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Ecology and environment: A study on Indian environmental history

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Abstract

In the twenty-first century, there are three major challenges to sustainability: the growing population's use of the planet's natural resources, global warming, and the depletion of fossil fuels. The ecological issue of our day poses a challenge to humanity. Because of human meddling in the natural world, the equilibrium of the environment and resources is disturbed. Certain animal races have vanished from the face of the planet because, as we humans are aware, all living things have equal rights. Concern over environmental protection has existed throughout history and continues to do so now. The environment is both a product of perception and a natural phenomenon. The diversity of perspectives regarding our surroundings adds a little challenge to our work. Numerous research on environmental issues has been conducted in the last few decades. The link between humans and nature is the axis of civilisation growth, and natural resources are essential to it. Human resource use and ongoing exploration for new opportunities to advance the economy are documented throughout history's many eras. Humans and civilisations advanced daily.

Land usage, forest clearances, and agricultural advancements are essentially not a region or a stage; rather, they are the result of centuries of observation. Needs and development mostly cause these indicators. Water is the source of life and a crucial element in ecology. The river systems and waterscapes play a significant role in the development of the economy, the flora and wildlife, settlement patterns, and culture and society. All societies are impacted by the hydrological

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cycle, which is the movement of water. Therefore, an effort is made to ascertain the significance of water, specifically river resources for irrigation, in the environmental history of India.

Key words : environmental issues, global warming, atmospheric pollution, depletion of natural resources, agricultural development.

Over the ast forty years of the twentieth century, environmental issues have drawn attention from all over the world. Environmental history has made a significant contribution by drawing historians' attention to contemporary environmental issues that are causing global changes, such as climate change, altered weather patterns, atmospheric pollution and ozone layer damage, depletion of natural resources like forests and fossil fuels, radiation risks from nuclear weapons testing, accidents at nuclear power plants, global deforestation, species extinction, and other threats to biodiversity, problems with waste disposal and other urban issues, pollution of rivers and oceans, disappearance of wilderness, and agents meant to affect the resources and environments of adversaries[11].

The Indo-Gangetic Plains offer a monotonous, gradational surface of considerable extent, the Himalayas exhibit the youngest and most highly diversified relief on Earth, and the Peninsula is dominated by an open senile topography that has witnessed huge periods of geological quiescence[25]. It is a history that attempts to explain why our environment is the way it is and how humans have shaped it, in addition to dictating the issues and possibilities of the future[6]. Understanding how people have lived, worked, and thought in relation to nature through the changes that time has brought about is the goal of environmental history[15].

Environmental history and agriculture :

Since humans have been practising agriculture for more than ten thousand years, and since agriculture has produced most of the food that humans have consumed from nature for at least the latter half of that time, agriculture history would seem to occupy a place close to the centre of gravity of environmental history from nearly the beginning[12].

Pressure on the land increased as the human population increased. Forests, woodlands, marshes, and savannas were lost to the expansion of sedentary agriculture and human settlements. Almost often, this kind of growth resulted in less vegetation overall, both in terms of quantity and diversity or, more accurately, in terms of biomass and biodiversity[4]. Agriculture has been and will continue to be the primary way that people alter the planet's landscapes and ecosystems[20].

Horticulture is merely the science of enhancing form, flavour, aroma, and colour; it is not an artistic endeavour in and of itself. In contrast, garden design employs artistic expertise to combine and arrange this knowledge[32].

Artificial irrigation systems were a crucial part of Indian agriculture, serving to enhance the natural abundance of the monsoon season. Building wells, tanks and canals has

been the main method used for this purpose[9]. India's agro-based economy is mostly dependent on the monsoons, which continue to be the foundation of agricultural development to this day[13].

The monsoon season's arrival acted as a water supply and storage mechanism for the following yearly cycle. It makes sense that the monsoon's failure had a negative effect on society by causing a water deficit, which also influenced agriculture. As a result, enormous amounts of water had to be stored for future planning seasons[22].

The environment and water resources :

Water is the source of life and a crucial element in ecology. The river systems and waterscapes play a significant role in the development of the economy, the flora and wildlife, settlement patterns, and culture and society. All societies are impacted by the hydrological cycle, which is the movement of water[3]. The complexity of water motions in the Earth's crust, on its surface, and in the air is becoming more widely understood. These movements also differ significantly in terms of how long and how quickly they occur. Because of this, the quantity, timing, and quality of rain and snowfall, as well as the movement and makeup of all types of water bodies in the terrain, change and have a profoundly diverse impact on cultures[5].

Human society tries to regulate the water, yet it is constantly moving and changing from place to place. Human relationships with water, concepts of water and its management, its religious and spiritual significance, including beliefs of purity, and other conceptions of water that have evolved in many human/water conflicts[28]. The development of Indian water law illustrates the close relationship between the law and the social, religious, and economic processes, as well as the emergence and abatement of regulations. It is improbable that continuous revision of water laws or connecting rivers will offer full answers to current issues[2].

In his well-known book The Rule of Water, David Mosse observes that the interaction between society and water is one of the most intricate historical, social, and regional issues that can be imagined. It has served as the foundation for social ideas of culture and common property, community and collective action, and civilisation and state[17]. Not only have water flows influenced social and political structures, but they have also given them legitimacy. Water flows were regulated and gifted by mediaeval monarchs and chiefs, who also created landscapes that incorporated their dominion into hydrology and made it natural[18].

In addition to river water, most of the nation is home to massively constructed artificial water reservoirs and step wells. Water may also be used as a weapon in conflicts, and its preservation highlighted the intractable social and communal issues surrounding its use[21]. River flows may become contaminated and wetland areas devastated, yet the water itself will always resurface as pure natural water after passing through civilisation as a social good[29].

Irrigate the fields with water from various sources, including reservoirs, tanks,

dams, streams, canals, wells, and stepwells, on a regular basis[30]. According to Sumit Guha, there was a lot of movement and fluidity in the relationship between humans and nature in ancient India. For a longer period, groups from various ecological niches, such as riverine plains, deserts, woods, and mountains, interacted continuously[8].

River resources for the environment and irrigation :

Rich alluvial soils were created or washed away by rivers, and the average annual rainfall of entire regions shifted along with the balance of plant and animal species[1]. India receives 118 cm of rain on average across its surface. The country's rivers collectively yield 1 858,100 million cubic meters of water annually, of which more than one-third (33.77%) comes from the Brahmaputra. Other contributors include the Ganga (25.2%), Godavari (6.4), Indus (4.3%), Mahanadi (3.6%), Krishna (3.4%), Narmada (2.9%), and other rivers. The sea can be used to categorise the Indian drainage system roughly. The drainage systems of the Arabian Sea and the Bay of Bengal. The Satluj-Yamuna split, also known as the Delhi Ridge, divides these from one another[26].

The Indian people's life depends heavily on the rivers. India's agriculture is mostly dependent on the monsoon, which is unpredictable in nature. There are serious issues with waterlogging in certain areas and inadequate irrigation in others. Drought-related agricultural damage and the poor drainage system could be controlled. One of the most important resource problems and concerns of the twenty-first century may be the depletion and declining state of water supplies[16].

Babur notes that since their crops are all rain-grown and the Hindu population is infinite, there is no need to dig water courses or build dams. Instead, they build tanks or dig wells[33]. The government and most peasants are therefore gravely concerned about producing excess produce, even though the necessity of efficient use of water resources on a regular basis for irrigation is not particularly encouraging in terms of its general availability to common consumers.[31].

Carrying a canal at such a high level enables convenient distribution into sub-canals for irrigation[10].

There has not been a representation of the fields' water supply from tanks or canals. These were typically brick wells with raised walls and enclosures or platforms, the latter of which could be square or octagonal in shape. Wells were built using both stones and bricks[19]. In India, wells are the most widely used resource for storing water. The state provided material and financial help for the establishment and upkeep of water appropriation systems, acknowledging the unique environmental circumstances[5].

To promote habitation, the ruling class offered encouragement for the development of wells; in particular, well construction was encouraged in areas with relatively high water levels[14]. The land is becoming less productive at this point; thus, a lot more wells need to be dug to irrigate it. There is plenty of food throughout the year, as well as in the trade of other commodities, if the rains are appropriate

and the winter is not too severe[7].

Naturally occurring lakes also drew people to live close by. Since there weren't many natural lakes in India, a larger reliance on constructed reservoirs was necessary[23]. Anywhere there is water, a lake forms[34]. The various types of water included seawater, river water, well water, tank water, and various degrees of impurity and purity. The main goals were to locate massive amounts of easily accessible, healthful water that could be kept for a long time[24].

According to the text that follows, environmental history studies the ways in which people have interacted with the natural world across time, with an emphasis on the ways in which nature has influenced human affairs and vice versa. Environmental history studies the evolution of human interactions with the natural world. Despite making a significant contribution to environmental history, this approach has some drawbacks as well. For example, it downplays the significance of human exploitation and the recourse of certain dominant sections in the name of the environmental pollution system, as well as the exploitation of natural resources in India.

Conflicts of Interest

The author does not have any conflict of interest.

References :

1. Bridget, Allchin, (1998). 'Early Man and Environment in South Asia', *ed.+, Grove, H. Richard, Vineeta Damodaran & Satpal Sangwan, Nature & The Orient, Delhi: Oxford University Press, 1998, pp. 29-50.
2. Cullet, Phillippe, and Joyeeta Gupta, (2009). 'Evolution of water law and policy in India,' Joseph W. Dellapenna & Joyeeta Gupta(ed.), The Evolution of the Law and Politics of Water, Dordrecht: Springer Academic Publishers, 2009, International Environmental Law Research Centre, pp. 159-174.
3. D. Amutha, and M. Juliet, (2017). Impact of Climate Changes on Human Health in India (November 14, 2017). Available at SSRN: https://ssrn.com/abstract=3071055 or http://dx.doi.org/10.2139/ssrn.3071055
4. D. Amutha, (2011). Gender and Biodiversity Management in India (December 2, 2011). Available at SSRN: https://ssrn.com/abstract=1967645
5. D. Amutha, (2013). Sustaining Uses of Biological Diversity and Agriculture (May 25, 2013). Available at SSRN: https://ssrn.com/abstract=2739253
6. Dovers, Stephan, (1994). Australian environmental history: essays and cases, Melbourne: Oxford University Press, p. 4.
7. Francisco Pelsaert, (2011). Jahangir's India, translated from the Dutch by W.H. Moreland and P. Geyl, Delhi: Low Price Publications, [1925] 2011, pp. 48-49.
8. Guha, Sumit, Environment & The Ethnicity in India [1200-1991], Delhi: Cambridge University
9. Habib, Irfan, Technology in Medieval India, op.cit., p. 15.
10. Habib, Irfan, (2005). The Agrarian System of Mughal India 1556-1707, New Delhi: Oxford University Press, [1963], p. 28.

11. Hughes, Donald, (2006). What is Environmental History? U.K.: p. 49.
12. Hughes, J. Donald, (2006). What is Environmental History? U.K.: Polity Press, 2006, pp. 2-3.
13. Kumar, Mayank, (2013). Monsoon Ecologies: irrigation, agriculture and settlement patterns in Rajasthan during the Pre-Colonial Period, New Delhi: Manohar publications, p. 16.
14. Kumar, Mayank, (2007). 'Ecology and Traditional Systems of Water Management,' in Mahesh Rangarajan, (ed.) Environmental issues in India: A Reader, New Delhi: Pearson Longman, 82.
15. Macneill, J.R., (2003). 'Observation on Nature and Culture of the Environment History and Theory', Environment History, *42:* Dec 2003, pp. 1-43.
16. Mehta, Dharmendra and Naveen K. Mehta (2013). 'Interlinking of Rivers in India: Issues and challenges, Geo- Eco-Marina, *19:* pp 131-143.
17. Mosse, David, (2003). The Rule of Water Statecraft, Ecology and collective action in South India, New Delhi: Oxford University Press, p. 1.
18. Mosse, David, (2003). The Rule of Water Statecraft, Ecology and collective action in South India, New Delhi: Oxford University Press, p. 4.
19. Qaiser, A.J., (2012). 'Agricultural technology depicted in Mughal Paintings', B.L. Bhadani, (ed.) Medieval India 3, Researches in the History of India, New Delhi: Manohar Publications, 2012, p.
20. Richards, J.F., (2003). The Unending Frontier: An Environmental History of the Early Modern World, London: University of California Press, p. 4.
21. Sharma, Yogesh, (2009). 'The Circuit of life: Water and water Reservoirs in Pre-Modern India', Studies in History, New Delhi: Sage Publications, 25, 1, 2009, pp. 69-108.
22. Sharma, Yogesh, (2009) 'The Circuit of life: Water and water Reservoirs in Pre-Modern India', Studies in History, New Delhi: Sage Publications, 25, 1, pp. 74.
23. Sharma, Yogesh, (2009). 'The Circuit of life: Water and water Reservoirs in Pre-Modern India', Studies in History, New Delhi: Sage Publications, 25, 1, pp. 74.
24. Sharma, Yogesh, (2009). 'The Circuit of life: Water and water Reservoirs in Pre-Modern India', Studies in History, New Delhi: Sage Publications, 25, 1, pp. 72
25. Spate, O.H.K., and A.T.A. Learmonth, (1967). India and Pakistan: Land, people and economy, New Delhi: Methuen and Company Ltd, p. 14.
26. Tiwari, R.C, (2006). Geography of India, Allahabad: Prayag Pustak Bhawan, p. 185.
27. Tvedt, Terje, (2010). 'Water Systems Environmental History and the deconstruction of Nature', Environment and History, U.K.: The White Horse Press, 16, p. 147.
28. Tvedt, Terje, (2010). 'Water Systems Environmental History and the deconstruction of Nature', Environment and History, U.K.: The White Horse Press, 16, p. 148.
29. Tvedt, Terje, (2010). 'Water Systems Environmental History and the deconstruction of Nature', Environment and History, U.K.: The White Horse Press, 16, p. 150.

30. Verma, H.C., (2001). Harvesting Water and Rationalization of agriculture in North Medieval India, Thirteenth- Sixteenth Centuries, New Delhi: Anamika Publishers, p. 11.
31. Verma, H.C., (2001). Harvesting Water and Rationalization of agriculture in North Medieval India, Thirteenth- Sixteenth Centuries, New Delhi: Anamika Publishers, p. 11.
32. Villiers, Stuart, (1913). Gardens of the Great Mughals, New Delhi: Asian Educational Services, 2007, p. 25.
33. Zahiru'd Din Muhammad Babur, (1921). Baburnama, Eng. translation by A. S. Beveridge, Delhi: Low Price Publication, 2010, p. 614.
34. Zahiru'd Din Muhammad Babur, (1921). Baburnama, Eng. translation by A. S. Beveridge, Delhi: Low Price Publication, 2010, pp. 487-488.