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Sustainability & Management Of Environment: A Contextual Analysis Of India

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Abstract:

Sustainability & environmental management includes managing the oceans, freshwater systems, land and atmosphere according to sustainability principles. Use of land change the functioning of the biosphere due to alterations in the relative proportions of land for urbanization, agriculture, forest, woodland, grassland have a marked effect on the water, carbon and nitrogen biogeochemical etc. Management of the Earth atmosphere includes assessment of all aspects of the carbon cycle to identify opportunities to address human-induced climate change and this has become a major focus of scientific research because of the catastrophic effects on biodiversity and human communities. Ocean circulation tendency have a strong effect on climate and weather and in turn, the food supply of both humans and other creature. In this paper we will be finding that how India is doing & how India can do sustainable development with environmental management.

Key words: Sustainable development, Atmosphere, Urbanization, biodiversity, biogeochemical cycle.

Introduction:-

India's economic growth over the last few years has raised the prospect of eliminating large poverty within an age group. But this growth has been covered by a damaging physical environment and the increasing scarcity of natural resources that are required for sustaining further development & mitigating poverty. It is not a coincidence that the poorest regions of the country are also the most environmentally-stressed areas, with eroded soils, polluted waterways, and abandoned forests. At the same time, rapid growth has released greater public information and an unparalleled demand for the sound management of natural resources including air, water, forests, and biodiversity. Environmental sustainability is rapidly emerging as the major development and policy related challenge for the country and it is main focus in development strategy of India which is currently in activation.

Objectives:

- To provide a broad overview of the recent patterns and trends of sustainable development in India.
- To know the concern of India for sustainable development with environmental management.
- To give some recommendations to maintain the balance between environmental management & development of country.

Methodology: -

This research paper is an expressive study in nature. The study has been based on the collection of relevant & feasible secondary data. Secondary data collection was based on various sources such as published books, articles published in different journals & newspapers, periodicals, conference paper, working paper and web sites, etc.

Findings

The study provides an overview of long-run sustainability challenges in India. Implementation of low carbon sustainable development strategies requires concerted policy action and interventions.

India Development Profile

In 2014, India's total population stood at 1.29 billion and its share in the world population was around 17.84per cent (World Bank Development Indicators). Globally, economic growth seemed to have picked up and it is expected to further improve in 2015–16. Global growth in 2015 was a modest 3.7 per cent (IMF 2016). It is projected that world growth will be around 3.8 per cent in 2016 and 4.1 per cent in 2017. The I M F in its report, World Economic Outlook, explains that downside risks persist in developed economies where output gaps had been big. Key development indicators for India and select countries are listed in below mentioned table. It is observed that in reference of per capita income and energy use per capita, India is below the world average. In terms of CO2 per capita, the carbon footprint of India is lower than the world average.

(Key development indicators of India & other countries)

	GDP in billion (constant 2005 US$)[a]	GDP per capita (constant 2005 US$)[a]	CO_2 emissions (MT)[b]	CO_2 emissions (metric tons per capita)[b]	Energy use (kilograms of oil equivalent per capita)[c]	International Trade Balance in Goods[a]	Cash surplus/deficit (% of GDP)[c]
Brazil	1206	5853	439.41	2.19	1391.90	-4.13	-1.84
China	5274	3866	9019.52	6.71	2142.81	370.02	_
European Union	15372	30241	3574.10	7.07	3253.82	134.78	-3.63
India	1600	1235	2074.34	1.66	623.72	-139.88	-3.81
Japan	4780	37595	1187.66	9.29	3545.60	-120.64	-7.97
Russian Federation	1000	6844	1808.07	12.65	5283.41	188.04	2.67
United States	14797	46405	5305.57	17.02	6814.82	-727.15	-7.56
South Africa	329	6086	477.24	9.26	2674.82	-18.1	-4.47
World	58055	7996	34649.483	4.94	1897.95	_	-4.94

Note: Data for various years: [a]2014, [b]2011, [c]2012

Source: World Development Indicators (data.worldbank.org); Column on International Trade from OECD.stat

The Challenges

Pollution:

Water, land and air pollution associated with growth are increasing rapidly. Growing investment in the manufacturing sector that includes 89 highly polluting industries that are on the Central Pollution Control Board's "Red List" has propelled this growth. The share of the most polluting sectors in India's exports has increased wonderfully during the last decade suggesting that India could be emerging as a net exporter of pollutant commodities. These trends suggest the need for greater investment in environmental management.

Natural Resources, Ecosystems and Biodiversity: In rural areas, poverty has become blend with resource degradation – low quality soils, depleted aquifers and degraded forests. To subsist the poor are bound to mine & overuse these resources, creating a downward spiral of distress and environmental degradation. There is mounting pressure to better protect India's pockets of biodiversity which are increasingly identified as being of prominent implication for global biodiversity, yet are increasingly threatened. Larger investment in the protection of these natural resources would yield a double benefit of poverty alleviation and the improved sustainability of development.

Coastal Zone Management: India's coastal area is provided with fragile ecosystems including mangroves, coral reefs, estuaries, lagoons, and unique marine and terrestrial wildlife, which contribute in a significant manner to the Indian economy. Economic activities such as fast urban-industrialization, maritime transport, marine fishing, tourism, coastal and sea bed mining, offshore oil & natural gas production, aquaculture, and the recent establishment of special economic zones (SEZ) have led to a huge exploitation of these resources. In addition to the contribution of enhanced economic activity, coastal development and livelihoods are under stress due to a higher incidence of adverse weather events, which have potential to inflict irreversible damage to lives & property, for communities that are conventionally poor & vulnerable to economic shocks.

Environmental Governance: The speed of infrastructure investments, which could reach near about $800 billion in the year 2020, calls for integrated & coordinated decision-making systems. This is made especially challenging by scattered policies and multiple institutional legal & economic planning criteria, with conflicting objectives and approaches.

Environmental Health: The health impacts from pollution are comparable to those caused by malnutrition & have a remarkable impact on the productivity, health and the quality of life. Environmental health challenges are mainly caused by poverty-related risks associated with poor reachability to basic services, such as safe drinking water, sanitation & poor air quality. The contamination of surface water & the spread of pathogens are promoted by the alteration of catchments & watersheds that have accompanied fast urbanization & intensive farming. Despite significant improvement in rural water supply & sanitation over the past few years, water-related diseases still responsible for a large number of avoidable child deaths every year.

Climate Change: India is highly vulnerable to non-sustainability of environment due to a combination of; (1) huge poverty, (2) high population density, (3) high dependency on natural resources & (4) an environmental stress (for instance water resources). By mid-century, the average annual temperature in India is projected to increase 1.1º to 2.3 º C under the moderate climate change scenario of the Inter-governmental Panel on Climate Change, with predicted deterioration of agro-climatic conditions. In the higher portion of that range, the loss to Indian GDP would be larger than the world average, and could be close to 5 %. Simultaneously, there is likely to be larger variability in rainfall, leading to higher risk of increased severity of droughts, floods & cyclones.

Reflecting the size of its economy & population, India is ranked as the 6th largest emitter of greenhouse gas emissions in whole world. However, by most measures, India would be categorized as a low carbon economy. It has: (1) a low intensity of emissions per unit of GDP (on par with the world average); (2) per capita emissions that are among the lowest in the world (10 % of the developed country average) and (3) forest cover that has stabilized. However, India's emissions are set to grow substantially due to its environmental management & sustainable economic development.

Government Priorities

India has made a solid effort in attempting to address environmental challenges. It has enacted stringent environmental legislation and has created institutions to monitor & enforce legislation. The National Environmental Policy (NEP) identifies the value of harnessing market forces & incentives as part of the regulatory toolkit, & India is one of the three countries worldwide which has established a Green Tribunal to handle environmental litigation. For environmental governance, the government of India is considering the

establishment of the National Appraisal and Monitoring Authority (NEAMA) to take forward environmental assessments.

During the present strategy of development, the Government issued regulations to promote an integrated and inclusive approach to coastal area planning & sound management of hazardous wastes, issued a number of policies (e.g. revised river conservation strategy & the National Biodiversity Plan), & established a Wildlife Crime Control Bureau to complement existing conservation measures for species which are at risk. In response to the danger of climate change, the Prime Minister's National Council on Climate Change issued India's first comprehensive National Action Plan in June 2008. In the follow-up to Copenhagen, India also volunteered its own target to reduce carbon intensity by 20 to 25 % by 2020 against a 2005 baseline & established an expert group on low carbon growth to identify how best to overcome this challenge.

World Bank Support

Responding to these problems & pressures, the World Bank has developed a multiple approach to address environmental management & sustainable development issues and mitigate its lending risks:

A Sound Program of Knowledge Products & Lending: This tries to improve the knowledge base for environmental solutions & sustainable development and to pilot a number of programs to address main environmental challenges.

Risk Management & Mainstreaming through Cross Support Activities: by the World Bank's safeguard policies; a strong mechanism for decision making has been established & developed. A number of tools to enable the integration of environmental management & sustainable development in project design, & minimize the environmental footprint of the Bank's operations have also been developed.

Country mechanism & Capacity Building Initiatives help build institutional capacity, & include the piloting of country (state) mechanism for managing risks of World Bank projects.

List of Active Projects

The World Bank has a growing relationship & portfolio in the environment sector. Projects under implementation include the following-

Integrated Coastal Zone Management Project (222$MN approved June 2010) to help build the adequate institutional arrangements, capacity & modern knowledge systems required to implement the national program on integrated coastal zone management. It will also help pilot this concept in 03 coastal states, Gujarat, Orissa and West Bengal, through a range of supplementary pilots in select coastal stretches to established state-level capacity.

Capacity Building for Industrial Pollution Management Project ($ 65 m n approved June 2010) to build tangible human & technical capacity in state agencies in Andhra Pradesh & West Bengal (WB) for undertaking environmentally strong solutions of polluted locations & to support the development of a clear policy, institutional and methodological framework for the establishment of a National Program for Rehabilitation of Polluted Sites (N P R P S).

The National Ganga River Basin Authority Project ($1bn approved in May 2011): to made capacity of its nascent operational-level institutions, by which they can manage the long-run Ganga clean-up & conservation program & strategy; & implement a varied set of demonstrative investments for decreasing point-source pollution loads in a sustainable way, at priority & prominent locations in the Ganga.

Biodiversity Conservation and Rural Livelihoods Project (GEF/IDA $ 23 m approved in May 2011): to develop and promote new models of conservation at the large scale through increased capacity & institutional building for prevailing & mainstreaming biodiversity conservation outcomes.

Pipeline Projects

Environmentally Sustainable Development Policy Loan in the State of Himachal Pradesh: The proposed Development Policy Loan will seek to establish a framework for environmental management & sustainability of development, which will encourage the participation of the state public sectors & private sectors in the National Mission on Enhanced Energy Efficiency, develop a policy & institutional framework for the next development of environmentally strong hydropower development, & enable sustainable development in the prime & key sectors of the economy including: tourism, industry, & agricultural development & horticulture etc.(source world bank)

Global Environmental Facility (G E F): Following the recent replenishment, the World Bank has been requested to prepare a number of projects to be financed by the GEF, namely: Climate Resilience through Community-Based Approaches in Semi-Arid Areas, Integrated Biodiversity Hotspots and Improvements, Adaptive Management Tools in Sustainable Land Management, and Integrated Ecological Management of the Lakshadweep Sea.(source world bank)

Research

Energy Intensive Sectors of the Indian Economy (Options for Low Carbon Development): We can see five sectors of the Indian economy that counted for three quarters of India's CO2 emissions from energy use in 2007. These are power generation, energy-intensive industries (iron & steel, cement, fertilizer, refining, pulp and paper etc.), road transportation, commercial buildings and residential housing. It shows three carbon emission scenarios, outlining the different growth paths that India could opt from 2007 to 2031.

Sundarbans Sustainable Socio-Economic Development: The aim of the non-lending technical assistance is to estimate measures that would develop resilience of the socio-economic & biophysical mechanism & achieve long- run sustainability of development. Resilient mechanism are those having a capability to adapt when faced with continuous stresses, but the adaptive capability of those residing in the Sundarbans has been weaken on an ongoing basis. Historic sea level rise from deltaic subsidence, salinity interruption, flooding and nutrient damage in local soils have all confederate over the past century to make this one of the most hazardous region in the Indian sub-continent.

India 2030: Vision for an Environmentally Sustainable Future: This study deals with a broader debate on the impacts of fast economic development on environmental sustainability & the need to rethink India's present institutional arrangements in view of promoting long-run environmental sustainability. The basic objectives of the study are to recognize environmental challenges, opportunities & limits to development that will emerge in India over the coming few decades & recommend policy responses & develop strategies to match the twin objectives of development & environmental sustainability in urban & ecologically fragile hill regions.

Recommendations

1- Mainstreaming in decision-making processes

Climate resilient sustainable development strategies & plans need to be looked as a cross-cutting issue, which requires policy coherence & better inter-departmental coordination. For further mainstreaming of sustainability of environment in decision-making processes, the government can adopt sustainable budgeting for India wherein all departments can make environmental budget statements – such sustainable budgeting would encourage forward- looking mindsets among policy-makers & thinkers as they would then reflect on different activities undertaken in their concern departments.

2- Addressing data gaps

Collecting and synthesizing existing & fresh data is required to facilitate preparation of strategies as well as evaluation of current policy initiatives. Data for other parameters can be obtained using current management information mechanism.

3- Mobilizing finance

Financing is critical & crucial to the implementation of climate resilient sustainable development interventions. In addition to public finance, the role of the private sector & development institutions also becomes valuable & important.

4- Commissioning pilots and technology demonstration

Pilots require to be commissioned in opportunity regions. Technology demonstration should be encouraged in regions of renewable energy, waste management, renewable energy for cold storage applications, & natural resource management. This will help in up-scaling of the technologies.

5- Capacity building

Increasing financial, technical, & institutional capabilities of government as well as the voluntary sector is must for the implementation of climate resilient sustainable development strategies & methods. A detailed analysis of capability building required, sector by sector, becomes necessary. A greater attachment between government, research & academia, non-profit organizations, & private sector is requires to support implementation.

6- Understanding emerging issues-

The country required to better understand & be ready for development drivers, including urbanization & change in structural dynamics. As per emerging needs, skill development & vocationalization of education is urgently required. This is important for environmental management, sustainable & inclusive development.

Conclusion

The issue of environmental management & sustainable development would not be a decisive one. For India, it should be a continued process; the efforts should never stop anywhere and anytime. Only with the concerted, undivided, dedicated efforts put by every stakeholder of the India, environmental management & sustainable development can be a reality in true sense. Development of human capital, promotion of innovation, institutional and infrastructure development- all will go a long way in making development sustainable in the present competitive globalized environment.

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