



Article

Creating Synergies among the Sustainable Development Goals and Climate Action: Insights from a Developing Economy

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Abstract: Creating synergies and aligning the Sustainable Development Goals and the Paris Agreement offers great opportunity for global climate action that is based on inclusive development and just energy transformation. However, this process is not straight forward and faces several interlinked issues and challenges, including varying national priorities. Research and insights into these issues are lacking in the case of developing countries. This study aims to identify key benefits and opportunities, barriers, and challenges on creating synergies and jointly implementing the Sustainable Development Goals and the Nationally Determined Contributions in the case of India. This is achieved by conducting a structured expert interview with multi-stakeholders in the Delhi National Capital Region of India. The findings of this study intend to benefit and inform national and local governments, individuals, institutions, and organisations across the world on key implementation challenges of the synergies process in the case of a major developing economy and provides important lessons and policy recommendations that may also strengthen and support global efforts towards climate-compatible development and decision making.

Keywords: SDGs; NDCs; climate action; synergies; developing country; India



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1. Introduction

Climate-compatible development continues to be a big challenge globally [1–3] and the world is not on track to achieve either the SDGs [4] or the Paris Agreement Climate Targets [5], resulting in a global "Triple Challenge" that aims to control the worsening climate change, reversing biodiversity loss and ensuring the wellbeing of the current and future generations [6].

The 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change were adopted by countries in 2015 to address world's existing critical social, economic, political, and environmental challenges [2,3,7,8]. The 2030 Agenda's key instrument includes 17 Sustainable Development Goals (SDGs) and 169 targets covering key aspects concerning people, prosperity, planet, peace, and partnership, including a specific goal, SDG 13 for Climate Action, and is to be universally achieved [8]. On the other hand, the Paris Agreement requires countries to submit their commitments in the form of Nationally Determined Contributions (NDCs), which include substantially reducing their greenhouse gas emissions to limit global temperatures below 2 °C in the long term, strengthening climate resilience, and providing finance to developing countries for climate change adaptation and mitigation [2,8].

Climate change actions can have a direct impact on the SDGs, resulting in both synergies and trade-offs, and thus affecting material and physical well-being factors for human survival [2]. For example, climate change impacts can enhance disease spread and affect ground water levels and agricultural productivity, leading to malnutrition, which can exacerbate poverty and gender inequality as a result of loss of natural resources and shrinking livelihood sources.

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There is an increasing recognition globally to implement the two agendas in a fashion that generates mutual benefits and synergies, avoids trade-offs, and thus helps with faster implementation and achievement in the long term [3,7–11]. The Fourth Global Conference on Strengthening Synergies Between the Paris Agreement and the 2030 Agenda for Sustainable Development, which was organised by UN DESA and UNFCCC in July 2023 at the UN headquarters in New York, also reiterated this aspect, supporting the global evidence base on synergies. A clear understanding of interlinkages between the SDGs and climate goals is also crucial for formulating synergistic strategies and policies and to develop coherent cross-sectoral policies at the national level [2,12,13].

Creating synergies among the climate and SDG agenda provides several opportunities such as avoidance of duplication of efforts resulting in cost saving, broader political support, information, and expertise sharing, also offering avenues for the achievement of climate and non-climate objectives simultaneously [8,10,12,14,15]. However, creating such synergies and jointly implementing the two agendas is not straight forward and involves multiple issues (See Table 1).

Research by [16] shows that policies concerning climate change and sustainable development are also sensitive to expectation and international pressures compared with the national government's "awareness and activism". For example, the decisions taken at Conference of Parties (COPs) and G7 and G20 summits, as well as findings and outcome documents by the IPCCC and High-Level Political Forum (HPLF) on sustainable development, have a deep influence on global and national strategies and policies related to the SDGs as well as the Paris Climate Agreement.

Table 1. Key issues, barriers, or conflicts associated with creating synergies among SDGs and NDCs/climate action.

Key Issue/Barrier/Conflict	Relevant Literature
Institutional and policy silo, weak integration and alignment, differing implementation and negotiation approach and administrative process	van Tilburg et al. [1], UNDP [8], Pahuja & Rai [9], Shawoo et al. [11], Horn-Phathanothai & Waskow [17], Obergassel et al. [18], UN [19], Janetschek et al. [20], Dzebo et al. [21], Coenen et al. [22], Teebken et al. [23], Flood et al. [24]
Unclear interlinkages, unknown trade-offs, limited knowledge on coherence and interaction between SDGs and climate action/NDCs	van Tilburg et al. [1], Brandi et al. [10], Shawoo et al. [11], Dzebo et al. [14], Iacobuţă et al. [15], Horn-Phathanothai & Waskow [17], Janetschek et al. [20], Dzebo et al. [21], Flood et al. [24], Gjorgievski et al. [25]
Conflict between climate change urgency, national development priorities, and politics	UNDP [8], Pahuja & Rai [9], Horn-Phathanothai & Waskow [17], Obergassel et al. [18], Dzebo et al. [21], Teebken et al. [23], Gjorgievski et al. [25], Antwi-Agyei et al. [26], Bouyé et al. [27], Shockley [28], Mantlana et al. [29]
Insufficient finance and funds	van Tilburg et al. [1], Shawoo et al. [11], Iacobuță et al. [15], Horn-Phathanothai & Waskow [17], UN [19], Dzebo et al. [21], Flood et al. [24], Gjorgievski et al. [25], Antwi-Agyei et al. [26], Bouyé et al. [27], Shine [30]
Limited human and technical capacity and training	van Tilburg et al. [1], UNDP [8], Horn-Phathanothai & Waskow [17], UN [19], Flood et al. [24], Antwi-Agyei et al. [26]
Weak multi-stakeholder engagement	Shawoo et al. [11], Iacobuţă et al. [15], Horn-Phathanothai & Waskow [17], Janetschek et al. [20], Dzebo et al. [21], Antwi-Agyei et al. [26], Bouyé et al. [27], Shine [30]
Less awareness on local level implementation challenges and dynamics	UNDP [8], Horn-Phathanothai & Waskow [17], Coenen et al. [22], Flood et al. [24], Shine et al. [30]
Lacking data evidence and tools, unclear and weak monitoring and reporting structures	van Tilburg et al. [1], UNDP [8], Iacobuță et al. [15], Janetschek et al. [20], Bouyé et al. [27], Mantlana et al. [29], Cohen et al. [31]

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As the two agendas are strongly inter-connected [12,32], identifying the synergies and conflicts among their goals is "subjective, context-dependent, dynamic, and crosscutting", dependent on the prevailing "political, social, and economic dynamics" across different levels of government and the way different stakeholders perceive them [11]. Developing countries are a major stakeholder as the world ramps up efforts to create more synergies among the two agenda and implement them jointly. However, such insights and evidence in the context of developing countries are lacking globally, with a handful of evolving research works [11,12,25,26,29]. Extending these efforts further, this study tries to explore the challenges and opportunities in creating synergies among SDGs and the Paris Agreement (NDCs) in the case of India. This is achieved by conducting a series of interviews with experts in the Delhi National Capital Region (Delhi-NCR) in India (see Section 2).

This study contributes to the literature in multiple ways. First, discussion on India is crucial for global policymaking, be it the SDGs or the Paris Agreement, or jointly achieving them, owing to its inherent characteristics and global positioning; that is, the most populous country, severely affected by climate change impacts (India features in the top 10 country list of German Watch's Global Climate Risk Index in their last two editions; refer to www. germanwatch.org/en/cri (accessed on 26 January 2023)), third largest GHG emitter (as per WRI analysis, India is third largest GHG emitter country; refer to https://www.wri.org/insights/interactive-chart-shows-changes-worlds-top-10-emitters (accessed on 26 January 2023)), and top 10 country on climate change performance (according to German Watch, India is one of the top ten countries in climate change performance—8th in 2023; refer to https://ccpi.org/country/ind/ (accessed on 26 January 2023)). India's role as a responsible climate leader is also evident as the country is a leading advocate for promoting and implementing renewable energy and energy efficiency solutions and policy measures, and it currently also chairs the G20 presidentship. Additionally, India is also a global influencer for its innovations through policy and industrial actions [33].

Second, the findings and policy recommendations from this research intend to benefit and inform national and local governments, individuals, firms, institutions, and organisations across the world. To best of author's knowledge, this study is probably one of the early works reflecting insights from India. Third, in addition to existing limited works acknowledged in earlier sections, it also contributes to growing international efforts on the topic such as the "Synergies Conference Series" organised by UN DESA since pre-COVID-19 times to build a global evidence base for synergistic actions, as well as the G20 Action Plan on the 2030 Agenda for Sustainable Development that emphasises synergies. Apart from this, insights into a developing and an emerging economy also strengthen limited synergy research efforts put up by leading institutions, partnerships, and platforms such as the Stockholm Environment Institute (SEI), German Institute of Development and Sustainability (IDOS), United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS), New Climate Institute, NDC Partnership, and SDG Climate Action Nexus tool (https://ambitiontoaction.net/scan_tool/ (accessed on 18 February 2023)), among others. Lastly, the simple design of this study also offers opportunities for replication at different scales and regions in the context of developing countries.

This paper is structured in the following manner. Section 2 discusses the methodology of the study. In Section 3, the results and discussion are presented. Section 4 provides the conclusion. The paper ends with the limitations and scope for future research. The terms "two agendas" and "joint implementation" refer to the SDGs and Paris Agreement (NDCs) and their implementation, respectively. For ease of communication, the terms "climate action" and "Paris Agreement (NDCs)" are used interchangeably throughout the text.

2. Background Literature

The key instruments to implement the Agenda 2030 and the Paris Climate Agreement are the SDGs and NDCs, respectively. There are two key features and debates surrounding the two. First, there is increasing evidence that global climate action and transition must

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address all of the dimensions of sustainability, and second, the 17 SDGs may not be successfully implemented and achieved without a strong focus on climate change [2,3,12]. Further, achieving long-term national sustainability and climate goals would entail several types of "synergies and trade-offs both within and between the two" agendas, making it difficult to "optimise" all 17 SDGs along with the climate goal, such as decarbonisation or low carbon societies, and would thus require focusing on critical issues of the agenda and understanding its "impact" on other dimensions [3].

Recent work by [12], who analysed 63 national NDC submissions to explore climate action's possible connection with the SDGs, found that climate activities related to environmental SDGs such as those concerning hunger, agriculture, clean water and sanitation, biodiversity, and life on land—SDG 2, SDG 6, and SDG 15—have decreased, which is problematic as these sectors are critical towards climate action efforts aimed at emission reduction and improving resilience.

Synergies and trade-offs may vary significantly across the globe depending on the inherent economic, social, and environmental situation in countries and may take different forms. A preliminary analysis of six countries—Germany, Kenya, Philippines, South Africa, Sri Lanka, and Sweden—by [11] on synergies and trade-offs between the SDGs and NDCs found that SDG 10 (or goal on reduced inequality) conflicts with all of the remaining goals on government's policies and actions related to just energy transition, economic efforts for poverty alleviation efforts, or devising energy taxes. The same analysis also suggests that policy incoherence may be reduced by speeding up institutional measures and considering critical political factors such as values, norms, and national priorities, unique to each country.

Research work by [18] shows that NDC-related activities pertaining to SDG 2 have strong links and synergies with SDG 6 and SDG 15. For example, agriculture needs better irrigation facilities and integrated water resource management (SDG 6), as well as better soil and biodiversity management, as depicted by SDG 15. This scenario particularly holds true in the case of Sub-Saharan African and several South Asian countries, where the majority of the population is dependent on agriculture and local biodiversity for livelihoods. The same authors also note that social aspects such as sanitation, nutrition, and gender equality have key role in reducing climate-related health impacts. A recent analysis on SDG–NDC connections by [12] shows that countries' focus on social factors of climate action, such as those related to gender (SDG 5), inequality (SDG 10), and strong institutions (SDG 16), has increased multi-fold in recent years; however, its share in the overall activities of the national NDCs continues to be small.

Apart from synergies and coherence, the literature also reflects potential conflicts and trade-offs among the two agendas. According to [2], climate solutions focused on mitigation are costly for energy-dependent regions and weak energy transition plans may affect communities and societies dependent on the traditional and dirty fossil fuel sectors, such as coal, which, being cheaper and locally available, might be attractive in some areas and thus may undermine the idea of promoting clean and efficient renewable energy solutions such as solar rooftops and decentralised mini-grids. Further, adaptation plans and policies such as bio-fuel crops may entice land vs. nutrition debates and affect small landowners. Similar concerns and conflicts related to biodiversity and food security impacts are noted by [6] in the case of hydropower projects, which is a common strategy to reduce GHG emissions by displacing fossil-fuel-based electricity generation.

The findings of [34] show that climate mitigation and SDG trade-offs may happen according to "how the solutions are implemented and at what scale", as some options may even lead to negative environmental impacts such as raw material usage and waste disposal issues in the case of electric vehicles, air pollution problems owing to improper urban development, and weak transportation policies inadequately addressing equity and accessibility concerns.

On the solutions side, greater coherence and strong links among the climate and sustainable development objectives require a focus on critical aspects such as vision and

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narrative of governments; level of integration among their plans, policies, and strategies; institutional arrangement; multi-stakeholder engagement; finance; and data, indicators, and tracking its progress [8,17,21].

Potential trade-offs also need thorough understanding and knowledge about regional and local issues, including equity and inclusivity concerns of stakeholders [6] in both the developed and developing world.

In the case of climate mitigation impacts on the SDGs, it is also crucial to consider time horizons such as the short, medium, and long term, as well as the context of natural resources, e.g., energy dependence and energy security issues in an economy that are often ignored or have low coverage rates [15,35]. Governments must ensure that public money related to climate investment should focus on the mitigation actions that provide the most development (SDG) benefits [1].

According to [12], enhanced synergies and reduced trade-offs require countries to chalk out clear, quantified NDC activities across the three dimensions of the SDGs, resulting in cobenefits; maintain a balance between the three dimensions of the SDGs; enhance engagement on less-represented SDGs such as those related to hunger, water, and biodiversity; and strengthen its focus on the economic pillar, which is the key driver of global GHG emissions. The authors of [6] feel that there is an urgent need to focus on five important solutions: drastically cut fossil fuel use; enhance food productivity while reducing wastage; encourage nature-based solutions; promote healthy diets; and strengthen management and governance aspects related to land and water systems, e.g., leadership and multi-stakeholder engagement. There is also a need to promote demand-side measures such as the adoption of RE, promoting afforestation, and behavioural changes [3]. In addition, climate and energy policy researchers in the case of countries such as India and Chile advocate the use of circular economy principles and encourage using the abundant biomass resource (agricultural waste, by-products, and so on) as raw material for energy generation, which also generates additional income, thus having a direct impacts on SDGs 1, 7, 12, and 13 [34].

3. Methodology

3.1. Study Approach

This study uses a qualitative approach. In-depth expert interviews were conducted in the Delhi-NCR in India using a structured questionnaire between 7 November and 12 December 2022 (see Figure 1). Delhi-NCR as a field of work offered convenience in terms of availability of a relevant and large pool of experts and policymakers, the presence of organisational headquarters and offices, and being the capital of India. Good transport connectivity in the region also facilitated better time and resource management.

The expert group included multi-stakeholders ranging from research, academia, civil society, NGOs, governments, and firms or organisations. A preliminary web search for experts in various organisations and institutions showed several mid-career professionals (35–45 years) to be leading the climate policy and sustainability divisions in their organisations. According to [36], such professionals are sometimes the most knowledgeable people on recent advancements and policy issues of interest compared with their senior colleagues and organisational heads. Further, including them in the group is also sensible as top shots are often over-committed and have a busy schedule. Considering these advantages, mid-career professionals were also included in this research.

Experts were selected primarily based on relevance and expertise [37]. Their educational background and seniority were also considered (see Table 2). Sufficient research was carried out to ensure that experts met the relevant criteria. This was ensured by verifying and enquiring their credentials via multiple sources: their CVs, work experience, and projects handled via company/firm websites, personal pages, recent articles, and columns published. All 20 experts interviewed had experience and knowledge of handling projects or research in the sustainability/energy/climate change domain for at least ten years.

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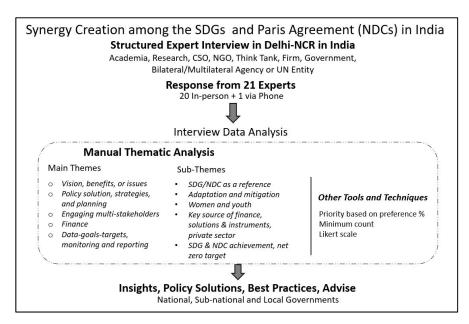


Figure 1. Overview of the study approach.

3.1.1. Sample Size

The qualitative research literature does not present any specific numbers on experts to be targeted for an in-person interview. Rather, it shows variation within and across methodological disciplines, as determining sample size a priori is "problematic and is often unknown" [38]. Further, it may depend and vary based on several factors such as research design, its scope and objective, level and depth, saturation, researcher judgement, and convenience, among others [38–42]. Based on the review research works on the ideal number of respondents in an interview by [38,41,43], a broad consensus for general qualitative interviews may be agreed to be in the range of 20–30 participants.

However, several domain-specific examples, such as those from ethnography, phenomenology, case study, or narration, also highlighted by the above researchers mention the inclusion of 5–12 or even fewer experts for in-depth interviews. Considering the above factors and time limitation in mind, a target of 20 experts was set in this research.

3.1.2. Communication and Confirmation

Initially, a short and concise email was drafted and sent to experts, one month in advance, detailing the purpose of the study, its design, ethical considerations, and data disclosure policies. Correct targeting and early communication is key to enhance confirmation probability and better organisation of the field work. Studies have shown that response rates (RRs) of email and phone communications are low [44,45] and it is difficult to obtain confirmed appointments from senior or top personnel from firms and organisations in advance [36,46], even in physical presence. Thus, as travel dates approached nearer (7–10 days), second reminders were sent to experts who did not respond to the first email. E-mail reminders have been shown to improve response rates (RRs) [44,45]. There is no fixed RR reported in the literature on email communications. A brief discussion on this aspect by [47] shows that one can find a range of RR varying from as low as 5% to as high as 75% depending on its design, content, length, expert's availability, and interest, among other factors. This study received an RR of 16.67% and 17.07% in the first and second email communications, respectively. Overall, before starting the actual interview at the field location in Delhi-NCR, 16 experts confirmed their participation and 11 requested to reconfirm via an email or phone on arrival. During the field work, out of these 11 experts, 2 in-person interviews and 1 telephonic interview were confirmed. Such half-confirmations are valuable and should be managed properly. Moreover, this is important because many of the senior officials and heads often have strict travel and work commitments [36].

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Table 2. Details of the interviewed experts.

Expert No.	Designation	Organisation Type	Education	Category
E1	Climate policy and development programme coordinator	CSO/NGO	Masters	МС
E2	Climate Policy and Bio-diversity specialist	Think Tank/Research Organisation	PhD	МС
E3	Sustainability Officer	Policymaker/Government	Masters	MC
E4	Climate Policy specialist	Bilateral, Multi-lateral agency, or UN entity	Masters	МС
E5	Professor—sustainability, climate change, and biodiversity	Academia/University	PhD	SL
E6	CEO	CSO/NGO	Masters	SL
E7	Professor—Development and environmental economics Academia/University		PhD	SL
E8	Managing Director	Think Tank/Research Organisation	PhD	SL
E9	CEO	Firm/Company	PhD	SL
E10	Director	Think Tank/Research Organisation	PhD	SL
E11	Climate and Energy Specialist	Think Tank/Research Organisation	PhD	SL
E12	Executive Director	Think Tank/Research Organisation	PhD	SL
E13	CEO	Private Firm/Company	PhD	SL
E14	Senior Climate Change Policy Expert	Bilateral, Multi-lateral agency, or UN entity	Masters	MC
E15	Professor—Energy and planning	Academia/University	PhD	SL
E16	Professor—Political science and climate policy	Academia/University	PhD	SL
E17	Associate Director	Think Tank/Research Organisation	PhD	MC
E18	Professor—Development, Environmental Sustainability, Economics, and Policy	Academia/University	PhD	SL
E19	Climate and Energy Expert	CSO/NGO	Masters	MC
E20	Climate and Energy Specialist	Think Tank/Research Organisation	PhD	MC
E21	Climate Change and Development Policy Specialist	Policymaker/Government	Masters	SL

MC—mid-career, SL—senior level or organisational heads, CSO—civil society organisations.

This research also used the snowball technique [48] to fill the gap and reach its target of experts. Studies show that the snowball technique is conveniently employed in qualitative social research designs (e.g., interviews) as it offers flexibility to reach a hard-to-reach population (e.g., organisational leaders or group heads in our case) and represents a nonrandom process [48,49]. After each interview, the researcher requested potential expert suggestions from the interviewees. This exercise yielded 2 additional expert commitments. Overall, 21 experts were interviewed in this study (see Figure 1). The average length of each interview ranged between 30 and 45 min. To maintain consistency in the methodology, one of the telephonic interviews was not included for analysis as the researcher faced challenges pertaining to expert attention and technical and staff disturbances, resulting in incomplete information.

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During the interview, in the beginning, experts were again re-briefed about the research and its purpose. They were also asked if they were happy for the conversation to be recorded (which was optional). After this, the actual discussion took place. All 20 experts allowed recording for research and analysis purposes. This high level of agreement to record the conversation in a way also reflects the appropriate selection of experts and their keen interest in the proposed research. Table 2 shows details of the 20 experts who participated in this study.

It is evident from Table 2 that nearly 40% of the experts were mid-career professionals. In terms of education, two-thirds of the experts had a PhD degree. One-third of the experts held elite and top organisational positions such as CEO and Director. The most common official designations were climate change policy expert and/or development specialist. Further, one-third of the experts comprised women, among which half were leading their organisations. Adequate representation of women in leadership positions concerning environmental issues and development is important as they are sensitive to these concerns and promote better ethical and social responsibilities within organisations while taking care of stakeholder priorities [50,51].

3.2. Interview Questionnaire, Themes, and Data Analysis

The questionnaire used for the interview covered key aspects on synergies, conflicts, barriers, and future policy options and strategies for jointly implementing the two agendas, the SDGs and Paris Agreement (NDCs), backed by existing literature (see Table 1). The idea was to present to experts in India the aspects that are crucial for creating synergies among the SDGs and NDCs at the global level, and then seek their views and advice, determining whether those hold true in the case of India or if there are additional factors affecting them. The study was divided into five broad themes: (i) vision, benefits, or issues; (ii) policy solution, strategies, and planning; (iii) engaging multi-stakeholders; (iv) finance; and (v) data/goals/targets, monitoring, and reporting. The broad division of the themes was adapted from and based on works by [8,17,21].

To control response quality elements such as questionnaire design, structure, relevance, and length, among others, the study was piloted with three experts who were part of the target group. The questionnaire included a mix of multiple-choice objective questions, short discussion questions of two to three lines, and open-ended questions. In several questions, examples and possible policy solutions were asked to enrich the discussion. An "other" option was given in most of the multiple-choice questions to include additional factors or differing views.

Different tools and techniques were employed to analyse the data. This included manual thematic analysis, as proposed by [52]. Thematic analysis is widely used across a range of social science research, including interview data, and offers a useful method to summarise key findings in the form of themes after clear identification, analysis, and description of the data [53]. Several prescriptions exist to improve comprehensiveness; however, still today there is no agreement on a fixed method of performing a thematic analysis [52–54]. This gives researchers the opportunity to decide on the level of analysis while developing the themes in their work [53]. However, the researcher must be clear about the "What" and "Why" questions, providing a clear description of the analysis [52,53].

The authors of [52] prescribed six phases for performing a thematic analysis. These include the following: (i) data familiarisation, (ii) generating codes, (iii) devising themes, (iv) reviewing themes, (v) defining and naming, and (vi) presenting the analysis report. This research uses a modified four-step process, where the first three steps are truncated, as the research already devised its five major research themes based on existing literature (highlighted above), which form the base of analysis. However, to bring more depth and insights, several new sub-themes were also created to highlight key issues and solutions identified by interview participants (see Figure 1).

The most important issues, solutions, policy measures, or key sectors were highlighted and ranked based on number count and percentage. Only aspects mentioned by at least

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one-fourth of the experts were assumed to be important. However, for discussion, some of the minor issues have also been presented. A seven-point Likert scale was used to obtain insights on experts' level of agreement on select questions. For decoding and compiling questionnaire data and notes, audio recordings of experts were transcribed and cross-checked twice to avoid missing key information.

While closing the discussion, each expert was also asked about any aspects they found important but that were either not covered or discussed at length during the interview. This was used as a reinforcing measure to enrich the analysis and provide hints and direction to future research.

4. Results and Discussion

4.1. Vision, Benefits, and Issues

A large percentage of experts (>85%) believe that SDG and NDC targets relate to India's broader developmental and environmental concerns and are crucial. They also feel that creating synergies among them or jointly implementing them has benefits that outweigh trade-offs (Table 3).

Table 3. Level of agreement by expert	s (in %).
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Themes/Issue	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
NDC and SDG targets relate to India's development priorities	0	0	0	0	15	50	35
Benefits resulting from SDG–NDC synergies/joint implementation outweigh trade-offs	0	0	0	10	5	40	45

When experts were asked to mark their top priorities on benefits that may result from creating synergies among SDGs and NDCs or jointly implementing them in India, the following preferences were obtained.

According to Table 4, more than two-thirds of experts in India feel that synergies among SDGs and NDCs offer key opportunities for better integration and co-benefits and avoid duplication of efforts. The second aspect crucial to experts (40–45%) pertains to better data and human resource management and identifying inter-linkages among the two agendas, which offers avenues for reducing systemic risks.

Table 4. Key benefits of creating synergies among SDGs and NDCs in India.

Key Benefits (Top Themes)	Expert Preference (%)
Integrated approach takes care of economic concerns and has co-benefits (e.g., effective and efficient institutions)	75
Avoids duplication of efforts. Similarity in means of implementation (finance, tech, capacity building, etc.)	60
Better data generation and human resource management	45
Cross-cutting linkages may help identify and reduce systemic risks	40
Achievement of climate and non-climate objectives simultaneously	35
Broad political support and motivation to fulfil commitments	35
Long-term impact	25

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In contrast, when experts were asked to mention key barriers or issues that may hamper synergies among the two agendas and joint implementation, the following priorities were recorded.

Table 5 shows that 80% of the experts feel a lack of finance and ways to mobilise it to be the most critical barrier affecting synergy among SDGs and NDCs in India. The importance and need of financing for the SDGs and NDCs are also evident from recent global literature, which also discuss developing country cases, such as [12,32,55]. The second important issue relates to the existing conflict between the economic growth and climate change narrative, followed by the issue of just energy transition. Experts think that the reason for the existing institutional and policy silo among various ministries and government departments is the difference in mandate and governance roles by two different institutions with respect to SDGs and climate action. For example, the SDGs come the under purview of NITI Aayog (NITI Aayog is the public policy think tank of GOI; it replaced the Planning Commission of India in 2014), whereas decisions on climate action are handled by the Ministry of Environment and Forest (MOEF). One-fourth of the experts also find unresponsive consumption and production, continuing inequality, and equity issues to be hurdles for the synergy process. Other minor issues mentioned by experts (not listed in Table 6) included mismatch between global agenda and national context, missing nexus among water-energy-land, urban-rural divide, and a lack of indicators or metrics to reach NDCs across scales (e.g., disaggregated energy consumption and GHG emissions data).

Table 5. Key issues and barriers to the SDG and NDC synergy process in India.

Key Issues and Barriers (Top Themes)	Expert Preference (%)
Lack of finance (public, private, domestic)	80
Conflict between climate change and economic growth/development	50
Non-just energy transition	45
Institutional and policy silo	30
Conflicting economic/social/environmental policies	30
Irresponsible consumption and production	25
Poverty, equity, and inequality	25

Table 6. Key sources of finance for India to jointly implement SDGs and NDCs.

Source of Finance	Expert Preference (%)	Time Horizon
India's own public and domestic fund	50	Medium term to long term
International finance by developed countries	30	Short to medium term
Private sector fund	10	Short term to long term
Funds and grants (e.g., IMF, World Bank, GIZ, JICA)	10	Short term

When experts were asked "Should SDGs be a reference point for NDC implementation in India or Vice-Versa", there was no clear response and a large variation was noted. One-third of experts feel that SDGs are bigger and better positioned as they are clearly identified, encompass everything, are central to the development agenda, and particularly refer to climate change (e.g., as a separate goal—SDG 13). One of the experts thinks that the NDCs seem abstract as "there is no clarity on its execution, it is better to start with SDGs and link it with NDCs". Another expert cites that "NDC's boundaries and linkages with SDG

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are not clearly defined. Climate is not a standalone problem and hence, we do not need a separate reporting mechanism".

Another expert thinks that "it is difficult to treat one as a reference for another" as the indicators, nodal ministries, and related agencies are different. Around one-fifth of the experts think that the two agendas go together and should be looked upon with reference to the year 2030 with its achievement and alignment in mind. One of the experts mentions that there are several commonalities among the two. For example, if we are talking about energy access and achieving NDCs, broadly maintaining temperatures below 1.5 °C ensures that several SDGs are also covered by default such as those related to poverty, gender inequality, energy, and climate action, among others. Ideally, on several fronts, the SDGs as a whole and the NDCs complement each other [10,17,22,28].

A few experts who position the NDCs as the main reference stress that the NDCs are more bottom-up and are declared based on the country's national context. Another expert mentioned that "SDGs is the final thing we want to achieve. But this will be achieved only via NDCs and climate action" as India's climate policy is conceptualised within the development policy, of which the SDGs are the reflection. However, successfully implementing both will require legislation that is presently absent in India.

4.2. Policy Solution, Strategies, and Planning

This section focused on aspects covering critical mitigation sectors, adaptation actions and measures, policy or regulatory measures, and institutional and capacity needs required for increasing synergies and coherence between SDGs and NDCs.

With regards to potential mitigation sectors for synergies in India, 95% of the experts feel that energy (electricity generation from fuel combustion) is the most critical sector with respect to GHG emissions, followed by agriculture (75%); transport (60%); industrial process and product use (40%); land use, land-use change, and forestry (40%); and waste (30%), among others (see Figure 2). In addition to this, experts feel that renewable energy (RE), particularly offshore and decentralised mini-grids, as well as energy efficiency policy and technology, clean transport (e.g., EVs), and green hydrogen infrastructure and carbon capture, will be crucial for India in the coming years. Global findings by [15] on CC mitigation measures, which affect most SDGs, also reiterate that measures such as energy efficiency improvements and switching to renewables offer the most co-benefits. However, decarbonisation research on India by [56] shows carbon capture and hydrogen technology to be under-developed, commercially less viable, and uncompetitive compared with more mature conventional technologies. The same research also the identifies steel and cement industry as a hard-to-abate sector with high mitigation costs and suggests that renewables and energy efficiency measures alone will be insufficient to drive the low-carbon industrial transition.

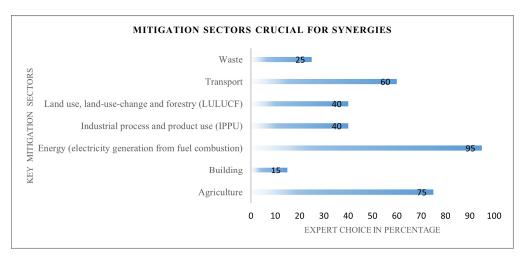


Figure 2. Experts' choice of key mitigation sectors crucial for synergies in India.

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In terms of adaptation actions and measures, three-quarters of experts find food and nutritional security to be the most important, followed by local adaptation and resilience (60%), disaster risk reduction strategies (45%), nature-based solutions (NbS) (40%), financing (35%), and water security (30%), among others (see Figure 3). Some of the other suggestions included efficient water use in the agricultural and industrial sector, promotion of sustainable farming, and investment in national health infrastructure (particularly rural areas). One of the experts had a totally different view regarding the potential of NbS for India and suggests that India should instead focus on forest conservation efforts, which historically have been more impactful. Research by [34] suggests that India has huge potential for biomass production and it can circularly utilise its agricultural waste and by-products as a raw material for energy production.

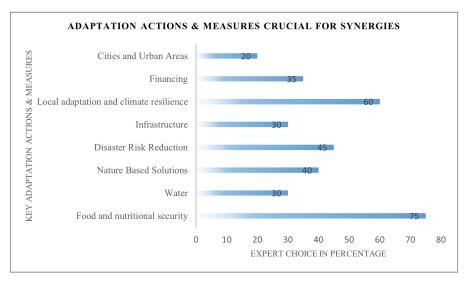


Figure 3. Experts' choice of key adaptation actions crucial for synergies in India.

Experts suggest a mix of policy and regulatory measures and solutions aimed at improving synergies and coherence among the SDGs and NDCs in India. More than three-quarters of experts feel that greater coherence and coordination avenues need to be explored among ministries, agencies, and projects, and this requires higher ambition and a push from top government officials and business leaders. Further, more economic diversification of resource intensive sectors is required. Around two-thirds of experts feel that innovative projects and programmes with dual benefits focusing on climate action and sustainable development (e.g., Pradhan Mantri Ujjawala Yojana (PMUY) (PMUY is GOI's initiative to promote clean cooking fuel (LPG) among rural and deprived households. One of the specific components of the program targets adult women. Refer to https://www.pmuy.gov.in/index.aspx (accessed on 14 April 2023)), PM-KUSUM (PM-KUSUM scheme aims at ensuring energy security for farmers in India with a focus on solar-powered agricultural pumps. Refer to https://pmkusum.mnre.gov.in/landing.html (accessed on 14 April 2023)), National Climate Action Plan for Climate Change, and Human Health), or those having joint mitigation and adaptation benefits such as conserving mangroves and NbS, should be initiated and fasttracked. One of the experts also pointed out that climate action discussion and policymaking should focus on other dimensions and look beyond the energy sector. A similar message came out as one of the key findings in the research by [12], who analysed 63 NDCs focusing on the NDC-SDG connection dataset and found that country climate policies now have a growing focus towards "economic sustainability and social development" for climate action.

Around 50% of experts suggest introducing new, innovative policies such as those on carbon tax and carbon market mechanism, NbS, better lifestyle and consciousness for environment, just energy transition, and net zero economy, among others. In this regard, experts caution that the approach towards designing the policy measures and instruments will matter. It should consider a broader, comprehensive view covering the realities on

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the ground while considering trade-offs, impacts, and measures over the full time horizon (e.g., short, medium, and long term). There may also be cases of simultaneous synergies and trade-offs among the two global agendas, such as energy access in the rural areas. For instance, shifting to clean energy sources such as off-grid RE solutions may incur families an additional cost, which may discourage them, conflicting with poverty reduction and the affordability agenda of the SDGs [57,58].

One of the experts mentioned the example of the coal sector in India. States in India such as Jharkhand, Orissa, Chhattisgarh, West Bengal, Telangana, and Tamil Nadu are major coal-producing states of India that generate substantive revenue in the form of royalty, tax, or cess from it. It also provides Indian railways one-fifth of revenue via coal transportation and offers jobs and livelihoods to several million people (including the informal sector), who are part of this big coal economy and supply chain [57]. Recent field work by [58] in the coal-rich state of Jharkhand showed that several workers at the coal mines were reluctant to work as coal miners and instead were interested in jobs that were better in terms of pay and safety for their health, even if located far away from their residence. Thus, if government plans to shift from dirty coal production and power generation as part of its decarbonisation drive towards achieving its NZTs, then it must ensure and plan better alternate employments (including RE sector) and fulfil local livelihood and health concerns in advance for the "to-be-displaced population", which also has repercussions and an impact on several SDGs. Another related important concern in the case of coal mining in India is large-scale land degradation to fulfil the country's burgeoning energy demand. Estimates by [59] show that India will incur a massive loss of US\$1730 billion by 2050 owing to climate change and land degradation. Under such circumstances, it is recommended that India should speed up the decarbonisation process in hard-to-abate sectors and move towards lowering its energy dependence and substituting it with higher shares of RE and energy efficiency measures, both of which have high potential in the country.

Sufficient time should be allocated to the sub-national, local governments, and businesses, while maintaining a balance between supply- and demand-side inclusion. Research also shows that behavioural changes in general [55] and those related to the demand side (e.g., NbS) will be crucial for the synergies process [3]. However, creating synergies of this scale at the national level may not be easy, as it also involves matters of national priority such as energy security, a key agenda in global geo-political debates, and is not only specific to developing countries such as India. For instance, as per [60], countries such as Germany and Poland have significantly increased their coal usage over the last two to three years to support the national energy deficit owing to the COVID-19 pandemic and the ongoing Russia–Ukraine war crisis.

A group of experts also feel that awareness and knowledge on the synergies process is limited in most government institutions and departments (including policy makers). There is a need to design customised programs and training to educate them at different scales and levels. According to [61], such institutional and capacity building of different actors must focus on creating evidence and strengthening the science–policy interface while contributing to better decision making, which directly helps achieve the targets of the SDGs and climate action.

Experts also highlight the importance of understanding the philosophy and context behind designing impactful policies. For example, "there is so much widening of roads and highways being done across the country but are we including cycling tracks and pedestrian paths in our plans? Are we studying the availability and demand for bus transportation, or metro when we are talking about lifestyle changes and decarbonisation". One of the experts highlighted that she continues to use her personal vehicle to travel to the workplace as the available public transport options in her area fail to fit her routine and requirements. For instance, she is old and lives only four kilometres away from the office, and the best available public transport option requires her to change three to four buses or two metro lines, consuming significant time. Further, available pooling cab services (Ola and Uber) are often not available in the area during office or peak times.

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Another expert thinks that there is also a need to re-orient and update our existing policies. For e.g., State Action Plans on Climate Change (SAPCC) documents should be revised or updated more frequently, e.g., on annual basis, similar to the SDG progress released by NITI Aayog, or every two years. Moreover, there is a need to map inter-linkages with the SDGs. One of the experts highlighted that, on the policy front, GOI has already carried out gender and child budgeting for a long time, but "why not green budgeting?". Here, it may be noted that a few states in India have started to take interest in this issue and started to develop pilot projects, such as Bihar and Punjab and, recently, the Union Territory (Union Territories are administrative units in India similar to states and are in the direct control of the central government.) of Puducherry introduced a Green Budget for the fiscal year 2023–2024.

Few experts also think that ensuring proper governance and management of the synergies process requires the establishment of a specialised governing body, a coalition, or a secretariat similar to the Coalition for Disaster Resilient Infrastructure (CDRI) with regional chapters across the country. Further, such a body may be hosted or operated by a think tank or organisation, not necessarily the government.

4.3. Involving and Engaging Multi-Stakeholders

Several experts feel that creating synergies among SDGs and NDCs requires an interdisciplinary approach. This should involve regular communication, engagement and partnerships among corporations and firms, academia, and civil society, with each other and with the policymakers. Also, awareness level needs to be enhanced for everyone including strengthening of ownership at government and community level [55]. Exerts also agree that same synergy or divergence in understanding is not expected at all the levels. This is also because simultaneously optimising all the 17 SDGs while "transitioning to low-carbon societies" is not possible [3]. However, we can maximise the existing synergies by focusing on its critical aspects and resulting implications for other dimensions [3]. Doing capacity building exercises taking help of technology may also be helpful. Few experts mention that there should be special focus on engaging youths and women from smaller towns, villages and far-flung inaccessible regions in the Himalayas and the North-Eastern states, including voices of SMEs, farming communities and forest dwellers. Few experts also point towards the need to involve and preserve knowledge and voices of indigenous communities, which is crucial for realisation of SDGs and climate resilience but is being lost at a high rate globally including India.

According to one-third of the experts, synergies process should be made clear to the public, and participation in it by the civil society, NGOs and vulnerable communities should not be just for "symbolism". There should be understanding on key synergies and divergences among the SDGs and NDCs and what this process aims to achieve. Second, there is a need for strong political support at all levels of government and stakeholders. For example, "empowering panchayats, municipalities in same fashion as central and state ministries or departments". Additionally, policy documents and plans need to be shared among each other. There is also a need to relook and learn what we have already achieved via success stories and case studies. For example, decentralised renewable energy technology solutions by Southern India based SELCO Foundation ideally fits in the synergy process that may aid achievement of both SDGs and NDCs simultaneously, but "have we replicated such models or created more organisations like them, is a key question to be asked by the society, and from the government?".

Women and Youths

Several experts think that women and youths constitute nearly two-thirds of India's population and can play a critical role in creating synergies and achieving the SDGs and climate goals. According to one of the experts, there is a need to change the narrative on women in India from being "victims" to "agents of change" as they carry vast indigenous knowledge on agriculture, land, food systems, and the associated risks. They should

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ideally be trained, involved, and consulted before rolling out government policies and programmes aimed at managing the impacts of climate change and creating opportunities and avenues for innovative solutions with dual benefits (environment, development) in inter-connected critical sectors such as agriculture, health, sanitation, energy, and water, among others. Research findings by [62] show that climate change adaptation actions have a significant impact on gender equality (SDG 5). Further, "women being in-charge in many households", bringing them on board, and involving them in decision making may further improve programme impact and outreach, ensuring a gender-just transition.

Most of the exerts find present-day youths to be highly aware of environmental concerns and development issues that concern and affect them directly or indirectly. They may act as a big "pressure group" from the masses who can question government on the correct policies and, sometimes, may even force them to withdraw weak or incorrect policies. For instance, one of the experts quoted the example of the people-led movement in China that forced government to draft a policy that prohibited air conditioning systems in government buildings to set cooling set point temperatures below 26 °C.

Experts feel that synergies require youths to be key stakeholders in government's policy discussions and forums on SDGs and climate action. In fact, we need to create and train "Youth Leaders on Climate Change and SDGs". One of the experts, however, cautions that present-day youths may have awareness on environment and climate change issues, but they generally lack "long-term vision". For example, "how many youths use bio-products or nature-based solutions. This share is very low. We need to groom them since childhood, "look at the Japanese society". So much is being talked about waste management for long time. But, if we ask, how many of us segregate waste at home, overall, the numbers are very low". This is clearly visible if we look at large waste dumping sites in several parts of the cities, villages, and towns across the country. Therefore, the question is inter-connected to several critical aspects, ranging from education, awareness, and policy design to correct implementation and monitoring.

Another aspect highlighted concerns the large youth population (minors) working in informal sectors of the Indian economy, including the energy sector and the MSMEs, which diverges from ILO's guidelines [63] related to green jobs and a just energy transition, which prohibits employing minors in the workforce. In their work on the just energy transition in the case of Argentina and Chile, the authors of [64] identified the 2015 ILO Guidelines as a key impact document that emphasises and ensures workers' rights in the Global South.

4.4. Finance

4.4.1. Critical Source of Finance for Creating Synergies and Joint Implementation

Experts think India's own domestic funds supported with international finance from developed countries would be the most crucial source of finance in the medium to long term (Table 6).

Experts find domestic and internal funds to be the most trustworthy source of finance for all developing countries (including India) as these offer the largest and continuous source of finance, providing the right opportunities, better planning, and management. For experts, international discounted finance and risk mitigation instruments remain critical for all developing and small island and developing states (SIDS) in relation to the Paris Agreement. The developed world has a big responsibility related to their large contribution towards historic global GHG emissions. However, the developed world has failed to fulfil their international climate commitments, including flawed data and under-reporting, with the major share being in the form of loans, aggravating the debt crisis among several developing countries [65,66]. Given the prevailing circumstances, experts in India think that its impact seems realistic only in the short to medium term, as future commitments by the developed world seem uncertain. Moreover, it is difficult to estimate accurately the "type and quanta" of costs that may be required in the future.

Several experts find international funds and grants to be politically sensitive and overlapping with national and global priorities. As per experts, international funds and

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grants seem to have a short-term and minimal impact for the synergies process, as these are mostly low quanta loans with complex terms and conditions, even when supported by governments. Most experts think that developing countries and SIDS (including India) need long-term low-interest finance to fulfil their climate and SDG agendas. One of the experts pointed that nations should be cautious when borrowing international finance (even low-interest) as it is a burden and national interest should be kept in mind. For instance, "India's reluctance to join the Just Energy Transition Partnership (JETP) unlike other developing member countries such as South-Africa and Indonesia is reasonable as the scale and challenges of coal sector are entirely different in India compared to them". Moreover, some recent research also suggests that experts are worried about JETP's actual impact, as it may aggravate the national debt burden, overlook adaptation, and offer an administrative loophole for dirty fossil energy financing [67,68].

4.4.2. Financial Solutions and Instruments

Experts suggest a variety of solutions and financial measures including tax and non-tax sources that could help India create more synergies among the SDGs and NDCs. Some of these measures include private sector lending and grant support (e.g., RE, energy efficiency, and transport sector), long-term low-interest loans for attractive solar energy solutions (decentralised and commercial), introducing a carbon tax and creating a carbon market, and green and sovereign green bonds, among others. One of the experts thinks that "just creating a carbon market will not be enough, correct pricing of natural resources and ensuring robust data validation, monitoring and verification is equally important, though currently missing in the country". Experts also stressed financial inclusion, a key component of the synergy process. They think that the government should ensure financial inclusion, understanding the existing circumstances and avoiding measures that have failed. For example, one expert cited "are we providing enough subsidies or initial grants in case of solar rooftop programs, the reason that they are not yet picked up by masses".

Several experts think that the government needs to prioritise efficient financing for sectors that overlap with SDG and NDC objectives and have inter-sectoral linkages, such as urban transport (electric vehicles), waste and water management, energy, and agriculture. Such linkages are also highlighted by researchers in the case of India [9,61]. However, this requires proper alignment and long-term planning among climate finance and national development priorities [32]. Another expert suggests that government should continue to use the cess on coal for environmental protection and sustainable development rather than diverting (GST compensation cess was scheduled to end in June 2022. However, GOI has extended this deadline till March 2026 to make up central financial loans that have piled up because of the COVID-19 pandemic.) it to compensate state finances via the GST Fund. One of the experts think that GOI needs to define benchmarks to calculate critical success factors while funding synergy projects and their detailed project reports (DPRs) to aid transparent evaluations.

4.4.3. Involving the Private Sector

All of the experts think that the private sector always has an edge in terms of being more efficient, scalable, and crucial in terms of job creation and facilitating India's sustainability transition. They suggest creating an ecosystem where the private sector sees climate change and SDGs not only as a promising long-term market with an investment opportunity, but also as a responsibility to protect the environment and society—what [69] calls "...a moral obligation, the right and the good thing to do". One of the experts thinks that comprehensive policies are required that can encourage firms towards net zero transition and ESG compliance. For example, most of the existing firm-level CSR activities in India may not help in terms of mitigation, but only create adaptive capacities.

Most of the experts believe that private sector engagement on ESG and climate action may be enhanced by improving transparency, building trust, and providing opportunities for voice and participation in the firm's ESG strategy. Moreover, there is an urgent need

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for scaling up and moving beyond demonstration and pilot projects, developing transition taxonomy for better asset management [70] while taking care of host country priorities. Others also think that a regulatory mandate by the Ministry of Corporate Affairs and Securities and Exchange Board of India (SEBI) on key environmental and sustainability leadership indicators is urgently required for the corporate sector, particularly the stock-exchange-listed firms in India. For example, data on Scope 3 emissions and the associated verified calculation methodology continue to be under-reported or not monitored by many leading firms in India.

Another expert points out that, usually, private sectors focus on private markets. We need to revolutionise the ecosystem, making the public part of the private sector. According to one of the experts, the private sector role is crucial in sectors such as energy and infrastructure, which are important for NZTs, but a sector such as agriculture does not need privatisation as India does not have efficiency problem in this sector—rather it involves issues related to management. Further, GOI should manage it, given its huge dependence and impact on poor, vulnerable, and farm communities, who are at the heart of the SDGs and Paris Agreement.

4.5. Goals/Targets/Indicators, Data Monitoring, and Reporting

4.5.1. Data, Indicators, Tools, and Monitoring

In terms of the availability of data and indicators, experts think that India has good statistical capacity and data transparency in the country has increased several folds over the years in the form of innovative government reports (e.g., SDG Index, Innovation Index); dashboards such as those for the Climate Centre for Cities, Climate, and Energy (https://iced.niti.gov.in/ (accessed on 24 May 2023)); and large databases maintained by the Ministry of Statistics and Programme Implementation (MoSPI) and NITI Aayog. However, there is a need to improve the overall data quality and monitoring process in India. For example, assessment by [71]), on India's energy balance, found substantial variation compared with the International Energy Agency's estimate, owing to the use of differing calorific values and lacking disaggregated energy data related to the end users.

Access to data, awareness, and knowledge on how to use data effectively continues to be another big challenge, particularly at the sub-national and local levels. Moreover, an important question needs to be asked, "Do we value data as a society?". Experts think that jointly implementing the SDGs and NDCs requires developing synergy indicators and developing tools and platforms such as the SDG Climate Action Nexus tool (https://ambitiontoaction.net/scan_tool/ (accessed on 26 November 2022)) and SDG-NDC Connections (https://klimalog.idos-research.de/ndc-sdg/ (accessed on 15 February 2023)) for coherent and integrated policymaking. One of the experts suggests that synergies and trade-off exercises need to be carried out at all levels (e.g., national, state, and local) and the data collection exercises for monitoring of SDGs and NDCs should be integrated with already existing national data collection exercises, such as Census, National Health and Family Survey (NFHS), and the Human Development Index (HDI), in order to maximise efficient use of the limited public resources. A few experts also highlighted the importance of properly collecting, archiving, and monitoring data. For example, data collection for the COVID-19 vaccination programme by GOI has been very successful over the years since the outbreak of the pandemic. Such design and success need to be translated into SDG-NDC data monitoring.

One of the experts quoted "we have lot of data, doesn't mean we have all the types of data". Synergies require that we start monitoring different and new types of data. For example, surveys on travel behaviour patterns, residential energy, and RE electricity consumption can be very helpful in designing climate compatible energy policies. There is also a need to track the efficiency of public budgets. According to one expert, firms and companies in India have several activities that have a climate component, but they fail to understand its impact or are under-reported. For example, several firms report on the energy sector but do not talk about its impact on different SDGs, because they have

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never been asked to do so by a government mandate or law. This is why green budgeting continues to remain voluntary in India.

4.5.2. SDG and NDC Achievement

Half of the experts think that it is difficult to predict when India can fully achieve the SDGs, as it involves multiple issues and development objectives to be achieved simultaneously (see Table 7). Two small groups think that India will be able to achieve them either by 2040 or 2050, or beyond 2060, as it has made significant progress on several SDGs despite the severe impacts of the COVID-19 pandemic and the ongoing Russia–Ukraine war. These SDGs are related to poverty—SDG1, education—SDG4, industry and innovation—SDG9, climate action—SDG13, strong institutions—SDG16, and global partnerships—SDG17. However, they admit that achieving SDGs related to hunger, gender and inequality, water and sanitation, unemployment, sustainable consumption and production, and energy access and affordability will continue to be a big challenge for India. Several of these concerns also align with recent findings on barriers to SDGs in India [47] and with the Asia and the Pacific SDG Progress Report [72].

Timelines Expert Agreement (%) SDG Achievement NDC Achievement Overall Target 1 Target 2 Target 3 **Energy Intensity** Non-Fossil Installed Additional Carbon Sink of GDP Electric Capacity By 2030 75 55 20 2031-2040 15 15 25 30 2041-2050 10 0 5 10 2051-2060 0 0 0 0 0 Beyond 2060 25 0 0 10 10 Difficult to predict

Table 7. Expert opinion on timelines of SDG and NDC achievement in India.

Note: Target 1—Energy intensity of its GDP by 45% by 2030, Target 2—Non-fossil-fuel installed electric capacity of 50% by 2030, Target 3—Additional carbon sink of 2.5-3 billion tonnes of CO_2 eq. through forest and tree cover. Values in bold show choice by 30% of experts or higher.

In terms of NDC targets, the majority of the experts see India as being on track to comfortably fulfilling its global targets by 2030, particularly those pertaining to energy intensity of GDP and non-fossil-fuel electrical installed capacity, owing to the massive transformation happening in the energy sector backed by conducive policies such as promoting decentralised energy solutions and energy access programs, massive RE target and plans (e.g., 500 GWs by 2030), big energy efficiency measures and schemes across industry (e.g., Perform Achieve and Trade scheme) and building sector, and urban mobility (e.g., electric vehicles), which all are growing quickly. As per the November 2022 update by Climate Action Tracker (https://climateactiontracker.org/countries/india/ (accessed on 19 December 2022).), India will easily achieve its NDC targets with the current set of policies. Forty percent of the experts find the third target on additional carbon sinks to be the most difficult to achieve and unpredictable for India because of unclear methodology and an absence of data that may allow to quantify and estimate the actual carbon sink in the country.

4.5.3. Net Zero Targets (NZTs)

Regarding India's Net Zero Targets, half of the experts are very optimistic that India will easily be able to achieve its NZTs by 2070 (official target) as the country is on track in terms of most of its NDC targets and is making humble progress on different SDGs.

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However, the remaining half of the experts find it difficult to predict when India can achieve its NZTs as they are governed by several factors, including geopolitics, just energy transition, better assessment of climate change risks and vulnerabilities, technical and training competence, economy-wide investment, and availability of several trillion dollars of sustainable finance, among others. One of the experts thinks that India will achieve its NZTs by 2070 given that developed countries will achieve them by the year 2050.

5. Conclusions

This study advances the limited literature on developing countries related to key implementation challenges and opportunities arising from synergy creation among the SDGs and the Paris Agreement (NDCs). The case of India is presented. In achieving this objective, a structured expert interview was carried out in the Delhi National Capital Region of India.

The study found that the majority of the experts agree that benefits arising from SDG–NDC synergies outweigh trade-offs and their targets relate to India's development priorities. Large opportunities exist for their integration in terms of co-benefits (effective and efficient institutions) and avoidance of duplication of efforts. Synergy creation in India faces the most critical challenges related to lack of finance, conflict between national priorities (development and climate goals), and institutional and policy silo. In terms of the question regarding the two agendas' potential to serve as a reference point for one another, no agreement was observed among the Indian experts. However, several of them think that a successful synergy strategy for India should ensure that the SDGs serve as the guide to which the NDCs are linked.

Several policy implications were drawn from this study. On the mitigation front, experts find key sectors for synergies in India to be energy, followed by agriculture and transport. Similarly, potential adaptation actions and measures include food and nutritional security, local adaptation and resilience, disaster risk reduction strategies, finance, and water security. The majority of the experts advocate for prioritising projects and programmes that have either joint mitigation and adaptation benefits or that fit into the dual objectives of the SDGs and climate action achievement, such as GOI's PMUY and PMKUSUM scheme. However, they caution that the approach towards designing such policy measures and instruments would be critical and would require considering critical aspects concerning livelihood, equity, and just energy transition. Synergies also require a large push and ambition from top political leaders and greater coordination among different stakeholders, education, and demand-side behavioural changes. In addition, awareness, sensitisation, and training programmes at the national level are urgently required, particularly for policymakers, to ensure policies and decisions are evidence-based and backed by science.

On finance-related matters, experts think that international low-interest finance and mitigation risk instruments from the developed world are crucial for achieving the synergies process in developing countries (including India). However, they also agree that India's own public and domestic funds will continue to serve as the most important source of finance for achieving the twin agendas in the long term. In this endeavour, the role of the private sector seems to be highly critical in terms of influence. However, this should be governed more on moral grounds than only looking at SDGs and climate projects, as an alternative or an attractive investment opportunity.

It is difficult to predict when countries (including India) can achieve the SDGs, NDCs, or their NZTs under the existing global situation and geo-politics, but, certainly, creating synergies and aligning SDGs and NDCs, as well as their associated targets and objectives, can help countries transition to more climate-compatible, inclusive development pathways. In addition, bold and ambitious decisions taken at key climate negotiation meetings such as COPs, HPLF on sustainable development, and major influential intergovernmental political forums such as the G7 and G20 will continue to shape, influence, or stall global progress on the joint achievement of the SDGs and the Paris Climate Agreement.

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6. Limitations and Future Studies

The main limitation of this study is its focus on an overall overview, rather than a disaggregated analysis based on the type of stakeholders and regional representation, because of a reasonable sample and limited time. However, this creates an opportunity for researchers and government institutions at national and sub-national levels to carry out such studies. There is also a need for studies to assess the level of awareness and capacity on the synergies at the national and local level, particularly among the policymakers and professionals working on SDGs and NDCs, in both the government and the private sector (one of the key issues identified in this research). For example, in India, the target may be NITI Aayog, MoEF, State Planning and Environment Departments, Climate Change Cells, and the Sustainability and Climate Change Division of firms and organisations.

Another relevant study may try to assess and map the inter-linkages and synergy potential of key government initiatives and projects (existing and new) that would help prioritise and improve efficiency and the transformational impact of limited government resources. Studying the impacts is also crucial from the point of view of streamlining adaptation and mitigation actions and may also facilitate access to private and international funding.

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