youth Clean Air Network (YCAN) is volunteer program in which youth can passionately work

together for better air quality. In past, the Indian team has worked green freight and sustainable mobility projects, conducting walkability studies in Indian cities, developing the Walkability App, the National Bus Fuel Efficiency Framework, the Green Trucks Toolkits for India, and an online freight brokerage platform.

ABOUT INTEGRATED BETTER AIR QUALITY PROGRAMME (IBAQ)

The Integrated Programme for Better Air Quality in Asia (IBAQ Programme) which is supported by the Ministry of Environment, Japan (MoEJ) which is focused on capacity building of cities. The Integrated Programme for Better Air Quality in Asia (IBAQ) aims to improve air quality and contribute to more livable and healthy cities in Asia. Its work focuses on cities with high impact potential and potential for leveraging wider change. The IBAQ aims to meet the objective by addressing key leverage points for better air quality, including research, development of policy, best practice tools and frameworks, providing support for implementation, strengthening public participation, and using capacity building, knowledge sharing and e-learning as powerful and efficient tools for change.

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II. Table And Figures

Table 1: Key Initiatives for Air Quality Management

Table 2: Areas and Ministries for assistance and benefit of MSMEs

III. Figures

Figure 1: Air Pollution Management Policies in India



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