

## International Journal of Innovative Research in Science, Engineering and Technology

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# Promoting Sustainable Development in Ahmedabad through Green Industries and Green Entrepreneurship

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**ABSTRACT:** Green entrepreneurship is a modern/new concept of business activity which corresponds to the needs of firms, NGO's for sustainability, profitability and development, taking into considerations also the environmental dimension as well as natural Activities. Technological eco-innovations and ecopreneurs' acts – has recently received much attention from policymakers as one promising response to the challenges of sustainable economic development due to its potential to catalyze and build a low-carbon or green economy, ecological modernization of Industries. Green entrepreneurship or eco-entrepreneurship (ecopreneurship / eco sensitive environment) has almost similar meaning and can be used interchangeably. It also includes technological implications and environmental benefits of eco-innovation Like Low Carbon Industries. Green Entrepreneurship was an apt answer to breakdown the market in dealing with negative as well as bad environmental impact created by the industries due to effluents from Industries Like in case of Narol, Naroda in Ahmedabad. Many researchers have addressed to this issue and Problems due to industries present in Ahmedabad since the last decades and also believed that the transition of sustainable development will need huge numbers of green entrepreneurs. The abstract also includes Barriersto Green entrepreneurs like in Case of Industrialist. The Practical implications for policy frameworks are also outlined in the conclusions.

**KEYWORDS:** Ecological modernization of Industries, Sustainable Economic Development, Technological Implications and Economic Benefits, Narol, Naroda in Ahmedabad, Barriers.

### I. INTRODUCTION

Green industry promotes the employment, sustainable pattern of development, deliver the goods and services in an efficient way, ecopreneurs are responsible for the management of low carbon industries in a lifecycle. This paper explains about the green industries as well as the green entrepreneurs which help in the development of green environment and green industries. Green industry initiatives focus on the developing cities like Ahmedabad which can green their environment as well as the industries which can accelerate the growth. Green industries or eco sensitive environment can be done through different strategies, technologies as well as the measures taken to improve the environment through ecopreneurs.

The report focus on the small and medium entrepreneurs for the clean environment. Issues involved in the project as well as the potential benefits of increasing the sustainable production. As in Ahmedabad 80% of the industries are dyes and dyestuff produced. According to the 11<sup>th</sup> Plan, the government has given clearance to setting up of PCPIR (Petroleum, Chemical and Petrochemical Investment Region in Gujarat)

#### i) Objectives

- To Understand the Green growth concept for the development of Green industries and entrepreneur in Ahmedabad.
- To understand the Barriers/issues to Green entrepreneurs for the development of green as well as low carbon industries in case of Narol, Naroda in Ahmedabad

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- To provide the linkages between the entrepreneurs, potential of new business model, modernization of industries, innovations in Ahmedabad so that the value of green environment can be accounted.
- To understand the Technological Implications and Economic Benefits in the small and medium scale industries of Ahmedabad.
- To understand the role of Government, entrepreneurs for the strategies and policy implications, approaches for the development of green enterprise in Ahmedabad.

## ii) Methodology

The Literature Review, Different Case Studies and Implications has been studied which has published in the Leading Magazines, Reports, websites, Journals etc. The Primary as well as secondary data has been collected. The field Visit to Narol Naroda industrial estate has been done. Different policies, strategies as well as technological implications has been done through the different studies.

## iii) Introduction to Green Growth concept for the development of Green industries and Green entrepreneurs in Ahmedabad

Developing countries like India needs to expand their green sector to alleviate the poverty and to produce environment friendly goods and services which improves the level of standard. Green growth concept has been started in the US, Europe when the environment is the main concern. Research main objective is to become green and clean. In Ahmedabad, Industries are having green development in terms of handling their waste by the industries itself. The green business has started to grow in Ahmedabad as to improve the sustainability of green environment. The Green growth concept in Ahmedabad supports jobs, technologies which are environment friendly which transit into green economy. In Ahmedabad, as ranging from the Government, green entrepreneurs and the industrialist as well as the consumers, environment sustainability is the main concern. Maximum cities still face severe damage and lack opportunities for sustainable economic growth.

It can explain in term of the inclusive development, low carbon, utilizing the natural resources in Gujarat especially in Ahmedabad. It will improve the economic performance, environment performance and security of access to clean energy and green environment. Low waste, low carbon, non-polluting and safe, energy efficiency through green industries and entrepreneurs. It will improve the environment, recycling services; become determinant factor of economic competitiveness. Green industries will reduce the cost; improve the efficiency through the involvement of green entrepreneurs and environmentalist.

## II. ISSUES/ BARRIERS TO GREEN ENTREPRENEURS

Ahmedabad is facing environment degradation and resource depletion which threats to the sustainable economic growth and industry development. Manufacturing process in industries generates enormous quantity of high toxic effluents with very high **BOD, COD, TS and TDS level** with black colored and odor effluent.

Understanding the industries requirement, there is **Liquid Discharge of Effluent Treatment system**, inefficient use of water and other resources which forms the pollution and degrades the environment.

For reducing the above BOD, COD level of the effluent and further process for treatment of industrial effluent with economical operation with Zero Liquid Discharge to meet the stringent pollution control norms. Integrated approach, instruments, technologies are not followed for promoting the greening of industries.

## III. POTENTIALS OF NEW BUSINESS OPPORTUNITIES (POTENTIAL OF GREEN INDUSTRIES AND GREEN ENTREPRENEUR)

Combined Treatment Plants in Ahmedabad as the potential of treating the tones of the waste and operational cost will be easy. Individual requirement of the industries for the several treatment equipment's are provided by the green entrepreneurs. While coming of the green entrepreneurs, it has a potential of reducing the shock loading, land requirement also get optimized. Disposal of hazardous waste by the industries in the CETP is more organized and streamlined. New business opportunities for enabling the green environment, policy instruments to promote the growth of green industries.

Green entrepreneurs as well as green industries in Ahmedabad applies to new concept and new technologies which are developing economies and allows the different sectors to grow in development. Demand conditions are the important in order to provide new market opportunities. Financial Institutes are important for the development of new business opportunities and the development of new technologies.

Finally, green industries business in Ahmedabad is enhanced through the support of green entrepreneurs, local communities that are well educated and aware about the environment, technologies, benefits of management of resources, clear production.

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Provisions of green infrastructure in Ahmedabad in order to handle the waste, recycling facilities, energy supplies which are sustainable, private sector partnership, Foreign direct investment.

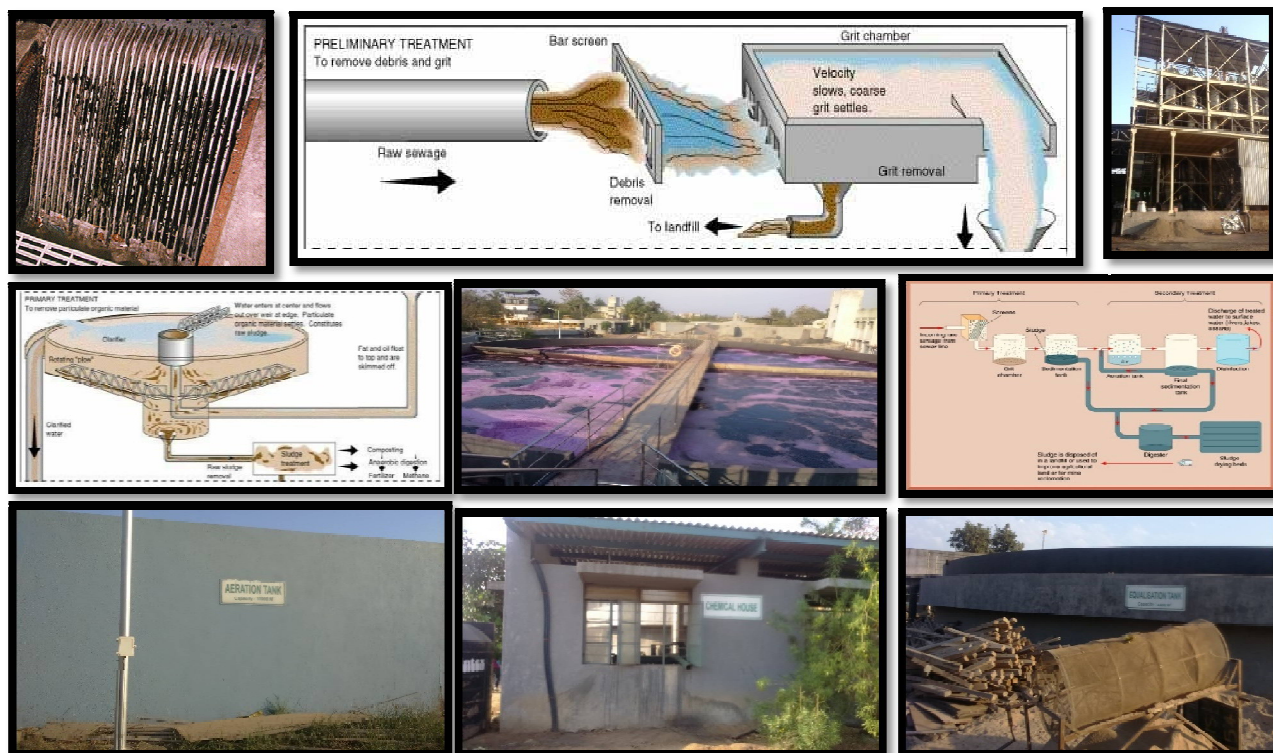
## i) Ecological modernization of Industries,Ahmedabad

Green entrepreneurs has started companies for the green environment like Naroda enviro Project Ltd GIDC Odhav, Green environment services cooperation society Ltd, Vapi water and Effluent Management co op., Gujarat environment protection and infrastructure ltd.

Government schemes and Programmes for the Environment management as well for the Green industries. For the Modernization of Industries, Green entrepreneurs conducted survey for the legal as well as technical requirements as well as potential of water recycling from effluents. Water audits in Ahmedabad has been conducted by the green entrepreneurs. For the development of clean environment, government of Gujarat has provided subsidies and CETP in the different areas of the Ahmedabad as well as Gujarat. Green or modernization of the industries in Ahmedabad not only means industries related to renewable energy but it also focus on welfare of the society and opportunities for green entrepreneurship. Green entrepreneurship is the hot topic that needs to be discussed and adopted in all over the world which shifted companies from power to energy efficient as well as environment friendly.

Green entrepreneur and modernization of industrial work in the context of Ahmedabad will be more efficient and effective as many green entrepreneurs have been involved in renewable form of energy like solar energy, wind energy, biogas energy, etc. Also few of the green entrepreneurs have been involved in recycling work like recycling of plastic products and papers that can conserve the environment by reducing the cut down of trees on earth.

## IV. NAROL, NARODA IN AHMEDABAD



Green entrepreneur in the Ahmedabad Preliminary Treatment, bar screening and grit chambers. For maintaining the clean and Green environment, sampling has been done at the inlet. Ahmedabad is attracted towards green entrepreneurs

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and low carbon industries but still many steps need to be done in order to improve the efficiency. Many steps by the green entrepreneurs in Ahmedabad have been taken but still need to be taken care of. There are many companies which are handling the waste from industries. Like Narol, Naroda Ahmedabad is having CETP for the handling of Effluents from industries. Water can be recycled, reuse in the industry. Easier regulatory control in granting the consents, cess collection and monitoring by the regulatory authorities in Ahmedabad. Ecopreneurs and Green industries are available to handle waste water. Mixers, Aerators, Plants, pumps reduce in case of combined treatment. The quality of wastewater after mixing becomes easier to treat due to the dilution effect, equalization, and mutual neutralization. In Narol Naroda, common effluent treatment plant end product can be used for landscaping purpose, at the end, sludge which is left can be used in agricultural purpose. Many private companies/ecopreneurs are working in this green sector. The government is also providing the subsidiary for the establishment of Solar plants in different areas in order to attract more people willing to establish solar power.

### V. DISCUSSIONS WITH GREEN EXPERTRENEURS/STAKEHOLDERS IN GIDC, AHMEDABAD

Different technologies are used for the quality work are used like 3 equalization tank. ( 1 tank filled up ).According to the sample, they worked out for the plant and know what they are doing and treating time to time. ( treat with pollution, work with samples.) Industries are getting biggest revenue but since they are cheapest in the country.

Problem of fly ash due to industries. 250 micro sheet, they are to be placed for solving the pollution of pollution and leachate. Moisture content will be solved. In 2002, 380,000 tonne will be treated by May 2014- dump their 12 lakh tonne. The plant for handling the industrial is largest in the Asia. 300 gas generation of gas per day. Entrepreneurs are using coal for the boiler. GPCB Experts will seal those industries if they are not using standard and if their effluents are higher than the standards. 15 crore rupees to work given by GoI by which 1.5 crore is brought by Naroda. European union has reached the project, can't be imported any product by European project.

There are Total 42 CETP, out of which 27 are in Gujarat. ( naroda- odav- vatva- narol- pirana). This is the process how the industrial treated water goes to pirana. 33 tonne goes to pirana. Rs. 105 /liter as per today for discharging the one liter of industrial waste.

24 hours monitoring is done in Naroda. COD and BOD content is checked before treating the waste. Lot of gypsum waste is generated. Gypsum started selling to industries. ( 1 thousand tonne.) 1400 tonne per day. Industrial bioasses, alkaline. Lot of solvents started to use after the treatment by the green entrepreneurs.

USAP, CETP, IMF and NPC are the companies involving in the project. Food industries in GIDC, Havmor, Mohani. Gujarat Industrial Development Authority- 10 lakh rupee come up from that bio gas plant – 600 rs per day. More than 28 national and international awards by European Union Green entrepreneurs. Today, young industries and stakeholders as well as ecopreneurs are also joining them. CETP is also going for wind mill. 1.25 MW. 10 lakh rupees. Against my renewable energy should be promoted.

The concept of green entrepreneurs starts from the environment problems like climate change, global warming, hazardous waste, pollution etc because of which disturbance in the Ahmedabad. With the awareness of the people as well as entrepreneurs, educated people are becoming more conscious towards eco friendly environment. These opportunities can be helpful for the empowerment of green entrepreneur.



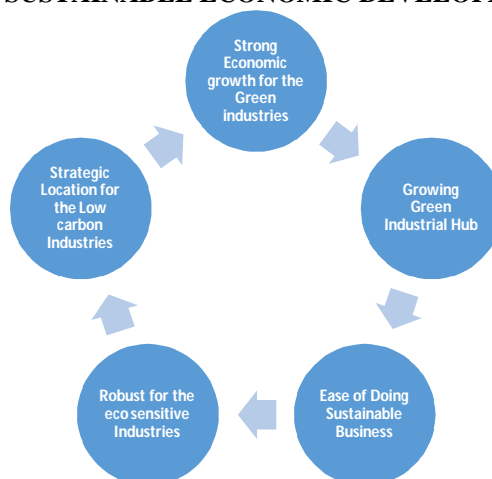
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## VI. INITIATIVES FOR SUSTAINABLE ECONOMIC DEVELOPMENT IN AHMEDABAD



### i) Technological Implications and Economic Benefits

Technology and science plays a vital role for the developing of green industries towards sustainable pattern of production and growth in economic development. Adaption of technological advancement leads to sustainable growth and development in the present as well as future. In Ahmedabad, It contributes the renewable energy and entrepreneurial environment sector and also helps the green entrepreneurs to develop in a well-organized manner and boosts the economy through green entrepreneurs and green industries. In Ahmedabad, technology transfer and Capacity development can be achieved through the provision of demonstration projects, workforce training, technical assistance programmes, and the support of institutions.

Technologies like Aerobic Biological Process, Anaerobic Biological Process, and Chemical Physical Process which develop technical capacity. Building of technological innovation through strategic R&D programmes. Integrated Zero Discharge System has Compact Design which is Easy to Operate & Maintain, Lowest Operation & Maintenance Cost which generate Highest Steam Economy. Factory Tested and Governments can facilitate knowledge. Finally, an integrated approach is followed to support the development of green entrepreneurs as well as green industries.

## VII. STRATEGIES AND POLICY IMPLICATIONS FOR GREEN ENTERPRISE DEVELOPMENT

For the development of green industries as well as green entrepreneurs, Government needs to provide financing/ funding to the customers as well as to eco-entrepreneur. In Ahmedabad, Green entrepreneurs have the right mind set and social benefits required for the linkages between industries and stakeholders to increase the entrepreneurship. No single unit can improve the efficiency of Low carbon industries and entrepreneurs, Government needs to take care of policies as well as the approach towards energy environment. Policy instruments need to be designed, championed, adopted and implemented by all levels of government. Instrument mixes should be broad-based and flexible.

Indicators should form part of all enforcement regimes and monitoring, as a tool to quantify, simplify, and communicate environmental data. Reporting systems and Environmental monitoring should be established to identify violations and to assess whether policies have been effective over the long-term.

Voluntary Agreements (VAs) and green entrepreneurs can be a useful tool for governments to help raise green industry awareness, and can offer more important goals than regulations, while lowering administrative and enforcement costs.

## VIII. CONCLUSION

The concept of Green entrepreneurs and green Industries are new global approach for the diversifying the different opportunities and make the environment sustainable. It protects the natural resources as well as the remove the poverty and increases the economic development. Work is needed in order to improve and increase the public perception on

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green entrepreneur as well as green industries to remove the hazardous waste and improve the environment quality. In summary, there are a lot of matters that need to be addressed by considering the environment laws. The discussions with stakeholders, agencies, green entrepreneurs each of which are driven by different powers and works at different levels. Barriers to control the pollution and technological implications that need to be taken to benefit the society. There is also a need for capacity building for the collaborations and green entrepreneur's needs to move fast for the promotion and sustainable growth of Ahmedabad.

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