

GAIL (India) Limited

**Impact Assessment Report on Support for
5000 metallic tree guard to district
administration in Varanasi, Uttar Pradesh
(FY 19-20 & 20-21)**

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1.1 Executive Summary

Biodiversity, as defined by the 1992 Convention on Biological Diversity, refers to the variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.

We are living in a world where technology and innovation is at its peak and while adapting to such advancements is the way ahead in life, one also has to recognize and be aware of the climate change crisis the planet is facing due to human activities. The climate crisis is an accumulated misfortune associated with exploitation of biological resources, overutilization of energy sources and combustion of harmful gases, etc.

Being a mega-biodiverse nation, India plays a significant role with regards to its contribution to the world's biological diversity. By aligning with international conventions, agreements and treaties, India gradually worked upon its commitment for protection and conservation of biodiversity and natural resources. Thereafter, since 2002, the nation has accounted for significant contributions made towards protection of our natural habitat. The conservation plans and mitigation strategies are implemented keeping in mind the ever-evolving changes taking place in our surroundings. Understanding the gravity of the situation, the nation has seen active involvement in biodiversity protection at all levels including government, judiciary, professionals, activists/ researchers, etc. For India, conservation of biological diversity is essential for various reasons, especially since it provides for the livelihood of people and assists with alleviation of poverty.¹

India accounts for 7-8 percent of the world's biodiversity with 2.4 percent of the Earth's surface area. This contribution may be attributed to the presence of the vast variety of genetic as well as plant & animal species alongside other natural resources, which have been and continue to be utilized to the extent of exploitation to gain commercial benefits. While the loss of biodiversity is a natural process, the over-utilization of resources by human beings has rapidly increased, so much so that it has led to the extinction of many distinct species and genetic resources. For decades now, unregulated urbanization, the swift increase in industrialization and other human activities resulted in consequential damage to the environment. This deterioration of the ecosystem led to the constitution of a legal statute, focused on the restoration and survival of the biological diversity in India.²

¹ <https://www.mondaq.com/india/diversity-equity--inclusion/1159608/india--its-biodiversity-laws--is-it-enough#:~:text=Being%20a%20mega%2Dbiodiverse%20nation,of%20biodiversity%20and%20natural%20resources>.

² <https://www.mondaq.com/india/diversity-equity--inclusion/1159608/india--its-biodiversity-laws--is-it-enough>

India is a signatory to several major international conventions relating to conservation and management of wildlife. Some of these are Convention on Biological Diversity, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on the Conservation of Migratory Species of Wild Animals etc. Financial and Technical assistance is provided to State/Union Territory Governments for protection and Management of Protected Areas as well as other forests under various Centrally Sponsored Schemes. India is one among the 17 mega-diverse countries of the world. But many plants and animals are facing the threat of extinction. To protect the critically endangered and other threatened animal and plant species, Government of India has adopted many steps, laws, and policy initiatives.³

Furthermore, the UN Convention on Biological Diversity Secretariat released a new structure called the Global Framework for Managing Nature Through 2030 to facilitate a Paris-style UN agreement focused on issues related to biological diversity and the plan of action to effectively preserve and protect nature and its resources. The newly introduced framework aims to enhance the urgent and transformative action by Governments and the entire society, including indigenous people and local communities towards mitigation of risks pertaining to biodiversity.⁴

The state of Uttar Pradesh has a total green cover of 6.15%, whereas the target district Varanasi has only 3-5% green cover. ⁵However, according to the standard, it should be 33%, or one-third of the total area. Given this scenario, there is a requirement for the protection of green cover and the gradual increase in green area will support India's NDC i.e. creation of additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030.⁶

GAIL (India) Limited, as a socially conscious public sector organization, recognizes the importance of protection of trees and the environment and has contributed by supplying and installation of 5000 metallic tree guards in Varanasi, Uttar Pradesh at various locations across the district to improve protection of trees. GAIL worked with the U.P. Small Industries Corporation Limited (UPSICL) in accordance with the thematic areas as mentioned in Schedule VII of the Companies Act, 2013.

GAIL CSR responded to the need by contributing to the problem and helping in the provision of a sufficient number of metallic tree guards for several areas, thus widening the reach of the initiative and helping to improve maintenance and condition of trees in several locations of the districts. Due to the installation of tree

³ <https://www.clearias.com/biodiversity-protection-steps-taken-by-indian-government/>

⁴ & ⁴ <https://www.mondaq.com/india/diversity-equity--inclusion/1159608/india--its-biodiversity-laws--is-it-enough#:~:text=Being%20a%20mega%2Dbiodiverse%20nation.of%20biodiversity%20and%20natural%20resources.>

⁶ <https://fsi.nic.in/uploads/documents/technical-information-series-vol1-no3-16-06-2019.pdf>

guards, all the stakeholders recognized that the initiative aided in ensuring efficient protection of green cover.

GAIL (India) Limited enlisted KPMG to carry out an impact assessment study in order to assess the project's impact and comprehend the perception of the stakeholders. To understand the goal and scope of the project, stakeholder consultations and a review of the team's documents and data were conducted. Following a desk review, the programme team helped identify and finalize key performance indicators. The OECD-DAC (Organisation for Economic Co-operation and Development- Development Assistance Committee) framework was utilised for developing research tools (questionnaires for qualitative surveys) and evaluating the impact created for this study.

1.2 Introduction

1.2.1 CSR at GAIL

GAIL (India) Limited, conferred with the status of Maharatna in 2013, is India's leading natural gas company with diversified interests across the natural gas value chain of trading, transmission, LPG production, LNG- regasification, petrochemicals, city gas, etc. It owns and operates a network of around 14617 km of natural gas pipelines spread across the length and breadth of country. GAIL firmly believes that meeting people's needs, enhancing communities, and safeguarding the environment will ultimately determine how long progress can be sustained.

Pursuant to the provisions of the Companies Act, 2013 and rules made thereunder including the statutory modifications/ amendments from time to time as notified by the Government of India, GAIL (India) Limited earmarks two percent of its average net profit of the preceding three financial years towards achieving its CSR objectives through implementation of meaningful and sustainable CSR programmes.

1.2.2 GAIL CSR Vision

GAIL, through its CSR initiatives, will continue to enhance value creation in the society and in the community in which it operates, through its services, conduct & initiatives, so as to promote sustained growth for the society and community, in fulfillment its role as a Socially Responsible Corporate, with environmental concern.

1.2.3 GAIL CSR Objectives

- Ensure an increased commitment at all levels in the organization, to operate its business in an economically, socially & environmentally sustainable manner, while recognizing the interests of all its stakeholders.
- To directly or indirectly take up programmes that benefit the communities in & around its work centres and results, over a period of time, in enhancing the quality of life & economic well-being of the local populace.
- To generate, through its CSR initiatives, goodwill, and pride for GAIL among stakeholders and help reinforce a positive & socially responsible image of GAIL as a corporate entity.

1.2.4 About the project/programme

Trees are the most benevolent givers in nature. They play an extremely important role in giving life and sustaining it, as a whole, as well as maintaining a balance in the eco-system. This makes it crucial for us to understand how significant trees are to our life on earth and what we can do to counter the problem of their depleting numbers and all the additional challenges that come with it. Trees play an extremely important part in regulating the temperature and making the weather conditions conducive to rainfall. They take in carbon dioxide from the air, thereby purifying it, and release oxygen, which is essential to the sustenance of life. Moreover, they also provide us with wood, food, fuel, paper, which are an important part of our daily lives. Furthermore, they are home to all kinds of animals and birds as well.

Deforestation is a major reason behind the climate change crisis that we are facing today. Not only has it led to the occurrence of numerous natural calamities, but it has also resulted in the severe depletion and extinction of many species of flora and fauna. It is high time that we took the responsibility for our actions. We need to give back to the earth and take care of her the same way she has been taking care of us for so long. We need to plant as many trees as possible to make our earth beautiful and green again.⁷

In India, the forest and tree cover continue to increase with an additional cover of 1,540 square km over the past two years. India's forest cover is now 7,13,789 square km, making 21.71% of the country's geographical area, an increase from 21.67% in 2019. Tree cover has increased by 721 sq km.⁸ Main reasons for the increase in forest and tree cover in the country are plantation and conservation activities as well as improvement in interpretation.

Coming to the state of Uttar Pradesh, a large portion of the Uttar Pradesh state is rural. To improve the state's forest and tree cover, extensive plantation programmes have been launched in recent years. Tall saplings that range in height from 8 to 12 feet are also being raised for planting through the Nursery Management Scheme. More than 22.5 crore saplings were planted around the State as part of the Vriksha Mahakhumbh Program during the 2019 planting season. The State Government has exempted the majority of tree species from felling in order to encourage tree planting outside of forest regions, improve farmer revenue, and transit rules.⁹

6.15% of the state of Uttar Pradesh is covered with forest/ green cover, compared to only 1.17%% in the target district of Varanasi. But by the standards, it ought to be 33% of the entire area as per the National Forest Policy, 1988. In order to support India's nationally determined contribution, which calls for the construction

⁷ <https://indiancc.mygov.in/wp-content/uploads/2021/06/mygov-999999999986407898.pdf>

⁸ https://www.drishitias.com/daily-news-analysis/india-state-of-forest-report-2021/print_manually#:~:text=The%20forest%20and%20tree%20cover,increased%20by%20721%20sq%20km.

⁹ <https://fsi.nic.in/isfr19/vol2/isfr-2019-vol-ii-uttar-pradesh.pdf>

of an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through increased forest and tree cover, the scenario necessitates the protection of green cover.¹⁰

Below table represents the geographical area and percentage forest cover in Varanasi, Uttar Pradesh:

District	Geographical area (GA)	Very dense forest	Mod. Dense forest	Open forest	Total	% of GA
Varanasi	1535	0.00	1.00	16.91	17.91	1.17

Table: 1 Forest cover details of Varanasi district. (in Sq km)¹¹
(Source: India state of Forest report 2021)

As trees grow, they help stop climate change by removing carbon dioxide from the air, storing carbon in the trees and soil, and releasing oxygen into the atmosphere. Trees provide many benefits to us, every day. They offer cooling shade, block cold winter winds, attract birds and wildlife, purify our air, prevent soil erosion, clean water, and add grace and beauty to surroundings & communities.¹² One of the keyways to limit the impacts of climate change is to reduce the amount of carbon released into the atmosphere. Trees are beneficial to storing carbon, which is a major contributor to climate change. Although trees are not the single answer, healthy and mature trees have the potential to make significant carbon mitigation returns. Finally, trees, specifically mature ones, perform a keystone role in terrestrial ecosystems. Trees are critically important, especially in urban areas, as they provide food and habitat for birds, invertebrates, mammals, and plants. Improving and maintaining biodiversity is necessary for a sustainable city.

Trees are considered “decentralized green infrastructure” and can be important tools for managing water, especially in an urban ecosystem. Water runoff is a serious issue in the city environment, as runoff can increase the exposure to pollution and cause property damage. Trees can help reduce and intercept stormwater and improve the quality of runoff water. With less contact on impervious surfaces, stormwater is cooler and has fewer pollutants when it enters local waterways and water-related ecosystems. Trees can also be valuable in phytoremediation, where they can remove heavy metals and other contaminants from the environment.¹³

Green infrastructure protects life below water and life on land, while promoting sustainability. The ability of trees to reduce the pollution in the waterways is

¹⁰ <https://fsi.nic.in/uploads/documents/technical-information-series-vol1-no3-16-06-2019.pdf>

¹¹ <https://fsi.nic.in/isfr-2021/chapter-13.pdf>

¹² <https://www.arboday.org/trees/climatechange/>

¹³ <https://nph.onlinelibrary.wiley.com/doi/full/10.1002/ppp3.39>

beneficial to human health and well-being. Therefore, by promoting trees as green infrastructure, the following UN SDG can be met Goal 3: Ensure healthy lives and promote well-being for all at all ages; Goal 6: Ensure availability and sustainable management of water and sanitation for all; Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation; Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable; Goal 12: Ensure sustainable consumption and production patterns; Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development; and Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss.¹⁴

Therefore, GAIL understood the need to protect trees and green cover and intercede to protect trees and green cover at some locations of Varanasi, district by supplying, installing, and commissioning of 5000 metallic tree guards. Below are the details of the project/initiative taken by GAIL: -

Name of the project	Details of work/ Activity	Expenditure
Support for 5000 metallic tree guards to district administration in Varanasi, Uttar Pradesh for FY 2019-20 & 2020-21	Supply, installation, and commissioning of 5000 metallic tree guards in Varanasi, UP. The same comprises of following: High 6 ft. diameter 18-inch, metal size MS flat 25 X 25 X 7 mm & welded max 10 gauge, including all painting (Green Color) loading, unloading, transportation, grouting and centage charges with labour cess.	Rs. 100.00 lakhs + GST (i.e., split over 2019-20 [50.00Lakhs] & 2020-21 [50.00Lakhs])

Table: 2 Details of project



Figure 1 & 2: Site photograph

¹⁴ <https://nph.onlinelibrary.wiley.com/doi/full/10.1002/ppp3.39>

1.2.5 About the Implementing Agency

For the purpose of comprehensive development of small industrial units of the state, Uttar Pradesh Small Industries Corporation Limited (UPSICL) was established in June 1958 as a wholly Government owned company. To fulfill its objectives, the corporation is providing assistance to the small-scale industrial units of the state. The main objective of the organization is to provide various raw materials like iron, steel, coal etc. to small scale units.

Additionally, the organization is also involved in establishment and maintenance of the industrial establishments of the Directorate, providing marketing assistance to small scale entrepreneurs, establishing industrial estates and clusters in backward areas etc.

U.P. Small Industries Corporation Limited is the only corporation of the state Government, which is responsible for the MSME of the state. For the comprehensive development of the industrial units, UPSICL has been established by the Government of Uttar Pradesh. This has aided in enhancing the industrial development of the state.

For the purpose of this project, GAIL collaborated with UPSICL for procurement and installation of 5000 metallic tree guards at various locations of Varanasi, Uttar Pradesh.

1.3 Methodology and Approach

GAIL has been implementing successful CSR initiatives based on community needs. A third-party evaluation of the results attained is essential given the dynamic nature of the social development programmes deployed. This impact assessment aims to explain what has been done well and what can be done moving forward. It will not only assist in determining the significance of the project, including the efficiency of project design and interventions, sustainability of results, and impact of the intervention on the target community, but it will also provide guidance for expanding or replicating the successful initiatives while redesigning or ending the projects/initiatives that were unable to have the intended impact.

The impact assessment is intended to provide key insights on the following questions:

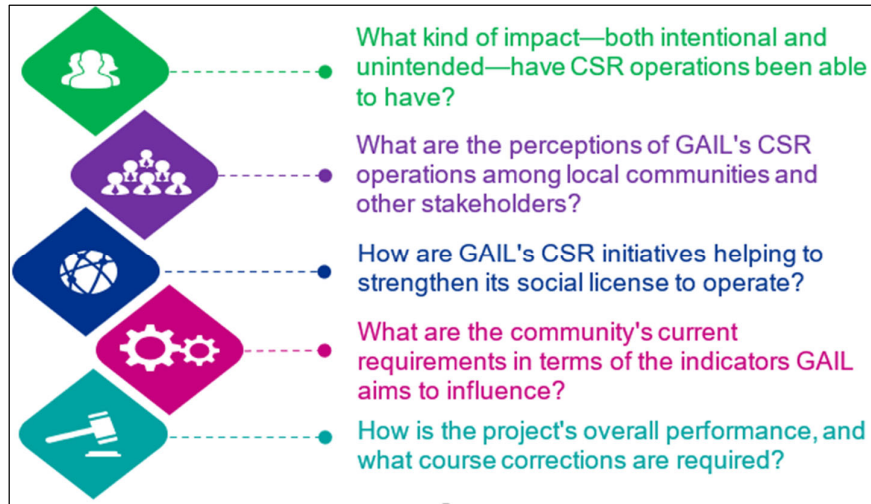


Figure 3: Research questions

The study was conducted through a combination of qualitative and quantitative data collection techniques. These include in-depth interviews and focus group discussions with beneficiaries and key stakeholders, as well as secondary research in the multiple thematic areas for a baseline perspective.

1.3.1 OECD DAC: Evaluation Criteria

Given the fundamental approach for conducting an impact study, the OECD-DAC (Development Assistance Committee) Evaluation Network's framework is well regarded for assessing the efficacy of development programmes. In response to the need for a method through which bilateral development agencies could monitor the financing supplied to multilateral organisations for various development initiatives, the DAC Evaluation Network developed a set of evaluation criteria for measuring the performance of any development project (UNICEF, 2012).

In 1991, the OECD Development Assistance Committee (DAC) devised the criteria for assessing international development cooperation. They are now widely used beyond the DAC and have established themselves as a cornerstone of evaluation methodology. These standards have routinely been used for international donors, including UN agencies (OECD, 2020).

The OECD DAC Network has identified six evaluation criteria and two principles for their application: relevance, coherence, effectiveness, efficiency, impact, and sustainability. These criteria are meant to help facilitate evaluations. They were revised in 2019 to improve the accuracy and utility of assessment and to strengthen evaluation's contribution to sustainable development (OECD, 2020).

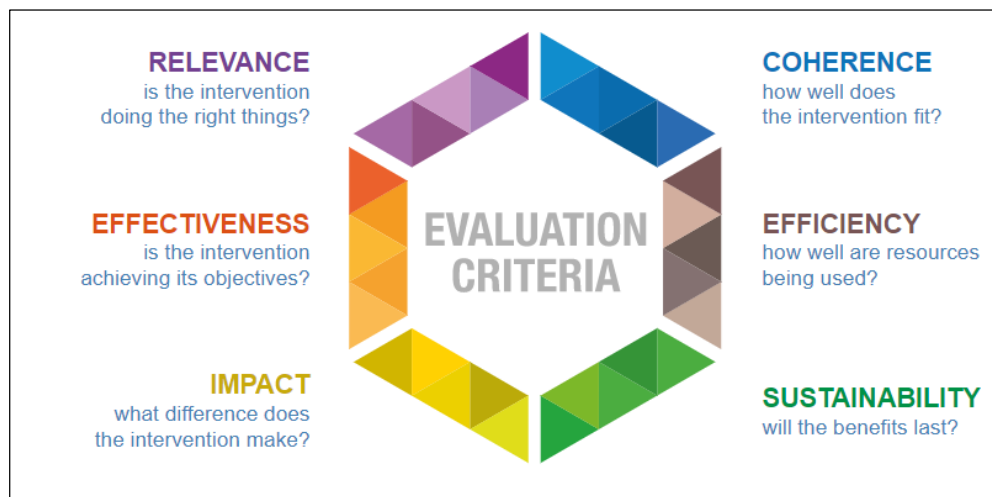


Figure 4: OECD-DAC Evaluation Criteria

1.3.2 Geographical Scope

The impact assessment for this project covered 1 district of 1 state.

		State	Districts
GAIL's initiative	CSR	Uttar Pradesh	Varanasi

Table 3: Geographical Scope

1.3.3 Data Collection and Analysis

In Uttar Pradesh, KPMG carried out the data collection exercise on field with assistance from the implementing agency.

In-depth interviews were conducted with the relevant stakeholders, with the help of pre-designed questionnaires, face – to – face on the field. The data was later updated and translated into excel sheets. Following data collection and cleaning, the data was analysed, and the outcomes were utilized to assess the project's impact.

1.3.4 Stakeholder Map

Stakeholders play an imperative role in project implementation on the ground. Stakeholder involvement can offer insightful information that aids in making critical decisions for the organisation. They can aid in designing improved

guidelines, processes, and systems, as well as future communications and plans. Institutions and stakeholders taking part in the exercise include:

Project	Type of Stakeholder	Number of stakeholders
Support for 5000 metallic tree guard to district administration in Varanasi, Uttar Pradesh (FY 19-20 & 20-21)	Implementation agency	1
	GAIL CSR Project SPoC	1
	Stakeholders	5

Table 4: Stakeholders involved in the sampling

1.3.5 Impact Map

Thematic Area	Location	Project Name	Implementing Agency	Overall Objective	Key Activities	Key Outputs	Key Outcomes	Impact
Ensuring Environmental Sustainability, [item no. (iv), Schedule VII, Companies Act, 2013]	Varanasi, Uttar Pradesh	Project 20: Support for 5000 metallic tree guard to district administration in Varanasi, Uttar Pradesh (FY 19-20 & 20-21)	UPSICL	To provide 5000 metallic guards to district administration	<ul style="list-style-type: none"> Support for 5000 metallic tree guards to district administration in Varanasi including all painting (green colour), loading, unloading, transportation, grouting and centage charges. Handover to Varanasi Nagar Nigam for further upkeep and proper maintenance and better utilization 	<ul style="list-style-type: none"> No. of metallic tree guards supplied No. of trees protected through the tree guards 	<ul style="list-style-type: none"> Reduced felling of trees/plants Improved growth of the saplings 	Increase in number of trees protected and preserved

Table 5: Impact map from the project

1.4 Scoring Matrix

A scoring guideline was designed where OECD DAC parameters were scored and bundled basis our understanding of the project and availability of information. Weights were assigned to the bundled OECD DAC parameters. Also, a parameter on Branding was included to understand the community's awareness on the project. Various components within the parameters have been assigned scores. Weights and scores have been used to compute the overall score for the project.

The following scoring matrix was developed to rate the performance of the project:

OECD Parameters	Indicators	Weightage	Combined Weightage
Relevance	Needs Assessment Report	20%	W1: 40%
	Relevance to target beneficiaries	50%	
	Alignment to SDGs	30%	
Coherence	Alignment with national policy	50%	
	Alignment with GAIL CSR policy	50%	
Efficiency	Timeline Adherence: Project Completion	40%	
	Duplication	20%	
	Adherence: Budget	40%	
Effectiveness	Identification of problem	25%	
	Process driven implementation strategy	25%	
	Qualified implementation team	25%	
	Targeted beneficiaries	25%	
Impact	Improved green cover	40%	
	Reduced felling of trees	30%	
	Positive community perception	30%	
Branding	Visibility (visible/word of mouth)	100%	W3: 10%
Sustainability	Sustainability Mechanism, Convergence	50%	W4: 10%
	Maintenance of tree guards	50%	
Score= W1*Average (Relevance, Coherence) + W2*Average (Efficiency, Effectiveness, Impact) + W3* (Branding) + W4* (Sustainability)			

Table 6: Scoring Matrix

1.5 Impact Assessment

1.5.1 Relevance of Intervention

Relevance is a measure of how much the intervention objectives and design respond to the needs, beliefs, and priorities of the beneficiaries and continue to do so even if circumstances change.

Relevance measures how effectively a programme is aligned with the goals and policies of the Government in which it is implemented. It also aims to know if the programme is relevant to the needs of the beneficiaries. The program's relevance is understood in this context in terms of community needs as well as linkages to existing Government operations.

Uttar Pradesh government have taken several actions in the past to increase, protect and conserve green cover in the state. Huge plantation drives were conducted making a Guinness World Record for planting 50 million saplings in a day. Government of Uttar Pradesh's ambitious afforestation drive as the state plans to plant 35 crore saplings in 2023, which shall fulfil the oxygen needs of crores of its people once the saplings are fully grown. The government aims to increase the state's green cover to 15 per cent by 2030 and drive by that, ambitious plantation targets are being set every year since 2017.¹⁵

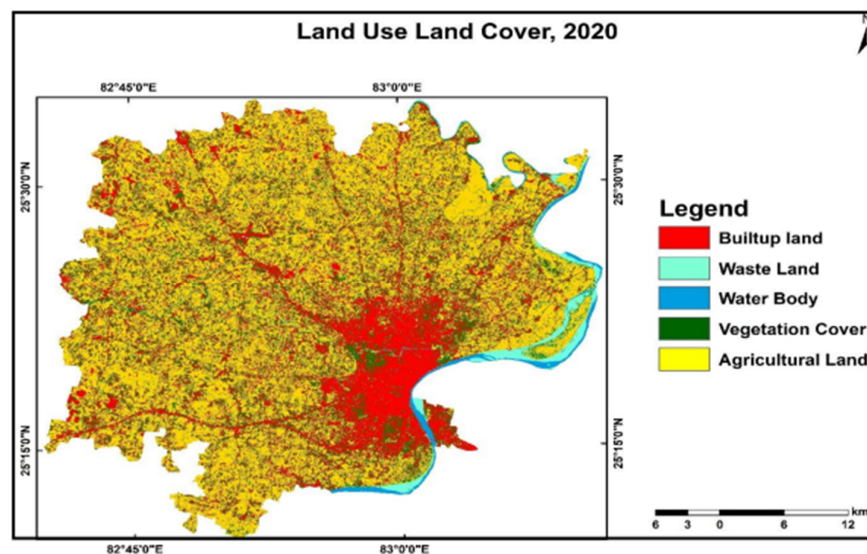


Figure 5: Land use and Land cove of Varanasi district, 2020

Despite the fact that the state is doing everything possible to address the issue of a lack of trees and green cover in the state, the state's carbon capture potential is inadequate due to a lack of trees and green cover. GAIL contributed to the mission of the nation and the state to increase, protect and conserve trees and green cover by engaging UPSICL to install 5000 metallic tree guards in different locations of the

¹⁵ <https://timesofindia.indiatimes.com/city/lucknow/uttar-pradesh-to-plant-35-crore-trees-in-2023/articleshow/97037777.cms>

Varanasi, district under CSR. This has aided in the growth of saplings by protecting limbs/branches and roots from damaging, allowing them to mature and eventually serve as carbon sinks, reduce loss of soil due to soil erosion.



Figure 6: Site photograph

All the stakeholders interacted with found the project/ initiatives relevant because, earlier the survival rate of sapling planted was low as they used to get damaged due to animal intervention and human activities.

1.5.2 Coherence of Intervention

Coherence refers to the compatibility of the intervention with other interventions in a country, sector, or institution.

It measures the extent to which other interventions (particularly policies) support or undermine the intervention, and vice versa.

I. Alignment of the programme with Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs), commonly recognized as the global goals, were established in 2015 by all United Nations members with the purpose of eradicating poverty, protecting the environment, and ensuring that everyone lives in peace and prosperity by 2030. India was a significant contributor to the development of the SDGs and is committed to achieving them by 2030.



SDG Goal	Target	Sub-targets ¹⁶	Relevance
GOAL 15	Life on land	15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems.	The project aimed to provide financial assistance by supplying and installing metallic guards in order to protect saplings and trees to allow them to mature to act a carbon sink.

Table 7: Associated SDG Goals

¹⁶ <https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals>

II. Alignment of the programme with National Priorities

Policy	Description	Relevance
National Mission for a Green India	<ul style="list-style-type: none"> It is one of the eight Missions under the National Action Plan on Climate Change (NAPCC). It was launched in February 2014 with the objective to safeguard the biological resources of our nation and associated livelihoods against the peril of adverse climate change and to recognize the vital impact of forestry on ecological sustainability, biodiversity conservation and food-, water- and livelihood-security. 	The project aimed to support the Government in maintaining green cover in Varanasi by providing tree guards to protect the trees from falling.
National Afforestation Programme (NAP)	<ul style="list-style-type: none"> It has been implemented since 2000 for the afforestation of degraded forest lands. It is being implemented by the MoEFCC. 	The project aimed to support the Government in maintaining green cover in Varanasi by providing tree guards to protect the trees from falling.
Compensatory Afforestation Fund Management and Planning Authority (CAMPA Funds)	<ul style="list-style-type: none"> Launched in 2016, 90% of the fund is to be given to the states while 10% is to be retained by the Centre. The funds can be used for treatment of catchment areas, assisted natural generation, forest management, wildlife protection and management, relocation of villages from protected areas, managing human-wildlife conflicts, training and awareness generation, supply of wood saving devices and allied activities. 	The project aimed to support the Government in maintaining green cover in Varanasi by providing tree guards to protect the trees from falling.
National Action Programme to Combat Desertification:	<ul style="list-style-type: none"> It was prepared in 2001 to address issues of increasing desertification and to take appropriate actions. It is implemented by the Ministry of Environment, Forest, and Climate Change.¹⁷ 	The project aimed to support the Government in maintaining green cover in Varanasi by providing tree guards to protect the trees from falling.

Table 8: Alignment with national priorities

1.5.3 Effectiveness of Intervention

Effectiveness is defined as an assessment of the factors influencing progress toward outcomes for each stakeholder as well as validation of the robustness of systems and processes.

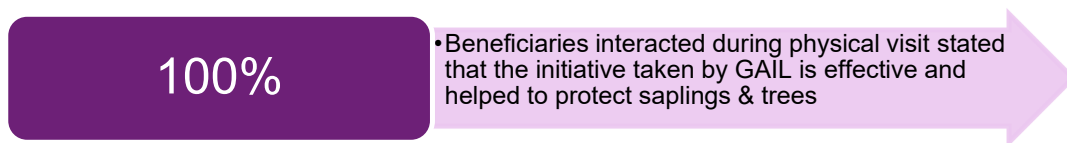
It aids in ensuring that the implementation and monitoring processes are sturdy in order to achieve the greatest possible social impact. The efficacy of the programme

¹⁷ https://www.drishtias.com/daily-news-analysis/india-state-of-forest-report-2021/print_manually#:~:text=The%20forest%20and%20tree%20cover,increased%20by%20721%20sq%20km

is established by examining how well the program's activities were carried out as well as the efficiency with which the program's systems and processes were implemented.

The project's goal was to provide protection and conservation of trees and green cover in the target district and aid the implementation of nations NDC's to promote and increase trees and green cover. Therefore, to successfully attain these outcomes, the project adopted the following measures:

- I. **Identification of the problem:** The project's main objective was to protect green cover/ trees and sapling in the target districts. To be able to deliver the best results for the communities and stakeholders involved, the issue was identified, and the project was effectively developed.



- II. **Process driven implementation strategy:** The project employed a process-driven implementation strategy that includes fundamental market research to ensure a context-specific initiative, standardized activities with a set timeframe to assure quality, and pre-determined KPIs to ensure consistency.
- III. **Qualified implementation team-** The implementing agency deployed a qualified team with previous expertise managing similar tasks. The agency monitored the procurement and delivery process of the metallic tree guards. This contributed to the preservation of implementation quality and provided prompt assistance to the municipal corporations.

1.5.4 Efficiency of Intervention

The efficiency criterion seeks to determine whether the project was completed in a cost-effective and timely way.

The purpose is to establish whether the inputs—funds, knowledge, time, etc.—were effectively employed to create the intervention outcomes. This evaluation criterion attempts to determine whether the programme was completed on schedule and within budget.

The project has been efficiently implemented in the target districts with the support of key stakeholders.

- I. **Timeliness of delivery or implementation of project interventions**
The programme was implemented within the given time period by UPSICL with support from GAIL CSR team in the target districts.

II. Cost efficiency of project activities

Interaction with the GAIL CSR and UPSICL team members also revealed that there was no budget overflow and that all the activities were successfully carried out within the allotted budget. Payment milestones were clearly defined as such, and interventions were implemented in the districts in consultation with the key stakeholders.

III. Duplication/ overlap of project activities

Duplication of effort arises when similar interventions are needlessly undertaken within the same community/ location due to poor knowledge, management, and inadequate coordination of projects, thereby resulting in fund and resource inefficiency. In this case, there was no duplicity was found during assessment in the target districts.

1.5.5 GAIL Branding/Visibility:

All the tree guards provided had presence of GAIL logo and branding done and the stakeholders interacted with were also aware that the support had been provided by GAIL.



Figure 7: GAIL Branding

1.5.6 Impact of Intervention

Impact has been measured in terms of the proportion of respondents who reported having a significant change in their lives due to the initiation of the project.

The goal of measuring the impact is to determine the project's primary or secondary long-term impacts. This could be direct or indirect, intentional, or unintentional. The unintended consequences of an intervention can be favorable or harmful.

GAIL supplied and installed 5000 metallic tree guards for the protection and conservation of trees and green cover in Varanasi, Uttar Pradesh. Using Tree Guard to protect trees is one of the simplest yet most effective ways. A tree guard is a type of metallic coating with wired mesh applied to trees to protect them from weathering and other damage. After intervention of this project, decline in tree damage was

observed, allowing the saplings and young trees to get matured and provide several benefits such as carbon sink, reduce soil erosion, improves air quality, avoid storm water from contamination, prevention from floods and increasing green cover of the state.

I. Short Term Impacts

a. Improvement and protection of green cover/sapling and trees

The majority of government-run schools, public spaces, and the sides of roads were the locations chosen for the installation of metallic guards. The problem was that both human activity and animal interference frequently caused damage to young trees and saplings. GAIL responded by providing tree guards for the protection of saplings, with UPSICL acting as the implementing agency. These guards are made with the perspective to provide protection until the sapling is mature enough to be destroyed only by the forces of nature or deliberate human action.

Among the stakeholders surveyed during physical visit, 100% of them agreed that the initiative was much required and has aided in protection of sampling allowing them to mature. Previously, saplings and young trees were destroyed by animal intervention and human activities, but after the installation of tree guards, the survival rate has increased to 70-80%, allowing saplings and young trees to mature sufficiently to act as a carbon sink.

According to the stakeholders from Varanasi's districts who were interviewed, the project has greatly benefited in green cover protection and conservation. Additionally, this initiative also raised public awareness around importance of trees and their conservation.



Figure 10, 9 & 10: Site photographs

The project to provide metallic tree guard to the target districts received unanimous praise from the stakeholders who were interviewed for its positive effects on raising awareness.

II. Long Term Impacts

a. Carbon sequestration

Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. It is one method of reducing the amount of carbon dioxide in the atmosphere with the goal of reducing global climate change. Native trees have higher potential to absorb carbon dioxide than other species. The rate of carbon sequestration depends on the growth characteristics of the tree species, the conditions for growth where the tree is planted, and the density of the tree's wood. It is greatest in the younger stages of tree growth, between 20 to 50 years. In general, in one year a mature tree will sequester atmospheric carbon dioxide at an average of 50 pounds of carbon dioxide per tree per year.¹⁸ Trees and saplings that are protected through this intervention will aid in climate change by acting as natural carbon sink.



Figure 11: Site photographs

b. Awareness creation regarding protection of green cover

The potential of the population and administration is hampered by lack of awareness. Both sides must be informed about the current state of affairs and biodiversity management and conservation. By measuring public involvement and awareness via knowledge gap analysis, which encourages informed decision-making, awareness-related issues can be addressed. The project has helped to raise awareness among the public regarding importance of protection and conservation of trees and green cover.

c. Improved air quality

Trees and green cover improve air quality in direct and indirect ways. Indirectly, they can help by shading surfaces and reducing temperatures. If buildings/surroundings are shaded by trees, it reduces temperature,

¹⁸ https://www.unm.edu/~jbrink/365/Documents/Calculating_tree_carbon.pdf

reduces the need for conventional air conditioning, and the emissions of greenhouse gases that come with it. In addition, lower temperatures decrease risk of harmful pollutants like ground level ozone that commonly spike on hot days in urban areas.



Figure 12: Site photographs

d. Reduction in Soil erosion

Trees and woody vegetation do good things for agricultural land. They reduce soil erosion and provide habitat for pollinators. It intercepts rain, reducing its energy and preventing splash erosion. It also slows runoff, reduces sheet erosion, anchors, and reinforces the soil with its root system, increases biological activity, improves the organic matter and nutrient content, and positively influences root growth and soil structure allowing for enhanced infiltration.

e. Increase in green cover

The project's goal was to provide metallic tree guards for the safety and protection of young trees and saplings. This has increased the likelihood that newly planted saplings will survive. Once these saplings are fully grown, they will contribute to raising the percentage of overall trees and green cover on a long-term basis.

1.5.7 Sustainability of Intervention

Sustainability assesses how well the programme secures the long-term viability of its outcomes and influence.

The continuation of a positive effect after development or aid has stopped is referred to as sustainability. This evaluation criterion contains key elements concerning the likelihood of continuous long-term benefits and risk tolerance. To achieve

sustainability, a governing framework, financial model, and operating system must be established.

After installation, the metallic tree guards were handed over to the district administration. This demonstrates that the project had an effective exit strategy to close the project efficiently while transferring ownership of the tree guards to the district administration. Nevertheless, it was noted during a physical site visit that there was no procedure for identification and maintenance of tree guards being followed by the district administration. Additionally, the safety of these structures is of concern and should be taken care by the district administration as the same handed over to them.

The initiative promotes sustainable management of green cover as they aid in protection of young trees and saplings and allow to mature. This will eventually help in increasing percentage green cover in the district and act a carbon sink once mature along with several other benefits.

1.5.8 Overall rating of the project

The scoring matrix was used to evaluate and score performance of the project across Varanasi. The following table provides the rating across the defined parameters:

Location	Relevance	Coherence	Efficiency	Effectiveness	Impact	Sustainability	Branding	Total Score
Varanasi	80%	100%	100%	100%	100%	100%	100%	97%

Table 9: Overall Scoring

The programme on provision of tree guards in Varanasi was given a total score of 97%. This attributes an Impactful ranking to the programme interventions.

During the ranking, it was observed that though there was no need assessment study undertaken prior to the implementation, the programme was still extremely relevant. Additionally, it was also found that the programme is aligned to Sustainable Development Goals, as well as national priorities to increase the green cover in the country. The completion rate for the programme was 100% and 100% of the stakeholders surveyed were satisfied with the support being provided.

However, it was observed that the sustainability of the project was weighed at 100% because although there is lack of proper maintenance of the tree guards, but GAIL followed a proper exit strategy and handed over the tree guards to the district administration post installation.

1.6 Conclusion and Way Forward

This study sought to evaluate the effects of the GAIL CSR project, which provided metallic tree guards for protection of young trees and saplings in Varanasi, Uttar Pradesh.

The objective of GAIL CSR was to assist in achieving the SBM-set goals and to expand the program's scope and enhance its overall implementation. The interviewed stakeholder voiced their appreciation and satisfaction for the project's successful execution, which assisted managing biodiversity standards in their districts. The project was implemented successfully, and it has helped to close existing gaps in the protection and conservation of green cover in the target districts' selected locations.

To increase the impact of the project as well as ensure continued impact of the current project outcomes, the following challenges can be addressed in the following recommendations:

- **Awareness generation:** For similar kind of projects, going forward, GAIL may collaborate with the implementing agency the district administration to include a component related to awareness generation at regular intervals in order to ensure that the community members are better aware regarding importance and protection of green cover and biodiversity.
- **Circularity:** The metallic guards installed would be engaged for around 5-7 years until the sapling is fully grown. Once the purpose is served, these used tree guards should be recycled / sold to authorized recycler. This will eventually aid to reduce dependency on natural resources and fresh materials.
- **Regular monitoring:** Although GAIL has provided the district administration metallic tree guards, it was observed that a few locations were tree guards installed damaged due rusting & impact. In order to maintain these guards and enhance the impact of the project, it is recommended to develop a process for identification of damaged guards and eventually take preventive measures for their maintenance by the district administration. The requirement and flow of information from site to GAIL and UPSICL (implementing agency) can be the responsibility of the local stakeholders. However, district administration shall be responsible for the maintenance and replacement of metallic tree guards once damaged are identified. As a result, regular monitoring of these guards by administration and GAIL is necessary to spot and replace ineffective guards. The safety of the tree guards should also be taken care by the district administration.



Figure 13: Fallen tree guard

Thank you



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