ENVIRONMENT

We acknowledge the connection between environmental well-being and economic success. We are focused on minimising our environmental footprint by bringing awareness to our workforce and our communities through campaigns and initiatives. Environmental responsibility is integrated into our core operations, actively leading us towards a cleaner, more sustainable future.

In recent years, we have made considerable progress towards our long-term goals in sustainability and environmental management. Our leadership position has been further strengthened by actively aligning our efforts with the climate goals outlined in the Paris Agreement and participating in the Carbon Disclosure Project (CDP), demonstrating our unwavering commitment to a low-carbon, resilient future.

Material Topics Addressed

- Water Security – Being water-positive at the respective operational site
- Increase in share of Renewable Energy Consumption
- Net Zero Carbon
- Sustainable Palm Oil
- Circular Economy
- Product Sustainability – Life Cycle Assessment Approach
- Bio-diversity
- Efficiency Projects

Stakeholders Impacted

- Employees
- Investors
- Suppliers
- Local Communities

UN SDGs

Environmental Trends, Risks and Opportunities

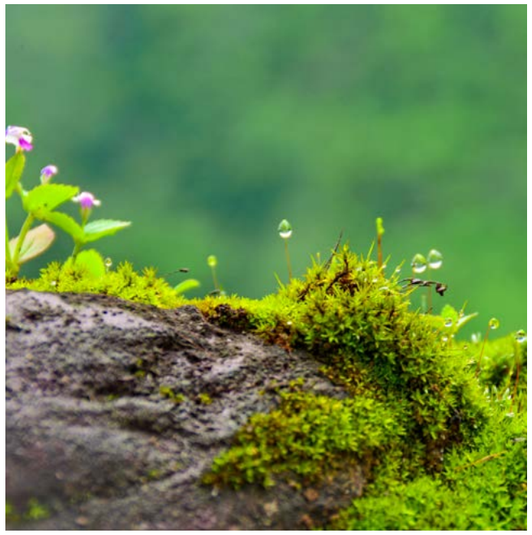
At Galaxy, identifying and managing environmental trends, risks, and opportunities is an essential part of our business strategy. We regularly assess environmental factors that could potentially impact our operations, including climate change, resource availability, and regulatory developments.

Trends	Impact	Risk	Opportunities
Prioritising green and certified products	Financial	Customer preference shifts may lead to revenue decline if green options are unavailable	Attract and retain eco-conscious customers, potentially increasing revenue
Sustainable water management practices	Environmental	Water scarcity can disrupt production and increase operational costs	Water positivity enhances brand image
Leveraging renewable energy sources	Environmental	Shifting regulations and climate change can lead to non-compliance and higher energy costs	Improved sustainability profile
Waste reduction and recycling initiatives	Environmental	Failure to adapt to a circular economy could result in fines and reputational damage	Cost savings and potential revenue streams from recycled materials
Integration of RSPO-MB certified materials	Environmental	Uncertified materials raise deforestation concerns and potential consumer backlash	Increased brand value, consumer trust, and market access

Climate Resilience

India's unique climate presents both challenges and opportunities for Galaxy. We are aware of the potential extreme weather events, such as monsoons, can cause to our operations and supply chain. We monitor and report on our energy management, greenhouse gas (GHG) emissions, and air emissions data. This data then allows us to identify areas for improvement and implement strategies to mitigate climate-related risks.

However, seeking solutions to combat climate change has lead to innovation. The growing consumer preference for eco-friendly solutions encourages us to develop low-carbon products and sustainable product lines. Additionally, we have indetified the opportunities within megatrends such as low-carbon mobility, recycling, and urbanisation, which closely align with our ambition to reduce our environmental impact. At Galaxy, we believe that building climate resilience calls for a proactive strategy, involving both risk mitigation and seizing emerging opportunities in the sustainable business landscape.



Energy Management

Energy conservation is a core principle at Galaxy. We strive to reduce the environmental impact of our operations by minimising energy consumption across both products and processes. This dedication manifests in several ways. We actively implement energy-saving projects to optimise the efficiency of our manufacturing facilities and equipment.

Additionally, Galaxy aligns fully with global emission reduction goals. We achieve our goals through a multi-pronged approach: utilising a robust energy management system (ISO 50001 certified), integrating renewable energy sources into our energy mix, and adopting clean fuels.

Trends	Unit	FY 2022-23	FY 2023-24
Total energy consumption through renewable sources	GJ	30,688	31,313
Total energy consumption through non-renewable sources	GJ	4,57,529	4,66,418
Total fuel consumption for heating/cooling/steam	GJ	2,75,690	2,70,756
Total energy consumption within Galaxy	GJ	4,88,217	4,97,731

Energy Efficiency

Dedicated energy and sustainability teams drive our efforts. They guide us through a comprehensive Energy and Sustainability Policy and regularly assess our energy performance. Taloja facility received Excellent Energy Efficient award for 3rd consecutive year from CII and was also rewarded with NATIONAL LEADER Certification. Our Taloja manufacturing facility serves as a shining example, having successfully implemented the ISO 50001:2018 standard. This certification represents reduced energy consumption and associated emissions that contribute to climate change. Further, Galaxy recognises the importance of meticulously tracking overall energy intensity and consumption as key metrics for continuous improvement.

Our commitment to energy efficiency extends to the resources we utilise. We employ a diverse energy mix that incorporates both non-renewable and renewable sources. This includes furnace oil, coal, various types of diesel fuel, natural gas, grid electricity, and, increasingly, renewable electricity. We calculate our energy consumption by converting the calorific value of each fuel type into gigajoules (GJ). This conversion relies on reliable sources such as Bureau of Energy Efficiency publications, supplier fuel test certificates for coal and natural gas, and established online conversion factors. Similarly, energy savings are tracked by comparing plant operating data before and after implementing specific projects. This comprehensive approach gives us a clear picture of the effectiveness of our efforts and highlights the areas for improvement.

Case Study

Reducing Emissions through Energy Management

During FY 2023-24, we achieved a 34.81% share of renewable electricity in Taloja unit which has helped us avoid more than 6,800 of tCO_2 e emissions. Additionally, we implemented several projects to reduce our overall energy consumption.

In the mixing operation, we optimised processes to reduce power usage. Furthermore, an improvement theme was introduced to re-use the waste heat from an exothermic reaction to reduce the steam consumption within the same process. This reduction in steam consumption has resulted in significant scope 1 emissions reduction.

GHG Emissions

Galaxy has prioritised the reduction of greenhouse gas (GHG) emissions by establishing a robust and transparent GHG Inventory Accounting system. Recognising the increasing demands from investors, regulators, and customers to tackle climate change, this system serves as the foundation for monitoring, reporting, and verifying our current emissions levels. This comprehensive approach to GHG accounting is essential for implementing effective reduction strategies, achieving our long-term sustainability goals, and contributing to the mitigation of climate change.

GHG accounting is carried out at

Facility	Country/Region
Taloja	India
Tarapur	India
Jhagadia	India
Corporate Offices (includes regional sales offices & warehouses)	Navi Mumbai, India
GCE, Suez	Egypt
TRI-K, Derry	New Hampshire, USA

800 tCO_2e
total estimated reduction in GHG emission in scope 1&2

We have been actively tracking and reporting GHG emissions since FY 2011-12. We prioritise emission reduction through energy conservation projects, consolidating data based on operational control (base year 2014-15). Our calculations (CO_2, N_2O, CH_4, HFC) follow ISO 14064-1 and IPCC guidelines (Fifth Assessment Report, 2014), using metered data and records. Our energy and sustainability teams oversee the ISO 50001-certified Energy Management System that supports improvement in energy efficiency and emissions. These steps apply to the auxiliary activities under our control as well.

Since biologically derived materials are not part of our products, emissions from combustion, fermentation, digestion, or decomposition of such materials are not considered in our calculations.

The objective of energy efficiency projects is to reduce power consumption. Such a reduction results in an indirect reduction of Greenhouse Gas emissions.

The following table contains the details of some of the energy efficiency projects

Project Description	Scope	GHG Emissions Savings (tCO_2e)
Energy Savings in LA heating	Scope 1	361.52
Power savings in Blower	Scope 2	106.99
Power savings in mixing operation	Scope 2	39.60
Elimination of energy-consuming unit	Scope 2	14.79
Energy savings in ETLA heating in sulphation	Scope 1	6.90
Power Saving in Chiller	Scope 2	88.18
Energy reduction in air compressor	Scope 2	70.65
Power saving in cooling tower circulation system	Scope 2	84.31
Reduction in Natural Gas consumption	Scope 1	22.80
Energy saving in reactor	Scope 2	34.33

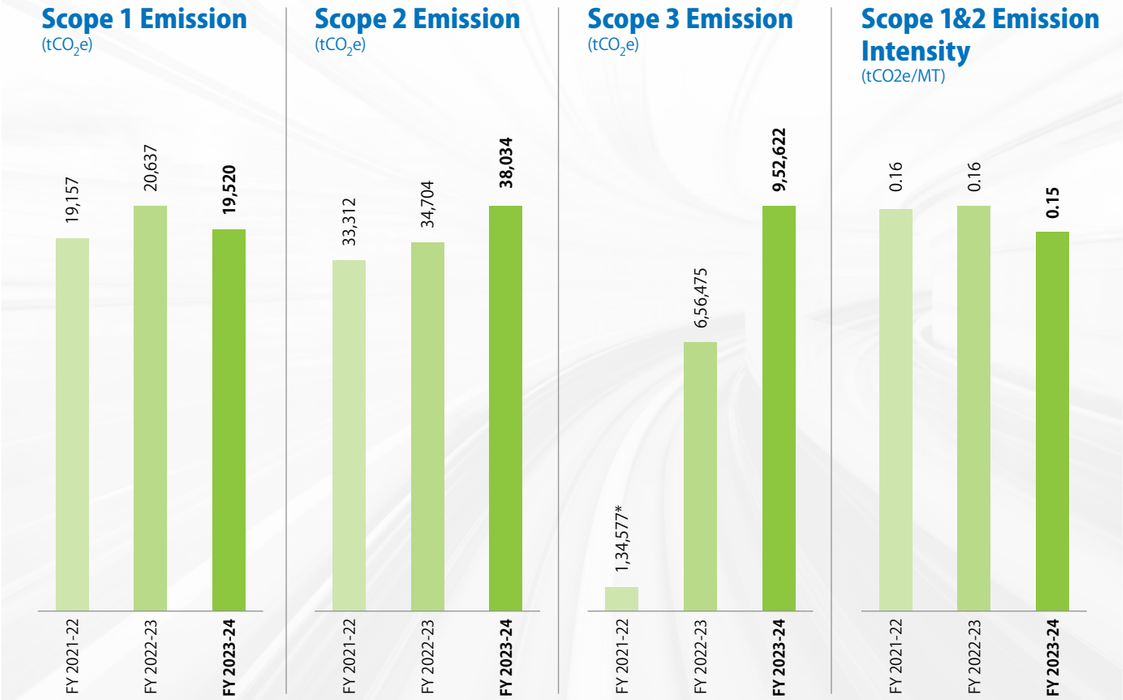
Energy conservation themes and GHG reduction projects executed in FY 2023-24 have resulted in improved energy efficiency. Other GHG reduction projects includes substitution of solid Raw Material by liquid, Batch Size Enhancement, Bulk Handling of raw materials, Use of IBCs without liners, Elimination of BOPP (HDPE) bag with Kraft Paper Bag, and condensate recovery etc.

As a result, our Indian operations have achieved a total estimated reduction in GHG emissions of approximately 800 tCO_2e in scope 1 and 2. Additionally, our investment in solar electricity has enabled us to avoid an estimated 7,148 tCO_2e.

Case Study

Consolidation Approach and Data Collection

We follow the operational control approach for emissions consolidation, adhering to ISO 14064-1:2018 standards. Published IPCC emission factors (Fifth Assessment Report, 2014) guide our calculations for Scope 1 emissions. For Scope 2 emissions, we utilise emission factors from the Central Electricity Authority, the International Energy Agency, and the US EPA. Scope 3 emissions incorporate factors from India GHG Inventory Programme (2018), 2018 IPCC Guidelines for National Greenhouse Gas Inventories, DEFRA guidance inventory, Fifth Assessment Report (2014), US EPA emission factor hub, and Supply Chain Emission Factors for US Industry Commodities. Emissions are captured against SAP entries and meticulous records are maintained for each category.



Scope 3

Gross other indirect (Scope 3) GHG emissions in metric tonnes of CO_2 equivalent:- 9,52,623

Scope 3 Category	Category Names	Emissions (tonnes CO_2 eq.)
Category 1	Purchased goods and services	9,06,791
Category 2	Capital goods	6,077
Category 3	Fuel and energy-related activities	15
Category 4	Upstream transportation and Distribution	8,250
Category 5	Waste generated in operations	330
Category 6	Business travel	909
Category 7	Employee commuting	968
Category 9	Downstream transportation and distribution	29,283

*Disclaimer:- SCOPE III emissions for FY:2021-22 is very low because of assuming zero emissions for derivatives of oleo-chemicals raw materials

Air Emission

To ensure responsible air quality management, we consider factors like gas flow rate, molecular weight, and plant operating hours to calculate total air emissions. This approach ensures we maintain emissions below statutory norms while continuously seeking improvements. For our Indian manufacturing facilities, a rigorous monitoring regime safeguards air quality. We focus on Sulphur Oxides (SOx), Nitrogen Oxides (NOx), and Total Particulate Matter (TPM) emissions. Stack emissions are systematically measured and monitored quarterly by authorised third-party agencies, guaranteeing accuracy and compliance with regulations.

Trends	FY 2021-22	FY 2022-23	FY 2023-24
NOx (Tonnes)	9.61	11.68	24.21
SOx (Tonnes)	24.06	21.89	16.28
TPM (Tonnes)	14.82	13.57	10.83

Material Management

We recognise the need for responsible sourcing throughout our supply chain. There have been environmental and social concerns surrounding palm oil, a key raw material for our products. To mitigate these risks, we source palm oil and its derivatives from RSPO-certified suppliers. Our commitment began in 2012 with membership in the Roundtable on Sustainable Palm Oil (RSPO). We further solidified this dedication by achieving RSPO certification for our manufacturing facilities in India and Egypt. This focus on responsible sourcing has resulted in a consistent increase in sales of RSPO MB-finished goods since 2014. By collaborating with key customers who share our commitment to sustainability, Galaxy plays a proactive role in fostering a more sustainable palm oil supply chain.

Trends	FY 2022-23	FY 2023-24
Total renewable material used (MT)	85,965	1,26,211
Total non-renewable material used(MT)	83,009	70,063

20%

of raw materials were sustainably sourced. This includes RSPO-certified material purchased in FY 2023-24.

Water Management

WASH (Water, Health, and Sanitation)

Galaxy recognises clean water and sanitation as fundamental human rights, and this is reflected in our safety, health, and environment policies, as well as our Supplier and Service Provider Code of Conduct. Aligned with UN SDG 6 (Clean Water and Sanitation for all), we are proactive when it comes to extending proper sanitation services to our local communities. We recycle and reuse water extensively in our operations, especially for WASH. We develop health and hygiene programmes for communities residing near our operations and across India and promote water savings at the end-user level through collaborative and innovative CSR initiatives.

Water is a crucial component within our operations, supporting various functions like cooling, solvent use, cleaning, and product manufacturing, alongside addressing WASH needs. The majority of our water supply, especially at production sites, is sourced from third-party providers. Before integration into our processes, it undergoes treatment at our dedicated water treatment facility. While 97% of our water comes from external suppliers, the remaining 3% is garnered through our rainwater harvesting initiatives within our operational sites. Wastewater generated is subject to proper treatment before either recycling (Indian Manufacturing Operations) or discharge (Galaxy research centre (HO), Egypt and USA), ensuring minimal impact on biodiversity.

Trends	FY 2021-22	FY 2022-23	FY 2023-24
Water recycled (ML)	96.41	104.54	110.64
Water withdrawal (ML)*	474.60	484.42	512.58
Water Discharge (ML)	22.89	25.37	25.99
Water consumption (ML)	451.71	459.04	486.6

* Our water withdrawal includes municipal/third-party and Rainwater harvesting.

We advocate for extensive water recycling and reuse across our operations, particularly for utilities and WASH purposes. This recycled water currently constitutes 25.29% of our total water used for Indian operations, a 5.84% increase from the previous year. Proactively identifying water-stress regions with tools like the Aqueduct Water Risk Map by the World Resources Institute and the India Water Tool, we aim to reduce water consumption, enhance reuse, and manage the associated risks to ensure uninterrupted operations. We maintain systematic tracking of water-related impacts and engage with stakeholders to address specific issues.

Measuring and monitoring water aspects

We continuously monitor water withdrawal using flow meters and utility bills. This data is collected in our Water Treatment Plant Daily Production Report (WTP-DPR) and submitted monthly to the Corporate Sustainability Team for analysis and reporting. Key physical, chemical, and microbiological water quality parameters are also regularly monitored using calibrated meters and kits. Specific parameters are also measured based on process needs and recorded in the WTP-DPR. Monitoring frequency varies, with Total Aerobic Count and Coliforms checked weekly, while pH, Free Chlorine, Chloride, TDS Hardness, and Turbidity are measured every shift (three times a day).

Wastewater treatment and discharge

All our manufacturing facilities in India are Zero Liquid Discharge Units (ZLD). Effluent discharge only occurs at our Head Office, Egypt and USA site, where the water undergoes tertiary treatment before being released to a third-party common effluent treatment plant via monitored flow meters. The process of water supply, purification, transportation, and re-cooling requires energy. Therefore, we continuously strive to improve energy usage through technical advancements and operational optimisations.

18%

of our water consumption is accounted by recycled water

Case Study

Achieving Water Positivity

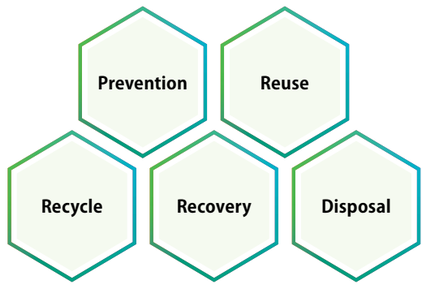
The growing pressure on global water resources due to population and climate change demands innovative solutions. Recognising this challenge, Galaxy has embraced water stewardship as a core principle, aligning with UN SDG 6 and our commitment to human rights. This dedication extends to respecting access to a safe and healthy environment for all stakeholders, including employees, communities, and neighbouring regions.

Identifying our significant dependence on freshwater for operations, we implemented a multi-pronged strategy to achieve water positivity by maximising operational water efficiency, improving effluent management, and increasing recycling capacity. Additionally, water harvesting projects in water-stressed zones and rainwater potential within our facilities are key components. This comprehensive approach has yielded remarkable results. In 2021, Galaxy achieved a water positivity index of 1.4 across its operations, exceeding its goal of replenishing more freshwater than consumed. This achievement was independently verified by third-party agency. Our Tarapur manufacturing facility has achieved an impressive water positivity index of 1.34 in the same year. These accomplishments demonstrate our commitment to conserving water and creating a lasting positive impact.

Waste Management

At Galaxy we are dedicated to achieving a circular economy through responsible waste management practices. Our commitment extends beyond regulatory compliance – we strive to minimise environmental impact, protect ecosystems, and contribute to a healthier planet for generations to come.

Our comprehensive waste management strategy



Case Study

On the waste reduction front, we implemented the use of 80% liquid Mono Chloroacetic Acid (MCA), which significantly reduced hazardous waste generation of contaminated paper bags. This shift prevented around 4.5 tonnes of MCA bags from being incinerated in FY 2023-24, with an annual potential of avoiding 30 tonnes of waste to incineration. Additionally, we implemented a programme to reuse jumbo bags used for sulphur storage. The empty bags are sent back to the vendor who refills them with sulphur the same bags could be reused 3-4 times before being recycled.

Our comprehensive waste management strategy is based on the waste hierarchy, emphasising prevention and reduction as the primary steps. We actively pursue reusing, recycling, and recovery opportunities whenever possible, with responsible disposal as the final option.

This approach minimises waste generation, maximises resource efficiency, and promotes a circular economy. By closing material loops and diverting waste to recyclers, we contribute to improved resource utilisation and production efficiency.

Through stringent waste monitoring systems at our manufacturing facilities, we accurately measure and track waste generation, enabling continuous improvement in our waste management practices. Our defined goals to achieve 'Zero Waste to Incineration' by 2029-30 and 100% waste circularity by 2030 have encouraged us to identify and implement innovative solutions.

The WESAP Initiative

We empower our employees through the Waste Elimination Suggestion Award Programme (WESAP). This programme focuses on eight key waste streams, encouraging employees to offer suggestions for the reduction and elimination of waste. Following employee training, WESAP collects and reviews suggestions, implementing feasible solutions at the site level. In FY 2023-24, we received 2342 suggestions and implemented 322 of them, with the winning employees being recognised for their valuable contributions. WESAP fosters a culture of continuous improvement, driving us towards our ambitious waste reduction goals.

Types of Waste

Defects	Overproduction
Waiting	Not utilising talent
Transportation	Inventory excess
Motion waste	Extra processing

322*

suggestions implemented

* Indian operations and GCE.

Bringing about Change

Our 'Parivartan-WESAP' (Waste Elimination Suggestion Award Programme) empowers operational teams to identify and eliminate waste at its source, thereby encouraging a culture of continuous environmental improvement.

Streamlined Waste Data Collection and Analysis

To achieve 100% waste circularity by 2030, Galaxy prioritises data-driven waste management. We leverage streamlined processes to collect and monitor waste generation across our facilities. Regional sustainability coordinators gather monthly data for our all Sites, which is then consolidated for in-depth analysis at the corporate level. These insights are instrumental in continuously refining waste management practices and driving sustainability initiatives.

Types of waste generated (in MT)

Waste type	FY 2022-23	FY 2023-24
Plastic waste	362	527
E-waste	8.676	2.90
Construction and Demolition Waste	6382	5260
Bio-medical waste	0.39	0.14
Battery Waste	9.29	10.58
Other Hazardous Waste	9,262	5,596
Other Non-Hazardous Waste	1,835	1,702
Total waste	**17,860**	**13,098**

Waste diverted from disposal (in MT)

Description	FY 2022-23	FY 2023-24
Recycled	4,395	4,822
Re-used	8,359	6,398
Other recovery operations	435	0
Total	**13,189**	**11,220**

Waste disposed by nature of disposal method (in MT)

Description	FY 2022-23	FY 2023-24
Incineration	3,236	1,203
Landfilling	741	675
Other disposal operations	694	0
Total	**4,671**	**1,879**

86%

Waste circularity in FY: 2023-24

Waste Mapping for a Circular Future

We have implemented product-wise waste mapping to pinpoint areas for waste reduction. This data analysis allows us to develop solutions for improved resource efficiency and a minimised waste footprint. Stringent legal and contractual obligations guide our waste management practices. All waste, hazardous or non-hazardous, is sent to authorised vendors for proper disposal or recycling.

Managing Effluents

Through ongoing research, process design, and plant operations, we are in the process of minimising emissions to water. Moreover, we foster responsible water usage throughout our value chain, assessing supplier compliance with environmental standards in our regular evaluations. Actively participating in initiatives aimed at bolstering supply chain sustainability, we also provide comprehensive water reporting and collaborate with organisations like CDP to mitigate water-related risks, aligning our product developments with sustainable water management principles for our customers' benefit.

Priority substances like biochemical oxygen demand (BOD), chemical oxygen demand (COD), soluble salts, and suspended solids are closely monitored both internally and externally. At our Indian facilities, water undergoes treatment to maintain parameters below permissible limits, with 25.28% of water consumption attributed to recycled sources. Efforts to reduce freshwater use include effluent treatment plants and reverse osmosis (RO) processes. The RO rejects are directed to MEE (Multi Effect Evaporator) and ATFD (Agitated thin-film dryer) systems for further treatment, reducing reliance on freshwater. We also conduct internal audits and local authorities conduct assessments to ensure compliance with guidelines and legal standards.

Biodiversity

Galaxy prioritises responsible land use throughout our supply chain. At our manufacturing sites, we take a multi-pronged approach to minimise our footprint. We are strategically located in industrial parks to avoid sensitive areas, and we strictly adhere to local regulations to prevent pollution. Furthermore, we continuously evaluate sustainability aspects before constructing new sites or expanding existing ones.

An Ongoing Commitment

We actively participate in environmental awareness initiatives and programmes. We celebrate International Biodiversity Day and World Environment Day, Earth Day by organising tree-planting events at our manufacturing sites. These actions demonstrate our dedication to preserving and enhancing biodiversity.

Case Study

Galaxy Biodiversity Forest: A Thriving Ecosystem

In FY 2023-24, we launched the Galaxy Biodiversity Forest (GBF) project at our Jhagadia manufacturing facility. This initiative utilises the Miyawaki technique to cultivate a dense native forest on 2 acres of land. The GBF project features 21,000 plants of 104 diverse species, including medicinal herbs, trees, flowering plants, and fruit-bearing shrubs. This rich ecosystem provides a habitat for local flora and fauna, contributing to a more balanced and healthier environment.