



A study on Displacement Effects of Urbanization and Industrialization over environment in India

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ABSTRACT

The urban ecological landscape patterns as well as urban ecosystem functions are changing due to endless an urban expansion which creates serious limitations for urban environmental & ecological management. For urban sustainability as well as for developments related to planning as well as policies, for this assessing relationship plays important role in between the rapid urban expansion and ecosystem services. The main objective of the study is to focus on the assessment of dynamic nature as well as its impact on urban ecosystem. Industrialization as well as urbanization are considered as the primary sources of climate change and growth performance. The present study focused on the effects of urbanization and urban development on environment and society. This study concludes the causes of environmental damage due to urbanization and industrialization. The case study of urbanization as well as industrialization in India has been carried out. As it is not possible to control industrialization and urbanization but it must be kept in mind that urbanization grow in correct manner causing least impact on environment.

Keywords: Urbanization, Industrialization, sustainable development, ecosystem, environment etc.

INTRODUCTION

With the passage of time, the demand of urban land as well as urban population is increasing in urban areas which are creating massive changes in natural capitals. The high rate of urbanisation in recent decades has increased the demand for urban land, and the constant replacement of different environmental land cover types has resulted in a constant substitution in urban land uses, especially in emerging nations such as China as well as India, resulting in a loss in natural ecosystems acquired from urban ecological land in Indian cities. Variations in land use / land cover, whether man-made or natural, have a very well effect on ecosystem processes and functioning. For sustainable urban development, it is important to assess and estimate the losses of ecosystem services because of continuous urban development.

The growth in the population of individuals living in urban areas is known as urbanisation. The United Nations defines urbanisation as the movement of people from rural to urban areas of a country, with population expansion resulting in urban displacement as a result of industrialization. The major rise in urban population is observed in third world countries specifically, India and China. Nowadays, India is no more considered as village. 79 million people were living in urban areas during 1961 and 285 million population of India reside in urban area in 2001. There were three important metro cities in developed in India in 1991 such as: Chennai, Mumbai, and Kolkata. With the increase in urbanization, the demand for urban land also increased for performing urban activities.

Rapid urbanisation is the primary driver of environmental degradation because all companies that produce GHGs are concentrated in metropolitan areas. The combustion of fossil fuels for industrial activities, as well as the transport of people and products, is the primary sources of anthropogenic emissions in urban environments.

Displacement effects of industrialization and urbanization

There are various procedures through which our society is suffering such as industrialization, globalization, urbanization and modernization. These mentioned procedures are co-related with each other. These procedures make various changes in societies which positive as well as negative. Negative changes create social problems and positive changes are development. The same results are observed in industrialization due to industries.



In present era, all developed and developing countries in competition for became a developed country. Growths of humane benefices are important indicators for development for any country. In other words, we can say growth of human benefices like growth for the production of material cultures that are agricultural productions. Growths of production of all above things are directly correlated with industries. Generally for industrial establishments, four basic things are required, which are land, natural resources, human resources and money. All these things or raw materials are easily available in forest areas that are why forest area is the first choice of an industrialist for industries. Forests areas are traditional residence of tribal community. So, they are directly affected with industries like displacement. Displacement is a major and complex process. According to some result and nature of displacement, displacements are generally harmful for local people. Because of displacement displaces people leave their residences, agricultural lands, temples and many other things. People are emotionally attached to these things so it was very harmful for groups. Some provision given in displacement like authority’s money, agricultural land, farms, etc. for some help for surviving family. According to rules of government and companies, they are provided to provide land, residences, money and jobs for families those are affected by displacement. There are major challenges of government and industry to satisfy displacement. Because of displacement, they lose their traditional agricultural land, traditional residences, religious places and traits like religious trees, rivers, stones, mountain, etc. and because of this; they are always in mental pressure about re-displacement.

Reasons behind Urbanization

As per data available, about 50% of total world population is residing in urban areas in the beginning of 21st Century. The increasing trend of urban population is due to:

- Better employment facilities, medical facilities,
- Better facilities for trade and commerce,
- Better facilities for higher education,
- Facilities for entertainment, sports & games,
- Proximity to administration and important government offices.
- Due to these reasons, such an increase in urban population induces a lumber of environmental problems.

Furthermore, the industrial structure will be enhanced for the purposes of urban economic growth and labour division that will have an impact on manufacturing pollutant emissions due to different industrial sectors emit different amounts of contaminant. A service-oriented economy, for example, is always recognized as an environmentally friendly development mode when compared to a heavy industry-oriented economy.

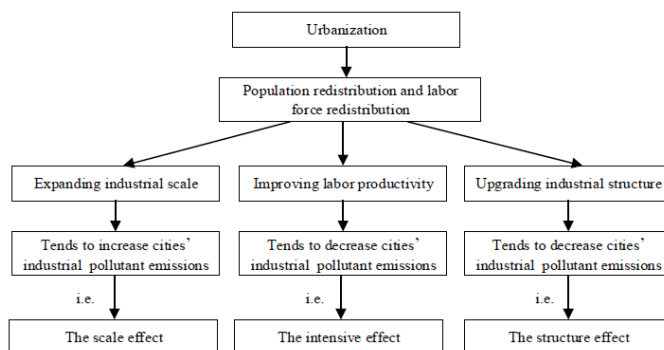


Figure 1: The mechanisms between urbanization and industrial pollutant emissions
 In conclusion, the effects of urbanisation on industrial carbon emission can be divided into three categories based on their different mechanisms. The scale effect signifies an overconsumption of fossil energy and water as industrial production expands. The intensified effect indicates that



industrial technologies are improving and that production efficiencies are increasing. The research quality denotes a shift in industrial structure from high-intensity pollution-emitting sectors to low-intensity pollution-emitting sectors.

Major problems of Urbanization in India

Some of the major problems regarding urbanization are shown in the figure mentioned below:

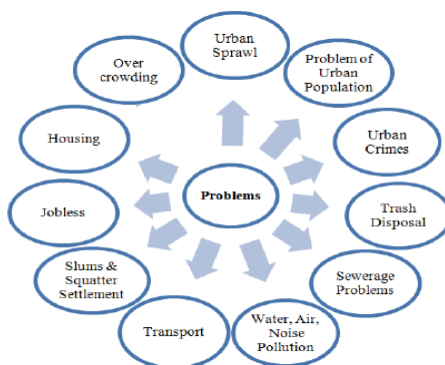


Figure 2: Major problems of urbanization

Impacts of Urbanization and Industrialization on environment

These situations are caused due to rapid growth in urban population, unplanned growth and haphazard and improper infrastructure (Polprasert, 2015). Urbanization leads to displacement which pressurizes public utilities such as water, sanitations, housing, health, transportation, electricity and education and so on.

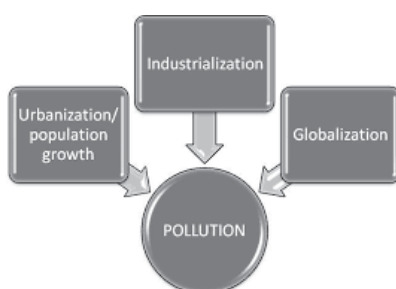


Figure 3: Impact of urbanization, industrialization and globalization

In 2001, the population of India has crosses 285 million. As per the studies done by researchers, it was observed that 50 percent of the Indian population will live in poor environment by 2030. It is said that the life will become tremendous due to the impact of all this growth in environment, space and quality of life. It is important for provision of infrastructural facilities which needs to support large concentration of population (Tacoli & Mcgranahan, 2015). The environment of urban cities is destroying rapidly due to this. The environmental problems of urban cities are discussed as mentioned below:

Over Exploitation of Natural Resources: In urban areas, the rate of consumption of natural resources is very high because of high population density as well as expensive living habits. Some of the natural resources which are consumed by human population are fossil fuels, water, energy, forest products etc. (Jaysawal & Saha, 2015) Urban population is also misusing natural resources without thinking about the fact that immediate compensation of these resources is not possible. Some other problems faced in urban areas are related to drinking water particularly ground water, lack of forest products and power cut because of misuse of electricity and so on.

Air Pollution: There are various anthropogenic activities which lead to air pollution in urban areas such as industries, no. of automobiles on roads (Li & Ma, 2014). These activities leads to



increase harmful gases in atmosphere such as oxides of sulphur, oxides of nitrogen, carbon monoxide, carbon dioxide, toxic metals etc. These gases can easily increase the problem like health hazards.

Noise Pollution: In urban areas, the noise pollution is caused due to vehicles, industries, automobiles, etc. which will cause physical ailments as well as psychological ailments.

Management of Solid Waste: Huge amount of solid wastes is released by thickly populated urban areas because they consume large quantities of material. Some of the solid wastes are: industrial waste, municipal waste, etc. These solid waste leads to breeding place of different diseases as it releases harmful gases. The gases produced by these wastes causes air pollution, and water pollution is caused due to surface run-off from the wastes. (Bhuvandas, 2014) It also causes several diseases.

Development of Slums: Slums are defined as the areas in the towns and cities without basic amenities. The main reason behind development of slums is improper planning of displacement which leads to shortage of accommodation for them. Therefore, they make their houses by jute sacks, rusted tins etc. These areas become overcrowded with lack of basic amenities such as toilets, medical, drainage, water supply and electricity. (Nagendra et al., 2013) Slums are the main reason for environmental problems. Some major problems which are outlined here are as follows:

- From such areas, the waste is disposed in very improper and unplanned way which leads to air pollution and water pollution.
- Due to water pollution, various diseases can spread; such as typhoid, cholera, enteric fever and so on.
- Numbers of diseases are growing due to growth of mosquitoes, flies because of the open defecation of sites and unplanned waste dumping places. These ill-practices become health hazard for slum areas as well as other nearby places.

Some other causes of environmental degradation

Some of the important factors which significantly affected the environment are: deforestation, urbanization, and industrialization and over-population growth. The depletion of quantity and quality of natural resources is defined as “Environmental Pollution”. (Elmqvist et al., 2013) The main reason behind environmental degradation is types of human exercises. And these types of conditions are becoming hurtful to each and every single living being. All around the world, the volume of toxic gases is increasing rapidly due to smoke radiations by the vehicles and processing plants. The central reason behind contamination is smoke radiated by the vehicles as well as ventures. The contamination of water, air and sound is caused due to spontaneous urbanization as well as industrialization. (Dociu, 2012) The contamination of wellsprings of water is expanded due to urbanization and industrialization. Harmful gases which are involved in smoke discharge by vehicles are: nitrogen oxide, carbon monoxide and CFCs. For some ecological problems, neediness is still considered as the significant issue. (Kundu, 2011)

Effects of Environmental Degradation

There are very adverse effects of environmental degradation. These effects can be enumerated as:

Impact on Human Health: Environmental degradation is the main reason which affects health of individuals and populations. Like a result of environmental deterioration, human health could be threatened. Respiratory disorders such as pneumonia and asthma can develop in areas exposed to harmful air pollutants. Indirect effects of air pollution have already taken millions of lives. In the field of air pollution, India is considered as one amongst the most polluted cities of the world. Various air pollutants are: lead, nitrogen dioxides, suspended particles, residual suspended particles, sulphur dioxide and carbon monoxide. (Garrett, 2010) Some of the significant factors which directly affects the urban air quality deterioration are: exhaustion from automobiles,



vehicle pollution, growing industrialization, industrial emissions and burning of fossil fuels and these factors are killing thousands of people every month and lives are also suffering from various problems such as: heart and lung disease, respiratory damage, asthma, etc.

Loss of Biodiversity: In ecosystem, the balance is maintained in the form of restoration of nutrients, protection of water resources, controlling pollution and stabilization of climate. Deforestation, global warming, overcrowding, and pollution are only a few of the significant causes of biodiversity loss. In fact, humans have significantly impacted the environment and shifted territory by directly exploiting species, such as by fishing and hunting, altering biogeochemical cycles, and transporting species from one place to another. (White et al., 2009)

Ozone Layer Depletion: The earth is protected from harmful UV rays by Ozone layer. Production and emission of harmful CFCs is the main reason behind depletion of ozone layer. And because of this reason, 80 percent of the ozone layer is depleted. (Mohan, 2004) Hydrochlorofluorocarbons (HCFCs) and volatile organic compounds (VOCs) are the other significant reasons which lead to ozone layer depletion. (Kundu, 2007) These substances are mainly found in aerosols, refrigerants, vehicular emissions and by products of industrial processes.

LITERATURE REVIEW

The effects of urbanisation and industrialization on energy intensity are the subject of academic research on the links between urbanisation, industrialisation, and energy challenges. Only a few academics have looked into the connections between urbanisation, industrialization, and energy security.

(Polprasert, 2015) According to the study conducted by author, he analyzed that urbanization is a rapidly growing phenomenon in Bangladesh. The present study focuses on the consequences of unplanned urbanization on the environment of Sylhet City Corporation. FGD methodology was used in the present study and it was conducted in Sylhet city. For the same, primary data was collected from the respondents. This study also revealed that rapid urbanization is leading to social, cultural, economic and environmental problems. Some of the major environmental effects of urbanization are: water logging problem, sound pollution, traffic congestion, solid waste management and disposal of waste system. Growing crime rates and changes in traditional family functions and relationships are among the negative social repercussions of urbanisation. Homes, joblessness, infrastructural issues, and urban services such as education, healthcare, transport, water, sanitation, power, fuel, waste collection, and recreational activities have all been impacted by urbanisation. It is important for the government to take proper initiatives as well as the citizens to resolve the effects of urbanization.

(Tacoli & Mcgranahan, 2015) indicated that urbanization represents modernization. And this issue is of great importance in developed nations as well as developing nations. Urbanization is also defined as the process of flow of population in urban areas. It leads to gradual transformation of structure of human society. Economic growth, urban design changes, and production technology, citizen lifestyles, as well as societal values are all influenced by urbanisation. However, urbanization can have negative impacts on social equity, public health, and the natural environment.

(Jaysawal & Saha, 2015) studied about formation and development of cities in urban systems of industrial countries are generally according to industrial development and follow a united and moderate pattern. Nevertheless, in emerging countries, the growing trend of urbanisation has resulted in several of the environmental, financial, and social issues that are out of step with the countries' long-term industrial and social progress. Paying careful attention to urban development principles and environmental concerns, leads to a more sustainable development for urban development. Additionally, urban development trends of the cities directly affected by urbanization and it also leads to various undesirable economic damages. There are various demands of people in metropolitan cities such as transportation, education, drinking water,



employment and clean air. In this study, the consequences of urbanisation and urban development on the environment, including air and water pollution, as well as on society, were investigated in terms of sustainable development principles and city amenities.

(Li & Ma, 2014) Concerns of urban development-induced displacement as well as relocation, as well as the impacted population's long-term quality of life are drawn by the author. This study reviews about the settlement strategies of Kolkata Environmental Improvement Project which explores the recollection of residents of the relocation process and compares the situation over time of these groups of low-income households. These two groups are: Those who declined a resettlement package & stayed in their canal-side huts; as well as those who approved the deal and moved into new government-provided flats. Various issues are highlighted in the present study such as: sanitation issues, livelihood issues and social cohesion issues to analyze whether those groups have experienced any improvements in their lives.

(Bhuvandas, 2014) evaluated Industrial revolution has provided economic stability; nevertheless, it has also resulted in increased population, urbanisation, and visible stress on basic life support systems, while also pushing environmental effects closer to the threshold limit. In industrial development process, environmental sustainability is becoming very significant with the growing industrial growth and relatively low land masses. Increasing data suggests that converting existing industries into eco-industrial networks through successful application of green techniques is a potential alternative for preserving the region's natural resources while also enhancing the regional economy on a long-term basis. On the basis of ground realities, the empirical knowledge on affected area helps in understanding the local context and developing context. The study was performed in Pondicherry on the current industrial pollution and environmental setting. Severe impacts of industrialization on local environment are indicated through a causal chain analysis. Moreover, this study also highlights the immediate and root causes. The findings serve as a foundation for proposing long-term remedies to the region's rampant pollution, as well as analogous problems around the world.

(Nagendra et al., 2013) focused on Urbanization and also examined the relationship between environment and population dynamics. And he also observed that the impacts of urbanization are strongly negative on the environment. The negative environmental effects of cities have gotten a lot of attention, especially concerns about greenhouse gas emissions and the so-called "heat island effect" on changing climate. As the Executive Director of the United Nations Centre for Human Settlements stated, cities account for 75% of world energy consumption and 80% of greenhouse gas emissions during the next 40 years. The major reasons behind the increase in greenhouse gases are mentioned here and its impact on local community and society. Major cities of India are primarily focused here which are contributing more in greenhouse gases. Secondary source is used here for the data collection in present study.

(Elmqvist et al., 2013) according to the study conducted by author, he observed that urbanization is a general increase in population and also the amount of industrialization of settlement. Urbanization indicated the flow of public from rural to urban areas. Due to increase in density of urban areas, urbanization occurs. Environmental degradation is taking place due to uncontrolled and unplanned urbanization and it is also causing various issues such as: excessive air pollution, problems of waste disposal, poor water quality and land insecurity. The impact of urbanisation on environmental components such as public health and environment, weather, biosphere, soil, and water resources is the focus of this article. In the present study, a case study on urbanization in India is performed to conclude the existing causes of damage to the environment. Although it is difficult to limit urbanisation, it must be ensured that it advances in the appropriate direction with the least possible environmental damage.

(Dociu, 2012) suggested that the degradation of the ground or degradation of the environment as a result of the consumption of resources such as air, water, and soil is referred to as environmental



degradation. Some of the major challenges of India are water pollution, pollution of natural environment, garbage and air pollution. In between 1995 to 2010, India has reported the fastest growth in the world as per the World Bank experts. It is not easy for India to reach the environmental quality similar to those enjoyed in developed countries. Pollution is considered as a major challenge in India. One of the key causes of illness, health difficulties, and long-term livelihood impacts in India is environmental damage.

RECOMMENDATIONS

- According to the discussion above, some of the reasons of environmental degradation caused by urbanisation and industrialization are found in the country's legislation and regulatory authorities.
- In today's cities, poor governance has led in the expansion of slums and squatter settlements, which create a hazardous working environment.
- The importance of strengthening urban initiatives that increase resource efficiency should be given serious consideration.
- Controlling vehicular pollution in urban areas as well as other towns should be a key concern.
- It is critical to focus immediate emphasis on reducing solid waste creation at the source via mandatory regulations and standards, charge and tax subsidies, as well as education as well as voluntary compliance.
- If proper actions are not made to minimize pollution and improve the quality of life for urban people in India by providing more social facilities, their lives may become increasingly unhappy, resulting in health risks and worst-case catastrophe.

CONCLUSION

As per World Bank estimates, India achieved one of the fastest gains in the world in resolving environmental concerns and increasing environmental quality between 1995 and 2010. Even still, India has a long way to go before it can achieve environmental standards comparable to those seen in rich economies. Because the megacities have achieved their capacity for job creation, it is necessary to establish a solid economic segment in the urban economy to avoid crowding into the overcrowded slums of metropolitan areas such as Bombay, Calcutta, Delhi, and Madras. Growth efforts and investments should be directed towards small cities which have been neglected so far so that functional base of urban economy is strengthened. Managing urban growth has become one of the most important challenges of the 21st Century.

The above study represented that the urbanization and industrialization badly effects the environment. Because with urbanization and industrialization, the main source of environmental degradation had emerged. The main problems of environments had emerged due to urbanization and human activities that are water pollution, air quality degradation, global warming, etc. There should be need of proper maintenance of the urban city which is responsible for an environmental degradation. The only policy making is not enough to tackle the environmental problem, but there is need of taking strong steps towards the maintenance of the urban cities and safeguard of the environment. Development is necessary, but development should be sustainable.

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