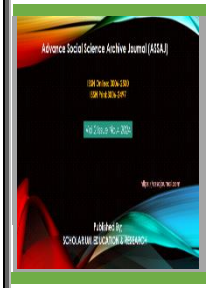

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ENVIRONMENTAL CHALLENGES IN SOUTH ASIA A COMPARATIVE STUDY OF PAKISTAN AND INDIA

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ABSTRACT

South Asia boasts a diverse range of climate zones and is impacted by climate change in unique and significant manners.In South Asia, a vast array of climatic zones co-exist, each unique in their characteristics. Climate change bears a distinctive impact on this region frustrs of our surroundings, A profound and wide-ranging impact which will likely to Food grain production and the stability of ecosystems are considerably influenced by anthropogenic factors, alterations in water distribution, and land utilization changes. The Sundarbans and the Himalayan mountain forest and grassland systems are the most threatened. Forests across South Asia, recognized as crucial hubs of unmatched biodiversity, are rapidly disappearing because of accelerated deforestation and urban expansion activities.With regard to global air pollution, South Asia emerges as the world's most polluted region. Specifically, India is noted for having the highest air pollution concentrations. Around 13,000 acres of farmland and meadows in India and Pakistan may be affected by the 250 acres of territory the Thar Desert is annexing annually year. The accessibility of pristine freshwater is quite cyclical, and aquatic resources face heightened risk due to escalating temperatures, shifts in river regimes, and a surge in maritime inundation occurrence. This analysis examines significant environmental challenges confronted by South Asia, focusing particularly on Bangladesh, and the problems faced by most inhabitants consequently. The key eco-problems addressed here encompass global warming, planetary geology, and alteration of biomes, excessive grazing, and entry of harmful debris, forest depletion, land desertification, contamination, overpopulation stress, and breakdown and land/water resource contamination, scarcity of drinkable water, species. Environmental quandaries such as biodiversity decline, marine environment harm, air contamination, insufficient city planning, water shortage and impairment, soil erosion and terrain deterioration, natural catastrophes, infestations, and ailments illustrated in this section. A number of suggestions have also been proposed in response to considerable ecological concerns flagged and corresponding troubles.

Keywords: Biodiversity, Brickfield, soil erosion, Urbanization, Water scarcity, Pollution, Climate change.

INTRODUCTION

The tribulations and strains that the natural world endures in consequence of human action eventuality and natural calamities, often termed as environmental natural adversities. Climate transformation, diversity diminution, clearing vegetation, and oxygen and water contamination, as well as resource extraction and land corruption are a few of the myri) numerous topics that fall under this issue. South Asia, consisting of Bangladesh, India, Iran, Maldives, Pakistan, Sri Lanka, and Nepal, with its population surpassing 1.8 billion - about 25% of the global population - showcases immense diversity across multiple topographies, from elevated Himalayas to expansive river plains and dry deserts South Asia, lying in the southern part of the Asian continent, is flanked by the Indian Ocean to the south, the significant mountain range known as the Himalayas to the north, and demarcated by the Arabian Sea to the west and the Bay of Bengal to the east. The area features a diverse range of ecosystems such as tropical forests, grasslands, deserts, and mountain ranges. Prominent watercourses such as the Ganges and Brahmaputra nourish. Despite its abundant natural resources, South Asia confronts significant environmental tension caused by human activities, including the extreme utilization of resources, pollution, and swift population expansion heightened by climate-related hurdles. The distinct landscape of South Asia combined with its swift industrial growth swelling populations and susceptibility to climate impacts leaves it exposed to various environmental challenges. These include the shrinkage of forests loss of diverse species and climate change repercussions alongside contamination of air and water. Moreover the area's dependence on natural assets for farming water and power further compounds these issues. (Bhat et al., 2020)

India and Pakistan face a range of environmental challenges that stem from similar geographic and socioeconomic backgrounds. In cities such as Delhi and Lahore within these two countries, the air quality is severely impacted by industrial activities, the burning of agricultural fields, and emissions from vehicles leading to a significant deterioration in the air people breathe. The quick growth of cities and industries has worsened the air quality in India leading to many of its cities being listed as some of the most polluted across the globe. On the other hand, Pakistan too faces severe air pollution but the problem is more focused in its bigger cities. Both nations are increasingly experiencing the impacts of climate change including higher temperatures unpredictable weather and rising sea levels. The impacts of these effects stretch far and wide touching on essential areas like infrastructure water supply and agriculture as noted by Ali and colleagues in 2020. Taking the Himalayan glaciers as a case in point it's clear that their swift retreat poses a significant threat to the freshwater supply for both countries putting the clean water access of millions at risk. Water scarcity stands out as another widespread issue yet the situation in India becomes even more challenging due to its larger population coupled with the rampant removal of groundwater especially in the countryside. The country of Pakistan depends heavily on the Indus River system and is experiencing severe water stress. This situation is further aggravated by pollution and poor water management strategies as outlined by Shah and colleagues in 2019. Both countries are grappling with problems such as failing

waste management systems land degradation and the cutting down of forests. Deforestation continues at an alarming rate in both nations, triggering a decline in diverse plant and animal life alongside worsening soil erosion. Moreover, the challenge of managing waste looms large over both countries as their urban areas struggle to cope with the surge in waste due to fast-growing populations and lacking infrastructure. To mitigate the environmental threats faced by these countries, it is imperative to foster greater regional collaboration and implement sustainable strategies. Despite ongoing efforts, such as Pakistan's focus on improving water conservation and India's emphasis on expanding its renewable energy sector, much remains to be done. (Ghosh et al., 2020).

PROBLEM STATEMENT

The region of South Asia finds itself deeply at risk due to the impacts of climate change. Nations such as Pakistan and India are at the forefront of grappling with intense issues like the lack of water extreme dry spells and overwhelming floods. Aiming to delve into how these three countries tackle the pressing issue of climate change this research focuses on their methods of managing water resources and pursuing growth that doesn't harm the environment.

Literature review

The impacts of climate alter, which appear themselves as expanding temperatures, erratic precipitation designs, and an increment within the recurrence of extraordinary climate occasions like heatwaves, dry spells, and floods, are among the most natural issues confronting both India and Pakistan. Due to their geographic position, thick populaces, and moo capacity for adjustment, both countries are amazingly helpless to the negative impacts of climate alter, concurring to the between time Board on Climate Alter (IPCC) (2018). Destroying dry spells and surges have brought about from major changes in India's rainstorm season. In a comparable vein, Pakistan had obliterating surges in 2010 and 2022 that come about in millions of individuals being evacuated and broad harm (Jamal et al., 2022).

Sharma et al. (2020) talk about discuss contamination as one of the foremost squeezing natural issues in both India and Pakistan. Both nations confront extreme levels of air defilement, with cities like Delhi and Lahore regularly positioning among the foremost contaminated all inclusive. The audit highlights how mechanical outflows, vehicular contamination, and crop-burning contribute to perilous discuss quality, driving to noteworthy open wellbeing issues, counting respiratory infections and untimely mortality. In arrange to address transboundary discuss contamination and trade best hones for contamination control, Qureshi et al. (2021) too bolster territorial participation between Pakistan and its neighbors, counting India. Participation may be encouraged by programs such as the South Asia Agreeable Environment Program (SACEP) and reciprocal assentions on environmental issues. Territorial participation has moreover been proposed for India, eminently in combating challenges like edit buildup burning, which influences both Pakistan and India amid the same rural seasons.

Agreeing to Bisht et al. (2021), Pakistan and India confront a genuine issue with water shortage. There's a serious risk to way of, life commerce, and horticulture due to the developing request for water and the exhausting supply. Numerous Indian waterways, such as the Ganges and Yamuna, are intensely contaminated and chance declining water stream as a result of over-extraction and the impacts of climate alter, agreeing to a 2020 Central Water Commission appraisal. In a comparative vein, Pakistan is experiencing serious water shortage, and the Pakistan Board of Inquire about in Water Assets (2018) has warned that a critical water catastrophe may strike the country within the up and coming ten a long time.

Concurring to Sanjay et al. (2022), both India and Pakistan have experienced far reaching deforestation, which has had an affect on biodiversity and climate control. In India, deforestation has been caused by both unlawful logging and rural development; the Woodland Study of India (2021) reports that the nation has misplaced over 1,000 square kilometers of timberland cover in later a long time, and in Pakistan, deforestation has quickened, with the World Bank (2020) indicating out that the country's woodland cover is as of now as it were almost 2.5% of its add up to arrive region, faraway underneath the worldwide normal. Arrive debasement is another critical issue in both nations, which is made more regrettable by unsustainable agrarian hones and the infringement of urban regions. Illustrations of districts in both nations incorporate the Thar Leave in India and the Cholestane Leave in Pakistan.

Rehman et al. (2017) highlights that Climate alter is anticipated to result in lower rural efficiency, particularly for staple crops like rice, wheat, and maize. The creators conversation almost how yields will be brought down by changing precipitation designs and rising temperatures, particularly amid the summer editing season. In India, where rice and wheat frame the establishment of the nourishment chain and their efficiency has as of now been affected by climate stressors, this result is particularly relevant. Essentially, dry spell and tall temperatures have made it harder to deliver wheat and rice in Pakistan, which incorporates a coordinate impact on nourishment security.

Agreeing to Ganguly et al. (2021), squander administration may be a major issue in both India and Pakistan, particularly in urban zones. Expansive volumes of strong squander have amassed as a result of fast urbanization, the larger part of which is disgracefully arranged of. As it were a little parcel of the 62 million tons of metropolitan strong waste delivered in India each year is reused. In a comparative vein, Pakistani cities battle with inadequately squander transfer offices, which fuel the advancement of ailments and contaminate the environment. In 2021, Siddiqui et al.In both countries, plastic contamination is progressively getting to be a greater issue. He claims that a critical sum of plastic debris in Indian towns closes up within the sea and is found in landfills, streams, and lanes. Moreover, Pakistan has seen an increment in plastic squander. Agreeing to Sahoo et al. (2021), a need of political will, bureaucratic wasteful aspects, and lacking back have avoided the NAPCC from realizing its full potential. To address these issues, both India and Pakistan have passed a number of natural laws, but requirement and execution are still missing. Eight national missions that address

diverse features of climate alter are portion of India's National Activity Arrange on Climate Alter (NAPCC), which was presented in 2008.The National Natural Policy (2005) and the Pakistan Natural Assurance Act (1997) were made to address issues counting water and discuss contamination, but its execution has been troublesome since of debasement and terrible teach.

Sources and Methodology

This article is based on subjective strategies. It is for the most part based on auxiliary sources of inquire about for dissecting. Subjective information is based on non-numerical information, such as scholastic diaries, dialects, books and news articles. Subjective strategies would incorporate interviews with natural specialists, government authorities, and neighborhood community pioneers from both nations to assemble firsthand bits of knowledge. Besides, a comparative approach examination would look at national natural directions, such as India's National Activity Arrange on Climate Alter and Pakistan's climate adjustment approaches, evaluating their viability By utilizing these different sources and strategies, the think about points to highlight the similitudes and contrasts within the natural challenges confronted by both countries, advertising suggestions for agreeable arrangements in overseeing shared natural concerns.

Climate change

Rising temperatures, erratic rainfall patterns, an increment within the recurrence of extraordinary climate occasions, and more noteworthy hazards to food and water security are fair a number of of the impacts that climate alter is having on both India and Pakistan. Due to both nations' dependence on climate-sensitive businesses, these shifts increment already-existing vulnerabilities, particularly within the regions of agribusiness, water assets, and urban foundation.

In India, Dry seasons, flooding, and tall warm waves are all getting to be more common in India as a result of climate alter. Normal temperatures on the Indian subcontinent have recognizably expanded, and inquire about shows that they will proceed to rise. The Indian Service of Environment, Timberlands, and Climate Alter gauges that all through the past century, the country's temperature has risen by approximately 0.6°C. The eccentric and fluctuating rainstorm designs have had a critical impact on India's intensely monsoon-dependent rural industry, coming about in diminished edit yields and nourishment deficiencies in rustic locales. In expansion, waterways that are basic for farming and drinking water, particularly within the north, are getting less freshwater due to the withdraw of the Himalayan ice sheets.

In Pakistan, The nation is among the foremost powerless to the impacts of climate alter, making the circumstance indeed more disastrous. Noteworthy icy masses liquefy in Pakistan's precipitous zones, such as the Hindu Kush and Karakoram ranges, is causing irregular river streams, particularly within the Indus Waterway, which is fundamental for water system. Urban populations' wellbeing is being affected by heat-waves that are getting more regrettable due to rising temperatures, particularly within the central and southern districts. In addition, Pakistan is inclined to surges; the 2010

surge was one of the foremost disastrous climate-related catastrophes, uprooting millions of individuals and submerging huge regions.

Both nations share common challenges related to water stretch, as both depend intensely on trans-boundary water assets. The Indus Water Arrangement between India and Pakistan oversees the sharing of waterway water between the two countries, however climate alter postures a chance to this arrangement by influencing water accessibility and quality. The consumption of icy masses and changes in precipitation designs within the upstream locales influence the water stream in these waterways, making pressures between the countries over water sharing.

Pollution

Quick industrialization, urbanization, and populace increment are major causes of contamination, which could be a genuine natural and open wellbeing concern in India and Pakistan. Both nations endure from extraordinary soil, water, and discuss contamination, which incorporates a major negative effect on environments and human wellbeing. India and Pakistan are among the nations having the most elevated levels of discuss contamination universally. Particulate matter (PM2.5), nitrogen oxides (NOx), sulfur dioxide (SO_2), and carbon monoxide (CO) are among the major poisons released by mechanical forms, car emanations, and the burning of biomass for cooking. The issue is made more regrettable by the burning of edit scraps amid the collect season, particularly in northern India and Pakistan. Millions of people are affected by the regular brown haze that's caused by the gigantic sums of smoke and particulate matter discharged into the environment by stubble burning. (Gurjar et al., 2016).

Both nations moreover confront critical water contamination due to untreated sewage, mechanical squander, rural runoff, and plastic squander. In India, about 70% of surface water sources are contaminated, for the most part by untreated sewage. Research from the Pakistan Committee of Inquire about in Water Assets (PCRWR) shown that fair around 10% of the populace has get to to secure drinking water. Endeavors to clean the Ganges, such as the Namami Gange venture, have appeared negligible comes about. Comparative issues emerge in Pakistan, where untreated trash from mechanical and urban zones is dumped straight into the Ravi and Chenab Streams (Service of Water Assets, 2014). Another major issue in both countries is soil contamination, which is for the most part brought on by the far reaching utilize of chemical pesticides and fertilizers as well as improper squander transfer. In India, intemperate fertilizer utilize has sullied and debased the soil, particularly in places like Punjab that receive seriously cultivating strategies. In Pakistan, soil defilement is exasperated by unseemly transfer of mechanical squander and the utilize of uncontrolled pesticides (Mumtaz et al., 2019).

Over population

This ponder looks at the causes, impacts, and potential arrangements to overpopulation in South Asia, particularly in Pakistan and India, where both nations are encountering fast populace development. India is the foremost crowded nation within the world, with a population of almost 1.4 billion, whereas Pakistan incorporates

a population of over 240 million. Tall birth rates, especially in provincial regions, are one of the most causes of overpopulation; the richness rate in Pakistan is around 3.5 children per lady, whereas the ripeness rate in India is around 2.2 children per lady. Both nations have seen noteworthy increments in life anticipation, with life hope rising from 59 a long time in 1990 to 67 a long time in 2021 and from 59 to 70 a long time in India. A long time over the same period.

Overpopulation has serious results for both countries. Overpopulation moreover leads to financial strain, with tall levels of unemployment and underemployment. Expansive numbers of youth entering the workforce each year confront constrained work openings, driving to destitution and financial imbalance. Overpopulation too puts colossal weight on healthcare and instruction frameworks, with stuffed schools and clinics, driving to a decay within the quality of administrations. Arrangements to overpopulation in Pakistan and India include a few key techniques. Extending get to to contraception and family arranging administrations is vital, particularly in country zones. Open mindfulness campaigns and moved forward healthcare foundation can offer assistance decrease birth rates. Government approaches aimed at controlling populace development require to be comprehensive and center on long-term solutions. Urban arranging and framework advancement are too essential to suit the developing populaces of both countries. Investments in economical urban advancement can offer assistance protect assets and make strides the quality of life.

Deforestation

Deforestation may be a major natural issue in both nations, imperiling biodiversity, exasperating climate alter, and contributing to soil disintegration and water shortage. The expansion of agribusiness is one of the most causes of deforestation in both nations, with around 60% of the population in India depending on agribusiness for their vocation, which comes about within the transformation of timberlands into rural arrive (FAO, 2020). Comparable to this, Pakistan's rural development has been a essential cause of deforestation, with timberlands being cut down for the touching of creatures and the generation of crops. Deforestation in India and Pakistan has genuine and far-reaching impacts. Since timberlands give as imperative environments for multitudinous plant and creature species, deforestation comes about in a misfortune of biodiversity. Due to living space corruption, a number of species, counting famous animals like tigers, elephants, and rhinoceroses, have declined in India, a nation with a wide assortment of biodiversity (WWF, 2021).

Reforestation and afforestation programs are fundamental to fixing the hurt caused by deforestation; in Pakistan, programs such as the Green Pakistan Program look for to reestablish debased timberland zones, whereas in India, the National Afforestation Program centers on expanding green cover. These programs offer assistance moderate deforestation and reintroduce biodiversity into influenced areas. Various sustainable arrangements have been proposed in reaction to these challenges.

Lack of Rain

Need of rain, or diminished precipitation, could be a critical natural challenge confronted by both Pakistan and India, two nations that are exceedingly subordinate

on farming and normal assets. The impact of this challenge can be seen in different divisions, counting water accessibility, rural efficiency, and by and large financial solidness. In Pakistan, the nation is confronting expanded water shortage, to a great extent due to the combined impacts of decreased precipitation and the exhaustion of the Indus Stream, which is the essential water source. The need of precipitation compounds the weight on water system frameworks that depend intensely on snowmelt and regular downpours. Agreeing to the Pakistan Meteorological Office (PMD), the nation has experienced a recognizable diminish in precipitation designs in later a long time, driving to drought-like conditions in certain zones (PMD, 2020). The diminish in precipitation has not as it were undermined rural yield but also contributed to the by and large water push within the locale, with Pakistan positioning among the foremost water-stressed nations all inclusive (World Assets Founded, 2021).

Essentially, in India, locales such as Maharashtra, Gujarat, and Rajasthan have been enduring from diminishing storm downpours, which customarily play a pivotal part in renewing groundwater and supporting horticulture. The India Meteorological Office (IMD) detailed that a few states have experienced below-average storm precipitation, affecting the cultivating segment that maintains millions of employments (IMD, 2019). Moreover, India's powerlessness to climatic varieties is compounded by the inter-annual inconstancy of rainstorm designs, which have gotten to be progressively whimsical due to climate alter (Rohini et al., 2020).

The need of rain in both nations moreover has broader natural suggestions, such as diminished biodiversity and the debilitating of environments that depend on steady water cycles. Both Pakistan and India are working on adjustment methodologies, counting the development of dams, water preservation programs, and the advancement of drought-resistant crops, to relieve the impacts of precipitation shortfalls. Be that as it may, feasible arrangements will require more noteworthy participation between both countries, as they share transboundary waterways, and a concerted exertion to combat the broader issue of climate alter.

Overflow of industry

South Asia's over the top industrialization, particularly in countries like India and Pakistan, has brought about in a number of genuine natural issues. Over the past few decades, both countries have quickly industrialized due to urbanization and financial development. But this mechanical development has as often as possible been unsustainable, coming about in noteworthy contamination of the discuss, water, and arrive, as well as the consumption of common assets. For occasion, destitute discuss quality and water defilement have been caused by the critical concentration of businesses like steel, chemicals, and materials in Indian cities like Kolkata and Mumbai. Comparative to this, natural corruption has been made more regrettable in Pakistan by the industrialization of huge cities like Karachi and Lahore; tall levels of mechanical squander and discuss contamination are a genuine worry(Shah et al., 2021).

Besides, both countries battle with productive mechanical squander administration, which regularly sullies groundwater and conduits. These issues have been made more

awful by powerless natural rules, remiss authorization of current enactment, and the inclination for corporate extension over natural maintainability.

Conclusion

Urbanization, industrialization, and burning of fossil fuel beside many other components are dependable for raising the CO2 level within the air and creating other nursery gasses in numerous ways. Raised CO2 and other nursery gasses are the major donor to the worldwide climate alter and resultant impacts. To combat with climate alter, location suitable relief and adjustment degree can be taken. For diminishing nursery gasses emanation to more secure level, renewable vitality sources like sun powered vitality can be utilized in businesses, vehicles, brickkilns, and for cooking. Non-degraded timberlands and nonpolluted soil and water can devour tremendous sum of CO2 from the climate. Human weight is the established issue for quick urbanization and industrialization, expanded number of vehicles and fossil fuel burning, pressurized land-use changes, and rapid climatic changes with its adverse impacts. Creating the existing populace into human capital together with measures for controlling long run populace estimate to craved level by lessening development rate may well be appropriate arrangements for relieving all antagonistic environment issue.

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