

Urban Environment - Sustainable Development

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ABSTRACT

The Article discusses Ecological Sustainable Development and the factors that lead to the ecological degradation in the context of Urbanization. Population growth is the key factor for the environmental urban pollution. Rapid industrialization is taking place at the cost of the ecology causing noise pollution, air pollution etc. Urban transportation is also the major factor for the environment pollution. The implications of sustainable development can be effectively addressed only through international co-operation in developing, accessing and diffusing appropriate knowledge and technology, especially for developing countries. By improving human settlement, creating environmental awareness in the citizens, implementation of integrated planning and management we can improve the sustainability of the environment. International co-operation to develop appropriate technologies for sustainable development should start with the identification of local needs. The precautionary approach is to be applied by states according to their capabilities for the substantiating the environment for the present and the future generations.

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Introduction

The ancient Indian culture specifies through Rig-Veda that Universe consist of five basic elements earth, air, fire, water and space called Panchabhootha. India has a tradition of protecting and worshipping the nature since times immemorial and hence the land trees and environment were placed on a high pedestal. The human activity was governed by the various positions of the sun and the moon, our houses and buildings were built after taking into account the weather conditions. The awareness regarding the nature and ecological equilibrium, which was considered to protect environment. It is evident from the history that the man has been endlessly struggling to manage his environment so as to improve his well-being. Presently because of industrial, scientific and technological revolutions the struggling capacity of man increased by exploiting the natural resources beyond his control by military emissions, nuclear explosives, and hazardous industrial emissions etc.

The UN Conference on the human environment (1972) stated that many parts of the earth, are affected by dangerous levels of pollution of water, air, earth etc are the major and undesirable sources for disturbances to the ecological balance. The biosphere destruction, depletion of irreparable resources and gross deficiencies that is harmful to physical, mental and social health of a man. Taking this as a basis the world community

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signed Stockholm declaration 1972 for prevention and protection of human environment for the first time. India being a representative to the declaration took a decision to take appropriate steps for the preservation of its natural resources including the preservation of quality of air to control air pollution. In this regard India enacted legislation The Air (prevention and control of pollution) Act 1981. The Act provided provisions related to protection of quality of air and to control all forms of pollution, that result from industrial and vehicular emissions. However human activities also contribute to the air pollution like traffic, heating, use of domestic fuel etc effect and the human health, animal life, vegetation and property. A part from this the Environment (protection) Act 1986 was passed by our parliament for protecting the environment at all levels. That the rapid urbanization is causing pollution and the efforts of parliament, environmentalists and others must be to prevent the same. In spite of all there should be sustainable development, to sustain the quality of environment. This paper examines in detail the developments and its impact on environment and sustainable development paying special attention to relevant issues. It specifies natural and socio economic characteristics of urban systems, which are taken into account for defining environmentally sustainable development in cities.

Urbanization

“Urbanization” is the expansion of a city, namely the proportion of total population or area in urban localities or areas (cities and towns), or the increase of this proportion over time. It can thus represent a level of urban relative to total population or area, or the rate at which the urban proportion is increasing. Both can be expressed in percentage terms, the rate of change as a percentage per year, decade or period between censuses. For instance, the United States or United Kingdom have a far higher urbanization level than China, India or Nigeria, but a far slower annual urbanization rate, since far fewer of the population are rural dwellers in the process of moving to town. Los Angeles is a great example of urbanization. The rate of urbanization over time is distinct from the rate of urban growth, which is the rate at which the urban population or area increases in a given period relative to its own size at the start of that period. The urbanization rate represents the increase in the proportion urban over the period. In terms of a geographical place, urbanization means increased spatial scale and/or density of settlement and/or business and other activities in the area over time. The process could occur either as natural expansion of the existing population (usually not a major factor since urban reproduction tends to be lower than rural), the transformation of peripheral population from rural to urban, incoming migration, or a combination of these. In either case, urbanization has profound effects on the ecology of a region and on its economy².

Urban generated pollution comes from both localized and dispersed, or point and non-point, sources. Major point sources include municipal sewage, industrial outfall, and air emissions from power plants and heavy industries. Non point sources include silt from

² Urbanization.ask.dyndns.dk

earth moving activities, storm runoff from roads, home gardens, and industrial sites, infiltration from aquifers contaminated with sewage or industrial chemicals, and automobile emissions.

Rapid urbanization is expected to continue without any hurdles. Projections show that over half of the world's population lives in urban areas by the year 2005. Estimate is that by the year 2025 more than half of the world's population will live in mega cities. This hyper urbanization trends and the concentration of urban pollution in the big cities are developing to bring not only the problems of resources limitation, and add new problems as well. Urbanization has both direct and indirect impacts on human environment.

Development of metropolitan areas at the all sub-regional or even the regional levels is important for the economic development and play a dominant role in future land use. At the same time the protection of landscape and natural parks and forests in metropolitan areas will require a strict land use plan and in some cases ownership of such common by government organizations. Hence economic, social and environmental aspects have to be included in a comprehensive urban infra-structural plan for the sustainable Development.

Sustainable Development

Sustainable Development has been practiced by many cultures, but the industrialized world first became interested in the concept in the 1960s. Many credit Rachel Carson and her book "The Silent Spring (1962, Penguin Books) as the catalyst for worldwide acknowledgment of environmental problems. In the following years a number of publications including Paul Erlich's Population Bomb (1968, Buccaneer Books) and the Club of Rome's Limits to Growth (1972, Pan Books) drew attention to Global Development issues.

In 1987, Sustainable Development was defined by the world commission on the Environment and Development (in the Brundtland Report) as "development that meets the needs of the present without compromising the ability of the future generations to meet their own needs"³. Unfortunately this definition remained vague and little guidance was offered on how countries could develop coherent sustainable development policies.

The concept of sustainable development was first given prominence at the UNCED⁴, The Earth Summit in Rio in 1992, following which the notion of sustainable development rapidly gained wide currency and encouraged a greater awareness of the major environmental problem and disparities in the world. The global companies are engaged in a wholesale migration of polluting industries to developing countries has no basis in fact. Pollution control is a very small component of the cost of production in any industry. So fair globalization requires sustainable development strategies to entitle everybody to a decent standard of living.

There is common understanding that sustainable development implies a better balance between economic, social and environmental goals in policy formation as well as long-

² en.wikipedia.org

⁴ United Nations Conference on Environment and Development

term perspective about the consequences of today's activities such as industrialization and urbanization etc. Sustainable Development is capturing the attention of planners, politicians and business leader. Within the academic sphere its study is increasingly breaching disciplinary boundaries to become a focus of attention for natural and social scientists alike in studying such a key concept, it is vital that there is a clear definition of what it means, how it is applied on the ground and the influence it exerts upon people's perceptions of change in the physical environment, economic activity and society.

Ignoring the issues of Sustainable Development has many possible consequences, such as rising sea levels, extreme droughts, erosion and loss of forests, increase in slum populations, species extinctions and collapsing fisheries. There is also increasing evidence that issues such as water scarcity play a role in internal violence and regional conflicts in some parts of the world.

Since Rio, there has been progress in developing countries in including reducing levels of absolute poverty and increasing attention to environmental issues and by legislations such as India, Thailand, etc. But still in some areas there has been significant deterioration, including water, soil and bio-diversity.

The Sustainable development challenge remains urgent and acute, for protection of the environment through out the world. Because for each country, the challenge, and the strategy that it chooses to follow in response, will be different. All however will require deep structural changes, in terms of their economy, society and politics.

The FAO⁵ has identified considerations for technical co-operation that affect tree types of sustainability.

- ? Institutional Sustainability
- ? Economical and financial sustainability
- ? Ecological sustainability

Institutional sustainability

Institutional sustainability can strengthened institutional structure continues to deliver the results of the technical co-operation to the ultimate end-users? The results may not be sustainable if, for example the planning unit strengthened by the technical cooperation ceases to have access to top-management or is not provided with adequate resources for the effective performance after the technical co-operation terminated. Note that institutional sustainability can also be linked to the concept of social sustainability, how social structures and institutions can sustain the interventions.

⁵ Food and Agriculture Organization

Economical and financial sustainability

Can the results of the technical co-operation continue to yield an economic benefit after the technical co-operation is withdrawn? For e.g.: - the benefits from the introduction of new crops may not be sustained, if the constraints to marketing the crops are not resolved. Similarly, economic (distinct from financial) sustainability may be at risk, if the end-users continue to depend on heavily subsidized activities and inputs.

Ecological sustainability

Are the benefits to be generated by the technical co-operation likely to lead to deterioration in the physical environment (thus indirectly contributing to a fall in production) or well-being of the groups targeted and their society?

Out of all these three types Ecological Sustainability more related with the environmental issues.

Factors which are contributing the Urban Pollution

- ? Air Pollution
- ? Population growth
- ? Industrialization
- ? Transportation
- ? Globalization
- ? Housing and building
- ? Food supply
- ? Water and electricity
- ? Peace and security
- ? Noise Pollution

Air Pollution

Pollution may be defined as contamination of the environment in such a way that it creates hazards or potential hazards to health and well being of living and non-living beings. Air pollutant means any solid, liquid or gaseous substances including noise present in the atmosphere in such concentrations as may be or tend to be injurious to human beings or other living creatures or plants or property or environment. Air pollution means the presence in the atmosphere of any air pollutant Air pollution affects adversely man and material, flora and fauna, humans by breathing problems, skin blood, eye and lungs. The Urbanization process is deteriorating natural resources by increasing pollution.

Due to emissions of hazardous chemicals from neighboring industries, or refineries and from vehicular pollution, Taj Mahal⁶ at Agra, changing its color from white to yellowish.

The polluter pays principle applies to air pollution, as well as green house emissions. The right to human and environment is indirectly approved in M.C.Mehta case. In M.C.Mehta v. Union of India⁷, the Supreme Court directed the company manufacturing hazardous and lethal chemicals and gases posing danger to health and life of workmen and people living in its neighborhood to take all necessary safety measures before reopening the plant. The second M.C.Mehta v. union of India⁸ it modified some of the conditions for the environmental protection and life by adopting absolute liability principle. To encourage sustainable development the costs of pollution and environmental damage must be weighed against the benefits. Diesel engines are a very significant source of pollution, which is considered to be the most dangerous of all common air pollutants. Sustainable polices need to be developed to reduce the impact of this toxic pollution on our health.

Population growth

Population growth is the key factor for the environmental pollution. Increase in population demands additional requirements for food products, goods and commodities etc. The population increase has given rise to overcrowding, noise, insects, rodents, air pollutants and street filth. These factors are in turn effect the human health. In thickly populated cities like Delhi, Mumbai etc. the serious problem is air pollution and deficit of oxygen in the environment. Water is essential for our survival; the demand for it is growing with the increase in population. The technology for extracting ground water is so advanced that we neglect to harness surface water. We continue to exploit ground water resources despite realizing that it is unlimited. And we are also polluting the rivers and also marine water extremely by discharging the sewerage and hazardous waste in to it. It is evident from MC Mehta Vs Union of India⁹ that Ganga pollution was caused extensively due to over population.

Poverty often promotes environmental destruction as poorer people rely heavily upon extraction of natural resources. At the same time environmental degradation worsens poverty, resulting in a vicious cycle of environmental degradation and human suffering. Combating poverty is an important step in the struggle to protect the environment and for sustainable development. The areas with the most rapid human population growth and highest population density generally harbor the highest diversity of species. A variety of strategies are currently being used to balance population growth, economic development and environmental health in order to attain Sustainable Development. The strategies include changing farming practices, providing new kinds of tourism and designing more environmentally suitable conditions.

⁶ MC Mehta Vs Union of India AIR 1997 SC 734

⁷ AIR 1987 SC 965

⁸ AIR 1987 SC 982

⁹ AIR 1988; SC 1115

Industrialization

Man has been inventing new things, methods, in order to meet his requirements or to raise his standards of living he has been carrying on various activities by exploiting natural resources. Due to rapid industrialization process release of noxious and hazardous substances into the atmosphere. When smoke and dust combine with water vapor it forms smog, which is very dangerous to human life. On December 4, 1984, due of the release of poisonous gases (MIC) from Union Carbide Corporation India Ltd, thousands of people died, which was described as world's greatest gas disaster happened in Bhopal. Global warming, ozone depletion, acid rains etc. are the results of industrialization.

In *Vellore Citizen's Welfare Forum v. Union of India*¹⁰, the petitioner filed a writ petition by the PIL¹¹ drawing the attention of the court towards the pollution caused by enormous discharge of untreated effluent by the tanneries and other industries in the State of Tamil Nadu. It was argued that due to discharge of untreated effluent the river water becomes unfit for the consumption and the physio-chemical properties of the soil are no more suitable for agricultural purposes. The court held that while such industries are of vital importance for the country's progress as they generate foreign exchange and provides employment avenues, but having regard to pollution, caused by them, principle of Sustainable Development has to be adopted as a balancing concept between ecology and development. The court held that the Precautionary Principle and Polluter Pays Principle is essential feature of Sustainable Development and have accepted as part of law of land these two principles. The court directed the closure of these industries unless they install pollution control devices, pollution fine shall be recovered as arrears of land revenues. The Court suggested for constituting a special bench 'Green bench' of Madras High Court to deal with these and other similar environmental cases.

Transport

Transportation is the single largest contributor of air pollution. In urban areas it is contributes to forty five per cent of world's air pollution, in the form of pollution from road vehicles, railways, aircrafts, ships and other combustion of fuel i.e., diesel and petrol. The number of air pollutants discharged into the atmosphere, affect people with various chemical infections and reactions decreasing peoples age span. Transportation also accounts for man-made ozone.

Efforts are being made all over the world to increase the sustainable development patterns in the areas of transportation. Hence Sustainable transportation is a part of a broader strategy of transportation and land use planning for sustainability. The various strategies for increasing transportation sustainability, include demand management,

¹⁰(1996) 5 SCC 647

¹¹ Public Interest Litigation

operation management, pricing policies, Vehicle technology improvement, clean fuels, integrated land use and transportation planning. In developed nations, special attention is being given to the sustainability of current and emerging land use and transportation patterns. This reflects both the significant impacts that current pattern of transportation have on the environment and the interaction between transportation, land use and activity systems.

Globalization

The rapid growth of technology due to inventions has increased, making people prefer more luxuries. The multi nationals are instruments of foreign direct investments facilitating capital inflow. They are the principle vehicles for the transfer of the host country in the international trade and markets through their already established global networks. The multinational corporations impose upon the developing countries; products and ideas originated in the developed countries and also change the consumption patterns of the people. For globalization rapid industrialization and urbanization are major contributory for the exploitation of the natural resources and environmental pollution.

Housing and Building

Expansions and improvement of housing due to industries in cities is causing the rise of demand for shelter increasing slum pollution. This kind of pollution is hazardous to the environment and as well affects the public health and other living organisms. To combat this problem green building techniques must be followed while taking housing and building activities. These “Green” building techniques like energy efficiency, improved indoor air quality, green material selection and sensitive site development provide a higher level of comfort and livability, reduce utility bills, and add value to the sustainable development.

Food supply

Due to increase in urban population the maintenance of very low levels of consumption of food rich in proteins, minerals and vitamins is becoming very difficult unless there is major improvement in the technologies of production, processing, transport of them and the prices in consonance with the great majority of urban residents.

Highly efficient food security prediction and warning system should be established which would include forecasts of natural conditions on agricultural production and to help in monitoring the growth of the food production environments. Hence emphasis should be paid to the monitoring of factors like soil fertility, soil and water erosion, and the state of pollution in the agricultural environment.

The quality of the environment for food production should be improved to ensure the production of contaminate – free food sustainability. Food storage, processing and

distribution should be improved at all levels. The use of pesticides and non-degradable plastic films should be strictly controlled, and the use of low residue, less toxic pesticides and degradable films should be encouraged for sustainable development. The protection and rational utilization of natural resources has become necessary for the sustainable development.

Water and electricity

Water and energy are the two most important factors necessary for the development of any country specially the developing one. Therefore the development approach now days in the prevailing competitive environment should take a hard look at water and power needs at the planning stage itself along with their effective monitoring during implementation stage for sustainability. The utilization of the existing infrastructure that was already developed should be maximized through regular technological improvements as well as innovative skills.

The acute shortage of water is causing unhygienic conditions, and they're by causing various health problems to mankind. Due to shortage of water the contents of the oxygen in the air is decreasing on account of non-plantation.

Peace and security

Urbanization requires political and administrative management of a very high order, which ensure adequate access to the most basic needs like food and water. Progressive improvements go the essential services, housing and for increasing opportunities of gainful employment and sustainable development proper management is required.

Noise pollution

Noise is an unwanted, undesired, unpleased sound and sound, is hazardous to human health. The sources of noise pollution vary from industries, loud speakers, automobiles, aircrafts, trains construction work, radio, television, even domestic usages like grinder, cooker etc. In India we have no specific statutes relating to noise pollution. However certain provisions are provided as under:

- ? The Environmental (Protection) Act 1986
- ? Motor vehicles Act- 1988 and Rules framed there under
- ? Chapter 3 of the Factories Act- 1948
- ? Sections 268 and 298 of IPC 1860
- ? Articles 39 (E), 47, 48-A, 49 and 51(G) of the Constitution.

One deterrent to high-density living is urban noise pollution. Sustainable cities may need to take effective measures to discourage noise pollution from traffic, domestic and customary usages.

Suggestions

- ? Sustainable development should be given more importance.
- ? Improve the human settlement
- ? Enhance environmental patterns especially in schools and in all other educational institutions
- ? Integrated planning, management and implementation of environmental standards by the central and state Governments
- ? Vehicle emissions should be controlled by new intellect technologies
- ? Promoting local empowerment
- ? Impose strict duties upon the citizens for protecting environmental pollution.
- ? Working out options for recycling industrial hazardous substances with new technology or their disposal with minimum environmental pollution.

Conclusion:

The constitution of India confers a fundamental duty¹² on the human being as to freedom of equality and adequate conditions of life. However by destroying the natural environment man is committing matricide, thus destroying the mother earth. In the conscious of development man cannot destroy the ecology, nor can degrade the environment and injure the health of himself and that of his fellow human being. Hence appropriate steps regulating the environment should be the aim of every citizen.

The issue of urban environment and sustainable development is a complex one. Often environmental and development matters are intertwined hence a holistic understanding of them is necessary to achieve the goal of Sustainability. Therefore protecting the environment for future generations, and assuring safe and healthy surroundings for all, preserving natural resources, and promoting recycling and the use of renewable resources should be taken care for sustainable development in the context of urbanization.

Global sustainability issues, such as climate changes demand global solutions. Governments of developed and developing countries need to formulate and implement policies and program's to integrate and address sustainable development issues in the national research and innovation system. The implications of sustainable development means that it can be effectively addressed only through international co-operation in developing, accessing and diffusing appropriate knowledge and technology, especially for developing countries. International co-operation to develop appropriate technologies for sustainable development should start with the identification of local needs. The precautionary approach is applied by states according to their capabilities. Where there is threat of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

¹² (51-A (g))