



ENVIRONMENTAL PLANNING SUSTAINABLE AND DEVELOPMENT IN INDIA

Ravisha. G. M.¹ & H. Nagaraj², Ph. D.

¹Research Scholar, Dos in Geography, University of Mysore-570006, Karnataka

Email: ravishagm78@gmail.com

²MA. M.Phil., Ph.D. , Research Guide, Professor, DOS in Geography, University of

Mysore-570006, Karnataka Email: nagarajh66@yahoo.com

Abstract

The highly sensitive issues of ecological concern needs are debated these days on an elevated note because we have one earth to live and earth to save, though the greater development in the field of environmental geography has been witnessed since the eighteenth and nineteenth centuries the subject has a very long history. The roots of this discipline can be traced in the works of the Greeks and Romans scholars works like Herodotus, Aristotle and Eratosthenes are replete with example of relationship between man and physical environment owing to modern economic monetization, materialism, exquisiteness, avariciousness, physical greediness which has become the order of the day the earth's repositories is being depleted profoundly. Thus our divine planet is no longer the benign Mother Earth but a quarry for material utilization and over exploitation government of India. Urbanization is taking place at a faster rate in India. Population residing in urban areas in India, according to 1901 census, it was 11.4 percent. This cont increase to 28.58 percent according to 2001 census and crossing 30 percent as per 2011 census, starting at 31.16 percent. According to a survey by UN States, the World Population Report in 2007, by 3030, 40.76 percent of country's population, Urbanization is expected to reside in urban areas. As per World Bank, India, along with China, Indonesia, Nigeria, and the U.S, will lead the world's urban population surge by 2050. This research paper aims to highlight environmental planning sustainable and development in India challenges with special focus on environmental issues like air, water, land and noise pollution, problems of housing, traffic congestion, slums. The study reveals that rapid growth of population in the India and including small and large cites of India has resulted in deterioration of urban environment giving raise to shanty town and slums, heavy population concentration land use, problem of solid waste and pollution.

Keywords: environmental geography, highly sensitive issues, Greeks and Romans scholars, exploitation, government, natural resources, population, urbanization



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Introduction:

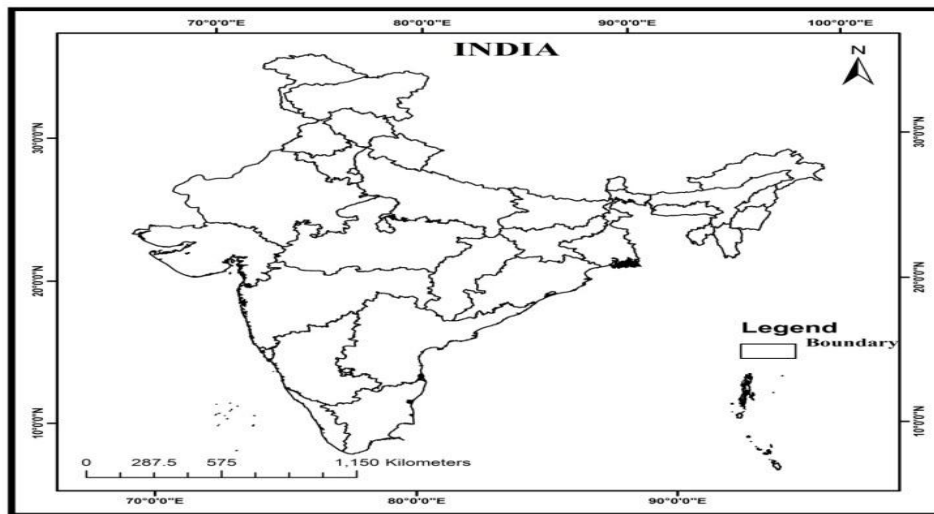
The word environment has been derived from the French word *Environir* which means 'to surround'. Thus environment refers to the sum total of conditions which surround man at a given point of conditions which surround man at a given point of space and time. It is a composite term for the conditions in which organisms live. It includes both biotic and abiotic

substances. In other words, environment is the totality physical, social, and biological factors, individually as well as collectively; those comprise the natural and manmade surroundings. Owing to modern money matters based on still matter wide spread dreaded, materialism, discursive rational knowledge based on sense perceptions and vested interest of both developed and developing nation's environmental science continues to remain in its infancy. It continues to ignore the fact that wide spread, social, moral and physical pollution is affecting water, air, weather and even nations and societies. Thus, our divine planet is no longer the benign mother earth but a quarry for material exploitation report to the World Health Organization (WHO), commission on the health and environment 2014, owing to "progress" and "modernity" today over 40 air craft's a billions vehicles, engines etc. are using burning colossal amount of fossil fuel the resulting accumulation of Greenhouse gasses is mind boggling report of the WHO commission on health environment 2014, burning of fossil fuel to trade goods including agricultural commodities is fast bringing the world to a tipping point report of the WHO commission on health environment 2014, our life style has made "food" to travel a few thousands of miles before it reaches our tables this is because of the modern social economic and political theories of dreaded materialism based on consumer economy has invaded the urban and rural houses report of national environmental policy of India 2012.

Study Area:

Indian main land extends between $8^{\circ} 4'$ N to $37^{\circ} 6'$ N latitude and $68^{\circ} 7'$ to $97^{\circ} 25'$ E longitude. The southernmost point of Indian main land is Cape of Comorin. However, the island territories of the country still further southernmost point of the country lies in the Andaman and Nikobar Island in the Bay of Bengal. The latitude of the point is $6^{\circ} 30'$ N, southern most point of the India. In the Nikobar Islands was formerly called the Indira Point. The Northern most point of the country lies in the state of Jammu and Kashmir and it is known as Indira col. India has a total land area of about 32,87,263 sq. kms. The country is from north to south extent from Indira Col in Kashmir to Kanniyakumari is 3,214 kms while its maximum from east-west width from Ranna of Kachch Arunachal Pradesh is 2,933 kms. The total length of the coastline of the main land of the India measures about 6,100 kms and the land frontier measures about 15,200 kms, if the length of the costal line of the Island territories is also taken into consideration the total length of the costal line measures about 7,400 kms, with a population of about 1 billion (1.21 billion).

Figure -1 India; Location Map



Objectives and Goal: The ultimate goals of environmental management are to achieve ‘sustainable development’, sustainable environment, and ‘sustainable society’, which are based on the following objectives of environmental management.

- To make rational exploitation of natural resources in tune with ‘ecological principles and criteria of sustainability.
- To make optimal utilization of natural resources, maximize human well-being and minimize damage to environment.
- To improve human adaptability to environmental and socio-economic challenges in India. To assess urban environmental problems and emerging challenges with special reference to India and also suggest remedial measures to overcome urban problems.
- To regenerate the degraded environment and depleted ecological resources.

Data Based and Methodology: The ‘Environmental Geography’ for the study of various aspects of the environment on the ground that the subject must look more geographical in character and it can be differentiated from other discipline studying on the earth’s surface at different spatial and temporal scales. The data used for the analysis has been drawn from a wide variety of sources like the Census of India 1901-2012, office of the Registrar General India, Government of India (GOI),: Central Pollution Control Board, National Crime Records Bureau, Ministry of Home Affairs, Ministry of Environment and Forests, (GOI) 2011; A Copyright © 2017, Scholarly Research Journal for Interdisciplinary Studies

Compendium of Indian Slums 2011, Town and Country Planning Organization and Transport Research Wing, Motor Transport Statistics of India, 201. The methodology incorporates computation of data and its analysis to *Environmental Planning Sustainable and Development*. How rapidly we are urbanizing and the impact of urbanization on the physical and social environment and infrastructure. The study area incorporates the urban settlements particularly the million plus cities of India. The mass data base of ecological resources collected through extensive survey by using field survey methods as well as remote sensing techniques would help in their classification. It may be pointed out that till now there is no common and standardized methodology for the survey of ecological resources.

Statistical Technique: In present study several statistical methods and techniques are used. They have classified in to two types are descriptive and inference such as health conditions, sanitation percent, quality of air, quality of water, disposal of solid waste in urban areas, growth of slums, transport and traffic problems, urban crime. The required data for the present study analysis have been obtained from secondary sources like Census of India, environmental survey by The Hindu Daily, news papers, magazines etc. The collected data have been classified, processed and presented in the form of different cartographical and GIS, techniques.

Environmental Planning and Development Policy in India:

Planning is mainly centralized and till now the state and central planning boards and commissions have not come out with any specific planning strategies and depend on Planning Commissions for it. This is expected to change the present government, as planning commissions is been abolished and now focus is on empowering the states and central and strengthening the federal structure.

In fact for big cities the plans have become outdated and reflect the concern of urban local dwellers, these needs to be take care by Metropolitan Planning Committee as per provisions of 74th amendment act. Now the planning needs to b decentralized and participatory to accommodate the needs of the urban dwellers. Also there is lack of human resource for undertaking planning on full scale. State planning departments and national planning institutions lack qualified planning-land use, infrastructure, environmental, sustainability, social inclusion, risk reduction, economic productivity and financial diversity. Major challenges are of revenue generation with the *Urban Local Bodies* (ULB). This problem can be analyzed from two perspectives. First, the states have not given enough autonomy to ULBs to generate revenues and second in some case the ULBs have filed to utilize even those

tax and fee powers that they have been vested with. There are two sources of municipal revenue i.e. municipal own revenue and assigned revenue. Municipal own revenue are generated by municipal own revenue through taxes and fee levied by them. Assigned revenues are those which are assigned to local governments by higher tier of government.

Sustainability:

The ecocentric approaches to development management emphasize ecological balance and human material growth in long term perspective. It may be remembered that neither of those two viz. ecological system and human institutions are everlasting as these have to come to an end, the time of which is not known. In fact, the longevity of human institutions depends on the stability of ecological system which itself depends on the stability of ecological system which itself depends on human ability and desire to maintain ecological balance. In the background of this concept sustainability may be defined as follow: Sustainability is a concept that denotes the ecological functions and steady demands of ecological resources so that there may be continuous supply of ecological resources for development management on one hand, an ecological balance on the other hand.

Sustainable Development:

Sustainable development denotes material growth of human and improvement in life style with growth demands of ecological resources and maintenance of environmental quality and ecological balance. Sustainable development may be defined as an approach to meet the needs and aspirations of the present without compromising the ability to meet those of future. Sustainable development then means progress in human well being that we can extend or prolong over many generations, rather than just a few years. To be truly enduring, the benefits of sustainable development must be available to all humans and not just to a privileged group. The concept of sustainable development probably came in 1970 but it becomes known of limit to growth by the club of Rome. Soon the concept of sustainable development was preferred to zero growth by general public.

G.H. Harlem (1987) has defined sustainable development. Sustainable development concept is used in a variety of sense as follows:

- Sustainable development as a goal, to achieve economic growth, environmental protection, health and happiness.
- Sustainable development as a theory or paradigm to integrate socio-economic growth, environmental management.

- Sustainable development as a practice to find effective sustainable development strategies good governance, to strike balance between human material growth and quality of life and preserving environmental quality.

Environmental Problems of Urbanization in India:

The population of the world is growing at a fast pace besides this, world's population is urbanizing much faster than its growth. As a result of this process, population of cities is swelling fast. Phenomenal population growth coupled with fast pace of industrialization is responsible for urban environmental hazards. Human activities are disturbing the equilibrium of the atmospheric environment, particularly by changing chemistry of the atmosphere. Disposal of human and industrial waste into rivers, land, air not only affect the atmosphere and the climate but also degrade the quality of fresh water as well as damage the ecosystem. There are many evidences to show that urbanization in India is producing a great stress on the environment.

More than 70 percent of river water pollution is by human wastes. Kanpur municipality pours 474 million liters of sewage a day in Ganga. In Delhi is a major drains discharge 8, 30,000 kilo liters of wastes every day. Most of urban centers do not have sewerage treatment plants. Around 34 urban centers in India have complete sewerage system but only half of them have treatment systems. In Calcutta only 26 percent of population is served by sewerage. The sewerage water was easily poured into rivers. (Crores of rupees today are being spent on cleaning river waters Ganga project is known to everybody). The coastal area of Mumbai has become slightly acidic and polluted. Near Gujarat coast the amount of mercury has risen in the sea water.

Many water bone diseases like Trachoma, Elephantiasis, Malaria, Diarrhea increasing. To these may be added Typhoid, Dysentery, Hepatitis are spread by contaminated by insufficient water for washing purposes. Disposal of human waste has become a big problem in urban areas. As such Indian cities have small amount of garbage per person per day when compared with those of developed countries. The National Commition found that the mean per capita waste/day was 370 gm per day. An average Indian generates about 450-500 gm/ per day of solid waste and on an average 82.8 percent of solid is generated in metropolitan cities are collected and disposed. Whereas only 59 percent is collected and disposed in Class I and Class II cities. Besides the healthier ways of solid waste disposal the municipalities are also confronted with the monstrous problems of managing wastewater. Many of the urban cities in India do not have either proper drainage system or following proper methods of disposal

Garbage whether from houses or industries tend to spoil not only the environment, it also effects the land, health of the people and water.

The prevalence of slums is very common in third world countries in general and India in particular. But the origin of the slum dates back to the period of industrial revolution that came to exit in European Countries. Presently, India's slum population is 20 percent of the country's urban population. The slum dwellers in many cities account for between 30 to 40 percent of the total population. Kolkata among mega cities, tops the list with over a third of its population in slums, followed by Mumbai, Delhi, Chennai, Hyderabad etc. the rapid growth of slum areas in Indian cities.

Pollution:

The word pollution has been taken from the Latin word *Pollutionem*, meaning defilement from *polluere* to soil or defile (make dirty), Later on Oxford English Dictionary used the word pollute with reference to physical contamination of water, soil and air. According to the U.S. President's Science Advisory Committee (1965), environmental alteration of our surroundings, wholly or largely as a byproduct of man's actions, through direct or indirect effects, of changes in energy patterns, radiation levels, changes in energy patterns, radiation abundance of organisms. R.F Dasmann (1975), has defined pollution as the accumulation of substances, or forms of energy, in the environment in the quantities, or at rates of flow, which exceed capacity of ecosystems to either neutralize or disperse them to harmless levels", in simple world's, pollution is an undesirable change in the physical, chemical or biological characteristics of our air, land and water that may or will harmfully affect human life or that of desirable species, our industrial processes, living conditions and cultural assets or deteriorate our raw material resources.

- According to Fedrick Warner, "A substance is normally considered to be pollutant growth rate of species, interferes with the health, comfort, amenities or property values of people". Pollutants may be solids, liquids as well as gases. The solid particulate pollutants include aerosols, industrial wastes, such as lead, mercury, asbestos, etc. the nitrates, chlorides, fluorides, carbonates, insecticides and pesticides all in dissolved form, oil and greases, etc. the major gaseous pollutants are carbon dioxide, sulphur dioxide, nitrogen oxide, etc.

Some recent findings regarding pollution:

The International Agency for Research on Cancer (ARC) announced, for the time, that air pollution causes lung cancer. It also said that poisoned air's major component, particulate

matter smoke, dust and other dirty byproducts of road traffic, factories and construction must be classified a carcinogen, a cancer causing substance, alongside tobacco, asbestos and ultraviolet radiation.

- According to World Bank Report (2013), air pollution costs India about \$ 30 billion or 3% of GDP.
- Of 400 locations monitored by the Central Pollution Control Board, 99% reported unsafe levels of PM 10. According to 2013 analysis of national air quality data by Center of Science and environment. Ninety cities and towns reported critical air pollution levels and 23 are most critical which means they exceed safety limits by 300% or even more.
- In a World Bank Report released in July, 2013, India environmental performance, behind China, Pakistan citizens, India ranked last i.e. 12 of 132.
- Every year, outdoor air pollution claims 1, 09,000 lives of adults, 7,513 lives of children below these five years in India.
- Annually, over 37 lakh hospital admissions are reported due to outdoor air pollution urban areas.
- The number of critically polluted cities has increased from 49 in 2000 to 89 in 2013.
- According to a report published in the international journal “Nature” in 2013, the Ganga was ranked as the second most polluted river in the world after Citarum river of Indonesia. The pollution level of the Ganga was about World Health Organization (WHO) for human use. Only 45% of sewage that flows into the Ganga is treated. People living in the vicinity of the river are vulnerable to cancer.

Environmentally Sensitive Development:

Environmentally Sensitive Development (ESD), is defined as rational exploitation and optimum utilization of natural/ecological resources in long term perspective so that use of resources may be the maintained indefinitely without compromising with ecological stability and social order, so that human well-being is maximized and damage to environment is minimized.

Sustainable Environment:

Sustainable Environment may be defined as such an environment whose physical and biotic components remain in healthy condition inspires of exploitation and utilization of natural ecological resources in long term perspective. Such sustainable environment, which may assure continuous yield of natural resources to coming generations, may be maintained only

when the human society, more specifically the planners, planning a process of development through, exploitation of all types of resources, utilization of resources, to achieve overall growth of human society, remove socioeconomic disparities.

Planning:

Planning is considered as a process of development having two main objectives one is achieving the overall growth of the society, and second is removing socio-economic disparities through the exploitation and utilization of all types of resources whether natural or human. Planning process of development through exploitation of all types' resources, utilization of resources to achieve overall growth of human society, remove socioeconomic disparities.

Ecological basis of Environmental Management:

Here environment is taken to manage the ecological resources based on ecological resources based on ecological principles. Any environmental planning and management, whether at local, regional, national or international level involving the whole atmosphere and the hydrosphere, must be based on fundamental ecological principles. If we are interested in the survival of human beings, if we do not want to be cursed by our future generation and thus the stability of the biosphere in general, thus the stability of individual ecosystems in particular should be maintained. Ecological based of environmental management is, in fact, based on eco-centric approach to the attainment of sustainable environment and sustainable development and sustainable society through rational exploitation and optimal utilization of natural resources, both abiotic (mainly minerals and soils) and biotic (plants and animals) resources. Both the approaches of environmental management (which are ecocentric) conservation and preservation approaches (as discussed above), from the core of ecological basis of environmental management.

Ecological principles:

The following basic ecological principles must be taken into consideration before formulating and implementing any environmental management strategy mainly resource management: Biotic and Abiotic components of biosphere ecosystem and subsequent smaller ecosystems are interconnected and closely interrelated to large scale biogeochemical cycles. Sustained life on the earth is a characteristic feature of biosphere ecosystem. Nothing actually disappears when we throw them away as wastes after use. All the systems and environmental/ecological problems are ultimately interrelated and so we should not solve environmental problems one by one (monistic approach) but should seek solutions together

(holistic approach). Nature has spent millions of years to create resource and in making stable ecosystem and maintaining ecological balance as geological processes, which make mineral resources, operate very slowly. Natural resources of planet earth are finite and belong to all biota including man. In fact, natural resources are public property, and hence no one, whether individual or a community or a nation, is authorized to misuse them. All living organisms and physical environment are mutually reactive. Energy flows in the ecosystem is unidirectional and is governed by the first and second laws of thermodynamics. Circulation of matter in the natural ecosystem is cyclic in nature and is governed by the cyclic pathways of biogeochemical cycles. Ecosystem productivity depends upon availability of solar energy and the efficiency of plants to convert solar energy into chemical energy. Ecosystem stability is controlled by the richness of biological communities, both plants and animals, which (richness) is itself governed by biodiversity. The greater is the stability of natural ecosystem and vice versa. The ecosystem and ecological balance is also governed by the principle of homeostatic mechanism and Gaia hypothesis. Rational exploitation and optimal utilization of natural resources and proportionate regeneration of renewable resources and maintain ecological balance.

Ecological Resources:

The meaning and classification of ecological resources, firstly meaning and concept term resources is dynamic one because it's meaning changes with the advancement of knowledge, society and technology. Anything or substance which is useful to mankind is resource. Secondly classification of ecological resources are generally divided in to two broad categories one is natural/environmental resources, which belong to include biotic (such as plants and animals including micro-organisms) Ecological resources comprise all biotic resources i.e. floral and faunal resources. Abiotic resources such as land, air, water, soils, minerals etc. and another category non utilitarian Resources are those which do not have practical values such as natural resources have, rather these have social and ethical values e.g.

Survey Ecological Resources:

The first step in the management of ecological resources of any country or a region is to make an exhaustive survey of all of the existing ecological resources including plant and animal species so that an elaborative inventory of all of the ecological resources may be prepared. Thus, the mass data base of ecological resources collected through extensive survey by using field survey methods as well as remote sensing techniques would help in their classification. It may be pointed out that till now there is no common and standardized

methodology for the survey of ecological resources which may be applicable to all countries and regions. Instead, local and individual surveys of ecological resources have been done in various parts of the world based on different methods and techniques. Thus, the inventories and data of ecological resources derived through local Individual methodologies are not comparable. It is, therefore, the first requirement for the survey and preparation of inventories of ecological resources for their proper evaluation and management to choose proper technique and method of survey.

Evolving Institutional Arrangements:

Sustainable development requires that domestic institutions work in a coordinated manner rather than in organizational isolation. It requires not only cross sectoral, but also multi-level coordination with the active involvement of all stakeholders. It is in recognition of this need, that India has in place a host of institutions and mechanisms both at national and state levels, each having different role and responsibilities. India as also recognized policy development and stakeholder engagement in decision making and action plans. Much more, however, needs to be done the road to sustainable development.

This paper discusses some of the institutions that play an important role in furthering India's journey towards sustainable development. The nature and quality of national institutions and the level of political commitment is crucial in providing development inputs (including public funds). Inter-ministerial and state-center coordination is an imperative for efficient public delivery and effective functioning of the politico-administrative machinery in the country.

Ministries and Departments:

Institutions play significant role in the designing of strategies and their effective implementation to achieve desired goals. These institutions could be sector specific ministries and development of the government, the judiciary, some objectives specific commissions or councils or multi-sectoral authorities, and the research institutes and universities creating the knowledge support for moving towards sustainable development. With the increased emphasis on sustainable development, the government has also initiated

Several measures that promote inclusive growth and environmental sustainability as discussed in earlier.

Environmental Planning Sustainable and Development:

- Overall environment (MoEF) Ministry of environment and Forests.
- Energy and Power (MNRE) Ministry of New and Renewable Energy, (MoP) Ministry of Power

- Water (MoWR) Ministry of Water Resources
- Land (MoRD) Ministry of Rural Development
- Awareness (MoHRD) Ministry of Human Resource Development
- Science and Technology (MoS&T) Ministry of Science and Technology, (MoES) Ministry of Earth Science, (MoCIT) Ministry of Communications and Information Technology.

Activities and programmes of government of India are organized and implemented through a number of ministries, departments, and agencies at different levels. These ministries and developments across the sectors work individually as well as in tandem with each other to attain socioeconomic development and environmental sustainability.

Provisions in Constitution of India:

In the constitution of India and states, it is the duty of the state “protect and improve the environment and safe guard the forests and wild life of the country.”It imposes a duty on every citizen to protect and improve the natural environment including forests, lakes, rivers and wild life. Reference to environment has also been made in the directive principles of state policy as well fundamental rights. The department of environment was established in India 1980 to ensure a hearty environment for the country. This later become to ministry of environment and forest in 1985.The constitutional provisions are backed by a number of laws etc. rules and notifications the Environment protection Act 1986 came in to force soon after the Bhopal gas tragedy and a considered umbrella legislation as it fills many gaps existing laws. There after a large number of laws came in to existence as the problems began arising, for example handling and management of hazardous. Waste rules in 1989 several studies have shown the government efforts at the safe guarding environment (Chauhan & Chauhan Ecological destruction and environmental jurisprudence)

The Environment Protection Act 1986:

The Environment protection Act was enacted in the 1986 with objective of providing for the Protection and improvement of the environment it empower the central government to establish authorities (under the section), charged with the mandate of preventing environmental pollution. In all its forms and to tackle specific environmental problems that are peculiar to different parts of the country the Act was amended in 1991

- 1) The Hazardous Wastes Management and Handling Rules 1989
- 2) Manufacture, Storage and Import of Hazardous and Chemical Rules in 1989
- 3) Police Statement for Abatement of Pollution 1992

- 4) The Air Preservation and Control of Pollution Act 1981
- 6) The Environmental Protection Act 1986
- 7) The Environmental Protection Rules 1986
- 8) The National Environment Appellate Authority Act 1997
- 9) The National Environment Tribunal Act 1998

Suggestions Environmental planning and development:

The measures suggested to urban planning and development. And also improve the quality of urban environment.

Over population is the root of all pollution problems. The total impact on environment is simply proportional to total pollution. The population control is needed both in urban and rural areas. There is also need for checking rural to urban migration by providing employment opportunities and better civic amenities.

Industrial waste water is to be treated and reused on conservation of water and reduction of pollution of nearby surface water. Recycling of industrial wastes and treating of industrial effluents.

Automobiles are the main sources of pollution in urban areas. To check it, public transport system should be encouraged. No vehicles should be allowed to emit the pollutants above the nights.

The indiscriminate exploitation of groundwater and other natural resources like agricultural, pastoral, grazing and forest lands to be preserved. Provision storage facilities for rainwater harvesting in each house, making it mandatory by the corporation, increase of percolation tanks in different parts of the city to augment the water levels in well/tube wells with the supply of drinking water.

There is need of preservation of for green areas, recreation, lakes and ponds and parks and playground etc.

There is need to apply of GIS in urban and rural planning specially in mapping of slum areas, management of solid waste, land use planning and also mapping encroachment and smooth administration.

There is need to change the life style and outlook of urban people. Every urbanite should think that it is his sacred and patriotic duty to preserve environment for the benefit of one and all. One should develop a consciousness of the preservation is considered to be the highest stage of civilization.

Conclusion:

Environmental pollution has been large scale pollution of the natural environment in India, especially after independence, as a result of unprecedented urbanization and industrialization. The most impotent source of pollution in India is its fast growing population. Most parts of India are new crowded with people resulting in large scale consumption of resources and creation of wastes. Pollution problems increase almost in proportion to the increase in population because the pollutants and wastes also increase proportionately. In India, the problem of environmental pollution is future complication by widespread poverty of the masses. A large proportion of Indian population lives below the poverty line in slum areas without basic civic amenities. In fact, poverty and underdevelopment are India’s prime pollution problems which are roots of the human environment in the country.

Table 1: Number of urban centers and urban population in India

Census Year	Number of Urban Agglomeration/town	Total Population	Urban Population	Rural
1901	1,827	23,83,96,327	2,58,51,873	21,25,44,454
1911	1,825	25,20,93,390	2,59,41,633	26,15,17,572
1921	1,949	25,13,21,213	2,80,86,167	22,32,35,046
1931	2,072	27,89,77,238	3,34,55,989	24,55,21,249
1941	2,250	31,86,60,580	4,41,53,297	27,45,07,283
1951	2,843	36,10,88,090	6,24,43,709	29,86,44,381
1961	2,363	43,92,34,771	7,89,36,603	36,02,98,168
1971	2,590	59,81,59,652	10,91,13,977	48,90,45,675
1981	3,378	68,33,29,097	15,94,62,547	52,38,66,550
1991	3,768	84,43,24,222	21,71,77,625	62,71,46,597
2001	5,161	1,02,70,15,247	28,53,54,954	74,16,60,297
2011	8,410	1,21,01,93,422	37,71,05,780	83,30,87,662

Source: Census of India Report

Table 2 Composition of Solid Wastes in Major Cities: 1997 (in Percent)

Cities	Non-Biodegradable				Degradable	
	paper	plastic	metal	glass	Ash earth	
Mumbai	10.00	2.00	3.60	0.20	44.20	40.00
Kolkata	3.18	0.65	0.66	0.38	34.00	47.00
Delhi	6.29	0.85	1.21	0.57	36.00	35.00
Bangalore	4.00	2.00	1.50	1.00	13.50	78.00
Nagpur	1.88	1.35	1.33	1.34	41.42	34.81

Source: India Development Report: 1997

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