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ANALYZING INDIAN SUSTAINABLE DEVELOPMENT: THE STRATEGIC PROGRESS

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Abstract

Global warming generally effects the human development by weakening the existing socio & economic circumstances for all the philosophies which are dependent on resources was exaggerated due to climate changes. The development & conservation cannot coexist concurrently. "Conservation" denotes the safeguarding of both possessions & the environment, while "development" signifies the enhancement of society wise through the prudent utilization of available resources. To achieve rapid expansion, resource utilization significantly exceeds sustainable levels, resulting in the exploitation of finite resources. Nevertheless, the idea of sustainable development (SD) provides a pragmatic solution through an innovative development strategy that prioritizes renewable based resources to establish a new financial framework. Sustainable development seeks to harmonize developmental objectives with environmental conservation, as the legal framework of sustainable development inherently necessitates the preservation of natural resources, judicious resource utilization, and the integration of environmental considerations into financial and various developmental initiatives and programs. Nevertheless, achieving sustainable development continues to be a formidable and intricate objective for poor countries. The ultimate goal of sustainable development should be the welfare of both present and future peers. To achieve the sustainable growth, the trade-offs between the financial advantages as well as environmental deterioration must be reduced.

Key Words: Indian, Sustainable Development (SD), Strategic, Environment, Resources, Progress

Objectives of the study

- To determine the concepts, causes & impacts of climatic changes on agricultural & human development.
- To offer pragmatic recommendations for attaining the sustainable growth.

Methodology Adopted

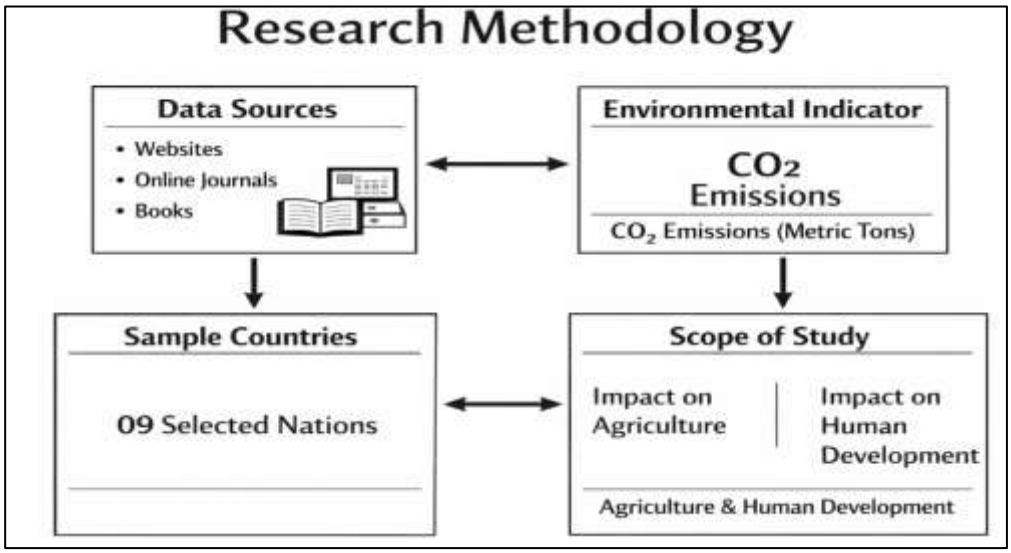

Figure 1: Methodology Framework

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Research Hypothesis

Both rich and developing nations must undertake comprehensive, rigorous & transparent initiatives to mitigate the adverse effects of climate change on sustainable development (SD).

Introduction

Financial growth is the worldwide pathway by which per capita revenue as well as productivity are enhanced. An improvement is observed in the alive conditions of the residents, accompanied by a reduction in unemployment, poverty, and societal inequality. The utilization of GDP per capita is the predominant metric for assessing the economic status of a nation and for comparing the developmental achievements of different countries through various strategies. Nonetheless, it is now well acknowledged that this methodology possesses a very restricted scope, as economic advancement often neglects the degradation resulting from pollution and the depletion of natural resources.

Numerous empirical studies have examined the association between economic growth and the existing environment. Generally, empirical studies have produced varied outcomes based on the particular metrics of environmental harm and the specific countries examined. Some hardliners assert that an escalation in economic activities inevitably leads to environmental degradation and ultimately the collapse of both economic and ecological systems, while other researchers propose that environmental concerns will be addressed organically as a consequence of economic growth.

Sustainable Development (SD)

Sustainable development (SD) pursues to achieve human needs while concurrently defensive the environment, safeguarding that the necessities of both current & upcoming generations are met & supporting an economy that follows to the vital principles of ecological sustenance. The term 'sustainable development (SD)' was delineated in six separate & seemingly contradictory ways. Nevertheless, the dominant agreement was acknowledged as "fulfilling the demands of the present generation without compromising the necessities of future generations" as the essential interpretation. Although simple, it provides an exhaustive account of sustainability. It broadens the definition of sustainability, defining it as a means to ensure that future generations are equally advantaged as the present one, so securing the perpetuation of this trend. This viewpoint asserts that human-generated capital, including machines and infrastructure, together with knowledge, act as alternatives to natural capital, especially natural resources.

Conservation refers to the protection of resources & the environment, whereas "development" indicates the improvement of society via the prudent use of available resources. To attain an ideal growth rate, resource use surpasses sustainable thresholds, leading to resource depletion. Consequently, the notion of sustainable development provides a solution through an innovative & per capita production rise in the coming years, environmental degradation will unavoidably escalate. Van Ireland, 1993. Since the early 1990s, various studies have investigated the potential correlation between environmental quality & economic development to provide authorities with insights on growth strategies. A commonly analyzed topic in this field is the Environmental Kuznets Curve (EKC). This illustrates that as per capita income rises, environmental quality initially declines; however, with ongoing economic expansion, environmental quality starts to enhance the production. At lower stages of economical growth, environmental deterioration is predominantly a consequence of financial behaviors aimed at

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survival. As industries grow, environmental pollution escalates; nevertheless, subsequently, with economic advancement, attention shifts to the service sector, leading to enhanced environmental quality.

Essential components that promote sustainable growth encompass financial advancement, social equality, and environmental sustainability. The inquiry is whether present financial advancement (GNP & employment so on.) should be sacrificed for future environmental conservation. A trade-off occurs between financial progress and environmental sustainability. Preserving the environment to sustain natural resources is crucial, especially in least emerging countries.

Table 1: Relationship Between Resource Consumption and Environmental Sustainability

S. No.	Consumption of Renewable Resources	Environmental Condition	Sustainability Outcome
(a)	Exceeds nature's regenerative capacity	Environmental degradation	Unsustainable
(b)	Matches nature's regenerative capacity	Ecological balance	Steady-state economy
(c)	Falls below nature's regenerative capacity	Environmental restoration	Sustainable development

The primary aim of all developmental projects is together improve society active standards. The objective is to convert all available resources into the products as well as 'depletes' a specific quantity of resources for growth; nevertheless, the characteristics and developmental velocity suggest that the rate of resource depletion substantially surpasses that of resource generation. If this trend continues for over a century, there are concerns of not only insufficient growth but also possible financial inaction or disaster. This is typically known as 'the restrictions to expansion.' Therefore, the present generation must substantially diminish the utilization of non-renewable based resources or else recycle an equivalent quantity of depleting resources, thereby guaranteeing that future generations have comparable kind of opportunities for advancement.

Ecological balance—biodiversity—thus guaranteeing the sustainability of future life on Earth. The sustainability development (SD) is an aspect of wider ecological issues that endanger life on Earth. This is not solely a matter of recognizing essential resources for future generations, but also of facilitating a more harmonious coexistence between mankind and the environment.

Studies suggest that a 2°C rise in pre-industrial temperatures could lead to a sustained GDP decline of four to five percent in African and South Asian countries. This will intensify disparities between wealthy and impoverished countries. A variety of gases are considered responsible for global warming, which exacerbates climate change; these gases are known as greenhouse gases. They are termed as such because climatic change parallels the greenhouse effect, which is essential for protecting tropical plants in cooler regions by generating heat.

India is fourth in worldwide CO2 emissions, trailing behind China, which occupies the #1 position (Table 1).The proportion of total world CO2 emissions has markedly risen from 1960 to 2008 & also in 2009.India's position ascended from seventh to third owing to elevated energy demands and intensified energy-intensive operations, notably in power generation, raw material sectors, and road transport, coupled with substantial fossil fuel use, particularly coal. Conversely,

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developed nations such as the UK as well as USA, although still positioned second, are seeing a regressive trend.

Table 2: The Share of India in CO_2 Global Emissions

S. No.	Countries	CO_2 Emission in 2018 (Million Tone..)	1990	2000	2010	2015	2018	Change in CO_2 (1990–2018) in %
1	China	10,000*	2.1	2.8	6.4	7.0	7.5	257%*
2	United States	5,300*	19.6	20.6	17.6	16.5	16.0	-18%*
3	European Union	3,500*	9.1	8.4	7.8	7.3	7.0	-23%*
4	India	2,500*	0.8	1.0	1.5	1.7	1.9	138%*
5	Russia	1,700*	16.5	11.3	11.9	12.0	11.5	-30%*
6	Germany	750*	12.7	10.4	9.9	9.2	8.9	-30%*
7	Canada	600*	16.2	17.9	16.2	15.8	15.5	-4%*
8	United Kingdom	420*	10.3	9.2	8.2	6.5	6.0	-42%*
9	Japan	1,200*	9.5	10.2	9.7	9.5	9.0	-5%*

- *lobal Carbon Project. (2018). Global Carbon Budget 2018.*
- *Crippa, M., et al. (2019). Fossil CO_2 emissions of all world countries. European Commission (EDGAR database).*
- *International Energy Agency (IEA). (2020). Global CO_2 emissions by sector, 2018*

Table 3: Top Level-08 Annual Energy-Oriented CO_2 Emitters (% of Global Total Emissions)

S. No.	Country	1850–2008	2009	2018*
1	China	9.36	23.6	27.8
2	United States	28.5	17.9	15.2
3	India	2.52	5.5	7.3
4	Russian Federation	7.95	5.3	4.6
5	Japan	3.88	3.8	3.3
6	Germany	6.78	2.6	2.1
7	Canada	2.97	1.8	1.6
8	United Kingdom	5.73	1.6	1.1

International Energy Agency (IEA). (2019). CO_2 Emissions from Fuel Combustion
Global Carbon Project. (2018). Global Carbon Budget 2018
World Resources Institute (WRI). (2020). CAIT Climate Data Explorer

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Table 4: CO_2 Emissions in Metric Ton

Country	1990	2000	2005	2018*	CAGR (%)
Russian Federation	3208	1833	2012	1650	-1.90
Germany	1246	1019	1005	800	-1.60
United Kingdom	738	640	684	410	-2.20
Japan	1103	1297	1390	1150	0.15
USA	5080	6209	6934	5100	0.02
India	988	1485	1875	2650	3.70
China	3837	4820	7225	10000	4.60

Global Carbon Project. (2018). Global Carbon Budget 2018
International Energy Agency (IEA). (2019). CO_2 Emissions Statistics

Table 5: Country-wise Environmental Performance Ranking

Countries	Rank
Iceland	1st
United Kingdom	6th
Germany	13th
United States	27th
Brazil	69th
Russia	52nd
India	177th

Yale Center for Environmental Law & Policy. (2018). Environmental Performance Index (EPI) Report 2018
World Economic Forum (WEF) Reports

The assessment of pollution control rankings varies significantly. India is more favorably positioned than certain wealthy nations in the "Environment Preservation" dilemma of greenhouse gas emission reduction. A research study material has been gathered in Britain around 143 nations indicated that India is quite affluent as well as environmentally sustainable balanced than America as well as Russia. This survey was conducted in 143 primary nations, encompassing over 99 percent of the global population. Iceland ranked first, while India ranked thirty-fifth, according to the survey.

Climate changes & impacts on human development

The capacity perspective, as articulated by Amartya ji Sen, envisions human progress as the enhancement of potential and autonomy. He asserted that four specific types of talents are essential for human development: freedom, a respectable standard of living, education, and health. It is now recognized that fluctuating weather patterns and increasing sea levels would hinder human development. The IPCC analysis indicates that the anticipated impacts of climate change will significantly affect impoverished populations and those unable to protect themselves against weather fluctuations. Weather calamities such as droughts, floods, or hurricanes significantly impact poor countries. In 1990, weather-related disasters resulted in an average of one thousand fatalities each incident in underdeveloped countries, while only twenty-two percent of individuals

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perished from such disasters in nations with high human development. Natural catastrophes can impede the growth trajectory of emerging nations by destroying agricultural production, housing, physical infrastructure, and industrial establishments. It can induce poverty or exacerbate conditions for the most vulnerable elements of society.

Consequently, the stark truth of the contemporary era is the spectrum of perilous climatic change. The spectrum of all confirmed that mortality's encountered with the two dangerousth tragedies. A disaster presents an instant danger to human progression. The sorrow of humankind impedes economic progression & each person is controlled by the punitive cycle of inadequate human improvement and constricted economic growth. The second calamity is the threats that climate change presents to future generations as a result of the enduring presence of greenhouse gases emitted today. The current generation bears the principal obligation of mitigating the risks associated with climate change for future generations.

Conclusion

Underprivileged & developing nations must promptly enhance their distinct adaption initiatives with the support of worldwide communities. Developed nations must implement such programs, as they carry the historical responsibility for climate change and possess sufficient financial resources and technological capabilities to effectuate significant initial reductions in emissions. Applying a carbon emission disadvantage through assessment & a cap-and-trade organization is the suitable starting point. The marketplace rating unaccompanied is insufficient. The establishment of the all regulatory based agencies along with public as well as private partnerships to facilitating the reduced carbon transfers should also be prioritized.

An compulsory, binding international agreement concurred to devise a strategy to mitigate emissions. The representation, aside from G-77 (which includes some underdeveloped nations such as India), was provided by China, which endorsed the Kyoto deal. The requirement for emissions is to be reduced by 40% to 50% by the year 2020.

Global experts assert that to save the world, a 50% reduction in global carbon dioxide emissions is imperative by mid-century. It is evidently a laborious task requiring significant good efforts stemming from a commendable vision. The strategy to achieve the target should arise in contemporary society, it is imperative to foster harmony between nature and its environment. Creating awareness among the populace is crucial, necessitating the dissemination of information from grassroots levels. We must inspire individuals to conserve resources, safeguard the environment, and eschew extravagance and waste. The primary role is fulfilled by humans, as they are the ones that cause destruction and possess the unique capacity to prevent future degradation. Only humanity can significantly contribute to the preservation of our environment from destruction.

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