

Development in the Context of Conservation of Nature: The Harsh Reality

Amarjit Singh¹

¹ The Baba Jaswant Singh Trust, Ludhiana, India

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Address for correspondence Amarjit Singh, Law Graduate, Former Additional Solicitor General, Member Law Commission of India, Vice Chairman, The Baba Jaswant Singh Trust, Samrala Chowk, Ludhiana 141009, Punjab, India (e-mail: bjshospital1983@gmail.com).

Abstract

Human beings are moving aggressively toward the direction of development, but in doing so, they are compromising on nature and its components without even thinking for once about its dire consequences. This development directly relates to the economic growth, urbanization, and industrialization, but is often the result of exploitation of natural resources and destruction of the natural biodiversity habitats. This uninterrupted and relentless pursuit of development has posed a serious threat to our ecosystem as the delicate balance of our planet has been severely disturbed. Although there is an increased awareness among the masses about the consequences of unchecked development, efforts on conservation usually take a back seat when it comes to vested economic interests. This is largely due to lack of enforcement of environmental regulations and improper coordination between the policymakers, government bodies, local communities, and other stakeholders. This article discusses the factors responsible for creating an ecological imbalance in the name of development, the challenges we are facing while putting efforts to recreate balance with sustainable development, and highlights the need for a harmonious coexistence between human advancement and preservation of environment.

Keywords

- adverse effects
- development
- environment
- growth
- nature

Introduction

Human beings, claiming themselves to be the most sophisticated living organisms on the planet earth, may have developed technologically by leaps and bounds, but in doing so, they have lost their eternal connection with mother earth. Technically speaking, humans have made landmark achievements in the fields of science, economics, and overall self-development, but all this at the cost of jeopardizing the ecological balance.

Development, which is characterized by urbanization, industrialization, and expansion of infrastructure, certainly exerts extreme pressure on the natural ecosystem.¹

Unchecked development has led to injudicious use of natural resources, deforestation, and immense increase in levels of pollution. The resultant depletion of natural resources, destruction of natural habitats, and unhealthy environment are major reasons for the loss of balance in our ecosystem and that is how we are on the verge of total destruction.

Rapid urban expansion has encroached upon wildlife habitats, leading to biodiversity loss and extinction of several species of organisms over a period of time.² Industrial activities have caused pollution in air, water, and soil, thus jeopardizing the health of ecosystems and human communities alike.

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The burning of fossil fuels has exacerbated climate change, triggering extreme weather events across the globe.³

Striking a balance between the two seemingly divergent goals of human development and maintaining ecological balance is imperative for a sustainable future of our planet.

Development versus Ecological Imbalance

There are several factors pertaining to the process of human development that have adversely impacted the ecological balance. Let us have a close look at these critical issues and the level of their reverberations:

- **Depletion of resources:** To meet the requirement of the never-ending increase in population and the subsequent requirement by human beings, the natural resources are being utilized indiscriminately. Forests are being cleared and trees cut to meet the human requirement of space and wood alike. Fossil fuels are being used excessively, without realizing the harm being caused and ignoring the fact that no resources may be left for the future generations.⁴
- **Biodiversity loss:** Human expansion has encroached upon the natural habitats, thereby leading to the loss of biodiversity. In doing so, the natural habitats of several species have been eliminated, leading to extinction of many of them and the others moving toward a similar fate. The ever-increasing pollution and climate changes have further aggravated the rates of species extinction. This loss of biodiversity has reduced the resilience of ecosystems, thereby diminishing the availability of valuable genetic resources essential for agriculture, medicine, etc.⁵
- **Pollution:** Uncontrolled human activities have led to massive pollution in air, water, and soil. Industrialization has certainly happened at the expense of clean air and water, causing pollution at a massive scale. Whether it is the emission of harmful gases from the vehicles or the release of gases from the factories, all these have increased the levels of greenhouse gases in the environment, resulting in unclear air, further leading not only to climate changes but also to raised prevalence of respiratory disorders in humans.⁶ The release of harmful chemicals from the factories has been causing water and soil pollution, thereby directly damaging the flora and fauna. The total imbalance created in the environment due to pollution has reduced the quality of life aggressively over the past decade.
- **Waste generation:** Rapid population growth and urbanization have led to an increase in waste generation, including plastic pollution, electronic waste, and other hazardous materials. Improper and unchecked disposal of waste has polluted land and water bodies, harmed the wildlife, and posed serious health risks to humans.⁷
- **Climate change:** The most pressing environmental issue in today's era is climate change. Burning of fossil fuels for energy, deforestation, and industrial processes cause the release of greenhouse gases such as carbon dioxide and methane into the atmosphere, thereby leading to global warming. The rise in temperature has led to a shift in ecosystems as the geographical range of specific habitats

gets altered.⁸ There is no doubt that a definite correlation exists between climate change and increase in severe weather events such as hurricanes, tropical storms, floods, etc. All such calamities disrupt plant and animal life, thereby affecting the entire ecosystem as a whole. In addition to these, climate change has led to hotter temperatures, more severe storms, increase in droughts, a warm rising ocean, and more health risks.

Checks and Balances: Achieving Sustainable Development

The challenges posed by the selfish pattern of human development to the environment are highly significant. The need of the hour is to address the issues in a calculated manner to reduce the damage to a minimal level, if not completely eliminate it. This requires stern actions at local, national, and international levels, including formulation of robust policy frameworks as well as making sure that there is enhanced enforcement of environmental regulations. It is necessary to actively involve the local communities, indigenous peoples, and other stakeholders to ensure that the efforts are socially inclusive as well as culturally sensitive.

The introduction and implementation of sustainable practices in the fields of agriculture, forestry, energy utilization, and infrastructure development is perhaps the practical solution to the grave problem of ecological imbalance.⁹ Achieving sustainable development actually, in simple terms, refers to meeting the needs of the present, without compromising on the ability of the generations to come to meet their needs. This certainly requires a shift from the textbook approach to a more holistic approach, which lays emphasis on prioritizing the maintenance of long-term balance of ecosystems instead of focusing on short-term gains.

Additionally, it is highly essential that we address global issues in parallel lines such as poverty, inequality, and population growth so as to achieve sustainable development goals while safeguarding mother nature.¹⁰

The following initiatives may play a pivotal role in striking a balance between development and preservation of ecosystem:

- **Prevention is better than cure:** This fits so aptly when talking about messing up with nature and its resources and then later working on trying to undo the damage. Preventive measures such as limited usage of natural resources, utilizing the alternate sources of energy, strict enforcement of law on those who do not abide by the rules and regulations, and use of technology to check the levels of air and water pollution can certainly be put into use for reducing the extent of damage to nature.
- **Sustainable resource management:** Adopting sustainable practices in various growth sectors such as agriculture, water management, energy production, and forestry can certainly help decrease the depletion of natural resources, thereby snubbing the environmental degradation.^{9,10}

- **Actions to combat climate change:** Crucial steps need to be taken so as to combat the ever-increasing climate change issues. This includes saving energy at home, by utilizing alternate resources of energy such as solar energy, switching to electric/battery-operated vehicles, walking/biking or utilizing public transport, improving energy efficiency, and reducing greenhouse gas emissions by all means. All these are crucial for addressing climate change and its impacts.^{11,12}
- **Pollution control:** Implementing strict regulations on control of pollutants released from industries and transportation can definitely check the levels of environmental degradation.¹³ In addition to this, focus must be laid on the development of new technologies, which can better manage the waste released from the factories so as to minimize land, water, and air pollution. A combination of these two strategies seems to be the most practical solution to manage the havoc created by pollution in our environment.¹⁴
- **Protection and restoration of natural habitats:** It is time that specific and target-oriented actions be taken to protect the natural habitat areas to conserve the environment in its most natural state. In addition to this, it is also important to restore the degraded ecosystems so as to help preserve biodiversity.¹⁵ Such a management requires equal contribution of government and society, with both the parties working in absolute synchronization.
- **Implementing the concept of natural farming:** Natural farming refers to a chemical-free farming system with modern understanding of ecology. It is a diversified farming system that involves the livestock, trees, and crops, all together as one functional unit. It is certainly based on nonutilization any kinds of chemicals such as pesticides or insecticides in farming and using “on-farm biomass recycling” utilizing natural products such as on-farm cow dung–urine formulations, compost, maintaining soil aeration by use of earthworms, etc. This unique practice of farming not only preserves natural flora and fauna but also helps in maintaining diversity in crop production and restoring soil health and fertility. As there is no dependence on expensive chemicals, it ultimately helps reduce the cost of production. Natural farming per se offers a solution to problems, such as food insecurity, farmers’ distress, and health problems arising due to the residues of pesticides and fertilizers in food and water. It has an immense potential to generate employment, thus preventing migration of rural youth to urban areas in search of employment. Natural farming is the art, practice, and science of working with nature to achieve much more with less.
- **Adoption of the “reduce, reuse, and recycle” strategy:** This approach focuses on minimizing the consumption of new materials, reusing the existing materials, and recycling waste materials. To truly embrace the “reduce” principle, one must make sincere efforts to minimize both consumption and waste. By “reduce” of items, one not only reduces waste but also discovers innovative solutions on how to not throw away

everything in the bins and instead utilize it again in the best possible manner. “Recycling” finally helps conserve the resources in preventing the manufacture of everything afresh from raw materials and also prevents harmful materials from being disposed in the landfills.^{16–18}

- **Enforcement of environmental laws:** In India, it is the Ministry of Environment, Forest and Climate Change that takes care of enforcing the regulatory frameworks related to environment, biodiversity, forests, wildlife, and climate change. Bodies like the Central Pollution Control Board and National Green Tribunal have the power to issue directions, restrict operations, and impose environmental compensation against noncompliant institutes/industries. It is not that stringent laws do not exist in our country for regulation of human activities that are detrimental to the environment, what is needed is a strict but rational enforcement of these laws in the best interest of our ecosystem.¹⁹ Very few personnel in India are aware of the fact that violation of environmental laws can attract civil liability, criminal liability, or both.

It is quite evident that there is no deficiency of available legislations on environmental protection in India but what is lacking is enforcement of these legislations.²⁰ There is an urgent need for well-organized enforcement of environmental laws in India. The creative and innovative role of the Indian judiciary and the National Green Tribunal has been significant and laudable in this era. Pursuant to the provisions contained in Articles 48–A and 51–A[h] of the Indian Constitution, various public interest litigations have been instituted in the Supreme Court not only against industries/defaulters for failing in pollution control but also against Pollution Control Boards, directing them to take proper measures to ensure pollution control.

Further, for more effective enforcement of the legislations, it is advisable to set up “adjudatory bodies” in each state in India, which should consist of legal and environmental experts. One must remember as an ideal citizen of India that protection of the environment is a social compulsion and fundamental duty enshrined in Article 51–A[g] of the Indian Constitution.

- **Raising general awareness amongst the masses:** Last but not least, the need of the hour is for the masses to be aware of the need to put in extra efforts to be in harmony with nature and not to disturb the ecological balance. Both government and nongovernment bodies must organize awareness programs in rural as well as urban areas, highlighting the impact of unguarded human activities on the ecosystem and discussing the crucial steps that can be taken at the individual, community, state, and national level so as to preserve the ecosystem by all means.

Conclusion

Human growth has posed significant challenges for the environment, including the depletion of natural resources, massive rise in pollution levels, severe loss of biodiversity, erratic climate changes, and enormous waste generation.

Achieving a harmonious balance between human advancement and environmental preservation is an essential prerequisite for the well-being of the present and future generations.

By adopting sustainable development practices, converting the conservation principles into implementable policies, and acquiring global cooperation, we can pave a smooth way toward a more equitable future for both humanity and mother earth. Only by working together to balance the demands of development with the principles of nature conservation can we strike harmony with nature.

It is essential that we act now to the best of our ability to ensure a sustainable future for our better present and brighter future.

Conflict of Interest

None declared.

References

- 1 Wang W, Wu T, Li Y, et al. Urbanization impacts on natural habitat and ecosystem services in the Guangdong-Hong Kong-Macao "megacity.". *Sustainability* 2020;12(16):6675
- 2 Li G, Fang C, Li Y, et al. Global impacts of future urban expansion on terrestrial vertebrate diversity. *Nat Commun* 2022;13(01):1628
- 3 Ding G, Guo J, Ou M, et al. Understanding habitat isolation in the context of construction land expansion using an ecological network approach. *Landsc Ecol* 2024;39:56
- 4 Dey S, Sreenivasulu A, Veerendra GTN, Rao KV, Babu PSSA. . Renewable energy present status and future potentials in India: an overview. *Innovation and Green Development* 2022;1(01):100006
- 5 Muluneh MG. Impact of climate change on biodiversity and food security: a global perspective—a review article. *Agric Food Secur* 2021;10:36
- 6 Ahmed F, Ali I, Kousar S, Ahmed S. The environmental impact of industrialization and foreign direct investment: empirical evidence from Asia-Pacific region. *Environ Sci Pollut Res Int* 2022;29(20):29778–29792
- 7 Abubakar IR, Maniruzzaman KM, Dano UL, et al. environmental sustainability impacts of solid waste management practices in the global south. *Int J Environ Res Public Health* 2022;19(19):12717
- 8 Shivanna KR. Climate change and its impact on biodiversity and human welfare. *Proc. Indian Natl. Sci. Acad.* 2022;88(02):160–171
- 9 Opoku EEO, Dogah KE, Aluko OA. The contribution of human development towards environmental sustainability. *Energy Econ* 2022;106:105782
- 10 Gu W. Research on strategy optimization of sustainable development towards green consumption of eco-friendly materials. *J King Saud Univ Sci* 2024;36(06):103190
- 11 Shaheen SA, Lipman TE. Reducing greenhouse emissions and fuel consumption: sustainable approaches for surface transportation. *IATSS Res* 2007;031(01):6–20
- 12 Olabi AG, Wilberforce T, Obaideen K, et al. Micromobility: progress, benefits, challenges, policy and regulations, energy sources and storage, and its role in achieving sustainable development goals. *International Journal of Thermofluids*. 2023;17:100292
- 13 Wang M, Liao G, Li Y. The relationship between environmental regulation, pollution and corporate environmental responsibility. *Int J Environ Res Public Health* 2021;18(15):8018
- 14 Fallah Shayan N, Mohabbati-Kalejahi N, Alavi S, Zahed MA. Sustainable development goals (SDGs) as a framework for corporate social responsibility (CSR). *Sustainability* 2022;14(03):1222
- 15 Volis S. Conservation-oriented restoration - a two for one method to restore both threatened species and their habitats. *Plant Divers* 2019;41(02):50–58
- 16 Umar UA, Shafiq N, Ahmad FA. A case study on the effective implementation of the reuse and recycling of construction & demolition waste management practices in Malaysia. *Ain Shams Eng J* 2021;12:283–291
- 17 Hoffmann S. Challenges and opportunities of area-based conservation in reaching biodiversity and sustainability goals. *Biodivers Conserv* 2022;31:325–352
- 18 Maxwell SL, Cazalis V, Dudley N, et al. Area-based conservation in the twenty-first century. *Nature* 2020;586(7828):217–227
- 19 Fang L, Hipel KW, Kilgour DM. Enforcement of environmental laws and regulations: a literature review. In: Hipel KW, Fang L, eds. *Effective Environmental Management for Sustainable Development*. Dordrecht, The Netherlands: Kluwer; 1994:3–15
- 20 Saheb SU, Sessaiah S, Viswanath B. Environment and their legal issues in India. *Int Res J Environ Sci* 2012;1(03):44–51