URBAN DEVELOPMENT AND ENVIRONMENTAL POLLUTION IN JAIPUR CITY, RAJASTHAN

SUMMARY

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MINOR RESEARCH PROJECT

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SUMMARY

“A beautiful environment generates beautiful minds and beautiful minds lead to creativity”. As one contemplates the alluring words spoken by Dr. A.P.J. Abdul Kalam, it instantaneously makes one believe and treat ‘creativity’ as the birthplace for several indispensable questions responsible for many scientific discoveries enriching human societies. The recent studies show that in most of the developing countries including India, concern for environment is widely expressed. The “Environment” comprises all entities, living and non-living, natural or manmade, external to oneself, and their interrelationships, which provide value, now or perhaps in the future, to humankind. Environmental concerns relate to their degradation through actions of humans. We the human species and all our activities are also an integral part of the dynamic environment. Our biological survival is totally dependent upon the stability of our surroundings which is nothing but a complex set of processes in dynamic equilibrium. Hence automatically all our developmental activities if they are to be beneficial and sustainable must be anchored on the environmental and ecological precepts.

Environmental sustainability, Millennium Development Goal, is critical to the attainment of the other MDG goals. Natural resources are the basis of subsistence in many poor communities. In fact, natural capital accounts for 26 percent of the wealth of low income countries. Up to 20 percent of the total burden of disease in developing countries is associated with environmental risks. Poor women are particularly vulnerable to respiratory infections related to exposure to indoor air pollution. Acute respiratory infections are the leading cause of death in children, with pneumonia killing more children under the age of five than any other illness. A combination of unsafe water and poor sanitation is the world’s second biggest killer of children. About 1.8 million children die annually and about 443 million school days are missed due to diarrhea. Clean water and air are powerful preventative medicines. Sustainable management of natural resources contributes to poverty alleviation, helps reduce diseases and child mortality, improves maternal health, and can contribute to gender equity and universal education.

The key environmental challenges that the country faces relate to the nexus of environmental degradation with poverty in its many dimensions, and economic growth. These challenges are intrinsically connected with the state of environmental resources, such as land, water, air, and their flora and fauna. It is increasingly evident that poor environmental quality has adversely affected human health. This issue is also greatly realized by the every segment of the population. We cannot ignore the population from the environment and the process of development as these two are very intimately

related with human civilization. Man lives within the environment and get the better quality of life from the process of development. Environmental degradation has a serious impediment to economic development and the eradication of poverty in the developing world.

Jaipur is one of the first planned cities of India. Jaipur city was laid out on grid pattern with its streets as a fine example of a well planned city in Northern India and gained prosperity from its earlier time. Urbanization in the Indian subcontinent dates to about 2150 B.C. Mohenjodaro and Harappa cities were also planned in the proto-historic time. The cities featured gridiron patterns, elaborate drainage system, barracks-like blocks of houses and the buildings for shops and crafts. According to the city development plan Jaipur is a fast growing city, ranking 11th in the list of Indian mega cities with a population of 2.3 million and annual growth rate of 4.5 percent. Jaipur forms the urban core being the only million plus city in the state. It is the primate city of the state acting as the center for education and employment opportunities. It attracts migration from all parts of the state (70 percent of migrants come from within the state). The city offers jobs in commerce, services and the informal sector and shows a high economic growth compared to several other Indian cities. Jaipur is one of the most sought after tourist destination in the world with about 3000 tourists visiting the city every day.

OBJECTIVES:

The principal objectives of this study are enumerated below. These objectives relate to current perceptions of key environmental challenges.

- To examine the impact of growing urbanization on the overall quality of human life.
- To examine the impact of urbanization on environmental factors.
- To highlight the cause of the environmental degradation and its impact.
- To assess the pollution problems in terms of air, waste water and noise.
- To examine the land use and land cover changes and its management.
- To assess the industrial development and its impact on city's environment.

HYPOTHESIS:

Following hypotheses have been tested in the study:

- Urban development is a consequence of availability of economic opportunities.

- To identify the major issues related to infrastructural development and environmental pollution of the city.
- Urbanization leads to growth of slum population.
- Urban development leads to degradation in quality of life.
- Environmental degradation is the consequence of rapid urbanization.
- Urban development leads to mismanagement of transportation.
- To suggest the possible measures to cope up and manage problems arising out of urban development.

RESEARCH DESIGN AND METHODOLOGY:

Primary data has been collected through schedule in which the questions have been framed specially to study the development and environmental pollution level of Jaipur city. For this about 1000 persons have been interviewed through structured schedule. Apart from this secondary data has also been collected. The following secondary data have been collected.

- Demographic data of Jaipur, Census of India, Jaipur.
- Land use data of District Statistical Abstracts, Master Plan, Jaipur, JDA, Nagar Nigam, Jaipur etc.
- Air, noise and waste water pollution data, Rajasthan Pollution Control Board (RPCB), Jaipur.
- Garbage and solid waste data from RPCB, Rajasthan Pollution Control Board (RPCB) and Nagar Nigam, Jaipur.

STUDY AREA:

Jaipur is situated in the eastern part of Rajasthan, surrounded on three sides by the rugged Aravali hills. It is surrounded by Alwar and Sikar in the North; by Sikar, Nagaur and Ajmer in West; by Ajmer, Tonk and Sawai Madhopur in the South and by Dausa and Bharatpur districts in East. It has an average elevation of 430 meters. Jaipur was founded in 1728 A.D. Maharaja Jai Singh was the founder of Jaipur city which is famous for its wonderful architectural planning. The city has many historical monuments and buildings even as on today. The climate of Jaipur city is semi arid and average rainfall per year is 556.4 mm. The rainy season lasts from June to September. The dry bulb temperature lies between 45^0 C to 25^0 C in summer and 22^0 C to 8^0 C in winter. The city is renowned for heritage and its color symmetry and thus known as the pink city. According to the census 2011, Jaipur district has a population of 6,663,971, which gives it a ranking of 10th most populous district in India. The district has a population density of 598 persons per square kilometer and a population growth rate of 26.91 percent in the decade 2001-2011. The gender ratio of this district is 909 females for every 1000 males and a literacy ratio of 76.44 percent. As of 2011, Jaipur has a population of 3,073,350. The Population of the Jaipur Metropolitan area is 3,646,590.

POPULATION CONTROL AND MANAGEMENT:

One of the burning development issues most developing countries in the world are facing is population. As per United Nations population statistics, the world population grew by 30 percent between 1990 and 2010 which is an alarmingly high rate. Excessive population has various adverse effects including undue pressure on resources in the cities. More people mean more consumption which in turn means more exploitation of fixed and exhaustible resources. In the last centuries, the population has been increasing exponentially in cities. As the problems associated with it have hence also been increasing exponentially, timely resolving of the problem has become of the essence, so as to avoid catastrophes. Depending on the measures used to manage the population, the population size can be reduced slower or faster. However, regardless of the measure used, the reduction of the population will still take significant time. For the time being, besides engaging on this population management option, we hence also need to implement additional measures to combat climate change. People need to be told and made to understand the consequences of having too many children. Government and non-government institutions can carry awareness campaigns informing people how they will be unable to provide good nutrition, education or medical facilities to their children if they have too many. Population is also a reason for illiteracy and diseases and malnutrition and the negative effects of it are required to be communicated to the general public to expand their reasoning and understanding.

CONSERVING AND ENHANCING ENVIRONMENTAL RESOURCES:

The area faces several environmental challenges that it must address to ensure continued economic growth that is sustainable and equitable. The foremost challenge is to ensure that development activities do not erode the natural resource base on which these are dependent. For example industrialization, and urbanization have placed an increasing demand for water in the city. Water, land and forests are key resources that must be conserved and enhanced. All these should be done at grass root level.

Sewage Management and Sanitation: Sewage management is at its inception stage. Hence, there is a need to build infrastructure for proper conveyance, treatment and disposal of sewage. Moreover, urban slums are facing problems of inadequate sanitation facilities, and require significant attention.

Solid Waste Management: With growing urbanisation and economy of the urban regions in the state, generation of municipal solid waste is on the rise. The usage of plastics is despoiling the landscape, blocking drainage systems, and affecting health of animals. There is a need to ensure proper collection, segregation, processing and disposal of solid waste.

Public Transport: Most of the cities of Rajasthan do not have an efficient public transport system, which has led to tremendous growth of private vehicles. An effective public transport system (based on cleaner fuels) depending on the city demand and characteristics is needed. Metro and Public transport is most affordable means to develop in the city. E-rickshaw (battery operated) should be encouraged.

Urban Slums: Urban slums in Rajasthan are facing problems of inadequate drinking water, sanitation facilities, sewage conveyance, collection of solid waste etc. Hence, this section of society demands specific attention.

Climate Change: Climate Change is today a reality and global issue. Since, about 60 to 75 percent of total energy is consumed in urban areas. Many cities in the developed world are planning to transform themselves into green metropolis over the next 10-20 years. Cities, especially fast growing cities in developing countries, are highly vulnerable to the impacts of climate change.

Climate Change Risks: Climate change will be a stress multiplier in the urban environment, especially impacting sectors such as water and sanitation, health, energy and infrastructure, with the population residing in informal settlements and slums being at high risk. Urban areas are also a significant source of green house gas emissions from fossil fuel consumption and solid waste generation. Hence, many of the actions to be implemented herein are also required from the perspective of addressing climate change concerns in urban development.

Water Management: Demand for water from industry, tourism and recreation, as well as sanitation and environmental purposes, has been growing apace. There has also been a sharp increase in drinking water demand with increase in population. The following measures can be taken.

- Comprehensive inventory of potential and actual water resources, perennial and ephemeral; mapping and human influences, industrial activities.
- A regulatory system should be set up for regulation of rain water harvesting at ward levels to regulate withdrawals, non-consumptive use, discharges, and conversion should be empowered to regulate rain water harvesting system.
- Improvement in the efficiency of operation and maintenance, water rates may be charged for commercial and drinking purposes. A program of water metering for water management purposes should

apply to all significant water users irrespective of source and water ownership.

CONCLUSIONS:

1. Reduce fertility rates and control population, reducing pressure on urban areas. Educate and inform the people about the gains of environmental protection and sustainable development.
2. Effective land use planning keeping in view the strength and weakness of the land resources is advocated so as to keep proper balance between the area put under various land uses to avoid distortions and imbalances. This can also be controlled the uneven growth of the city. Urban growth council can be set to control the urban uneven growth.
3. The existing legal provisions are inadequate to control the enormous problems of environmental pollution of various types in the country. Therefore, the judiciary has to play a more active and constructive role. This has become all the more essential in view of the lack of awareness in the masses of the pollution problems; lack of planning and the plenty of the industries and the local bodies in this regard. New jurisprudential techniques have to be devised to deal adequately with the problems of pollution control and protection of environment.
4. Environmental law should be implemented effectively by adopting new instruments, mechanisms and procedures like environmental impact assessment and environmental audit and incorporate environmental objectives in manufacturing processes, minimum usage of hazardous materials and toxic chemicals, careful usage of toxic gases will reduce environmental load.
5. Legal provisions granting a perspective right to pollute air and water should be constructing restrictively by the authorities.
6. Government must initiate the programs to create public awareness with regard to relation between human rights and environmental protection and also related laws.
7. Sincere commitment to good environmental practices must be supported throughout the globe for sustenance of life and adopting green technologies, viz, using solar energy, low CFC emitting technology, those which are highly innovative, cost effective, eco-friendly technologies.
8. The government must give emphasis to the conservation of forest lands and not only forest alone. It must address itself to the ecology, biodiversity and overall significance of forests including grasslands and to forests as a biotic community and as a life supporting factor to
9. Solar energy also needs to be given a much greater impetus; there is the sunshine available for a greater number of days in a year.

10. Tree planting in open areas along railway lines and roads, must be undertaken and adequate funds for both tree planting and their maintenance be provided for by the departments concerned.
11. Water is one of the most important factors in increasing productivity and forests play an important role in maintaining sustained supply of water for drinking and various other uses. Hence special emphasis should be given on water conservation and water harvesting, which can improve productivity substantially and will help in making more water available to mitigate the water crisis.
12. Ecologists, environmental scientists and conservationists must be involved in developmental projects so that they may be conducted in as ecologically sound a manner as possible.
13. City traffic systems can be improved through provision of better operated buses, e-ricksa, metro, improved information system and prioritization of bus flows through dedicated bus lane. The key message from the review of urban transport sector in India is that the proposed approach has to be comprehensive and serve a range of human needs.
14. Promotion of public transport will ideally reduce the traffic congestion on the streets by discouraging the use of privatized vehicles. One important factor which can help in this regard is the provision of dedicated bus lanes, which will greatly improve the speed of the bus traffic and may help in turning people to use public transport by establishing it as a faster mode of travel. Also, eradicating or controlling the mixed traffic situation will help in easing the stress level in traffic.
15. To discourage the demand some of the possible solutions can be in terms of parking charges and congestion taxation. Parking prices are must be governed by market oriented approach, which justifies the cost of the land which the vehicle is occupying. More parking spaces should be identifies and developed.
16. **Environmental issues**: Measures necessary for mitigating the adverse environmental impacts and rehabilitating the tourism places already environmentally damaged should be incorporated in the perspective plans.
17. **Eco-Tourist sites - Inventory and details**: The plan should list and evaluate existing/ potential tourist destination and centres and categorise them on the basis of inventory of attractions, infrastructure availability, degree of popularity, volume of traffic flow etc.
18. **Eco-Tourist sites - Categorisation according to existing and potential**: The plan should analyse and categorise existing/ potential destinations and centres, as a stand-alone destination, part of a circuit and/ or as major attractions for special interests groups, etc.

19. The walled city must be banned to enter petrol and diesel operated two and four vehicles. Only battery operated vehicle and bicycle should be allowed. This will create the sense of green clean city.
20. The encroachments and intrusion into public realm and spaces need to be checked and dealt with strong monetary fines and punishments. The multilevel; car parking shall also be developed for the visitors and
    a. Some streets shall be made vehicle free.
21. Government building, offices, colleges, schools etc. set an example by using more eco-friendly techniques like using solar power for lighting and reading. Proper waste management plans and increasing the green cover of the campus.
22. Create awareness among people especially illiterate and uneducated of slum area's people.
23. The government must also put in place legislation or incentives to promote the reclamation and reuse of treated wastewater for uses such as kitchen gardening, flushing sewers and toilets, air conditioning, cooling, and many other industrial uses in order to conserve fresh and potable water and reduce pollution load in the receiving water body.
24. The Land transformation process and direction of growth in different time periods show that Jaipur city is expanding towards west, south and south west directions. Apart from this, city is also developing along National Highways and State Highways.
25. Some fertile lands of western margins are going to convert in urban land use, whereas, due to lack of management and planning most of the surrounding wastelands are existing, which can be used for the urban purposes.
26. South east part of the city and their surroundings are comprises of less productive land and hence can be used in urban activities.
27. There should be regular cross check whether policies are properly implementing and executing or not.

Finally, it can also be concluded the more research work can be conducted on the issue to identify the population and environmental problems and results should be considered for the further development and planning.