Unlocking Private Sector Investment into Natural Climate Solutions in India

WHITE PAPER – Consultation Draft

JANUARY 2024

In collaboration with the Confederation of Indian Industry (CII) and IORA Ecological Solutions
Contents

PREFACE ........................................................................................................................................... 3
EXECUTIVE SUMMARY .................................................................................................................. 4
INTRODUCTION ................................................................................................................................... 7
1. GLOBAL AND NATIONAL CONTEXT FOR NCS INVESTMENTS .................................................. 8
   1.1 NCS IN CLIMATE ACTION STRATEGIES .............................................................................. 8
   1.2 CURRENT SCALE OF GLOBAL INVESTMENTS IN NCS .......................................................... 8
   1.3 NCS IN THE INDIAN CONTEXT .............................................................................................. 9
   1.4 POLICY ENVIRONMENT FOR NCS ..................................................................................... 9
2. CORPORATE INSIGHTS ON NCS INVESTMENTS IN INDIA ....................................................... 13
   2.1 THE BUSINESS CASE FOR INVESTING IN NCS ................................................................. 13
   2.2 CORPORATE NCS PREFERENCES .................................................................................... 15
   2.3 SECTORAL NCS PREFERENCES ....................................................................................... 16
   2.4 BARRIERS TO SCALE UP NCS INVESTMENTS IN INDIA .................................................. 17
   2.5 OPPORTUNITIES TO SCALE UP NCS INVESTMENTS IN INDIA ........................................ 19
3. RECOMMENDATIONS FOR TACKLING BARRIERS TO UNLOCK GREATER INVESTMENT IN NCS ................................................................. 21
   3.1 CLARITY ON REGULATIONS AND STANDARDS ................................................................. 22
   3.2 COLLABORATION WITH GOVERNMENT ........................................................................ 24
   3.3 SOURCING HIGH-QUALITY PROJECTS WITH STRONG MRV ........................................... 24
   3.4 STRENGTHENING THE BUSINESS CASE ...................................................................... 25
   3.5 THE WAY FORWARD: UNLOCKING PRIVATE SECTOR INVESTMENT INTO NCS .............. 27
CONCLUSION ...................................................................................................................................... 28
ANNEXES ........................................................................................................................................ 29
   ANNEX I: POLICY INSTRUMENTS DRIVING INVESTMENT INTO NCS ...................................... 29
   ANNEX II: NATIONAL COMMITMENTS BY SECTOR, ASSOCIATED POLICIES AND RELEVANCE FOR NCS INVESTMENTS ........................................... 30
   ANNEX III: POLICY RECOMMENDATIONS ............................................................................. 33
CONTRIBUTORS .............................................................................................................................. 34
ACKNOWLEDGEMENTS .................................................................................................................. 34
ENDNOTES ....................................................................................................................................... 36

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Preface

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This white paper presents findings from a collaborative study by the World Economic Forum, the Confederation of Indian Industry and IORA Ecological Solutions, focusing on the evolving landscape of natural climate solutions (NCS) investments among Indian corporations.

The report delves into the landscape of NCS investments in India, dissecting challenges, opportunities and actionable recommendations. Surveying a sample of the country’s largest companies, the findings reveal a robust commitment to sustainability: 89% have dedicated strategies while nearly half have adopted net-zero goals. Notably, 70% have incorporated NCS into their commitments, investing in afforestation, reforestation and ecosystem restoration.

In a country facing potential climate-related risks costing 3% of GDP annually at 1°C of global warming, rising to 10% at 3°C, NCS emerge as a vital strategy and a great majority of respondents (86%) agree there is a business case for NCS investments, citing carbon sequestration for net-zero goals, improving brand reputation and increasing business resilience. However, private sector investments lag, with a $161.9 billion (INR 13,484 billion) funding gap projected for the forestry sector alone by 2030. Barriers include unclear regulatory frameworks, land ownership complexities and the need for high-quality projects.

Nevertheless, in addition to international commitments under the Paris Agreement and the United Nations to create additional carbon sinks and restore 26 million hectares, India is developing new instruments such as the regulatory carbon market and the Green Credit Program (GCP). These instruments have caught the attention of major companies, with around 79% of respondents indicating that clear guidelines on the GCP, for example, would influence their decision to increase investments in NCS. This provides a timely opportunity for India to embrace standardized protocols, policy clarity and avenues for public-private partnerships to enhance the effectiveness of NCS and incentivize further nature-positive corporate investments.

In conclusion, the findings of this report reveal a transformative phase in corporate attitudes towards NCS investments in India. The opportunities are vast and with strategic interventions, the private sector can emerge as a significant contributor to India’s climate, biodiversity and land restoration commitments. Policy-makers, businesses and civil society must collaborate to unlock the full potential of NCS, creating a sustainable future for India and the planet.
Executive summary

Climate-related risks could cost India 10% of its GDP annually at 3°C of global warming. Companies can play a critical role in tackling these risks by increasing investment into natural climate solutions.

At a time when $44 trillion of the global economy is at risk from nature loss, natural climate solutions (NCS) represent a key strategy to address the dual crises of climate change and biodiversity loss and strengthen the resilience of the world’s socio-economic systems. NCS encompass a range of actions aimed at safeguarding, conserving, restoring and sustainably managing terrestrial, freshwater, coastal and marine ecosystems while providing livelihood benefits. NCS could deliver up to one-third of the net emission reductions required by 2030.

This is particularly critical as climate-related risks could cost India 3% of its GDP annually at 1°C of global warming, rising to 10% at 3°C. The prolonged economic effects of climate change also risk increasing India’s national poverty rate by 3.5% in 2040, equivalent to around 50 million more people living in poverty. With an estimated 30% of land in India considered degraded, 9% of which is vegetation degradation, natural climate solutions emerge as a comprehensive solution, providing benefits for ecology, people and the planet by focusing on conservation and restoration efforts.

In this context, India has made international commitments under the Paris Agreement and the United Nations Convention to Combat Desertification (UNCCD) to create an additional sink of 2.5 to 3 billion tonnes of CO2-equivalent through additional forest and tree cover and to restore 26 million hectares of degraded land by 2030.

However, as is the case globally, current investments in NCS in India are largely public-sector driven and fall short of what is needed. One estimate suggests that India needs to spend $9.36 billion every year until 2030, specifically to fulfil its nationally determined contributions in the forestry sector, while actual public spending on forests averaged an estimated $1.75 billion per year over the period 2012-2017. Closing this funding gap will entail a significant increase in public and private sector investments in this area.

To better understand the potential of private sector investment in NCS in India, research conducted for this report surveyed a sample of the country’s largest companies, in partnership with the Confederation of Indian Industry (CII). Findings reveal a strong commitment to sustainability among surveyed companies: 89% of respondents have a sustainability strategy and nearly half have a net-zero strategy. Meanwhile, about 70% have integrated NCS into their corporate commitments, which include investments in afforestation, reforestation, and ecosystem restoration of forests, grasslands, wetlands and mangroves, as well as agricultural land management.

The great majority of respondents (86%) agree there is a business case for NCS investments, citing factors such as carbon sequestration for net-zero goals, enhancing brand reputation and strengthening business resilience. However, only 39% consider the mitigation of residual greenhouse gas emissions an investment driver, while just four out of the 56 respondents (7%) are currently generating carbon credits from their NCS investments. Furthermore, for most respondents (62%), investments currently come from corporate social responsibility (CSR) budgets, with 35% indicating that they invest in NCS to meet national or global mandatory regulatory requirements. This suggests that while companies recognize the potential business case outside CSR investments, this has yet to fully translate into investment decisions.

Furthermore 75% of companies face challenges in NCS implementation, including 71% citing the absence of standardized monitoring methodologies, while more than half have encountered land ownership complexities (55%) or insufficient site-specific information (53%). Nevertheless, over 90% of corporates plan to significantly or moderately increase their NCS investments over the next five years. And 54% of respondents mention they plan to start or increase their purchase of forest carbon credits in the next five years, while one third remains uncertain about their course of action.
Four categories of challenges emerge from the research that represent barriers to investment, which – if addressed – could influence corporate decisions to scale up investment:

1. **Clarity on regulatory frameworks that enable NCS investments**, including the Indian government’s Green Credit Program (GCP), as well as on the compliance and voluntary carbon markets, where companies need more information regarding the issuance, ownership and international transfer of carbon credits.

2. **Support in navigating the complexities of land ownership** and opportunities for multi-stakeholder partnerships, including with state governments.

3. **Availability of high-quality NCS projects** with strong measurement, reporting and verification (MRV) frameworks.

4. **A stronger business case** to address concerns about uncertain returns on investment, high upfront costs and a lack of alignment between NCS projects and short-term financial priorities.

Table 1 below presents recommendations from corporate respondents to address some of these challenges in each of the four categories identified.

**Table 1: Business recommendations to unlock investments in natural climate solutions (NCS) in India**

<table>
<thead>
<tr>
<th>Clarity on regulations, standards, certifications and compliances will boost investment</th>
<th>Collaboration and procedural support from the government will lead to large-scale impact</th>
<th>High-quality projects with strong measurement, reporting and verification (MRV) will help build confidence for investment and impact</th>
<th>Sector-specific business cases will help corporates go beyond CSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Regulatory frameworks need to be better defined.</td>
<td>• Land availability is the biggest challenge – clarity on availability through a repository would drive investment</td>
<td>• Projects with clear environmental and social outcomes are needed.</td>
<td>• Every sector has a different dependency on natural resources and ecosystem services.</td>
</tr>
<tr>
<td>• Clarity on the use of credits generated through corporate social responsibility (CSR) investments is needed.</td>
<td>• Procedural support on modalities of engagement will help forge strong, functional and trusted partnerships.</td>
<td>• Impact assessment tools will build more confidence.</td>
<td>• Strong business cases with transition pathways keeping NCS at the centre will attract more investment beyond CSR.</td>
</tr>
<tr>
<td>• Green Credit Program (GCP): Clear guidelines, operational protocols and a transparent credit issuance mechanism would help build trust in the system and boost private investment.</td>
<td>• More corporates and partners would be willing to engage if there were clear policies on land availability.</td>
<td>• High-quality carbon projects are scarce, while data on carbon sequestered and livelihoods generated is essential.</td>
<td>• This requires greater corporate awareness of the material risks of nature loss and the business opportunities presented by NCS investments.</td>
</tr>
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</table>

In summary, as more companies establish their climate and sustainability strategies, the drivers of NCS investments are shifting and there is an appetite among companies to better understand how NCS credits can contribute to net-zero goals. Consequently, companies are interested in seizing the opportunities represented by NCS carbon credits and other voluntary market-based schemes (such as the GCP), provided these are clear and backed by strong enough incentives.

Policy instruments can play a key role to strengthen the business case through compliance measures, voluntary market instruments and emerging corporate reporting requirements, which lead to inventories of carbon and nature footprints as well as goals to reduce those impacts. In a context of emerging regulation and new instruments in India, including the compliance carbon market and GCP, there is a huge opportunity for standardized protocols and policy clarity to enhance the effectiveness of NCS. Taken together, these policies along with clear guidance on public-private partnerships could help close the NCS funding gap by unlocking greater private finance towards these goals.
As the world navigates the complex terrain of climate action, NCS stand out as a beacon of hope, calling for concerted efforts from governments, private enterprises and communities alike to unlock their full potential in safeguarding our planet for future generations.
Introduction

This report presents insights on investments in natural climate solutions, garnered from a survey of 56 companies across 20 industries in India, complemented by interviews with prominent corporate leaders.

Natural climate solutions (NCS) represent a critical component of a sustainable and climate-resilient future. NCS, defined as nature-based solutions addressing climate change, encompass a range of actions aimed at safeguarding, conserving, restoring and sustainably managing terrestrial, freshwater, coastal and marine ecosystems. NCS could deliver up to one-third of the net emissions reductions required by 2030. Additionally, NCS effectively address social, economic and environmental challenges while concurrently supporting human well-being and providing ecosystem services, resilience and biodiversity benefits.

“Natural climate solutions could deliver up to one-third of the net emissions reductions required by 2030.”

This white paper provides insights and actionable recommendations to facilitate private sector investment in natural climate solutions in India, based on an analysis of the regulatory framework, insights from an industry survey and interviews with key stakeholders. The report’s primary objective is to offer an understanding of the current regulatory and investment landscape, highlight key opportunities and barriers for NCS investments in India and put forward recommendations to mobilize private sector investments in NCS initiatives within India.

The analysis draws on an industry survey, designed and conducted in partnership with the Confederation of Indian Industry (CII), to better understand corporate sentiment and experiences with NCS investments in India, and how these connect to companies’ sustainability and net-zero strategies. The survey was sent to a sample of the largest companies in the country and findings draw on answers from 56 companies across 20 diverse industries. It was complemented by structured interviews with prominent industry leaders.

This white paper is a collaboration between the World Economic Forum, CII and IORA Ecological Solutions. Each partner brings a wealth of experience, expertise and shared commitment to driving sustainable practices across industry sectors. This collaboration has taken a multi-disciplinary approach to navigate the complexities of NCS investments, ensuring that the insights presented are both practical and actionable.

The report is divided into three chapters as follows:

– Chapter 1 looks at the global and national context for NCS investments, including how these connect to climate action, the current scale of investment and the financing gap, as well as the policy environment for NCS in India.

– Chapter 2 presents corporate insights on NCS investments garnered through the industry survey and accompanying interviews, including perspectives on the business case, as well as barriers and opportunities to scaling NCS investment.

– Chapter 3 concludes by providing a deeper analysis of the areas highlighted by companies and presents recommendations, which could provide the basis for discussion to refine multi-stakeholder partnerships and further facilitate and incentivize private sector investment in NCS in India.
1. Global and national context for NCS investments

The private sector invests just $26 billion per year in natural climate solutions, out of an estimated $484 billion per year needed by 2030. Given that over half the world’s GDP is dependent on nature, companies have a major interest in stepping up contributions.

1.1 NCS in climate action strategies

Nature climate solutions are key to addressing the urgent challenges of biodiversity loss, land degradation and climate change. The Intergovernmental Panel on Climate Change (IPCC) has stated that three of the five most effective strategies for reducing emissions are nature-based: ecosystem protection, nature restoration and improved farmland management.¹

Research suggests that NCS could provide up to one-third of the emission reductions required by 2030 to keep global warming within the 2°C threshold envisaged by the Paris Agreement.² Governments globally are acknowledging the potential of NCS by integrating these solutions into their national biodiversity strategic action plans (NBSAPs), climate targets and land-degradation neutrality commitments.

Beyond carbon sequestration, NCS offer a plethora of benefits, including ecosystem protection, climate resilience and land restoration. They also promote shifts in agricultural and forestry practices to prioritize the conservation of natural capital and associated ecosystem services.

NCS fall into three broad categories:

1. **Protection**: This involves safeguarding existing natural ecosystems from degradation or conversion. Preserving these ecosystems will ensure continued carbon sequestration while preventing biodiversity loss and the release of stored carbon.

2. **Management**: This involves the sustainable use and management of natural resources to ensure that ecosystems continue to function optimally and provide their services. Improved land management practices can enhance carbon sequestration rates while maintaining or enhancing biodiversity.

3. **Restoration**: This is the process of assisting the recovery of ecosystems that have been degraded or destroyed, ranging from assisted natural regeneration to afforestation. Restoration activities can bring back lost ecosystem functions, enhance biodiversity and increase carbon storage capacity.

1.2 Current scale of global investments in NCS

The latest data shows that total global investments in NCS amount to $154 billion per year. However, this is less than one-third of the estimated $484 billion per year needed by 2030.³ Closing this investment gap is essential to achieving the potential of NCS to keep global warming below 1.5°C, halt biodiversity loss and ensure land degradation neutrality.

“Total global investments in NCS amount to $154 billion per year – less than one-third of the estimated $484 billion per year needed by 2030.”
When it comes to private sector investment, the gap is even greater, with gross private sector contributions to NCS estimated at $26 billion per year, just 17% of the total. This underscores the scope for significantly increasing financial flows from the private sector. Given that more than half of the world’s GDP (~$44 trillion) is at risk due to moderate or high dependency on nature, the private sector’s role in maintaining functioning ecosystem services cannot be overestimated.

1.3 NCS in the Indian context

India plays a key role in the global climate response. The country’s Paris Agreement goals aim to reduce emissions intensity by 45% from 2005 levels, as well as targeting 40% power capacity from non-fossil fuels by 2030. After the energy sector, which represents 69.5% of the country’s greenhouse gas (GHG) emissions, the agriculture, forestry and other land-use (AFOLU) sector is the second largest emissions contributor at over 170 million tonnes of CO₂-equivalent per year (5.8% of India’s total GHG emissions in 2018).

India has made important commitments when it comes to land restoration and increasing its forest-based carbon sinks. The updated nationally determined contribution (NDC) commits the country to create an additional carbon sink of 2.5-3.0 billion tonnes of CO₂-equivalent by 2030 via additional forest and tree cover. The target of protecting, restoring and enhancing 10 million hectares of forest cover under the Green India Mission and the pledge to restore 26 million hectares of degraded land by 2030 under the United Nations Convention to Combat Desertification (UNCCD), are key commitments towards the creation of this additional carbon sink.

This is particularly important as India faces unique environmental and socio-economic challenges exacerbated by climate change. The nation grapples with threats such as rising sea levels along its 7,500km coastline, receding Himalayan glaciers and erratic monsoon patterns impacting an agriculture sector that employs over half its population. Agricultural yields are projected to drop by 16% by 2030, resulting in a predicted decline of 2.8% in overall GDP by 2050. With one-third of the economy dependent on nature, a large part of India’s population is vulnerable to climate risks.

The land use, land-use change and forestry (LULUCF) sector, which encompasses a major share of NCS, offsets about 12% of India's GHG emissions. This underscores the immense potential and relevance of NCS in India, not just for environmental conservation and tackling climate change but also as a strategic tool for socio-economic resilience. Enhancing investments in NCS can offer significant mitigation and adaptation benefits.

Despite India’s commitments to NCS, current investments fall well short of what is needed – as is the case globally. A report in January 2021 by The Energy and Resources Institute (TERI) estimated that India needed to spend ₹60,000 crores per year ($9.36 billion at 2015 prices) until 2030 to attain its forestry NDC target. However, actual annual expenditure from 2012-17 averaged ₹11,256 crores ($1.75 billion), amounting to less than 19% of required funds, leaving a gap of ₹48,744 crores ($7.61 billion) per year. A report by the International Union for Conservation of Nature (IUCN) examined investments made in forest restoration efforts in India from 2011-17 and found that 94% of interventions were made by government agencies.

1.4 Policy environment for NCS

The Indian government has put in place a number of policies to manage natural resources and regulate investments in natural climate solutions, while more are under development. Table 2 presents an overview of these policies and their objectives including compliance-based regulation mandating corporates to invest in NCS, as well as voluntary market instruments. Annex I provides more details on responsible agencies for each of these policies, as well as examples. They will be analysed further in Chapter 3, in light of the insights gained from the corporate survey on barriers and opportunities for NCS investments in India.
Table 2: Indian government policies supporting investment in NCS

<table>
<thead>
<tr>
<th>Compensatory Afforestation Fund Management and Planning Authority (CAMPA)</th>
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<tbody>
<tr>
<td>Under the Compensatory Afforestation Fund Act 2016, the entities responsible for converting forest land for non-forest purposes deposit funds into the compensatory afforestation fund (CAF). The Ministry of Environment, Forest and Climate Change (MoEFCC) oversees the national CAMPA (NCAMPA) at the federal level, while state forest departments manage state CAMPAs (SCAMPAs) at the state level. (^{19}) CAMPA funds are primarily used for compensatory afforestation, wildlife management, ecosystem restoration, capacity building and research. The national and state CAMPA authorities actively monitor and evaluate the utilization of funds to ensure transparency and accountability. The mechanism aims to balance development and environmental conservation by compensating for the loss of forest cover due to land conversion.</td>
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<table>
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<th>Green belt regulation</th>
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<td>Industries are stipulated to develop and maintain a green canopy belt to address the environmental impact, pollution and emissions caused by their operations. The green belt refers to a buffer zone of 33% of the project area, within which no industrial activities are to be carried out. As per the stipulations of MoEF&amp;CC, greenbelt is to be provided all along the boundary by planting tall, evergreen trees and the total green area including landscaping area will be about 40% of the project area. (^{20})</td>
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<tr>
<th>Corporate social responsibility (CSR)</th>
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<td>Indian corporations fulfilling one of the following criteria – net worth over INR 500 crores, turnover of more than INR 1,000 crores, or net profit of more than INR 5 crores in the previous financial year – are mandated to spend at least 2% of their average net profits towards CSR. Schedule VII of the Companies Act 2013 provides a list of eligible activities that align with the Sustainable Development Goals (SDGs). As seen in the survey for this report, most NCS investments currently originate from CSR budgets. A case study is included in Box 1.</td>
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<th>Carbon markets – compliance and voluntary</th>
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<tr>
<td>A regulatory carbon market is being set up in India to facilitate the compliance of regulated entities with mandated targets. (^{21}) Compliance-based carbon credits are applicable only to the country’s NDCs, except those allowed by the country to be exported internationally as per Article 6 of the Paris Agreement. India has notified 13 sectors from which carbon credits can be exported, including green hydrogen, compressed biogas, carbon capture and green ammonia. The Indian carbon market is still in its nascent stage and NCS credits are not included in the approved list of project types that can export carbon credits. (^{22}) So for now, companies can only use NCS credits to meet their voluntary offset targets or export them to international buyers through the global voluntary carbon market.</td>
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<table>
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<tr>
<th>Green Credit Program (GCP)</th>
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<tr>
<td>The Green Credit Program is currently under development. (^{23}) It aims to create a market for a wide range of environmental actions that can help achieve the goals of the Indian government’s mission LiFE (Lifestyle for Environment). So far, the GCP has been set up for two sectors, water conservation and afforestation. This list will be expanded to include waste management, air pollution reduction, mangrove conservation and restoration, eco-mark products and sustainable buildings. Green credits from all these sectors will be issued on an online registry and traded through an online trading platform.</td>
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<th>Other policies and subsidies</th>
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<tr>
<td>There are other government schemes and missions that may incentivize corporate investments in NCS through the promotion of natural and organic farming, watersheds, skilling and training of communities, etc. Many of these schemes involve subsidies and concessions (see Annex II for</td>
</tr>
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</table>
In addition, international frameworks facilitating environmental, social and governance (ESG) reporting are of increasing relevance to Indian businesses. While there is no single global methodology, pertinent frameworks include:

- Global Reporting Initiative (GRI), a multi-stakeholder approach covering the economic, social and environmental aspects of sustainability reporting
- Task Force on Climate-Related Financial Disclosures (TCFD), a set of climate-related disclosures applicable for financial institutions, acting as a means of providing transparency about climate risks to investors, lenders and underwriters.

Upcoming frameworks such as those being developed by the Taskforce on Nature-related Financial Disclosures (TNFD) and the IFRS Foundation’s International Sustainability Standards Board (ISSB) are also likely to gain relevance in the coming years, supporting companies in assessing their dependencies on nature and making commitments, including NCS investments, to reduce their nature-related impacts.

Box 1: Mahindra Group’s tree planting initiative: Project Hariyali

Project Hariyali is Mahindra Group’s flagship afforestation programme launched in the state of Andhra Pradesh in 2007. Its vision is to improve India’s green cover, halt the rising ecological imbalance, create an environmentally conscious citizenry and a carbon sink. It is an example of a CSR-funded natural climate solutions investment designed to deliver ecological and socio-economic benefits to the communities involved.

Objectives:
- Create functional forests for tribal communities by planting varieties of fruit, forest and shade trees
- Convert degraded landscapes into multi-use landscapes, improving food security and generating additional income for communities
- Employ international-standards for natural resource management and organic farming protocols to increase community incomes
- Improve agricultural ecosystems and support overall improvements in quality of life

Implementation model:

| Community engagement and identification of native species | Planning and procurement | Preparation of land and training | Monitoring through trained local youth |

Impact in numbers:
- Over 24 million trees planted in India with a survival rate of >85% over the last 15 years
- Covers 295 villages
- Supports the livelihoods of more than 25,000 tribal farmers
- Estimated carbon sequestered: >153,000 tonnes of CO₂-equivalent

Impact story:

The project has made a significant impact on the livelihoods of tribal communities in the Araku valley of Andhra Pradesh. Fruit trees planted with the help of the tribal community have provided
soil nutrients and shade to enhance the quality of the coffee they grow. This product has become famous as “Araku coffee” and is appreciated by connoisseurs as far away as in France and Ireland.

Mahindra worked closely with the communities to develop a holistic programme based on bio-dynamic farming, which helped them secure premium prices for their product. The tribal communities revere these trees and treat them like family. This leads to a virtuous cycle of increased community engagement, greater tree plantation, higher survival rates and increased income for the community – a remarkable example of working in tandem with nature and communities to achieve better outcomes.

Source: interview and www.Hariyali.org.in
2. Corporate insights on NCS investments in India

While most companies agree there is a business case for investing in NCS, most invest under $1 million. Barriers to scaling up include an absence of standard impact metrics, land ownership complexities, poor site-specific information and lack of regulation.

To better understand the drivers of corporate investment in NCS in India, the World Economic Forum conducted an industry survey in partnership with CII. The survey was sent to 222 leading Indian companies, including large Indian conglomerates as well as some subsidiaries of major international corporations. A total of 56 companies responded, with a good representation across industry sectors (see Figure 1) and operations spanning all Indian states.

Figure 1: Industrial sectors represented by respondents to corporate survey

2.1 The business case for investing in NCS

The survey reveals a noteworthy commitment to sustainability and net-zero goals among the companies that responded: 89% affirmed that their companies have established a sustainability strategy, with 49% reporting the presence of a dedicated net-zero strategy. Meanwhile, 70% indicate that NCS have been integrated into their corporate sustainability commitments. For 21% of respondents, however, NCS have not yet found a place within corporate commitments, highlighting that there is still work to be done in terms of mainstreaming NCS across the business landscape (see Figure 2).

“86% of respondents agree there is a business case for investing in natural climate solutions and 70% have integrated NCS into their corporate sustainability commitments.”
Furthermore, 86% of respondents agree that there is a business case for investing in natural climate solutions. The top reasons cited by these companies are as follows:

- **To invest in carbon sequestration** to meet net-zero goals (73%). For companies on a science-based decarbonization pathway, NCS investments can serve to counterbalance unabated emissions on the journey to net zero and neutralize residual emissions. NCS projects can also deliver significant ecosystem services and other co-benefits beyond carbon sequestration, such as improved livelihoods for participating communities.

- **To improve brand reputation** (64%) and elevate ESG ratings (64%). Investing in NCS can provide the impetus for companies to position their brands and improve their sustainability indicators and ESG ratings. An improved brand image also helps companies become a more attractive employer for top talent.

- **To increase business resilience** (54%). Companies with supply chains linked to natural ecosystems can derive benefits from protecting and restoring degraded ecosystems to improve and maintain natural functionalities and ecosystem services, thereby mitigating financial risk associated with nature loss.

About one-fifth of companies also indicate that NCS investments enhance customer loyalty (associated with improved brand reputation), save costs through supply chain risk mitigation and have the potential to create new revenue streams.

Interestingly, while most companies agree there is a business case, 62% of respondents indicate that their NCS investments come out of their corporate social responsibility budgets, while 75% engage in NCS investments as part of their voluntary commitments and strategies. Only 35% indicate that they invest in NCS to meet national or global mandatory regulatory requirements.

What is also striking is that while two-thirds of respondents mention net-zero goals as part of the business case, only 37.5% cite the mitigation of residual greenhouse gas emissions as an investment driver and just 4 out of the 56 respondents (7%) are generating carbon credits from their NCS investments. Half of respondents...
(48%) indicate they are considering this but have not generated any credits yet, suggesting a number of barriers still need to be addressed to move from awareness and intention to action.

“Half of respondents indicate they are considering generating carbon credits from their NCS investments, but just 4 out of 56 respondent companies (7%) have actually done so.”

It is noteworthy that a majority of NCS investments (57%) are relatively small-scale, with investments of less than $1 million (see Figure 3).

Figure 3: Scale of investment in NCS

![Figure 3: Scale of investment in NCS](image)

2.2 Corporate NCS preferences

Companies prioritize different types of NCS interventions in different land-use contexts: 82% of respondents are investing in afforestation and reforestation initiatives; 45% prioritize afforestation or reforestation on degraded common land; 37.5% are investing in forest land; and 34% are directing their investments towards agricultural land. Additionally, 34% of organizations are contributing to urban forests, acknowledging the role of urban green spaces in climate action.

Within agricultural land management, the respondents are primarily focusing on improved water and irrigation management (64%), improved fertilizer application (34%), improved crop residue management (31%) and also to a lesser extent improved grazing management (7%).

More than two-thirds of respondents are investing in ecosystem restoration initiatives – primarily forest restoration projects (64%), but also covering wetlands (30%) and to a lesser extent grasslands (11%). Two-thirds of respondents also indicate that their interventions cover conservation activities (of forest, wetland or mangrove ecosystems). These endeavours signify a growing recognition of the importance of rehabilitating and protecting ecosystems to combat climate change and restore biodiversity.
More than two-thirds of respondents are investing in ecosystem restoration – primarily forest restoration projects (64%), but also covering wetlands (30%) and grasslands (11%).

These investments collectively highlight a substantial commitment to enhancing agricultural practices for environmental sustainability. This is interesting considering the following:

- About 26% of land in India is suitable for agroforestry initiatives, including tree plantations on boundaries, agri-horti-forestry25 and farm forestry. This amounts to 87 million hectares of land that meet the criteria for agroforestry, with less than 40% tree cover density and a population density of under 400 people/km².26

- Around 10% of land in India is suitable for broad-scale restoration (afforestation or forest restoration covering large areas of land). This corresponds to 33.6 million hectares with over 40% tree cover density and a population density of under 200 people/km².27

- Over 37 million hectares of degraded land are classified as unirrigated agricultural land, suitable for agricultural land management practices.28

When it comes to partnerships, 61% of companies choose to implement NCS initiatives within their operational areas and nearby regions and 62% partner with local communities including farmers and Indigenous populations. Other partners include forest departments (for 43% of respondents), state governments (for 39% of respondents) and gram panchayats or village councils (for 39% of respondents), highlighting the significance of local governance structures, especially in the context of rural and community-based NCS projects. A smaller cohort (25%) chooses to collaborate with specialized NCS providers.

2.3 Sectoral NCS preferences

The companies surveyed are major players in their field and it has therefore been possible to identify some sectoral trends. However, it is important to note that survey respondents represent leaders when it comes to sustainability and NCS investments, so the comments below may not be applicable to the sector as a whole.

**Agriculture sector**

Among the respondents to this survey, the agriculture sector incorporates NCS into its sustainable supply chain management, emphasizing sustainable farming and plantation. These efforts are primarily funded through CSR allocations, bolstered by regulatory requirements and organizations' biodiversity commitments. Notably, two organizations in this sector are actively engaged in NCS projects, focusing on sustainable farming and afforestation, with key performance indicators (KPIs) related to soil health, biodiversity enhancements, increased water availability, reduced flooding incidents and improved livelihoods.

**Auto and auto component sector**

Within the auto and auto component sector, NCS play a vital role in achieving net-zero commitments. Organizations in this sector favour afforestation across agricultural, community and forest land areas, while they also prioritize ecosystem restoration within natural wetlands and forests. Respondents indicate that collaboration with state governments and gram panchayats is common for NCS implementation. However, challenges arise from regulatory requirements, land availability issues and ownership conflicts.

**Banking and investment sector**

In contrast, the banking and investment sector has yet to include NCS in its sustainability commitments. Among the companies that have made NCS investments, the focus is primarily on sustainable farming and forest restoration. One bank stands out for providing loans to farmers for sustainable farming. Despite the potential, limited investments are observed and respondents highlight regulatory challenges and difficulties in documenting benefits.
Energy, renewable energy, oil and natural gas sector

The energy, renewable energy, oil and natural gas sector highlights the integral role of NCS in its sustainability and net-zero strategies. NCS methods are closely tied to business operations, with a strong emphasis on enhancing brand reputation, business resilience and carbon sequestration to meet net-zero commitments. Despite having a strong business case, CSR funds are the primary source (62.5%) for investments and focus on socio-economic benefits to local communities, while only two companies claim to have invested in NCS for carbon credit benefits. High upfront costs and uncertainty around the advantages of NCS are highlighted as significant challenges.

Manufacturing, metal and mining, and cement sector

In the manufacturing, metal and mining, and cement sector, around half the companies commit to NCS as part of their sustainability and net-zero efforts. These companies actively implement NCS, focusing primarily on afforestation and forest and wetlands restoration. These NCS initiatives are predominantly funded through CSR allocations to meet regulatory requirements for greenbelt development and water neutrality. One company is also promoting bamboo plantations as an NCS initiative to fulfil its fuel requirements for cement production.

2.4 Barriers to scale up NCS investments in India

Investment decisions in NCS differ from usual corporate investment processes, because NCS projects entail complex multi-stakeholder environments with different risk profiles and less standardization in terms of costs and monitoring, compared to other infrastructure investments.

This presents significant challenges, as confirmed by our survey findings (see Figure 4). Three-quarters of respondents encounter obstacles in the implementation of NCS, with the top challenges outlined below.

Standard metrics to measure impact

The absence of standardized methodologies for NCS monitoring and reporting is cited as a challenge by 71% of respondents, including the lack of a well-defined, standardized and universally accepted set of measurement criteria for outcomes arising from NCS projects. This absence of standardization across impact metrics means that corporate claims on benefits are fraught with uncertainty.

“The absence of standardized impact metrics means that corporate claims on benefits are fraught with uncertainty.”

Land ownership

Land availability and ownership complexities are cited as a challenge by 55% of respondents, linked to complex governance and ownership models prevailing in the country, across government, private and community stakeholders. The consequence is that procurement of or collaboration on NCS projects becomes equally complex.

Site-specific information

Lack of site-specific information for NCS planning and implementation at national and state level is cited as a challenge by 54% of respondents. Lack of defined and stakeholder-specific information is a major constraint on boosting the involvement of the private sector in developing NCS. This includes information on the risks and benefits of NCS interventions for investors and local communities.

Additional challenges include a dearth of regulations or policies for NCS implementation in forest areas (cited by 41%) and transparency around NCS implementation and benefit-sharing in relation to state-level policies (cited by 20%).
This data suggests that while climate action is increasingly becoming part of the government agenda, the process of integrating NCS into legislation is yet to be fully embraced. While India has different legislations and policies pertaining to different aspects of nature, NCS cut across all these legislations and policies; hence, lack of legislative clarity creates ambiguity regarding its development. For example, there is no explicit policy guidance available in India on the participation of the private sector in NCS, including rules on the transfer of carbon credit ownership or public-private partnership models for forestry.

“When it comes to scaling up or investing in NCS, by far the biggest barrier – cited by 71% of respondents – is the absence of a clear regulatory framework and the complexity of existing regulations.”

When it comes to scaling up or investing in NCS, by far the biggest barrier – cited by 71% of respondents – is the absence of a clear regulatory framework and the complexity of existing regulations. Almost half of respondents identify the limited availability of high-quality NCS projects, uncertain returns on investment and limited access to funding or financial incentives as key barriers. Additional concerns include the timeframe of NCS investments not aligning with short-term financial priorities (30%), lack of awareness and expertise within the organization (27%) and high upfront costs (23%).
Deeper inquiry by researchers into corporate knowledge about respective regulatory environments revealed that only 14% of respondents say they are aware of the policies that support NCS implementation in their states of operation. Half the respondent companies rely instead on the support and collaboration of local entities. This underscores the need for heightened corporate awareness and understanding of national and state-level NCS policies, to support successful NCS investments and implementation.

2.5 Opportunities to scale up NCS investments in India

Despite these implementation challenges and perceived barriers to investment, over 90% of corporate respondents plan to either significantly or moderately increase their NCS investments over the next five years. What is more, 54% of respondents mention they plan to start or increase their purchase of forest carbon credits in the next five years. Nevertheless, 34% of respondents remain uncertain about their future course of action in this area, suggesting the need for more clarity and information.

“Despite implementation challenges, over 90% of corporate respondents plan to significantly or moderately increase NCS investments over the next five years.”

The two most influential factors in corporate decisions to increase their investments in NCS are clear guidelines on the Indian government’s recently announced Green Credit Program or GCP (79%) and clarity of policies regarding the issuance, ownership and international transfer of carbon credits (75%). Other factors that influence organizations’ decisions include collaboration with state governments for degraded land restoration along with clarity on investment modalities, alignment with long-term sustainability goals, as well as opportunities to partner with local communities and demonstrate positive impacts (see Figure 6).
When it comes specifically to NCS carbon credits, the biggest driver for increased investments would be the presence of clear and supportive policies regarding claims (84%), combined with the assurance of measurable and verifiable carbon reductions (75%). This indicates that organizations highly prioritize regulatory transparency and assurance when considering investments in NCS carbon credits. Furthermore, the presence of a functioning voluntary carbon market (57%), the cost-effectiveness of purchasing credits (54%) and the availability of diverse high-quality projects (46%) are also highlighted as key drivers (see Figure 7).

When it comes specifically to NCS carbon credits, the biggest driver for increased investments would be the presence of clear and supportive policies regarding claims (84%), combined with the assurance of measurable and verifiable carbon reductions (75%). This indicates that organizations highly prioritize regulatory transparency and assurance when considering investments in NCS carbon credits. Furthermore, the presence of a functioning voluntary carbon market (57%), the cost-effectiveness of purchasing credits (54%) and the availability of diverse high-quality projects (46%) are also highlighted as key drivers (see Figure 7).

Additional comments provided by respondents re-emphasize the importance of awareness, policy clarity, collaboration and equitable benefit-sharing in promoting private sector investments in NCS. Specific recommendations from respondents highlight the role of government support, education, strategic partnerships and the removal of restrictions in accelerating NCS initiatives within the private sector.
3. Recommendations for tackling barriers to unlock greater investment in NCS

Key recommendations to boost investment include clarity on regulations and standards, greater procedural support from government, a pipeline of high-quality projects and sector-specific business cases to help companies go beyond CSR.

What emerges from the analysis contained in this report is that the drivers of NCS investments in India may be shifting or rather expanding. Until now, most investments in NCS came from corporate social responsibility projects – in many cases as a way to improve the livelihoods of communities living around factories or as mandatory compliance investments for companies with significant land-use footprints. They were not initiated with the intention to offset emissions or to sell carbon credits.

Now, however, with more companies establishing their climate and sustainability strategies, there is an appetite to better understand how NCS can contribute to net-zero goals. Consequently, companies are interested in seizing the opportunities represented by NCS carbon credits and other voluntary market-based schemes (such as the GCP), provided there are clear guidelines for implementation, backed by strong enough incentives.

There is an opportunity to help close the gap in NCS investments by unlocking greater private finance towards these goals. But to do so will require addressing the barriers that have been highlighted by corporates. Table 1 groups these barriers into four categories in order of priority, along with associated recommendations. Each category is then discussed in more detail below.

Table 1: Business recommendations to unlock investments in natural climate solutions (NCS) in India

<table>
<thead>
<tr>
<th>Clarity on regulations, standards, certifications and compliances will boost investment</th>
<th>Collaboration and procedural support from the government will lead to large-scale impact</th>
<th>High-quality projects with strong measurement, reporting and verification (MRV) will help build confidence for investment and impact</th>
<th>Sector-specific business cases will help corporates go beyond CSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Regulatory frameworks need to be better defined.</td>
<td>- Land availability is the biggest challenge - clarity on availability through a repository would drive investment</td>
<td>- Projects with clear environmental and social outcomes are needed.</td>
<td>- Every sector has a different dependency on natural resources and ecosystem services.</td>
</tr>
<tr>
<td>- Clarity on the use of credits generated through corporate social responsibility (CSR) investments is needed.</td>
<td>- Procedural support on modalities of engagement will help forge strong, functional and trusted partnerships.</td>
<td>- Impact assessment tools will build more confidence.</td>
<td>- Strong business cases with transition pathways keeping NCS at the centre will attract more investment beyond CSR.</td>
</tr>
<tr>
<td>- Green Credit Program (GCP): Clear guidelines, operational protocols and a transparent credit issuance mechanism would help build trust in the system and boost private investment.</td>
<td>- More corporates and partners would be willing to engage if there were clear policies on land availability.</td>
<td>- High-quality carbon projects are scarce, while data on carbon sequestered and livelihoods generated is essential.</td>
<td>- This requires greater corporate awareness of the material risks of nature loss and the business opportunities presented by NCS investments.</td>
</tr>
</tbody>
</table>
3.1 Clarity on regulations and standards

Issues around claiming carbon credits under existing policies
One of the areas that requires clarification is the relevance and applicability of existing policy instruments related to the issuance and claiming of carbon credits (e.g. voluntary carbon market) and upcoming schemes (e.g. Green Credit Program and domestic carbon market). For example, when it comes to the government’s Compensatory Afforestation Fund Management and Planning Authority (CAMPA), the afforestation and restoration undertaken are to compensate for forest loss and are mandated by law. They are therefore not considered additional and corporations cannot claim carbon benefits resulting from these against their corporate net-zero targets.

Similarly, for projects under the green belt regulations that require companies to plant a buffer zone of trees around industrial activities: although these trees may not necessarily be a replacement for existing forests, the plantations involved are still deemed to be non-additional, since they are mandated by law and cannot therefore yield carbon credits for companies.

In the case of corporate social responsibility investments, there is widespread agreement that using CSR funds to develop an NCS project that delivers carbon credits to meet corporate net-zero or emissions reduction targets is not tenable under the current regulations. The rationale is that CSR can be treated as a philanthropic mode of funding NCS projects, which typically benefit the communities involved. The generation of certified credits could offer an additional revenue stream for the community, thereby enhancing livelihoods along with the project’s longevity. However, companies would not be entitled to claim the corresponding carbon credits.

Ways companies can procure high-integrity carbon credits
So at present, Indian companies interested in using NCS carbon credits towards their net-zero targets can do so only via the global voluntary carbon market (VCM). This allows emitters to supplement the pace of emissions reductions in their own operations and value chains by purchasing (or selling) high-integrity carbon credits. Voluntary carbon markets trade in carbon credits outside the compliance market, with private certifying agencies such as Verra and Gold Standard that have developed NCS methodologies. Three types of emissions reduction carbon units are commonly developed in NCS: reduced emissions, avoided emissions and removed emissions. Over the years, VCM has been discredited to some extent for the quality of projects and its impact on the ground because of the lack of transparency leading to mistrust in the system.

“At present, Indian companies interested in using NCS carbon credits towards their net-zero targets can do so only via the global voluntary carbon market.”

Comprehensive guidance on how to procure high-integrity carbon credits via the voluntary carbon market is available. In particular, the Natural Climate Solutions Alliance – a collaboration between the World Economic Forum and the World Business Council for Sustainable Development – has issued A Buyers’ Guide to Natural Climate Solutions Carbon Credits. This guide takes users through each of the steps required, which include: integrating carbon credits into their sustainability strategy; establishing the right criteria for NCS projects; identifying corresponding sources of credits; conducting due diligence; purchasing credits; reporting and making credible claims.

Companies may also choose to develop their own projects to generate carbon credits and guidance is available on developing such voluntary carbon market projects.

When it comes to claims, there is a global consensus that for companies to make a claim associated with counterbalancing annual unabated emissions, these should comply with the following two overarching principles developed by the World Resources Institute:
1. Credits must ensure environmental integrity and represent nature-based solutions (NBS) that respect the rights and livelihoods of Indigenous people and local communities while safeguarding biodiversity.

2. An organization should be on a mitigation pathway aligned with limiting warming to 1.5°C and its use of NBS credits must supplement, not reduce, the pace of emissions reductions in its own operations and value chains.

**How the Green Credit Program will work**

With respect to nascent policy schemes, the Indian government’s Green Credit Program (GCP) is attracting considerable interest. The green credits under this scheme are expected to be fungible across sectors (e.g. water, afforestation etc.). For tree-based green credits, the minimum size of a project is 100 trees, with a minimum density of 100 trees per hectare. For small landholders, self-certification with geotagged photos as evidence is acceptable for project certification and green credit issuance.

Calculations under GCP will be based on the survival and growth of the tree and not the biomass and the carbon sequestered. Advanced geospatial analysis and third-party sampling on a random basis will be conducted as part of the MRV process. For large projects conducted by companies or institutions, a designated agency will be appointed to verify and validate the project activities’ credit issuance requests.

In terms of the relationship with the carbon market, while the GCP allows project developers to register the projects for carbon credits, challenges may arise as the major voluntary carbon standards tend not to allow projects to claim or “stack” environmental credits in addition to carbon credits. It is expected that when forestry becomes part of the national carbon market of India, projects will then be able to generate both green credits and carbon credits. However, these will fall under the compliance market and companies will therefore not be able to use these against their net-zero targets. Planning is underway that may create corporate mandates for green credits themselves.

In summary, the following flowchart presents some of the key channels through which a corporation may choose to invest in NCS, depending on its industry sector, as well as its sustainability and net-zero strategies. Note that this flowchart is not intended to be comprehensive (see Figure 8).
3.2 Collaboration with government

The development of frameworks and ways of partnering between public, private and local community actors would greatly facilitate corporate investments into NCS. Such ways of working should cover different arrangements depending on land ownership, offer clear pathways for how the private sector can engage, and provide guidance on the kinds of benefits that companies can derive from such partnerships.

This is of particular importance on forest land, when it comes to afforestation or restoration of degraded areas. In these settings, further clarity provided by the government – with respect to the interplay between restoration, carbon credits and associated claims and benefit-sharing, as well as for investment into non-timber forest product value chains and wood extraction – would facilitate public-private partnerships and private sector investment.

Clarity around how partnerships with government should work is also needed in relation to wetlands restoration as well as for providing demarcated areas for the Green Credit Program. Annex III provides more specific recommendations related to different policy instruments, highlighting the importance of clear partnership frameworks.

3.3 Sourcing high-quality projects with strong MRV
Globally, increased scrutiny of projects as well as concerns about the integrity of climate change mitigation outcomes has been pushing the entire field towards greater quality and accountability. At the same time, rapidly evolving technology (e.g. geo-spatial data, drone capture of geotagged information, AI-enabled analysis) is making it possible to monitor project metrics with ever greater accuracy (see Box 2).

In this context, the methodologies of major certification bodies are evolving to ensure greater integrity and accuracy. Similarly, a number of global guidelines have been put forward to support companies in ensuring they are sourcing projects of high integrity. Companies can find further guidance from, for example, the Core Carbon Principles developed by the Integrity Council for the Voluntary Carbon Market and (for mangrove projects) the High-Quality Blue Carbon Principles and Guidance, among others.

Box 2: Monitoring, reporting and verification (MRV) of NCS

Robust MRV of NCS projects is critical for companies to obtain and showcase verified benefits arising from their investments. Triangulation and assurance of MRV data need to be carried out to eliminate bias, remove errors and improve quality and credibility of the findings. MRV may need to include ecological, social and economic data assessments to measure climate, biodiversity, climate resilience, community development and similar benefits. The system must include use of advanced digital tools, such as geospatial analysis, mobile devices etc., accompanied by protocols for physical assessment and interaction with stakeholders. The system should also be cost-effective and operate at different scales.

While carbon credit projects, operating through standards, have developed MRV systems, other NCS projects lack standard guidance. Minimum standards for reporting across activities such as tree planting, watershed development and biodiversity conservation need to be adopted by industry. These standards should ensure cost-effective and transparent data collection and reporting at suitable periodicity.

Industry associations and the Indian government can play a key role in the creation and standardization of MRV principles. There are examples of this from other areas such as financial reporting and safety reporting. On the sustainability front, the Securities Exchange Board of India (SEBI) has created the mandatory business responsibility and sustainable reporting (BRSR) standards for the top 1,000 listed companies – a pioneering initiative. This institutional experience could be extended to include reporting on NCS projects.

3.4 Strengthening the business case

As this report has shown, most companies still feel uncertain about the returns on investment for NCS projects, particularly given high upfront costs which do not align with short-term financial priorities. However, as the material risks to businesses of their nature dependencies start to become better understood and factored into decision-making, NCS investments will soon appear as key opportunities to deliver business resilience, particularly for the most exposed sectors. In this context, front-runners will be able to seize these opportunities and direct their companies towards a sustainable trajectory, ensuring continued operations and customer loyalty. This will require greater awareness-raising and understanding of the role and impact of ecosystem services and NCS investments for core business operations.

“NCS investments will soon appear as key opportunities to deliver business resilience, particularly for the most exposed sectors.”
In parallel, policy developments that will either require greater NCS investments on the part of corporations (e.g. as part of carbon credit compliance markets), or incentivize such investments (e.g. through a development of the Green Credit Program) can help to make the business case stronger and expand these investments beyond CSR budgets.

Table 3 outlines sector-specific risks and recommendations for how NCS investments can benefit businesses in different industries.

### Table 3: Sector-specific risks and NCS recommendations

<table>
<thead>
<tr>
<th>Sector</th>
<th>Nature-related risks</th>
<th>Natural climate solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture</strong></td>
<td>Diminishing populations of birds and insects that support agriculture.</td>
<td>Native trees and grassland development to create essential breeding and nesting habitats.</td>
</tr>
<tr>
<td></td>
<td>Soil erosion can degrade soil quality and reduce agricultural productivity.</td>
<td>Grassland restoration; agroforestry; improved water and irrigation management; fertilizer application; crop residue management.</td>
</tr>
<tr>
<td><strong>Renewable energy</strong></td>
<td>Requirement for water resources to facilitate the cleaning of solar panels in solar energy installations.</td>
<td>Freshwater ecosystem restoration and conservation (e.g. wetlands, lakes, ponds).</td>
</tr>
<tr>
<td></td>
<td>Accumulation of dust or particulate matter on solar panels can reduce their efficiency.</td>
<td>Ecosystem restoration (e.g. grasslands, dust abatement, native flora).</td>
</tr>
<tr>
<td></td>
<td>Introduction and management of invasive species.</td>
<td>Ecosystem restoration (e.g. wetlands, lakes, ponds, reservoirs, grasslands).</td>
</tr>
<tr>
<td><strong>Oil and natural gas</strong></td>
<td>Draining of large amounts of water from localized areas can deplete water reserves.</td>
<td>Freshwater ecosystem restoration and conservation (e.g. wetlands, lakes, ponds).</td>
</tr>
<tr>
<td></td>
<td>Vegetation loss can disrupt local species through habitat fragmentation, altering behaviour and reducing ecological integrity of systems.</td>
<td>Terrestrial ecosystem restoration (e.g. forests, grasslands).</td>
</tr>
<tr>
<td><strong>Metal and mining, and cement</strong></td>
<td>Mining can harm local ecosystems, leading to regulatory challenges.</td>
<td>Terrestrial ecosystem restoration (e.g. forests, grasslands)</td>
</tr>
<tr>
<td></td>
<td>Water shortages can disrupt operations.</td>
<td>Freshwater ecosystem restoration and conservation (e.g. wetlands, lakes, ponds).</td>
</tr>
<tr>
<td><strong>Manufacturing</strong></td>
<td>Dependency of supply chain on nature to obtain raw materials, such as wood, water, rubber and other natural materials.</td>
<td>Ecosystem restoration (e.g. forests, wetlands, ponds, lakes, reservoirs, grasslands).</td>
</tr>
<tr>
<td></td>
<td>Floods – many manufacturing units are located on low-lying areas, riverbanks and coastal regions prone to flooding.</td>
<td>Conservation and restoration of freshwater ecosystems (e.g. wetlands, lakes, ponds) and mangroves.</td>
</tr>
<tr>
<td><strong>Banking and investment</strong></td>
<td>Investment portfolios can be vulnerable to climate and nature-related risks.</td>
<td>Offer green or sustainable investment opportunities to organizations that are managing and disclosing their impacts and dependencies on nature progressively.</td>
</tr>
<tr>
<td><strong>Auto and auto components</strong></td>
<td>Dependency on nature for water-use in various manufacturing processes.</td>
<td>Conservation and restoration of freshwater ecosystems (e.g. wetlands, lakes, ponds) and mangroves.</td>
</tr>
<tr>
<td></td>
<td>Floods – many manufacturing units are located on low-lying areas, riverbanks and coastal regions prone to flooding.</td>
<td>Ecosystem restoration (e.g. forests, wetlands, ponds, lakes, grasslands).</td>
</tr>
</tbody>
</table>
### 3.5 The way forward: unlocking private sector investment into NCS

In closing, Table 4 presents recommendations for government agencies, policy-making entities and businesses to stimulate the widespread adoption of natural climate solutions by the private sector for investment and to facilitate governmental support for conservation and ecosystem restoration in line with the country’s international climate, biodiversity and land restoration commitments.

**Table 4: Unlocking private sector investment into NCS in India**

<table>
<thead>
<tr>
<th>Project stages</th>
<th>Enabling factors</th>
<th>Government, policy-makers and advocacy bodies</th>
<th>Private sector</th>
</tr>
</thead>
</table>
| Strategy and planning | • Regulatory framework and guidelines enabling investment.  
• Strengthen business case focusing on NCS. | • Establish standardized protocols for generating NCS credits in India, ensuring alignment with international carbon market schemes to facilitate seamless transfer and financial incentives.  
• Address factors such as carbon accounting methodologies, project verification standards, land tenure and rights, biodiversity protection, and community engagement in guidelines.  
• Create knowledge-sharing platforms to deal with information asymmetry and create awareness and understanding of existing instruments.  
• Converge policies and instruments between sectors at state and federal levels (e.g., agriculture, forestry). | • Integrate NCS into core sustainability and climate strategies by setting clear targets and reporting on NCS initiatives in annual sustainability and ESG reports, moving beyond CSR-driven investments.  
• Invest in NCS through voluntary schemes such as the Green Credit Program, leveraging existing programmes like tree-plantation-based carbon credits.  
• Make long-term investments to ensure impact on the ground and return on investment. |
| Implementation | • Ready inventory of high-quality projects.  
• Collaboration with government and community to ensure land availability and procedural support. | • Create frameworks for public-private partnerships, for example in support of wetland conservation, wildlife corridors and afforestation under the Forest (Conservation) Act; investments into non-timber forest product (NTFP) value chains; and other effective area-based conservation measures (EABCMs) under respective policies.  
• Identify and demarcate areas for implementing voluntary environmental action.  
• Recognize industry practices for sustainable supply chain management in forest and agriculture areas resulting in greater resilience to climate change and reversing nature loss. | • Create carbon sinks using NCS for adaptation and resilience both within and beyond sites of operations and value chains, by collaborating with local authorities.  
• Collaborate with local government bodies and communities to build trust and create value for business, nature and people.  
• Invest in tech for nature and innovations for effective implementation. |
| Impact | • Tested, accepted and transparent MRV frameworks and tools. | • Industry associations and the government could play a key role in the creation and standardization of MRV principles. | • Implement clear and transparent reporting mechanisms, including online tracking and reporting capabilities, to boost accountability and transparency in NCS projects.  
• Share best practices and success stories, to inspire other companies and facilitate knowledge exchange. |
Conclusion

Tackling climate change and nature loss is a high-stakes opportunity for India, with nearly a third of its land degraded and a potential 10% hit to GDP at 3 degrees of warming. Now is the moment for public and private sectors to join forces in boosting investment in NCS.

The analysis presented in this report reflects a paradigm shift in the drivers of NCS investments in India. An increasing number of companies are incorporating NCS into their climate and sustainability strategies and have recognized the business case. This shift holds the promise of not only addressing environmental challenges but also fortifying the business case for sustainability.

The current appetite among businesses to comprehend how NCS can contribute to net-zero goals is at a critical juncture. Companies are exploring opportunities presented by NCS carbon credits and voluntary market-based schemes such as India’s Green Credit Program, while also looking for clear regulatory frameworks, incentives and avenues for public-private partnerships. This shift presents an opportunity to bridge the funding gap in NCS and mobilize greater private finance towards sustainability goals.

The urgency to address climate change and biodiversity loss is underscored by the potential economic fallout of failing to act. Half the global economy (around $44 trillion) is at risk from nature loss, making NCS a critical strategy in fortifying the world’s socio-economic systems. In this context, India assumes a central role, facing potential annual GDP losses of 3% at 1°C of global warming, escalating to a daunting 10% at 3°C. The stakes are high, with long-term implications for national poverty rates and the well-being of millions. Additionally, nearly 30% of land in India is considered degraded, with 9% suffering from vegetation degradation that threatens food security.

Given this backdrop, NCS emerge as a comprehensive solution, offering a strategic focus on safeguarding, conserving, restoring and sustainably managing terrestrial, freshwater, coastal and marine ecosystems for people and the planet.

As the findings of this report make clear, private sector engagement in NCS is not just a financial investment but a commitment to the broader vision of sustainability. However, realizing the full potential of private sector investment in NCS demands a collaborative approach. To unlock this potential, policy-makers, businesses and civil society must collaborate to ensure that NCS become an integral part of the journey towards a sustainable future.

In conclusion, this report not only sheds light on the evolving landscape of NCS investments in India but also serves as a blueprint for action. It calls for immediate policy directives, public-private dialogue and concerted efforts to translate its findings into tangible actions. The journey ahead involves not just acknowledging the potential of NCS but actively harnessing it to forge a path towards environmental resilience, economic sustainability and social well-being. The time for action is now: through collective action with government, the private sector can pave the way for a future where nature and people thrive in harmony.
## Annexes

### Annex I: Policy instruments driving investment into NCS

<table>
<thead>
<tr>
<th>Instruments</th>
<th>Objectives</th>
<th>Agencies &amp; regulations involved</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Compensatory Afforestation Fund Management and Planning Authority (CAMPA) | Promote afforestation and restoration activities to compensate for forest lands diverted to non-forest uses. | - State CAMPA  
- National CAMPA of the Ministry of Environment, Forest and Climate Change (MoEFCC)  
- Compensatory Afforestation Fund (CAF) Act, 2016 | The government of Arunachal Pradesh carried out afforestation programmes in over 16,000 hectares of the state under the CAMPA scheme.\(^\text{34}\) |

| Green belt | Minimize the environmental impact and pollution caused by industrial activities via developing a green canopy belt. | - Central Pollution Control Board  
- MoEFCC  
- Forest (Conservation) Act, 1980  
- Environment (Protection) Act, 1986  
- National Forest Policy, 1988  
- Forest Conservation Rules, 2003  
- Environmental Guidelines for Industries  
- Environment Management Plan | Creation of green belts around two plants of Bharathi Cements.\(^\text{35}\) |

| Corporate social responsibility (CSR) | Integrate social and environmental concerns into the operations of corporations. | - Ministry of Corporate Affairs  
- Section 135 and Schedule VII of Companies Act, 2013 | Many NCS projects arise through CSR investments – see Box 1: Hariyali Project. |

| Voluntary carbon markets | Allow carbon emitters to offset their carbon emissions by purchasing/selling carbon credits. | - Carbon certification agencies (e.g. Verra, Gold Standard, Plan Vivo)  
- Article 6 of the Paris Agreement | Agricultural land management project in Beed district, India, implemented by Godrej Properties.\(^\text{36}\) |

| Green credits | Encourage voluntary environmental projects among public and private sector entities by creating, buying & selling credits. | - Green credit registry, to be managed by the Indian Council of Forestry Research and Education (ICFRE) | |

| Payments for ecosystem services (PES) | Monetize the services provided by ecosystems, so those maintaining ecosystems are financially incentivized by users. | - Ecosystem maintainers (sellers)  
- Buyer entities  
- Facilitating organizations (e.g. credible NGOs) | PES agreement between Palampur Municipal Corporation in Himachal Pradesh and the Village Forest Development Society (VFDS).\(^\text{37}\) |
## Annex II: National commitments by sector, associated policies and relevance for NCS investments

<table>
<thead>
<tr>
<th>Sectors identified</th>
<th>National commitments</th>
<th>Sector-related policies, strategies and initiatives</th>
<th>NCS actions</th>
<th>Relevance for NCS*</th>
</tr>
</thead>
</table>
| **Forestry**                            | Create an additional (cumulative) carbon sink of 2.5-3.0 Gt CO$_2$e through additional afforestation by 2030. | - National Forest Policy (NFP), 1988  
- Joint Forest Management (JFM)  
- Biological Diversity Act, 2002  
- Scheduled Tribes and Other Traditional Forest Dwellers Act, 2006 (commonly known as Forest Rights Act, 2006)  
- Draft National Forest Policy, 2018  
- National Afforestation Programme (NAP)  
- Green India Mission (GIM)  
- Compensatory Afforestation Fund Management and Planning Authority (CAMPA)  
- Aravalli Green Wall project  
- National Mission for Himalayan Studies (NMHS)  

Ecological Fiscal Transfers (EFTs): the 14th and 15th Finance Commissions incorporated forest cover figures in the calculation of tax devolution to the states, with the 15th Commission increasing the weightage of ‘very dense’ or ‘moderately dense’ forest cover to 10%, from 7.5% used by the preceding Commission.  

| **Biodiversity and landscape conservation** | Conserve and protect 30% of landscapes and seascapes under Global Biodiversity Framework (GBF). | - Biological Diversity Act, 2002  
- National Biodiversity Action Plan  
- Wildlife Protection Act  
- Project Tiger  
- Project Elephant  
- Amrit Dharohar  
- Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI) | Protect, manage and restore | High |
| **Agriculture**                          | Doubling farmer’s income.                                                             | - National Food Security Mission  
- Rashtriya Krishi Vikas Yojana (RKVY)  
- Integrated Schemes on Oilseeds, Pulses, Palm Oil and Maize (ISOPOM)  
- Pradhan Mantri Fasal Bima Yojana  
- E-marketplace | Manage and restore | Medium |
<table>
<thead>
<tr>
<th>Bioenergy</th>
<th>Increase share of non-fossil fuel-based energy resources to 40% installed electric power capacity by 2030.</th>
<th>Manage</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- National Solar Mission</td>
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<td></td>
<td>- FAME India (Faster Adoption and Manufacturing of (Hybrid &amp; Electric Vehicles in India)</td>
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<td></td>
<td>- KUSUM (Kisan Urja Suraksha evam Utthan Mahabhiyan) scheme for farmers</td>
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<td>- Bharat emission norms VI</td>
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<td></td>
<td>- GRIHA (Green Rating for Integrated Habitat Assessment) building code</td>
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<tr>
<td>Waste management and pollution abatement</td>
<td></td>
<td>Manage</td>
<td>Low</td>
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<tr>
<td></td>
<td>- Waste management rules</td>
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<td></td>
<td>- EPR (Extended Producer Responsibility) for e-waste</td>
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<td></td>
<td>- Regulation on legacy waste under Swach Bharat Mission</td>
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<tr>
<td>Water resources and conservation</td>
<td></td>
<td>Manage and restore</td>
<td>Medium</td>
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<tr>
<td></td>
<td>- Ministry of Jal Shakti initiatives</td>
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<tr>
<td></td>
<td>- National Water Policy</td>
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<td>- National Water Mission</td>
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<td></td>
<td>- Water Framework Law (Draft)</td>
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<td>- Model Groundwater Bill (Draft)</td>
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<td>- Dam Safety Bill</td>
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<td></td>
<td>- Interstate Water Disputes Amendment Bill</td>
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<td></td>
<td>- National Water Policy (NWP), 2012</td>
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<td></td>
<td>- Namami Gange, Project Dophin etc.</td>
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<td></td>
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<tr>
<td>Environmental education</td>
<td></td>
<td>Protect, manage and restore</td>
<td>High</td>
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<tr>
<td></td>
<td>- LiFE Mission</td>
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<tr>
<td>Environmental research</td>
<td></td>
<td>Manage</td>
<td>Low</td>
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<tr>
<td></td>
<td>- Map funds of research in CES and other agri-institutes</td>
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<tr>
<td>Urban greening and sustainable cities</td>
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<td></td>
<td>- Smart City Mission</td>
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<td></td>
<td>- Jawaharlal Nehru National Urban Renewal Mission (JNNURM)</td>
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<td>- Atal Mission for Rejuvenation and Urban Transformation (AMRUT)</td>
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<td>- Pradhan Mantri Awas Yojana (PMAY)</td>
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<td>- Heritage City Development and Augmentation Yojana (HRIDAY)</td>
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<td>- Deen Dayal Antyodaya Yojana</td>
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<tr>
<td>Disaster management, mitigation and adaptation</td>
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<td></td>
<td>- Disaster Management Act 2005</td>
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<td></td>
<td>- National Policy on Disaster Management, 2009</td>
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<td></td>
<td>- National Disaster Management Plan</td>
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<td></td>
<td>- National Disaster Management Authority (NDMA)</td>
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</tr>
</tbody>
</table>
### Market-based instrument developments for financial mobilization

- Carbon Markets Under Energy Conservation Bill
- Sovereign Green Bonds Framework
- Green Credit Program

### Public finance

- EFTs
- Map percentage of total budget into missions under NAPCC (National Action Plan on Climate Change)
- Map negative subsidies (agricultural subsidies – power, fertilizers etc.)

*Relevance score based on NCS principles – high for all three; medium for two; low for one; none if zero.*
## Annex III: Policy recommendations

<table>
<thead>
<tr>
<th>Policy</th>
<th>Present NCS provisions</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Green Credit Program, 2023</strong></td>
<td>Tree plantation, water conservation, sustainable agriculture, mangrove conservation and restoration are identified as market-based approaches for green credit to incentivize environmental actions of various stakeholders.</td>
<td>Identify and demarcate areas for implementing these voluntary environmental actions.</td>
</tr>
<tr>
<td><strong>Wetlands (Conservation and Management) Rules, 2017 under EPA, 1986</strong></td>
<td>Conservation and management of wetlands of international importance (75 wetlands) under the provisions of the Convention on Wetlands (Ramsar Convention). Wetlands notified under the rules by the central government, state government and Union Territories administration (1199 Wetlands).</td>
<td>Develop an ecosystem for public-private partnerships for wetland conservation.</td>
</tr>
<tr>
<td><strong>India’s Nationally Determined Contributions (NDCs)</strong></td>
<td>Creation of an additional carbon sink of 2.5 to 3.0 billion tonnes of CO$_2$e by 2030.</td>
<td>Partnership with industry for afforestation on demarcated areas, with undertaking not to convert grasslands, wetlands or other habitats for afforestation.</td>
</tr>
<tr>
<td><strong>Wildlife (Protection) Act, 1972</strong></td>
<td>Protected areas network, biodiversity conservation, habitat preservation, environmental impact assessment, conservation initiatives.</td>
<td>Develop business partnerships to restore and conserve wildlife corridors, support species conservation and engage in other effective area-based conservation measures (OECMs).</td>
</tr>
</tbody>
</table>
| **Forest (Conservation) Act, 1980** | Afforestation and reforestation. | Developing multi-stakeholder partnership models for afforestation:  
- Protected afforestation/reforestation with carbon credits to investing industry.  
- Afforestation/reforestation with only extraction of NTFPs (non-timber forest products) and carbon credits to investing industry.  
- Afforestation/reforestation with 50% protection and 50% for wood extraction as per forest management plan for the investing industry. |
| **Biological Diversity Act, 2002** | Access to and benefit sharing for commercial utilization of biological resources are promoted under the act for sustainable management of biodiversity. | Recognition of industry practices for sustainable supply chain management in forest and agriculture areas, resulting in building resilience to climate change and addressing nature loss. |
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Jonathan Walter, Editor

Bianca Gay-Fulconis, Designer
Endnotes


8 An “additional” change in the context of carbon emissions pertains to the emission reductions or removals caused by a new intervention in a particular context, the benefits of which would not be received or realized if it were not for the activities of that intervention.


The land use, land-use change and forestry (LULUCF) sector is a subset of AFOLU (agriculture, forestry and other land uses). Both are categories of activities defined by the IPCC in the context of emissions accounting. LULUCF excludes agriculture-related emissions.

Singh, R., We need a sustainable food and land use system for India, Business India, 6 June 2020, https://businessindia.co/climatechange/we-need-a-sustainable-food-and-land-use-system-for-india.

Mathur, A. et al., Will India attain its forestry NDC target of achieving 2.5–3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030? The Energy and Resources Institute (TERI), January 2021, https://www.teriin.org/policy-brief/will-india-attain-its-forestry-ndc-target-achieving-25-3-billion-tonnes-co2-equivalent.


India’s Carbon Credit Trading Scheme, 2023 (CCTS 2023) was notified by the Government of India on 28 June 2023 under the Energy Conservation Act, 2001, to develop the country’s first-ever domestic carbon market. The draft paper for consultation has been released. It is scheduled to be operational by the end of 2024 but there are no definite timelines.


The Green Credit Program (GCP) was announced by the Prime Minister of India during COP 28. Two rounds of notifications are out, but operational details will take longer. There is no set timeline but the GCP is likely to be operational by the end of 2024.

This total is an estimate using an average sequestration potential for a mature tree of 25kg CO2e/tree/year for trees above 10 years of age.

Agri-horti-forestry is an agroforestry approach that integrates horticulture into the farming system. See for example: https://baif.org.in/what-we-do/Agri-horti-forestry/.


30 Guidance can be found in the following references:


36 Verra, Agricultural land management project in Beed district, India implemented by Godrej Properties Ltd., https://registry.verra.org/app/projectDetail/VCS/1704.
