THE GROWTH–CLIMATE PARADOX: Evaluating SDG 13 Implementation Hurdles in India

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ABSTRACT

As the 2030 deadline for the United Nations Sustainable Development Goals (SDGs) approaches, India faces a fundamental governance dilemma: sustaining rapid economic transition while fulfilling its commitments under SDG13 (Climate Action). This paper explores the "Growth-Climate Paradox," wherein India's developmental imperatives driven by urbanization, industrialization, and poverty alleviation-frequently collide with the structural requirements of decarbonization.

Through a qualitative analysis of India's current environmental governance framework, this study identifies three critical policy hurdles. First, the Institutional Gap, where the federal structure creates friction between ambitious national climate targets and the varied implementation capacities of state governments. Second, the Economic Paradox, characterized by the continued reliance on coal for base-load energy security despite record-breaking investments in renewable capacity. Third, the Fiscal Constraint, highlighting the disconnect between the domestic cost of a "Just Transition" and the lack of predictable international climate finance.

By applying a political science lens to these challenges, the research argues that the successful implementation of SDG13 in India requires a shift from a "mitigation-only" focus to an "adaptation-centric" governance model that integrates climate resilience into core developmental planning. The findings suggest that overcoming these hurdles is not merely a technical challenge but a political necessity for ensuring long-term sovereign stability and social equity.

Keywords: SDG13, Climate Action, India, Public Policy, Political Economy, Sustainable Development, Federalism

1. INTRODUCTION

In the current climate governance literature analysis of India's development path is one of the most interesting paradoxes . Growth is always central to the policy agenda for India as the fastest growing major economy in the world, with GDP growth, industrial output and growth of infrastructure always being at the center of policy discussions. But, this growth momentum comes with the vulnerability of one of the world's climate -vulnerable nations – India. The Sixth Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC) provides an update on the increasing risks to the Indian coastal system, river system, agriculture and urban heat corridors, and the ongoing structural vulnerability of these locations, as a result of policy choices that remain focused on economic concerns rather than environmental issues.

India has signed the 2030 Agenda and made a commitment to Sustainable Development Goal 13 (SDG 13): Take urgent action to combat climate change and its impacts. The revised NDCs put forth by India under the Paris Agreement are ambitious with a 50 percent increase in non-fossil fuel energy in cumulative electric power generation by 2030, a 45 percent reduction in emissions intensity of GDP from 2005 and an extra carbon sink of 2.5-3 billion tonnes of $CO2$ equivalent from forest and tree cover. However, there are gaps in the sense of national aspirations that is continuous and measurable at the subnational, sectoral and community level. We investigate this divide in this paper. It is useful to compile the India's SDG13 performance within the framework of institutional analysis and principal-agent theory and climate justice literature. Four important problem dimensions are brought to the centre in the paper: structural incompatibility of Indian growth model with climate sustainability; institutional failures at the Centre-to-state level; implementation gaps of SDG and disproportionate burden of the marginalised communities in the absence of a climate policy; opacity of SDG monitoring and reporting architecture in India. The paper summarizes the related literatures, and then presents the research objectives, methodology, findings in four problem dimensions, and finally discusses the policy recommendations and concludes.

2. LITERATURE REVIEW

2.1 The SDG Architecture and Governance Challenges

The 2030 Agenda is the greatest multilateral sustainable development agenda ever adopted. But the achievement of the Agenda is very dependent on the institutional capacity of countries to implement the SDG targets negotiated at the international level through subnational delivery mechanisms, as Sachs et al. (2022) note in their annual SDG Index report. The governance problem isn't a technical one; it's a political and institutional one. The SDG framework is plagued with a ‘measurement trap ’that leads governments to focus on indicator data production over structural reforms that deliver substantive results, as Fukuda-Parr (2019) have suggested.

This critique is relevant in the Indian context. Nachiappan (2020) describes the systematic exaggeration of Indian SDGs progress in the country's reporting to the UN High Level Political Forum by using output-based metrics like the number of solar installations commissioned or hectares of notified forest land instead of outcome-based measures like air pollution, water access and disaster resilience. While released in 2018 and updated annually, NITI Aayog's SDG India Index is a commendable attempt towards subnational accountability, Das and Bandyopadhyay (2021) point out that there are some methodological downfalls, such as inconsistent baseline data, differential state capacities for data collection, and the lack of any penalty mechanism for chronic underperformance.

2.2 Federal Fragmentation and the Principal-Agent Problem

India's constitution has carved out the developmental powers between Union and state governments by allocating them in the Concurrent Lists of the 7th Schedule. The instruments that can be used for SDG 13 implementation are included in all three lists, and coordination and jurisdictional issues are considerable. According to the comparative analyses of federal systems by Watts (1999) and Obinger et al. (2005), ‘vertical dissonance ’defined as the incompatibility of policy goals between different levels of government is a structural vulnerability characteristic of multi-tiered systems of governance. In this respect, the principal-agent theory provides relevant framework for analysing the Indian case.

The central government is the ‘principal ’which sets the normative and programmatic agenda for SDG 13 through the Ministry of Environment, Forest and Climate Change (MoEFCC) and NITI Aayog. State governments function as ‘agents' to carry out this agenda. The incentive systems for agents are often misaligned with the objectives of the principals, though. Electoral incentives for state governments are focused on industrial development, jobs creation and subsidies for agriculture, which may be incompatible with climate action. Dubash (2012) describes this as a structural feature of Indian environmental governance that is the lack of the capacity or credibility to enforce the national environmental commitments at the subnational level, which makes them ‘cheap talk’.

2.3 Climate Justice and the Distribution of Vulnerability

The question of who pays for climate change and who pays for climate policy is being raised in the context of climate justice scholarship. Climate justice scholarship puts the question of who pays for climate change and for climate policy at the centre. In India, climate vulnerability is also very unevenly distributed along caste, class, gender and geographic lines. Pillai and Dubash (2021) show that Adivasis living in forest-adjacent areas, smallholder agricultural households in rain-dependent ecologies, and coastal fisher folk communities are highly exposed to climate shocks, but make low contributions to emissions. These communities are also lowly visible politically in SDG governance processes. The ecological modernisation theory developed in the work of Meyer (2010) suggests that in the advanced industrial economies it is possible to avoid economic growth being connected to environmental damage through technological change and market mechanisms. Postcolonial critics such as Guha and Martinez-Alier (1997), however, question the use of the framework in the developing world, and consider the economic costs of ecological modernisation to be levied on the world's most marginalised populations.

2.4 Gaps in the Existing Literature

The literature review identified four major gaps in this research. First of all, researchers on SDG performance in India only stick to quantitative index-based measurements which interpret the governance failures in terms of scores, and do not reveal the institutional reasons behind them. Second, the moral dimension of the India growth-climate tradeoff has always been studied systematically in the political science literature in India: most of the literature regarding the paradox is of a techno-economic nature rather than moral. Thirdly, there is lack of methodological development in comparative study of centre-state coordination failures in SDG implementation, and the majority of studies don't demonstrate the institutional capabilities of Indian states. Fourth, climate equity, the identifying those who are always left outside of the climate governance process and why, is only a secondary issue in the dominant research agenda of the SDG on India.

3. RESEARCH OBJECTIVES AND QUESTIONS

This paper is guided by three research objectives, each shows a different dimension of India's failure of governance in SDG 13:

First, to find the failures of coordination at the central and state level in India's SDG 13 reporting and implementation processes that created difference between national-level climate commitments and subnational outcomes. this directly shows principal-agent and major issues and problems as well as institutional aspects of Indian federalism.

Second, to examine who is most affected by the costs of India's growth–climate tradeoff and how marginalised communities are separated from the governance of climate change. This goal shows climate justice literature and distributional equity as a value-based indicator of SDG assessment.

Third, to see India's SDG architecture . to understand is it showing accountability or just output and what institutional changes should be done to remove these gaps. This objective tackles the 'measurement trap' the ultimate problem , and suggests an alternative accountability system.

4. RESEARCH METHODOLOGY

In the field of political science, this study is a qualitative research with a type of interpretive approach. A qualitative approach is chosen when the type of core research problem being studied is considered; for the governance failures being studied, there is no way of expressing them mathematically. This investigation is done in three methodological steps.

The first part is an analysis of policy documents. It takes an in-system approach to a corpus of primary documents including India's National Voluntary Reports (VNRs) to the UN High-Level Political Forum (HLPF) 2017, 2020, 2023, NITI Aayog's annual SDG India Index reports, official publications by the Ministry of Environment, Forest and Climate Change (MoEFCC), State-level SDG implementation plans in selected States, and India's NDC submission to the Paris Agreement on climate change.

The second part is a comparative case study of 2-3 Indian states that has different climate and growth structure and goals . This strategy is based on the 'most different systems design 'logic proposed by Przeworski and Teune (1970), and includes cases that are similar in terms of the outcome of interest (in this case, SDG 13 underperformance) but different in terms of the system's structural . Their choice of states covers a range of dependency on exports (Gujarat), dependence on fossil fuels (Jharkhand) and climate governance (Kerala) and enables to structure an analysis of how the different political economies are linked to the central policy and how it affects the subnational levels.

The third is the use of principal-agent theory as analytical lens to find the role of the centre-state relationship in SDG delivery. This framework show out of line incentives, monitoring gaps and enforcement gaps at the federal level and state level . The study is based on discourse analysis and examines how SDG commitments are, many times , rephrased and reframed as they pass through the international process, into the national policy texts, to state level implementation plans, and how the main content is either diluted or replaced by other political narratives.

5. ANALYSIS: FOUR DIMENSIONS OF SDG 13 GOVERNANCE FAILURE

5.1 The Growth–Climate Paradox: Structural Incompatibility

The growth–climate paradox an structural problem rather than an ideological struggle one , stemming from the contradiction between India's development and climate path and the global decarbonisation agenda. The country's economic model is heavily depended on resource intensive and based on industrialisation as a means of removing poverty, which makes it hard to achieve this with the country's emissions reduction targets, and creates a way of dependency on fossil fuels. The lack of an integrated industrial policy problems , which correspond the goals of economic development with climate targets, worsens this conflict, since the environment has seen as an obstacle to development, rather than a goal to be achieved. It is not a coincidence, it is a clear institution own choice .fossil fuel dependency came because renewable energy targets are made an international rules. This is an example of the tension that coal represents the energy production in India, which is now about 70% based on coal as in 2023. By the financial support by central government Coal India Limited has been maintaining its production growth and the state government depends on royalties. In Jharkhand and Chhattisgarh, a substantial share of subnational-level incentives to reject emission reduction mandates to reduce production comes from coal royalties. This is not a normal paradox it is a problem in structure of economic, dependence for revenue from outside rather than any specific policy , as the gap for fund these states needs for coal-producing mostly rely on royalties.

5.2 The SDG Implementation Gap: Federal Fragmentation

Between national policies and local implementation, India's climate governance is challenged. The Ministry of Environment of india has set climate targets, but there are no experts or any states have funds to act on it. With power moving downward, but not necessarily matching resources, climate action simply becomes a non-uniform state-by-state affair where the reporting is not uniform and the level of seriousness about climate action is quite different among states. It is also lacking in any kind of feedback mechanism , the center remains uninformed about issues on the ground. Things get worse because of a “fiscal-federalism trap”: for revenue to meet budget targets set by the center states need to depend on industrial revenue . Their primary concern is only for a short term economic growth and they are over environmental protection. This becomes a race to the bottom that states run to ease environmental restrictions in order to maintain the growth figures. This means that states report good numbers but in reality climate efforts fall short of what is reported. This “looks good on paper” approach reduces the credibility of India's international climate commitments, while targets remain the focus not about getting rid of real causes of emissions, but towards outcomes.

Under the National Action Plan on Climate Change, the central ministry has no legal power to penalize states that ignore their plan, states must create their own state action plan. This isn’t only an Indian problem. Deforestation has been reduced in Brazil since 2023, thanks to the efforts of the Federal government, but it remains a problem in some Amazonian states that rely on deforestation to sustain their economies. It is also indicative of how both Jharkhand and Chhattisgarh violate coal emission rules in both cases, states with extraction-based revenue do not see the rules as binding as there is no real punishment for breaching it. Whether this is the case, however, depends on the structuring of Germany's climate policy: In Germany, the states (Länder) have a formal voice in the design of the national climate policy before measures are finalized but not merely in a reactive way afterwards. That is not the similar system in India, states only get decisions made at the top, rather than having a say in shaping them, making India's diversity of states a liability for climate governance, not an asset. What are the unequal consequences of the failure?

5.3 Climate Justice: The Unequal Distribution of Failure

The communities of Scheduled Caste, Scheduled Tribe, coastal fishing communities, smallholder farmers and slum dwellers have been found to be more vulnerable to the effects of climate change through various sources when compared to the rest of the community.

This unequal distribution is a result and a source of governance failure. Climate policy is set and resources allocated in various institutional fora, and marginalised communities are largely underrepresented in these fora ,the NITI Aayog committees, state level SDG monitoring bodies and district level development planning bodies. India's SDG monitoring system does not have mandatory provisions for consulting with communities, meaning that the most climate-vulnerable communities are the least consulted when designing policies to address the impacts of climate change.

Policy space is self reinforcing: interests in the institution rather than in accountability will likely be driven by organised economic groups interests in the political arena, not by climate-risked populations' interests which are dispersed and varied which are at climate risk ..

5.4 Reporting Failure: Measuring Output Without Accountability

The fifth lesson is about reporting failure, which involves , measuring output without accountability. India's SDG reporting system blurs the line between activity and accountability. The recently presented VNR to the UN highlights initiatives such as the International Solar Alliance, PM Ujjwala Yojana, and FAME electric vehicle scheme as proof of climate commitment. All of them are "real policy actions". The review did not provide any evidence of ending the cycle of activity and outcome, whether they actually cut emissions they had promised, made exposed communities more resilient, or whether they actually benefited the different castes, classes and geographies.

A gap between output measurement and accountability for outcomes is not incidental, it is the institutional role that SDG reporting currently plays in India. Voluntary National Reviews are not created to produce the kind of 'gritty disaggregated evidence' which would enable the central government to hold its own ministries or state governments to account at home. In terms of method of aggregation, NITI Aayog's SDG India index compounds the issue for external audience by making it clear where SDG 13 governance is failing and for whom. To become a tool of accountability and not reputation management, SDG 13 requires India's reporting system to be disaggregated by geography and social group, and to focus on outcomes rather than programme presence.

5.5 Recent Developments: Judicial Intervention and the Limits of Multilateral Finance (2024-2025)

The governance failures described in this paper are not new, but are highlighted by two developments since the literature reviewed above.In addition to the above literature, there have been two developments that demonstrate rather than alleviate the governance failures described in this paper. First, in March 2024, the Supreme Court of India, in M.K. Ranjitsinh and Others v. Union of India, said that there is a right to be free from the adverse impacts of climate change under Articles 14 and 21 of the constitution. The case involved a conflict between threats to the critically endangered Great Indian Bustard and transmission lines, but the Court's reasoning went further than conservation it argued that the impacts of climate vulnerability fall disproportionately on the economically and geographically marginalised, thus engaging equality arguments. The judgment is seen like the judiciary filling a gap in the name of the Executive and the Legislature, without any common climate authoritative body in the country.

While MoEFCC and NITI Aayog have offered voluntary and output-based monitoring, a rights-based enforcement mechanism was provided by judiciary . This paper states that this problem aligns with the institutional failure to implement SDG 13 in India , but poses the question of future research. can statutory and fiscal reform can be replaced by judicially recognized rights, or if judicially recognized rights merely shift the burden of enforcement from the federal to the judicial level? Second, the results of COP29 in Baku (November 2024) demonstrate that the fiscal constraint part of the growth climate paradox is not necessarily an in-country one. The developed countries had settled for the 'New Collective Quantified Goal' of $300bn per year by 2035 which is short of India's demand of $1.3 trillion, and India's delegation had made it clear that it was 'procedural 'and not sufficient. An international finance architecture that fails to deliver hundreds of billions of dollars is one way to remove one of two levers external climate finance that could ameliorate the tradeoff between growth and climate in a country.

Finally, the fiscal constraint that has been identified at the beginning is not alleviated but aggravated by the current situation of multilateral climate finance. This strengthens the paper's key argument that the SDG 13 governance failure in India will not resolved just by international commitment for finance alone, but the domestic institutional reforms shown in Section 6 are still needed even if there is an international commitment to finance .

6. WAY FORWARD: PROPOSED INSTITUTIONAL REFORMS

The above mentioned analysis suggests four areas of institutional reform that can help in solving   India's governance problems in achieving SDG 13. The recommendations are based on the weaknesses specifically in institutions that came out in the analysis, not on the good governance perceptions .

- ❖ The most important and impactful reform will be the creation of a National SDG Coordination Body having statutory cross-ministerial powers. The arrangement of institution to co-ordinate SDG implementation is distributed between NITI Aayog, MoEFCC, Ministry of Finance and State Planning Departments with mandates and no clear accountable agency to co-ordinate implementation of SDG. A new SDG Coordination Body, with statutory power to ensure the SDG ministers' compliance, coordinate action on the state level and punish for chronic under-performance would be a qualitative leap from the current advisory committee approach. It is a realistic medium-term reform that can be achieved in next 3-5 years, perhaps in an autonomous wing of NITI Aayog within the Cabinet Secretariat, which can be funded from existing budgetary provisions in the NITI Aayog and MoEFCC, and could be later supplemented with a dedicated budgetary line.

- ❖ The second reform is to make the assessment of the compatibility of climate and growth for critical infrastructure and industrial policy decisions compulsory. Statutory framework should be established that is in effect prior to the approval of any major public and private investment projects that is similar to the existing environment impact assessment, but has broader and more specific powers to conduct ex ante assessment of compatibility. Implement the policy coherence principle in SDG 17 at the national level. It can be implemented in the near future (1-2 years) through changes to the existing Environment (Protection) Act, 1986 notification for EIAs, where the compliance costs will be imposed on the project proponents in the same way as EIA fees are imposed.

- The third reform is to redesign the SDG targets at the state level, which will consider the different capacities, development trajectory and climate change vulnerability of the states. A one-size-fits-all framework of targets to states like Kerala and Jharkhand leads to inequitable and ineffective governance outcomes. More credible and achievable accountability measures would be available in the form of federal targets that are also differentiated, which are negotiated in a federal consultation process and which take account of a federal contribution to the state's finance, where the technical capacity is less. This reform will need to be implemented over a medium term period of 2-4 years, which is achievable with the joint effort of NITI Aayog and the Finance Commission, as differentiated targets are only feasible if coupled with corresponding changes in fiscal transfers; the next Finance Commission cycle will provide a natural institutional opportunity to incorporate these targets into devolution formulas.

- The fourth reform is for the SDG monitoring and review process engaging voices of the marginalised communities in the national, state and district . Beyond the mere formal recognition of the role of civil society, especially climate vulnerable groups, in the accountability process it is essential to establish an institutionalised representation system, including clearly defined seats, voting in consultative bodies and independent reporting channels, so that the voice of the climate-vulnerable population is structurally embedded in the accountability process. This reform addresses head-on the climate justice aspect of SDG13's governance failures. It is possible in one to two years without legislation need , but by order by executive , by redefining state and district level SDG monitoring committees to include a representative reserved seats for committees that are climate vulnerable , and by ensuring that the logistic cost is included in committee budgeting .

7. CONCLUSION

This paper have argued that the growth–climate paradox is the consequence of poor governance not have to be a fact of nature in India. The four dimensions of failure found in the analysis: structural incompatibility of targets between the growth and climate model , federal fragmentation falls in SDG delivery, and the unequal distribution of the costs of policy for climate across society, and the systematic shift from reporting on output to reporting on outcomes, are but institutionally interlinked but conceptually separated .

Together, they sustain a governance rule that is legitimate, as it is based on commitment that are made internationally but continuously falls short at home. This is an important issue of informativeness of this analysis. The failure of SDG 13 in India can be due to institutional decisions than the structural limitations, meaning that developmental patience is the key rather then institutional reforms . There is nothing specifically technical about the concepts of the statutory coordinating authority, required compatibility analysis, differentiated state and center goals and participative accountability that are shown in this paper . and there are there no patterns or models that are new to the tradition of Indian government.

They require political will to ensure that climate responsibility becomes a government responsibility, and not an international signaling game. Last but not least, the state of SDG 13 should not be put on the development league table, but rather as an ethical attempts to address the most vulnerable in India. The most vulnerable groups who have the highest potential to lose out as a result of climate risk have the lowest institutional power, including the adivasi households, coastal fisher folk, rain fed agricultural households and urban informal settlements, and have the least potential to see SDG 13 succeed. An effective governance system to meet the SDG's agenda would be aimed towards their interests. In the present condition buildings in India, do not. It is not just a policy need, but a democratic and moral one to transform it.

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