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Environmental Challenges : Public Health and Sustainable Development in India

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Abstract: *India's economic growth over the past few years has raised the prospect of eliminating extensive poverty within a generation. But this growth has been clouded by a degrading physical environment and the growing scarcity of natural resources that are essential for sustaining further growth and eliminating poverty. It is no coincidence that the poorest areas of the country are also the most environmentally-stressed regions, with eroded soils, polluted waterways, and degraded forests. Simultaneously, rapid growth has unleashed greater public awareness and an unprecedented demand for the sound management of natural resources including air, water, forests, and biodiversity. Environmental sustainability is rapidly emerging as the next major development and policy challenge for the country, and will be central to the 12th Five Year Plan which is currently under preparation.*
Indian environment has been deteriorated remarkably in the past 50 years due to rapid decline in natural resources and severe increase in pollution level. Depletion of forests, population growth, vehiculer emissions, use of hazardous chemicals and various other undesirable human activities are mainly responsible for this degraded scenario of environmental health in India. It is, in fact, rendering considerable economic loss to the country and warrants serious attention of policymakers, administraters, scientists and people altogether to save the environment and humanity and to provide generational equity. The present paper deals with the threat of environmental degradation and suggests some possible remedial measures for eco-conservation in India. Now it is essentially advisable to become protector, producer and caretaker of natural Zresources and not the predator, polluter and consumer of earth.

Keywords: Environment, Pollution, Pesticides, Environmental Challenges, Public health, Climate changes, forest degradation

1. INTRODUCTION

Today, the environmental pollution is a growing threat to our country and has become a common phenomenon being observed both in towns and villages all over India. The heavy rush of population from villages to urban areas has resulted in over-crowding of cities. Rapid industrialization and urbanization have led to an increase in pollution particularly in metropolitan cities. About 72 per cent of the air pollution is due to vehicular emissions which is responsible for 12 times high risk for respiratory problems. In Delhi about 12 per cent of the school children are suffering from asthma.

More than 2000 crore litres of sewage water and about 5000 metric tonnes of garbage are produced per day in the urban areas which are polluting the surface and groundwater resources. Ganga, the most sacred river and a symbol of India's age old culture and civilization, has become the most polluted cultural river in the world. Industrial effluents containing various pollutants (particularly toxic metals and pesticidal residues) are drained to nearby lands and decrease the soil fertility (**Singh, 1989).** Plant bodies steadily accumulate these toxic substances in different parts (**Ray, 1990)** and thus affect human health. The metropolitan cities of India are considered as noisiest in the world due to lack of proper sound control system in our manufacturing plant and automobiles and also due to blasting of high sounding horns. Our industrialisation, mechanisation and vehicles have raised the level of noise in metro cities. According to a survey conducted by All India Institute of Medical Sciences, New Delhi, the average noise level in India's metropolitan cities

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is more than the prescribed international limit. Noise level above 100 decibel will be unbearable and injurious to various organs of man such as brain, heart and eardrum. The terrific sonic booms of super sonic jet planes not only rattle window glasses and fencing walls but also affect heart beating, hearing organs, liver functioning, brain, eye etc.

ENVIRONMENTAL CHALLENGES IN INDIA

Pollution: Water, land and air contamination associated with growth are increasing exponentially. Rapid investment in the manufacturing sector, that includes 17 highly polluting industries that are on the Central Pollution Control Board's "Red List", has fuelled this growth. The share of the most polluting sectors in India's exports has increased dramatically during the last decade suggesting that India could be emerging as a net exporter of pollution-intensive commodities. These trends indicate the need for greater investment in environmental management.

Coastal Zone Management: India's coastal zone is endowed with fragile ecosystems including mangroves, coral reefs, estuaries, lagoons, and unique marine and terrestrial wildlife, which contribute in a significant manner to the national economy. Economic activities such as rapid urban-industrialization, maritime transport, marine fishing, tourism, coastal and sea bed mining, offshore oil and natural gas production, aquaculture, and the recent setting up of special economic zones have led to a significant exploitation of these resources.In addition to the contribution of increased economic activity, coastal development and livelihoods are under stress due to a higher incidence of severe weather events, which have the potential to inflict irreversible damage to lives and property, for communities that are traditionally poor and vulnerable to economic shocks.

Environmental Governance: The pace of infrastructure investments, which could reach $500 billion in the 12th Five Year Plan, calls for integrated and coordinated decision-making systems. This is made especially challenging by fragmented policies and multiple institutional legal and economic planning frameworks, with often conflicting objectives and approaches.

Environmental Health: The health impacts from pollution are comparable to those caused by malnutrition and have a significant impact on the productivity, health and the quality of life. Environmental health challenges are largely caused by poverty-related risks associated with poor access to basic services, such as safe drinking water and sanitation, and poor indoor air quality. The contamination of surface waters and the spread of pathogens are promoted by the alteration of catchments and watersheds that have accompanied rapid urbanization and intensive farming. Despite significant improvements in rural water supply and sanitation over the past few decades, water-related diseases still account for a large number of avoidable child deaths every year.

Climate Change: India is highly vulnerable to climate change due to a combination of; (i) high levels of poverty, (ii) population density, (iii) high reliance on natural resources, and (iv) an environment already under stress (for instance water resources). By mid-century, the mean annual temperature in India is projected to increase 1.1º to 2.3 º C under the moderate climate change scenario of the Intergovernmental Panel on Climate Change (A1B), with anticipated deterioration of agro-climatic conditions. In the higher portion of that range, the loss to Indian GDP would be greater than the world average, and could be close to 5 %. Simultaneously, there is likely to be greater variability in rainfall, leading to higher risk of increased frequency and severity of droughts, floods and cyclones.

Environmental Effects on Public Health

The environment affects our health in a variety of ways. The interaction between human health and the environment has been extensively studied and environmental risks have been proven to significantly impact human health, either directly by exposing people to harmful agents, or indirectly, by disrupting life-sustaining ecosystems . Although the exact contribution of environmental factors to the development of death and disease cannot be precisely determined, the World Health Organization (WHO) has estimated that thirteen million deaths annually are attributable to preventable environmental causes . The report also estimates that 24% of the global disease burden (healthy life years lost) and 23% of all deaths (premature mortality) are attributable to environmental factors, with the environmental burden of diseases being 15 times

higher in developing countries than in developed countries, due to differences in exposure to environmental risks and access to health care.

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Air pollution

Air pollution is one of the top 10 killers in the world and is the fifth leading cause of death in India. It results in about 620,000 premature deaths which are caused by stroke, chronic obstructive pulmonary disease, ischemic heart disease, lower respiratory infections and trachea, bronchus and lung cancer, among others. The report highlights the heightened vulnerability of the poor. It calls for stringent actions on air pollution.

Water and sanitation

The report informs that about 37.7 million Indians are affected by water-borne diseases annually. Around 1.5 million children die due to diarrhoea alone, and 73 million working days are lost due to water-borne illnesses each year.

Estimates suggest that India loses Rs 36,600 crore every year due to water-borne diseases.

Referring to the connection between water and sanitation and malnutrition, the report says that by 2015, the figure of malnutrition should have dropped to 26 per cent as per the Millennium Development Goals (MDGs). But, the country fell short of the goal by seven per cent. Notwithstanding the progress, India still cannot answer why the malnutrition rate among its children is so high. The country's economy has doubled since 1991, when the government started counting the malnourished children. The world's largest programme to tackle child malnutrition, the Integrated Child Development Services (ICDS), has been in force in the country since 1975, much before any other country, save the US, introduced measures to tackle the problem, points out the report.

Malnutrition is prevalent in comparatively richer states as well. The survey indicates that higher income does not necessarily correlate with better health of children. India loses over US $12 billion in gross domestic product (GDP) due to vitamin and mineral deficiencies among its population. Malnutrition is not just about access to food. Children who are constantly exposed to faecal microorganisms demonstrate environmental enteric dysfunction or EED, where the gut becomes permeable and brings microbial products in contact with blood. This leads to activation of the immune system which down-regulates the growth factors in the body and leads to stunting.

States like Odisha, Chhattisgarh and Jharkhand – where more people defecate in open, have more malnourished children, comparatively.

According to official data, from 2006-07 to 2010-11, nearly 10 million toilets were constructed every year across the country under the Total Sanitation Campaign. These toilets remain largely defunct and are reportedly being used as storerooms. "Researchers are finding that immediate environmental factors like access to clean drinking water and, most importantly, access to sanitation for both the mother and the child are decisive in determining children's health," said Narain.

Climate change is leading to greater frequency and intensity of extreme weather events. Simultaneously, India has seen an increase in vector-borne diseases such as dengue and malaria. The report states that the potential period of spread of malaria has increased to 10-12 months (almost the whole year) which is up from four to six months. In Kolkata, dengue transmission takes place for 44 weeks in a year. With a 2.4 degree Celsius rise in temperature, transmission may continue for 53 weeks, increasing the risk of more people getting affected. Around 600 people died due to heat waves in Andhra Pradesh and Odisha in 2015. The report states that local solutions can help. In Ahmedabad, a maternity ward was shifted from the top to the ground floor. The move helped in reduction of heat-related problems in new-born babies.

The report informs of the impact of climate change on agriculture on agriculture, and the crop loss suffered by farmers in recent years. "We are seeing an increased severity and frequency of extreme weather events. Farmers in India are facing the double blow of agrarian distress and extreme weather events as a result of climate change," said Narain.

Forest degradation

The diseases of animals that were confined to forests are now affecting humans, says the report. These include zoonotic diseases – as many as 2.7 million people die of these diseases every year. These diseases cause illnesses among 2.5 billion humans every year. "The incidence of emerging infectious diseases among both humans and domesticated animals has increased sharply in the recent past. Over the past 70 years, more than 300 zoonoses – diseases transmitted from animals to humans – have been observed. They are increasingly being considered as threats to human society," says the report. Ebola, the killer virus, is one such disease-causing virus. It was first reported in 1976 and has exploded into a public health emergency. Loss of forests is linked to these diseases finding their way into human society.

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Body Burden also discusses diseases such as malaria and dengue at length. It reports that forest cover declined in most Indian states, the highest in Arunachal Pradesh, Madhya Pradesh, Maharashtra, Chhattisgarh, Jammu and Kashmir and Himachal Pradesh, among other states, between 1999 and 2013. The only states where forest cover grew in this period was in Tripura, Mizoram and Goa. Though India has a huge burden of such emerging infectious diseases, there is very little data on the number of people affected.

Pesticides

According to the report, WHO estimates that 13.1 million people in India will die of cancer by 2030. This is 20 times than the current death toll in the country. "Increasing number of studies are establishing that the risk of getting cancer has more do with the state of one's environment than his or her genetic makeup," says the report, drawing a connection between cancer and pesticides and other factors. It states that five top five states for pesticide use in the country are Maharashtra, Uttar Pradesh, Punjab, Andhra Pradesh and Haryana. It also cites data which show that cancer is on the increase in urban areas.

"There is a very tangible link between our environment and our health. In fact, environmental degradation's first assault is on our bodies and this is one of the biggest reasons why we try to protect the environment. But the linkage is complex and is often disputed. We need to join the dots. We are often not able to take crucial decisions as we really do not know what is happening to our health and how is it linked to the environment. We don't know and so we don't care. There is a conspiracy of silence," said Narain.

CONCLUSIONS

The rapid economic growth experienced by India is resulting in adverse and harmful environmental conditions that are affecting the people of India as well the wider global population. In the case of India, this is further exacerbated by the high population density and growth rates. The existing environmental laws, although cover a wide spectrum of environmental concerns, they seem to be ineffective due to lack of enforcement, the lack of resources, and technical challenges faced by a large number of Indian companies, especially the SMEs. Under these conditions, India has to adopt some sustainable actions that need to address the myriad issues facing the country including environmental degradation in order to sustain its prospects for continued economic growth (Ranganath, **2015).** Sustainable development, that is, both a prosperous economy and a healthy environment that in many respects is the goal of diverse interest in the area of environmental issues, is the key for the future of India and the world. Sustainable development implies managing the diverse interests of a prosperous economy and simultaneously maintaining a healthy environment. Based on extensive literature search, we recommend that India undertake a new approach in the fight against environmental pollution. The key element of this new initiative is the shared and cooperative participation of the people, the government, the industrial sector, and NGO's.

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