

IMPACT ASSESSMENT REPORT • FEB 2026

Titan Vanam

Afforestation Project

Transforming degraded land into living forest —
one native tree at a time, across 19 hectares in Tamil Nadu.



One-year-old ecological restoration site at Thorappalli, Tamil Nadu

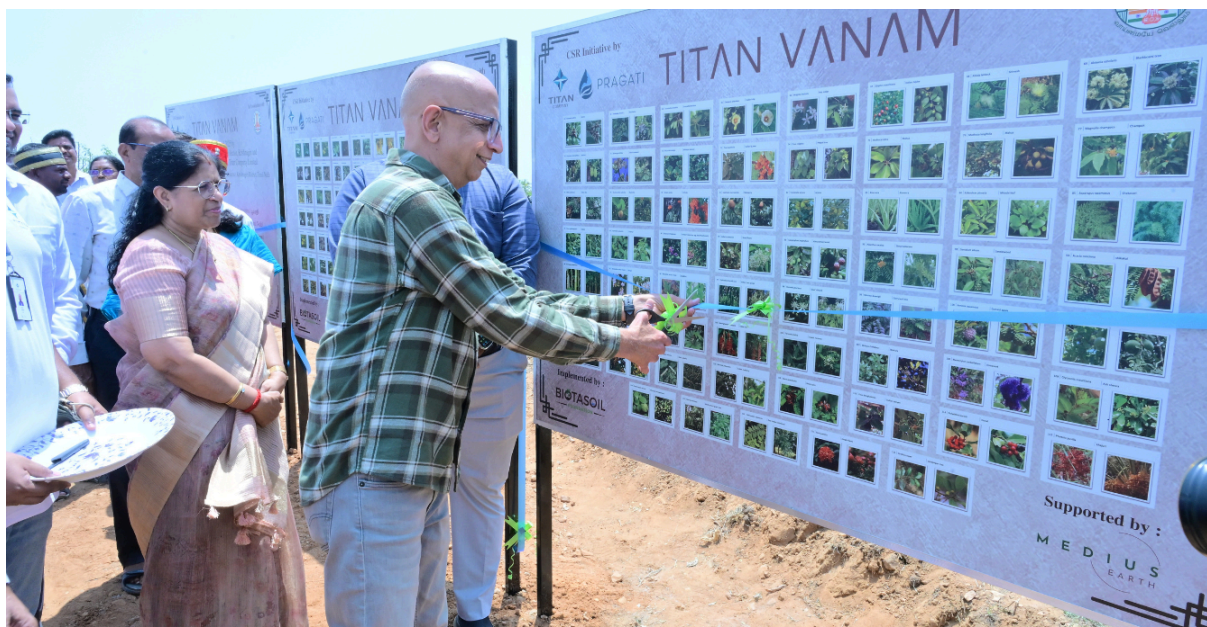
Titan Company Limited and Biota Soil Foundation
Krishnagiri District, Tamil Nadu, India · Thorapalli & Billanakuppam sites

Project at a Glance

Location	Krishnagiri District, Tamil Nadu, India
Sites	Thorapalli (11.6 ha) & Billanakuppam (7.5 ha)
Planting completed	March 2025
Assessment done	February 2026
Funder	Titan Company Limited (CSR programme - Pragati)
Implementation partner	Biota Soil Foundation
Impact Assessment partner	Medius Earth (Hasten Forestry India Pvt. Ltd.)
Native species planted	136 species, 194,133 trees and 37,340 non-tree species shrubs, total 231,473 saplings

Key Performance Indicators

19.1 hectares restored	84.35% tree survival rate	136 plant species on-site
163,750 trees surviving	44.21 tonnes CO ₂ stored (Yr 1)	36,718 tonnes CO ₂ projected (30 yr)



Official inauguration of the restoration project by Mr. C. K. Venkataraman on 22nd April, 2026, Managing Director, Titan Company Limited.

Why This Project Matters

The land restored here was not idle — it was lost. Understanding that story is the foundation for everything that follows.

The problem

Both project sites had remained degraded for over a decade. Satellite imagery going back to 2012 shows sparse, patchy vegetation with no natural recovery — typical of land that has been cleared, over-grazed, or exhausted by past land use. Left alone, such land rarely heals on its own.

The opportunity

Restoring this land with native species — trees and plants that evolved here — creates multiple benefits at once: it absorbs and stores carbon from the atmosphere, rebuilds healthy soil, provides habitat for local wildlife, and contributes to regional water security.



Image 1: 20 Aug 2012



Image 2: 26 Apr 2024



Image 3: 12 Apr 2025

19.1 ha

of degraded common land transformed into a growing native forest

This is equivalent to roughly 27 international football pitches — now on a trajectory to become a self-sustaining, biodiverse ecosystem within the next decade.

The Titan Vanam project is part of Titan Company's wider commitment to environmental responsibility under its CSR programme. It demonstrates that corporate sustainability investment, when channelled into ecologically rigorous restoration, can deliver measurable, lasting benefits for both the climate and local communities.

How We Restored the Landscape



Left to right: Visible ecological transformation between March 2025 and December 2025

Early 2025

Site preparation & baseline survey

Both sites were surveyed, soil health was tested, and ecological baselines were established before any planting began.

March 2025

High-density native planting

A total of 231,473 saplings—comprising 194,133 trees and 37,340 non-tree species representing 136 native species—were planted across 19.1 hectares to build a multi-layered forest structure, successfully meeting the project's target of 208,000 saplings.

March – November 2025

Organic management & nurturing

No chemical fertilizers were used. Instead, organic amendments and biological nutrient cycling supported the saplings through their most vulnerable early months.

December 2025 – February 2026

First formal impact assessment

A six-member field team conducted detailed surveys of both sites, measuring tree survival, height, carbon storage, soil health, and biodiversity — results presented in this report.

Species diversity at planting

- Canopy trees (e.g. Terminalia arjuna, Ficus species, Melia dubia)
- Fruiting species (e.g. Syzygium cumini, Mangifera indica)
- Medicinal plants (e.g. Azadirachta indica, Phyllanthus emblica)
- Nitrogen-fixing species (e.g. Pongamia pinnata, Albizia lebbeck)
- Bio-fence species (Commiphora berryi)
- Shrubs & ground layer (27+ non-tree species)

Impact Highlights

Across every indicator we measured, the project is performing on track. Here's what one year of growth looks like.

Plant Survival

How many trees are still alive and growing?

Out of 194,133 trees planted, 163,750 are alive and growing — an 84.35% survival rate. This is a strong result for high-density, mixed-species tropical plantations in their first year, which typically experience 15–20% early losses as trees establish themselves.

84.35%

overall survival rate across both sites

Billanakuppam		87.1%
Thorapalli		83.0%
Overall		84.35%
Avg. height — Billanakuppam		133 cm
Avg. height — Thorapalli		87 cm
Avg. DBH — Billanakuppam		1.36 cm
Avg. DBH — Thorapalli		0.70 cm

Carbon Sequestration

How much carbon is this forest capturing?

Trees absorb CO₂ from the air and lock it into their wood and roots. In just its first year, the Titan Vanam forest has already stored 44.21 tonnes of CO₂ — and this is only the beginning. Over the next 30 years, the project is projected to sequester a total of 36,718 tonnes of CO₂.

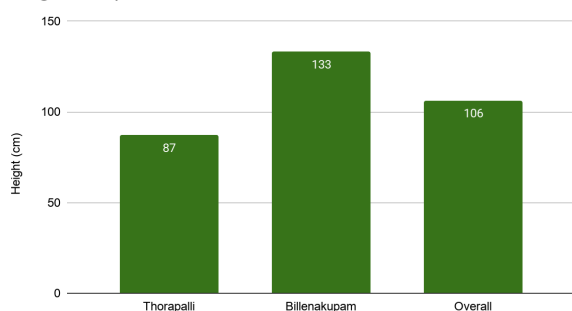
36,718 tCO₂

projected cumulative carbon over 30 years

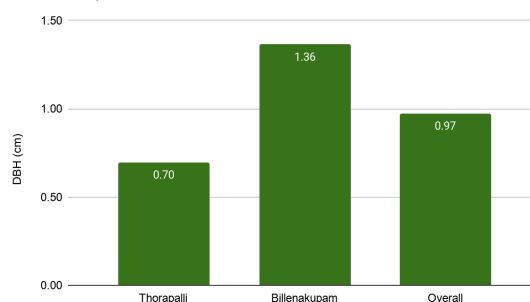
Site	Area (ha)	Carbon stored (tCO ₂)
Thorapalli	11.6	9.38
Billanakuppam	7.5	34.84
Overall	19.1	44.21

Note: Billanakuppam contributes 79% of current carbon storage despite being the smaller in size, because its trees are growing significantly taller (average 133 cm vs. 87 cm at Thorapalli) and wider (average 1.36cm diameter vs. 0.7cm at Thorapalli site)).

Height Comparison between Sites

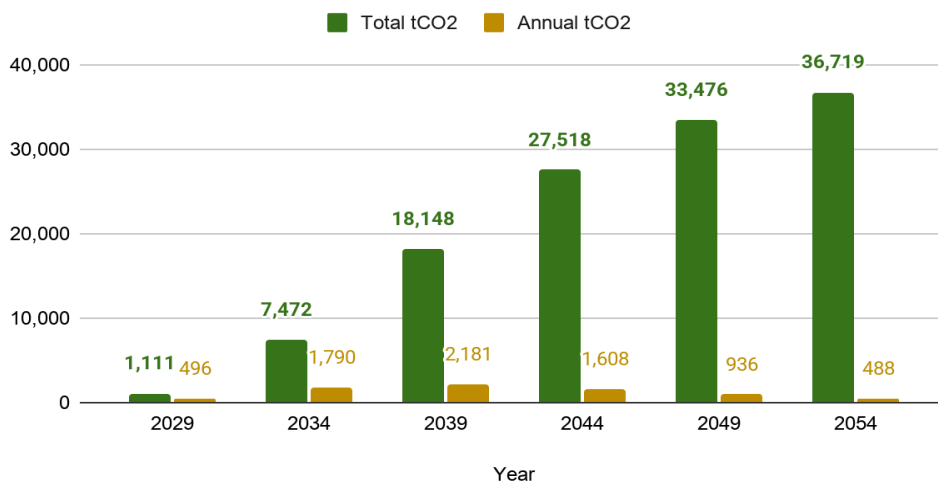


DBH Comparison between Sites



Left: Sitewise comparison of height distribution, right: sitewise comparison of DBH

Total tCO₂ and Annual tCO₂



Projected sequestration

Biodiversity

What life has the forest attracted?

The restoration sites now support a diverse and developing ecosystem. A total of 126 plant species have been recorded across both sites, providing habitat and food resources that are beginning to support a wider range of insects, butterflies, birds, and other wildlife.

Biodiversity Assessment

The Shannon-Wiener Diversity Index (H') is a widely used measure of biodiversity that considers both the number of species present (species richness) and how evenly they are distributed (species evenness). Values typically range between 1.5 and 3.5, with higher values indicating greater biodiversity and a more balanced ecological community.

The biodiversity assessment indicates **high species diversity** across the restoration landscape, demonstrating that the restoration has established a rich and well-balanced native plant community capable of supporting increasingly complex ecological interactions as the ecosystem matures.

Site	Shannon Diversity Index (H')	Interpretation
Thorapalli	4.00	High species diversity with a well-balanced plant community.
Billanakuppam	3.73	High species diversity, reflecting a diverse ecological community
Overall Project	4.02	High overall biodiversity, indicating a rich and well-balanced species composition across the restoration landscape.

Plant species originally planted	136
Plant species observed at the sites	126
Butterfly species recorded	9
Bird species recorded	6
Moth caterpillar species	3

Notable birdlife and butterflies observed

- Black drongo — insect-hunting bird, one of the earliest to colonise young plantations
- Common mormon — large swallowtail butterfly
- Red-whiskered bulbul — fruit and insect feeder, indicates fruiting species are maturing
- Green bee-eater — aerial insect hunter, confirms active insect populations
- Plain tiger butterfly — presence indicates milkweed plants on-site
- Indian roller — ground invertebrate feeder, consistent with current open-canopy habitat

Bird and butterfly presence confirms that the forest's early food web is forming — trees are feeding insects, insects are feeding birds. Moth caterpillars observed feeding on *Terminalia arjuna*, *Ficus racemosa*, and *Ailanthus excelsa* are a key step in this chain.

Soil Health

Is the land beneath recovering?

Healthy soil is the foundation of a healthy forest. One year after planting, soil tests at both sites show dramatic improvements in the nutrients that feed tree growth and sustain long-term ecosystem function — without using any chemical fertilizers.

Thorapalli — Soil improvements (2025 → 2026)

Parameter	2025	2026	Change
Organic carbon (%)	0.41	0.59	+44%
Nitrogen (kg/acre)	87	135	+55%
Calcium (mg/kg)	270	408	+51%
Sulphur (mg/kg)	8	15	+88%
Boron (mg/kg)	0.25	0.31	+24%

Billanakuppam — Soil improvements (2025 → 2026)

Parameter	2025	2026	Change
Organic carbon (%)	0.32	0.48	+50%
Nitrogen (kg/acre)	77	128	+66%
Calcium (mg/kg)	254	318	+25%
Magnesium (mg/kg)	92	190	+107%
Sulphur (mg/kg)	6.4	16	+150%
Zinc (mg/kg)	0.16	0.30	+88%
Boron (mg/kg)	0.22	0.36	+64%

Water Quality

Water testing was conducted at both sites. pH levels improved, moving into the ideal range for sustainable irrigation. Salt and sodium levels remained well within safe limits, with no signs of contamination or water quality risk.

All clear ✓

No flood risk, no fire risk, no contamination identified at either site

Historical satellite analysis spanning 10 years confirmed that neither site is at risk from flooding or wildfires — two key threats to long-term plantation success.

SECTION 5

How We Measured the Impact

Our findings are grounded in rigorous, on-the-ground fieldwork and satellite analysis.

Field surveys	A 6-member team visited 12 sample plots across both sites, measuring individual trees for height and trunk size.
Species counts	Every plant species within each sample area was identified and recorded, including any newly arrived species.
Satellite imaging	NDVI vegetation greenness maps from Sentinel-2 satellites confirmed the visible increase in forest cover at both sites.
Lab tests	Soil and irrigation water samples were analysed in accredited laboratories for nutrients, pH, carbon content, and contaminants.

The sampling methodology was designed to be statistically representative ensuring the findings accurately reflect conditions across the full site.



Field team conducting species-level measurements within monitoring plots

Overall Project Health

Every indicator measured is performing as expected or better. The project is firmly on track.

Indicator	Status	Key finding
Tree survival	On Track	84.35% — within expected range for Year 1
Carbon sequestration	On Track	30-yr projection within 3% of original forecast
Soil regeneration	On Track	Organic carbon up 44–50% at both sites
Biodiversity	On Track	126 species observed on-site, showing high biodiversity
Water & soil safety	On Track	All parameters within safe ecological limits
Natural risk	On Track	No flood or fire risk — 10-yr satellite confirmed

Vegetation greenness	On Track	Satellite confirms increase at both sites
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Key Learnings

What the first year has taught us — insights we'll carry into every future phase.

| 01 — Native species work

All planted species are native to the region — and all are thriving. Matching trees to their home environment is the single biggest driver of success.

| 03 — Soil recovers fast with the right approach

Organic management — with no chemical inputs — produced dramatic soil health gains in just 12 months. Healthy soil feeds healthy trees.

| 04 — Wildlife follows quickly

Birds, butterflies, and caterpillars are already using the planted trees for food and shelter. This early food-web formation is a strong signal that genuine ecosystem recovery is underway.

| 06 — Carbon projections hold

The projected carbon sequestration demonstrates that the restored landscape is expected to continue accumulating biomass and storing carbon as the ecosystem matures, delivering long-term environmental benefits.

What's Next

The forest is growing. So are our ambitions for it.

Density management	Strategic thinning at the sites to reduce competition between trees and accelerate growth for the strongest survivors.
Annual monitoring	Continued field surveys, soil tests, and satellite analysis each year — building a long-term record of ecological recovery.
Structured fauna surveys	Moving from opportunistic wildlife sightings to systematic biodiversity monitoring — transects, camera traps, and bird count protocols.
Gap planting	Replanting in areas where early tree losses have left gaps, to ensure full coverage and maximise long-term carbon potential.
Community integration	Exploring opportunities to connect local communities with the restored land — for education, livelihoods, and long-term stewardship.

————— End of Report —————