“India Needs to be Re-Shaping Its Sustainable Policies for Better Environmental Strategies”

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Expert’s Views on Required Policy Changes, Economic Impacts, and Future Development Strategies

Intro: In this exclusive interview on **Socio-economic Voices** this week, we have **Dr Madhu Verma** in conversation with **Mahima Sharma** of **Indiastat**. Dr Verma digs deep into India's environmental policies where she helps us understand a very wide perspective - from the economic impact of climate change to India's pioneering Carbon Credit Trading Scheme. Dr. Verma also offers sharp insights into the future of green energy, biodiversity parks, and fiscal strategies for accelerating renewable transitions. Her expert analysis challenges conventional thinking and compels us to rethink how we approach sustainability in today's world.

MS: Many states are giving way to green zones by converting them to biodiversity parks. Rising tourism vs disturbing existing ecosystems...what's your take on this policy? And what socio-economically friendly steps that India should take to avoid any ecosystem level disturbances

Dr Verma: Biodiversity rich ecosystems are the foundation for sustainable cities, influencing and affecting human well-being and most economic activity. a healthy natural environment that continuously provides a range of benefits, known as ecosystem service like drinking water, clean air, healthy food, and protection against floods (Data Source: TEEB, 2011).

India's biodiversity parks are an initiative that primarily shows the existence of an ecological trade-off with economic development. Although the concept of these biodiversity parks has a well-organised setting for any conservation activity-aimed at protection of threatened species, ecological education-either single advantages result from such areas.

A major issue in this respect is the disturbance to existing ecosystems. One such study, published in "Nature", found that tourism into protected areas might cause a 20% increase in the introduction of invasive species, harming biodiversity. Again, this points to strict regulations with all-rounded monitoring mechanisms for reducing such nuisance.

Another important factor is the social one: changing green zones can displace even local communities whose livelihood is taken care of by the same areas. According to a report in 2019 by the Indian Institute of Public Administration, the displacement of indigenous communities for conservation purposes reduced the income of the people by a huge 30%, hence increasing inequality.

These are problems that require a holistic approach for India. **The involvement of the community in planning and managing such parks needs to be paramount.** According to a World Wildlife Fund report, parks with high levels of community involvement achieve conservation goals at a 50% higher rate than the average. Another promising

strategy is investing in alternative livelihoods, like ecotourism ventures or agriculture-based activities that are limited by the means of production.

Besides, infrastructure development about responsible tourism-ecologically friendly transportation and waste management systems-play a vital role in minimising impacts on the environment. Thus, a well-balanced approach between conserving, catering to community needs, and developing sustainable tourism practices will place India in the role of being a model for responsible ecological development, which in turn assures long-term sustainability of ecosystems and communities alike.

MS: For the better understanding of our readers please explain India's Green National Accounting System that's expected to be functional by 2029? And how will this benefit the masses and the nation economically?

Dr Verma: The Green National Accounting in India is a system inherently developed to add value to ecosystem services from various natural resources like forests, land, woodlands, mountains, coastal and marine ecosystems within the structure of the existing System of National Accounts (SNA). It goes beyond the simple estimation of Gross Domestic Product GDP, bringing within its ambit the degradation and depletion of such assets, hence giving a broader view concerning the nation's wealth and sustainability. This helps in understanding the real cost of development and leads the policy decisions to be more sustainable. **In one sentence, Green National Accounting helps us to understand the value of nature and, more importantly, the implications occurring due to its destruction and illustrates ecosystems as natural capital or asset.**

I have been engaged in conducting various studies on green accounting of forest land and wetland resources for the past 20 years across various states of India and have provided true contributions of ecological systems to the economic systems. Our study on 'Green accounting of forest resources & estimation of Sustainable Environmental Performance Index (SEPI) for Uttarakhand state in 2019 and another study on 'Forest accounting and economic valuation of forest resources in Rajasthan, and capacity building on Green accounting' in 2019, estimated huge amount of benefits that accrue from forest resources to the people and the national economy but remain unaccounted in the National Accounting System of the country.

It essentially allows deep realisation of the intrinsic value of nature and the management of resources in a manner that is responsible. For instance, in Uttarakhand State, the study estimated a number of invisible ecosystem services that forests are providing economically, thereby showed massive economic benefits accruing due to protection and conservation of natural resources. **Green accounting therefore provides a scientific framework for decision-making, thus helping the policy-makers to decide on priorities of investments and allocate resources effectively.** For instance, SEPI in Uttarakhand will help identify areas that need immediate action for conservation and sustainable development, leading to better resource utilisation and improvement in the quality of life of the people.

The integration of ecosystem services in national accounts allows better estimates of national wealth and economic welfare. For example, the report on Rajasthan shows how green accounting can value forests, land, water, and mineral resources to provide a more comprehensive estimate of the state's true wealth. These studies as well as studies done for several other states, the most recent one for Meghalaya Forests demonstrated high investment multiplier value for forest capital. In conclusion, this system provides **a fundamental framework for ensuring a sustainable future for the people and the national economy and suggests suitable investment for sustainable management.**

Using the same analogy of natural capital, we demonstrated true contribution of forest to the national economy in our studies for 13th 14th and 15th finance commissions of India, which led to complete change in the understanding of contributions of forest in the national economy leading to allocation of 7.5% weight in the 14th finance commission and 10% weightage in the 15th finance commission in the tax distribution to the states based on their

forest cover which till the 13th Finance Commission, used to be a very small portion of grants. This ecological fiscal transfer mechanism is stated to be the one of the world's largest payments for ecosystem services (PES) scheme by any government.

MS: How should the economics of climate change proceed ahead for the next decade, considering the drasticity of climate we have seen in India? Which other nations can India follow in this regard as a benchmark and why?

Dr Verma: The economics of climate change portrays the magnitude and distribution of damages caused by climate change and provides guidance for relevant mitigation and adaptation interventions from an economic viewpoint. The Stern Review on the Economics of Climate Change, commissioned by the UK Treasury (2007), assessed a wide range of evidence on the impacts of climate change and on the economic costs.

The economics of climate change in India necessitates a profound transformation over the next decade, particularly in light of the recent severe weather occurrences. I am sharing ceratin aspects that represent a comprehensive strategy:

- **India needs to go beyond mere reactive approaches to disasters and build resilience in its infrastructure, agriculture, and urban planning.** This calls for investment in flood-resistant structures, drought-resistant crops, and efficient water management systems.
- **Accelerate the Green Transition by phasing out of fossil fuels and exponential increase in renewable energy production.** The solar capacity in India has increased significantly, reaching 58 GW in 2023 [MNRE, Ministry of New and Renewable Energy]. Still, significant investments in solar, wind, and other clean energy technologies must be made, supplemented with sound policy regimes.
- **It will be in the best interest of emissions reduction policy to introduce a comprehensive carbon pricing policy with taxes and an ETS.** A well-structured ETS may also be an important source of climate finance.
- **Fourthly, it calls for the promotion of climate-smart agriculture practices, including water-efficient irrigation and drought-tolerant crops.** It fundamentally requires investment in research and development.
- **Adaptation and Mitigation via India making** must and significant investments in forest restoration and afforestation initiatives, as these serve as highly effective carbon sinks. Additionally, the conservation of mangroves constitutes another vital area, considering their importance in coastal protection.

Now let's discuss how we stand India Vs Benchmarking against other nations:

- Denmark has achieved almost 100% of renewable electricity generation. Its focus on green technology, stringent policy frameworks, and public awareness provides valuable lessons for India.
- The Energiewende policy of Germany shows commitment to green infrastructure and renewable energy.
- China, though being the world's biggest emitter, has significantly invested in solar and wind energy.

Learning from the successes of other countries and building on its strengths, India can assume a leadership role in addressing the global crisis.

MS: What actionable plan should public, private, and government partnerships follow over the next five years to better address climate change before summer and monsoon arrive?

Dr Verma: India's fight against climate change requires an immediate collaborative approach. The next five years become quite crucial with the rising effect of summer and monsoon seasons. Public-Private-Government Partnerships will offer a strong solution to enhance resilience and reduce future potential risks. I have shared the key aspects in the previous question, but will now throw light on the same vis-vis public-private partnerships:

Climate-resilient infrastructure is a sector that requires focusing. The public sector will lead the way by implementing strict building codes, incentivising resilient construction techniques, and investing in early warning

systems. On the other hand, the private sector could develop innovative technologies such as flood-proof structures and sustainable materials, and invest in projects that deal with climate-resilient roads and bridges. An outstanding example is the Housing for All mission of India, aiming to provide affordable and resilient housing by applying green building technologies to over 100 million families by 2022 (Ministry of Housing and Urban Affairs).

The promotion of sustainable agriculture and efficient water management forms another cornerstone. The public sector can incentivise climate-resilient agricultural practices by providing training and subsidy support, while the private sector can invest in precision irrigation and organic farming solutions. The Paramparagat Krishi Vikas Yojana scheme of the Indian government provides a framework that can help farmers adopt such climate-resilient practices.

But, above these all, first and foremost, speeding up renewable energy and energy efficiency is of essence. The public sector can set ambitious renewable energy targets and energy efficiency standards, while private companies can invest in renewable energy infrastructure and energy efficiency solutions. In this regard, India's National Solar Mission is exemplary, with a solar capacity of 58 GW in 2023, according to the MNRE, Ministry of New and Renewable Energy. These need to be scaled up through PPPs to help meet the NDCs of India.

Lastly, enhancement in carbon mitigation and climate finance is required. Full pricing of carbon to cover external costs of greenhouse gas (GHG) emissions, creation of a green climate fund, and investment in carbon capture technologies are needed. The involvement of the private sector is needed in carbon offset projects, along with the issue of green bonds. The Voluntary Carbon Market initiative in India has shown the way in this regard.

Success necessitates robust policy support, financial incentives, transparency, and the enhancement of community capacities. And India has the potential to establish climate resilience, foster a sustainable economy, and protect its future.

MS: Which all policies of India vis a vis, its environment protection management need a change and why?

Dr Verma: India needs to tweak its environmental protection policies to hammer the growing climate crisis and to achieve sustainable development. While efforts like the National Green Tribunal, the National Clean Air Programme, and the Swachh Bharat Mission have achieved some results, many policies need further advancement to internalise environmental traits.

Moreover, the implementation strategy of the National Action Plan on Climate Change requires a more defined roadmap, better enforcement mechanisms, and higher investment. For instance, it is necessary to develop strict emission standards for industries, promote electric vehicles, and accelerate the process of transitioning to renewable energy.

Further, waste management policies urgently need an upgrade - with the expansion of producer responsibility, especially for plastic waste; and implementation of the EPR framework. According to a report released by the Central Pollution Control Board, only 20% of India's waste is currently recycled. Investing in advanced technologies for recycling is required, along with composting incentives and encouraging waste-to-energy solutions.

The Amendment Act regarding the Air and Water Pollution Laws of India should be more strictly enforced. There is a need for higher fines and penalties against environmental offenses, while the capacity of the Central Pollution Control Board and State Pollution Control Boards is to be enhanced to effectively monitor and enforce laws. According to a recent report from the World Health Organisation, **as many as 99 percent of the global population breathe air that exceeds safe limits for pollutants. India was among the most polluted countries.**

Fourthly, EIA needs increased transparency and public involvement, including a requirement for public consultations and access to environmental information.

Finally, the Environment (Protection) Act, 1986, needs a comprehensive review to address climate change. This includes setting explicit national climate action plans, incentivising renewable energy development, exploring carbon pricing mechanisms, strengthening enforcement mechanisms, raising fines for violations, and promoting sustainable consumption patterns.

These key changes would ensure a stronger and more forceful regime of environmental protection in India, leading to a cleaner, greener, and more sustainable future.

MS: The revised Carbon Credit Trading Scheme allows for greater participation from voluntary entities. What role do you see for state governments in regulating and promoting participation in these carbon markets?

Dr Verma: State governments in India can play a crucial role in promoting participation in the revised Carbon Credit Trading Scheme (CCTS) **by aligning their policies with the national framework.** This involves offering incentives like tax benefits and subsidies for green projects, which 68% of states already provide. Sector-specific initiatives, such as encouraging sustainable agricultural practices in large agricultural states, can significantly reduce emissions. States can also invest in capacity-building programs to increase awareness and technical expertise in carbon markets. This can lead to higher participation rates, as evidenced by a NITI Aayog report.

States with robust environmental monitoring frameworks, such as Gujarat and Tamil Nadu, can ensure compliance and maintain the credibility of carbon credits. Forest-rich states like Madhya Pradesh and Odisha can capitalise on their carbon sequestration potential by developing localised offset projects. **Finally, as we have already spoken earlier about, by fostering public-private partnerships India can unlock investments in carbon offset projects. Data says that 43% of Indian companies are willing to invest in such initiatives.**

The success of Singapore's carbon tax and the establishment of Climate Impact X (CIX) demonstrate the impact of a well-structured policy framework in encouraging market participation and price discovery.

India's states, with their unique regional contexts, can leverage these lessons to advance the CCTS, contributing significantly to the country's ambitious climate goals. The global voluntary carbon market (VCM) is experiencing a surge, with projections estimating it could reach USD 50 billion by 2050. This presents a significant opportunity for India, which already produces 44% of global carbon credits and could raise USD 10 billion annually by 2030, driven by the rising corporate demand for net-zero goals (Mckinsey report, 2021).

By actively promoting participation in the CCTS, Indian states can capitalise on this potential and contribute to the development of a robust and vibrant carbon market, playing a pivotal role in India's journey towards a sustainable future.

MS: In light of India's push towards renewable energy and green hydrogen, what fiscal policies at the state level could further accelerate these transitions, and how should they be structured?

Dr Verma: India's ambitious push towards renewable energy and green hydrogen presents a significant opportunity for states to play a vital role in accelerating these transitions. The central government has already committed ₹19,700 crores to the Green Hydrogen Mission, aiming for a production target of 5 million metric tons by 2030. However, state-level fiscal policies can further incentivise private investments and drive rapid adoption of these clean technologies.

One of the measures is to provide suitable financial sweeteners for green hydrogen initiatives. This could mean tax incentives, or the provision of land, or reduced electricity tariffs for instance. They would greatly bring down the cost of the projects hence becoming more attractive to private investors. For instance, Gujarat which is at the forefront in renewable energy could give incentive of excise duty exemptions for industries establishing green hydrogen manufacturing plants in the state.

States can also go the extra mile in encouraging the use of renewable energy through the setting of highly achievable RPOs. Hiking the requirements of the procurement of renewable energy from solar and wind sources in the country would ensure that a faster rate in developing the local clean energy was achieved in line with the national RPO trajectory. For instance, Karnataka, one of the states with excellent solar resource potential, might provide for 50% RE share in electricity generation by 2030.

Another important factor that has to be managed properly is the connection and the compatibility of renewable energy sources with the grid. Governments can provide dedicated funding or enter into private sector partnership for development of transmission networks especially in the renewable energy rich regions. Some of the investment opportunities could entail expanding transmission infrastructure, constructing sub-stations, and improving distribution infrastructure. Such an opportunity involves investing in high voltage direct current (HVDC) transmission systems to transport renewable energy to the demand centre more effectively; for instance, Rajasthan investment in wind power infrastructure.

Also, there are other ways in which states can support the green transport and adoption of electric vehicles/vehicles, including fiscal support. This could include some incentives such as rebates for consumers who purchase EVs, subsidies for companies who want to install EVs charging stations and the expansion of electric public transport. These measures would help shift towards a clean energy transportation sub-sector that would reduce the use of fossil energy. For example, Delhi which is struggling with air pollution could have extremely attractive incentives for electric buses and electric auto-rickshaws.

Overall, these measures not only create a favourable investment environment but also contribute to achieving India's broader sustainability goals, reducing carbon emissions, and building a cleaner, more resilient future.

MS: Intergovernmental coordination often poses challenges in federal systems. What mechanisms or reforms do you suggest to improve coordination between the central and state governments in managing environmental policies?

Dr Verma: I will answer this in two parts, by first listing the challenges and then coming down to reforms required.

Challenges in Intergovernmental Coordination

In India, intergovernmental coordination often faces several challenges. Central and state governments frequently have differing priorities and approaches to environmental issues, leading to misalignment. Regulatory overlap is another issue, where multiple agencies and jurisdictions can create confusion and inefficiency. Additionally, states may struggle with limited resources or capacity to effectively implement central policies. This disparity can result in policy fragmentation, with inconsistent enforcement and varying policies across states undermining national environmental goals. Moreover, there are significant coordination gaps due to ineffective communication and collaboration mechanisms between central and state authorities.

Recommended Reforms

To address these challenges, several reforms are recommended. Firstly, developing a unified national environmental policy framework with clear guidelines and shared objectives can help align central and state priorities. Enhanced communication is crucial, so establishing regular intergovernmental meetings and communication channels can ensure ongoing dialogue and coordination. Supporting states with technical and financial resources will build their capacity to implement and manage environmental policies effectively. Streamlining and harmonising environmental regulations can reduce overlap and confusion. Finally, implementing robust monitoring and evaluation mechanisms will help assess the impact of policies and ensure accountability at both central and state levels.

MS: How can organizations effectively integrate Environmental, Social, and Governance (ESG) initiatives into their operations to meet the growing demands and expectations of investors, regulators, employees, and other stakeholders?

Dr Verma: Since its introduction by the United Nations in 2004, environmental, social, and governance (ESG) integration has become the yardsticks for sustainability worldwide. The pressure from official regulations, investors, and stakeholders on firms to disclose their ESG performance has impacted company attitudes toward sustainability. Earlier this year, Iora collaborated with CII and WEF to draft a report titled “Unlocking Private Sector Investment into Natural Climate Solutions(NCS) in India”, which highlighted the role of natural climate solutions in positively impacting sustainability indicators across the board and improve their ESG ratings, for external and internal stakeholders alike.

NCS achieves this by providing a comprehensive solution, providing benefits for the ecology, to people and the plant by focusing on conservation and restoration. It is estimated that NCS can deliver up to one-third of net emission reductions required by 2030, as net zero and sustainable business become the new corporate mandates. Iora’s corporate engagements consist of a number of clients who have recognized their high dependency on agriculture and natural resources, and are committed to their 2030/ 2040/ 2050 net zero goals along with additional targets to ensure focus and positive impact on biodiversity, water, air and other natural resources.

MS: How is the implementation of Business Responsibility and Sustainability Reporting (BRSR) impacting corporate governance and sustainability practices in India?

Dr Verma: With investors increasingly recognizing the importance of sustainable business practices and showing interest in businesses that are environmentally and socially responsible, releasing non-financial performance information and reports is critical for companies across the globe and increasingly in India. BRSR sheds light on various aspects of a company's operations beyond just financial performance, BRSR reporting fosters greater transparency, accountability, and stakeholder engagement to reflect good corporate governance.

The BRSR was introduced by SEBI in the year 2021 and in FY 2023 was made a compulsory reporting requirement for top 1,000 listed entities. (SEBI circular, 2021). The BRSR framework has taken references from many global reporting frameworks such as the Global Reporting Initiative (GRI), the Task-Force for Climate-Related Disclosures (TFCD) and the Sustainability Accounting Standards Board (SASB).

The introduction of the BRSR is a big leap towards credible and transparent reporting in the sustainability landscape. Another big step in the right direction would be to conduct independent certifications of the assertions made by the management in the BRSR report to truly recognize and consider climate responsibilities, risks and opportunities.

Interview Data References used by Ms Verma:

- NITI Aayog (2018): "National Strategy on Climate Change," emphasises the need for effective coordination between the center and states.
- World Bank (2016): "Diagnostic Assessment of Select Environmental Challenges: Valuation of Biodiversity and Ecosystem Services in India," highlights the importance of data harmonisation and interoperability for effective policy implementation.
- Dasgupta, P. (2001): "Human Well-Being and the Natural Environment," discusses the complex interlinkages between environmental and economic factors, emphasising the need for holistic policy approaches.

About Dr. Madhu Verma

A leading Environmental Economist & Policy Analyst, Dr Verma is the Senior Economic Adviser-IORA Ecological Solutions, as of September 2024. A Graduate in Biological Sciences & Post Graduate, M.Phil and Ph.D in Economics

from Bhopal University, Bhopal. She has done her Post Doctoral Research work at the Department of Resource Economics, UMASS(Amherst) and Department of Agriculture and Resource Economics, UCAL(Berkeley) & Institute of Sustainable Solutions (ISS), Portland State University, Portland, USA and at the Institute of Environmental Studies (IVM), Vrieje University, Amsterdam The Netherlands. She has more than three decades of work experience and more than 40 publications in international and national journals and 30 Project Reports to her credit; conducted many projects with the support of the World Bank, United Nations Environment Programme (UNEP), European Union (EU), Department for International Development (DFID), Asian Development Bank (ADB) to name a few.

About the Interviewer

Mahima Sharma is an Independent Journalist based in Delhi NCR. She has been in the field of TV, Print & Online Journalism since 2005 and previously an additional three years in allied media. In her span of work she has been associated with CNN-News18, ANI - Asian News International (A collaboration with Reuters), Voice of India, Hindustan Times and various other top media brands of their times. In recent times, she has diversified her work as a Digital Media Marketing Consultant & Content Strategist as well. Starting March 2021, she is also a pan-India Entrepreneurship Education Mentor at Women Will - An Entrepreneurship Program by Google in Collaboration with SHEROES. Mahima can be reached at media@indiastat.com