

A Systematic Evaluation of Environmental Discrimination with Regard to Sustainability Initiatives in India

*How Community Based Natural Resource Management Theory Could Offer a
Practical Solution to Promoting Equitable Access to Sustainability*

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Abstract

In the past fifty years, India has undeniably become one of the world's economic and industrial superpowers, dominating the geopolitical climate of South Asia. India's road to industrialization has been accompanied by extreme environmental devastation that is encapsulated by population growth, pollution, and loss of biodiversity; additionally, many of these factors have had crippling effects on certain areas of India's environment. To combat these problems, certain groups within the government and nation, such as the Ministry of New and Renewable Energy, have been implementing sustainable solutions to combat the adverse effects of man-made environmental degradation. Oftentimes, however, the implementation of these conservation tactics is done at a state-wide or national level in what is masked as "soft-authoritarianism" and fail to consider the interests and accessibility of programs for all peoples, especially communities which are labeled as minority, indigenous, slum, or lower caste (Dalit) leading to the rise of environmental prejudices. Although India has come a long way in the past decade regarding action against environmental problems through new sustainable solutions, it has failed to consider the accessibility of these programs to all peoples and the alleviation of environmental discrimination. This paper considers the convoluted nature of the past and aims to propose solutions that will a) allow India to continue its commitment to a sustainable future and b) combat socio-political issues of environmental biases, which adhere to the paradigm of Community-Based Natural Resource Management (CBNRM).

Keywords: environmental discrimination, South Asia, India, environmental sustainability, equal access, Community Based Natural Resource Management (CBNRM)

Author's Note:

The work contained in this paper stems from research that I conducted under the direction of Priti Narayan, a scholar of South Asian studies at Rutgers University. She encouraged me to combine my passions for both geographic topics as well as environmental conservation and explore a new region of the world which I knew little about. Understanding the political, social, and environmental climate of South Asia, and in particular, India, was both extremely interesting and eye-opening. Oftentimes learning about another people's culture and the struggles they face is the best way to re-evaluate our own lives and perhaps better comprehend how we can solve global problems, as they apply to all peoples in all parts of our world. I hope you enjoy my work and that it teaches you something new about a topic that is of urgency to us all.

As society presses further into the 21st century there is no doubt that issues regarding the extreme degradation of the environment will become of increasing urgency and importance. Humanity's interaction with the environment and global biosphere has led to problems such as various forms of pollution, deforestation, loss of biodiversity, climate change, and shifting weather patterns [26]. Recent research conducted by Solomon et al. (2009) discovered that, as a society, we are currently approaching a point of "no return" in regards to our treatment of the global environment; they predicted that irreversible changes in terms of the world's climate, forests, animals, and humans will soon commence [7, 24, 26]. Thus, this current nature of degradation has warranted the growth and development of environmental conservation tactics that are aimed at curbing and mitigating the destruction that is being caused to our planet. Many of these solutions constitute increased attention to alternative energy, sustainable resource conservation, and improved wastewater management. However, implementation of these tactics is easier said than done, as it not only requires adequate attention to the scientific nature of the problem and economics of construction, but also geopolitics and socio-cultural considerations in the area of establishment. Oftentimes, the logistical aspects of implementing sustainability programs are extremely sound. However, geopolitical disconnects, socio-economic inequality, and cultural phenomena can operate to prevent the implementation and equal access to these programs for all peoples [6].

This notion of environmental prejudice has received new attention by politicians, activists, and community leaders in recent years due to the disconnect that exists in certain nations between sustainability initiatives and socio-economically disadvantaged peoples. In India, the issue of disproportionate access to environmental sustainability has become an extreme problem. As one of the world's most industrialized countries, poor treatment of the environment has become a large issue through pollution, overpopulation, and deforestation. Environmental sustainability is now of utmost importance to India, and the country has invested a significant amount into the development and promotion of these new technologies. However, going forward, India must now understand that the long untreated sociopolitical issues of the discrimination and infrastructure will begin to impact its ability to reach new sustainability goals, conserve resources, and become South Asia's flagship of conservationism – thus considering sustainable solutions which allow disadvantaged people increased environmental justice are of great concern to the well-being of India's biosphere and its people.

Like many other industrially developing nations, India has faced a long history of struggles with issues of environmental degradation. India is currently the second most populated nation in the world due to its extremely high birth rate [11]. This expanded growth is a multifaceted result of both cultural and socioeconomic issues, as well as the Green Revolution agricultural movement of the 1960s [21]. India's large population has placed extreme pressure on its environment, further exacerbating issues such as air pollution, water contamination, and deforestation. In heavily populated cities, large volumes of traffic, idling, and the use of high-sulfur diesel has resulted in disastrous levels of smog, such as in the capital city of New Delhi, forcing people to stay inside. In the countryside, air pollution comes mainly from biomass burning in stoves called *challahs*, found in rural villages due to lack of access to electricity and other fuel sources [20]. Crop burning has become prominent after monsoons in order to easily remove over-harvests, dead crops, and illegitimate crops that did not yield enough produce. These habits have led to the growth of the "Asian brown cloud," a massive weather system of pollutants which lingers in the air and delays the monsoons causing a vicious cycle of inadequately grown crops and burning, accentuating problems [16]. High volumes of particulate air pollution are extremely harmful to humans, causing elevated rates of cancers, asthma, and childhood diseases [15].

Water contamination has been a large part of environmental degradation in India and is mainly due to agricultural runoff and solid wastewater pollution in drinking water. These problems are a direct result of inadequate infrastructure such as non-functional wastewater treatment plants and a lack closed-sewage systems [19]. This contamination pollutes groundwater and top-water leading to hazardous health effects, increased droughts due to lack of clean drinking water, as well as decreased agricultural potential and loss of biodiversity, especially in wetlands and rivers, such as the Ganges – a major source of food, water, and income for many Indians [23].

Due to the detrimental effects of these problems, India has begun to implement sustainable solutions which, for the most part, have been successful in combatting environmental degradation overall. In terms of alternative energy, the national Ministry of New and Renewable Energy, under the current direction of Piyush Goyal, is responsible for proliferating and developing these new energies. Each province in India has a smaller sub-group of the national ministry, which allows a more direct approach to implementation of sustainability on a per-state basis [1]. Although the Indian government has historically been known for its "strong-

center” and soft-authoritarianism, this is an interesting example of what appears to be a quasi-federalist power development. India began wind power initiatives in the 1990s and now has the fifth largest wind power capacity in the world, with its largest energy generation facility located in Rajasthan [10]. India also has an ideal solar climate, with remote areas such as the Thar Desert that have allowed the nation to become a hub for solar power initiatives [17]. Biofuels and biogases are also gaining popularity, due to the fact that they can be implemented easily with the existing infrastructure. . Of extreme interest is the *Jatropha* plant, which can easily be grown with low nutrient soils and less water to produce a crop that can be turned into biodiesel for automobiles and generators alike [2]. The Indian government is now providing incentives in the form of tax subsidies to certain groups of farms to cultivate various biofuel crops. This policy has served to both promote bioenergy sources and to aid farmers struggling with high-requirement food crops that yield little-to-no income.

While it seems as though India is heading in the right direction regarding the implementation of conservation technologies, these practices are extremely selective in terms of who gets to reap their benefits. To a certain extent, there exists a degree of environmental prejudice through the employment of these alternative solutions, which favor those of higher economic status, location, caste, and “citizenship” status through the eyes of society – e.g. majority versus minority communities. Oftentimes, these minority communities are also located in areas with higher levels of environmental contamination, pollution, and poor infrastructure [3]. Although one might think that this would warrant these disadvantaged communities to be the main target of sustainability initiatives, this is not the case due to the presence of both explicit logistical and ideological barriers.

A historic example of this bias can be seen through the 1984 Union Carbide (UC) chemical plant disaster in Bhopal, India. This incident occurred at the American company Union Carbide’s fertilizer plant in the central region of Madhya Pradesh. The chemical that was leaked, methyl isocyanate (MIC), killed almost 8,000 instantly, wounded 520,000 total, causing blindness, deafness, cancer, and major childhood illness; in fact, Bhopal now has one of the highest rates of birth defects in India as a result of the contamination [4]. The cause of the leak was due to the fact that the UC plant had cut corners in safety, containment, and remediation of chemicals, as safety officers in both the Indian government and Union Carbide overlooked systemic management problems. The plant in Bhopal was entirely surrounded by slum communities, and many activists and researchers speculate that

such an incident would not have happened had the plant been located in an area that was of higher class and caste status. Today, much of the Bhopal site has been left untouched. The MIC gas still lingers in the groundwater, soil, and flora, exposing those who live in the area with still hazardous conditions. Activists have been petitioning the Indian government to begin sustainable remediation of the site's hazardous toxins, but little work is being done to help those surrounding the site, further contributing to the overall problem of environmental discrimination.

One of the most persistent problems of this discrimination lies in the consideration of urban slums in sustainability programs. Slum communities in India are groups of people who live in extreme poverty and lack basic amenities. Most often, these communities are composed of people whom society identifies as Dalit (untouchable caste) or minorities. City campaigns for wind and solar power, as well as biodiesel and improved wastewater treatment, often do not apply to these slum communities as they do not lie on the electric grid, cannot afford cars, and have no sewage systems. In fact, slum communities are frequently constructed out of refuse from local landfills. Slum communities often cannot benefit from these initiatives due to infrastructure inefficiencies, and thus continue to pollute waterways, burn biomass, and cause the "degradation of communities" (in the eyes of the elites) [9, 22]. However, they cannot change their ways because these programs do not apply to them. This hypocrisy has unfortunately led a radical anti-slum rhetoric and the codification of the notion that "slums should be removed because they are an aesthetic and environmental nuisance" [14].

In rural areas, conservation of biodiversity and alternative energy are issues which also promote a bias towards native Adivasis ("scheduled tribe" caste) and rural farmers living in these areas. India has begun to employ the use of hydroelectric, wind, and solar energy in rural areas as well as the enforcement of stricter resource usage laws and forest protection legislation. Overall, these programs have been highly effective in advancing India's commitment to a sustainable future. However, they fail to consider the environmental accessibility of groups affected by these projects. Perhaps the most notable case in this area was the creation of the Sardar Sarovar hydroelectric dam in Gujarat as a part of the Narmada Valley project [13]. Here, instead of expanding energy access to millions of Indians, the benefits of this initiative went primarily to those already with access to electricity (most likely those who are not Adivasi, Dalits, etc.). Furthermore, the initiative has largely served only the state of Gujarat, instead of Madhya Pradesh. The planning of the dam did not consider any of

the Adivasi people, farmers, or people living on land and forests near the river who would be greatly impacted by the dam through flooding, loss of business, resources, and possible displacement.

This prompted the formation of the Narmada Bachao Andolan (NBA) Adivasi social movement to stop the dam project and raise awareness about the discrimination and prejudices that they face both on a national and statewide level [3]. Through its vast corporate and non-governmental partnerships, the NBA successfully prompted the Supreme Court to halt the dam project. However, after several years of deliberation, the court decided to let the dam project proceed under stricter conditions and a greater attention to inclusiveness; yet, this was not well enforced, and the mechanism to monitor the progress and effects of the dam was lackluster. Nonetheless, Adivasis, Dalits, and other minorities in rural areas continue to advocate for their rights to the land and its resources, as well as their right to participate democratically in deciding local matters that concern their communities and way of life.

Evidently, the lack of access to sustainability and conservation programs stems from an overall lack of infrastructure and implicit/explicit biases based on culture, income, and caste. Thus, it is imperative to consider alternative methods of promoting sustainability which are a) easily implementable without drastically requiring alteration to the *existing* physical infrastructure and technology, and b) provide access and benefits for all people, especially those disadvantaged groups. A novel global paradigm that is gaining popularity for providing solutions to these problems, especially in Africa, is the theory of Community Based Natural Resource Management (CBNRM) [8]. This notion is primarily based on Kuznets' theory that the status of environmental degradation within a nation is not dependent on the population size, the nature of the government, or public and private sector affairs, but rather the relative income and sociopolitical involvement of that nation's people [12].

CBNRM programs operate to promote sustainability from the ground up, educating disadvantaged, rural, and poorer residents in resource conservation and enabling them to take ownership and become inspired to conserve and develop their communities. Certain programs include the installation of biogas plants in slums that generate fuel and electricity from waste, compact waste-water treatment through cheap microorganisms, slum-based garbage recycling plants, and subsidies for sustainable biofuel-crop farming. Additionally, these initiatives stimulate the creation of jobs and revenue in disadvantaged areas by allowing members to get involved in activities that are not only economically favorable, but also mentally, socially, and spiritually engaging as well.

CBNRM-oriented programs have been most notably implemented in Nairobi, where the Kenyan government has worked closely with Nairobi slums to create jobs, sustainability, and improve health conditions through establishing a biogas plant that turns human waste and garbage into fuel [5]. In India, CBNRM-oriented initiatives have only recently begun to arrive, with Mumbai as one of the first cities to implement such programs. There, the Global Alliance for Incinerator Alternatives (GAIA) has installed biogas plant that has had great success in the city's slum community by improving living conditions through recycling, generating clean energy, and offering employment to locals as well [18].

If correctly implemented, CBNRM programs can have a profound effect on the overall sustainability of an area's environment and the access that all people have to local resources, especially those who face environmental prejudices. They can also help mitigate the effects of both environmental degradation and the systematic oppression of "backwards" peoples through solutions that are extremely realistic, affordable, and readily implemented without any major changes to the geographical infrastructure. India should begin to look toward constructing similar biogas programs, similar to the ones in Nairobi and Mumbai, in other national cities to aid with the development and conditions of slums. Additionally, enabling Adivasis and other tribes with greater autonomy and rights can ensure an equality of sustainability measures in rural and urban Indian communities. By pursuing these solutions, India will become a leader in the promotion of new conservation tactics, reaffirming its position in the global community as a nation dedicated to improving humanity's interaction with the environment. Furthermore, the use of CBNRM will help the nation facilitate aid to its disadvantaged citizens and take a strong stance against economic, caste, and cultural discrimination, making India South Asia's flagship of human rights for generations to come.

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