Company Report

MTI Technology

treedom
let's green the planet

Treedom Report for

MTI Technology

23 May 2025

OVERVIEW

1
Forests

9
Countries

17
Species

1,800
Trees

41,729 m²
Tree cover gain

446,275 kg
Absorbed CO_2

The trees

Trees are essential for our planet: they absorb CO_2, improve air quality, protect biodiversity, and support local communities. Planting trees means investing in a greener, healthier future, helping to combat climate change and ensuring ecological balance.

Species

1,800
Trees

Common name	Scientific name	Quantity	Species at risk[1]
Acacia Mangium	*Acacia mangium*	100	–
African Mahogany	*Khaya senegalensis*	50	✓
Cashew	*Anacardium occidentale*	230	–
Banana	*Musa x paradisiaca*	75	–
Cacao	*Theobroma cacao*	175	–
Coffee	*Coffea arabica*	130	✓
Cassia	*Senna sp.*	50	–
Courbaril	*Hymenaea courbaril*	70	–
Croton	*Croton macrostachyus*	100	–
Grevillea	*Grevillea robusta*	100	–

[1] More details on species at risk of extinction and methodology available at the dedicated page of the Treedom website - https://bit.ly/3YBqtbC

Common name	Scientific name	Quantity	Species at risk[1]
 Guava	*Psidium guajava*	100	—
 Lime	*Citrus latifolia*	50	—
 White Mangrove	*Avicennia marina*	65	—
 Brazilian Fire	*Schizolobium parahyba*	50	—
 Tephrosia	*Tephrosia vogelii*	285	—
 Chaya	*Cnidoscolus aconitifolius*	100	—
 Roxburgh fig	*Ficus auriculata*	70	—

[1] More details on species at risk of extinction and methodology available at the dedicated page of the Treedom website - https://bit.ly/3YBqtbC

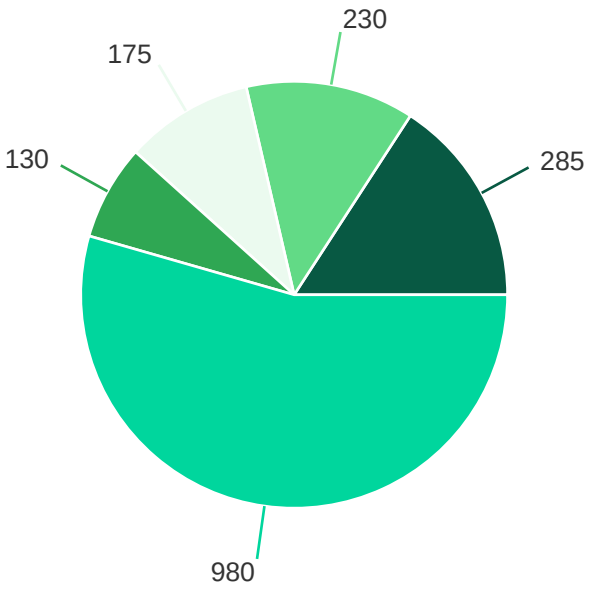
285 **Tephrosia**
Tephrosia vogel...

230 **Cashew**
Anacardium occi...

175 **Cacao**
Theobroma cacao...

130 **Coffee**
Coffea arabica

980 **Others**
Others

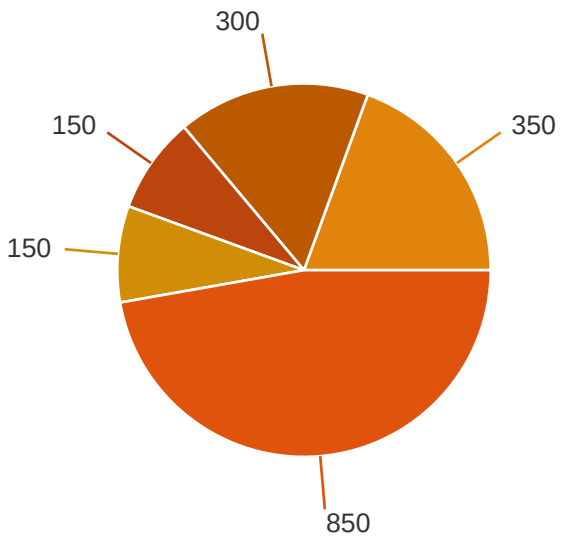


Countries

41,729 m²
Tree cover gain[1]

9
Countries

Each project we undertake is unique, driven by a common principle: creating lasting environmental and social benefits. In every country, we plant trees and work with local communities to enhance quality of life and protect our planet. With the support of MTI Technology, we're changing the world, one tree at a time. See how our projects are making a difference, country by country.



350 **Madagascar**
Amaron'i Mania,...

300 **Colombia**
Santa Marta, Si...

150 **Nepal**
Rasuwa, Nuwakot...

150 **Cameroon**
Yaoundè, Mfound...

850 **Others**
Others

[1] The methodology used to define "tree cover gain" is described on the dedicated page of the Treedom website - https://bit.ly/3CaLSzy

Country Name	Region	Number of trees
Tanzania	Ifakara, Morogoro Region	100
	Arusha Region	100
	Arusha Region	100
	Arusha Region	100
Nepal	Rasuwa, Nuwakot, Lamjung & Tanahu Districts	150
Madagascar	Amaron'i Mania, Menabe & Haute Matsiatra Regions	350
Kenya	Ogembo, Kisii County	100
Guatemala	Peten, Huehuetenango, Izabal & Alta Verpaz Districts	100
	Peten & Huehuetenango DIstricts	50
Ghana	Techiman, Bono East Region	100
	Tamale, Northern Region	50
Ecuador	Manabi, Cotopaxi, Los Rios e Orellana Provinces	50
Colombia	Santa Marta, Sierra Nevada Region	300
Cameroon	Yaoundè, Mfoundi Department	150

Tanzania

6,011 m²
Tree cover gain

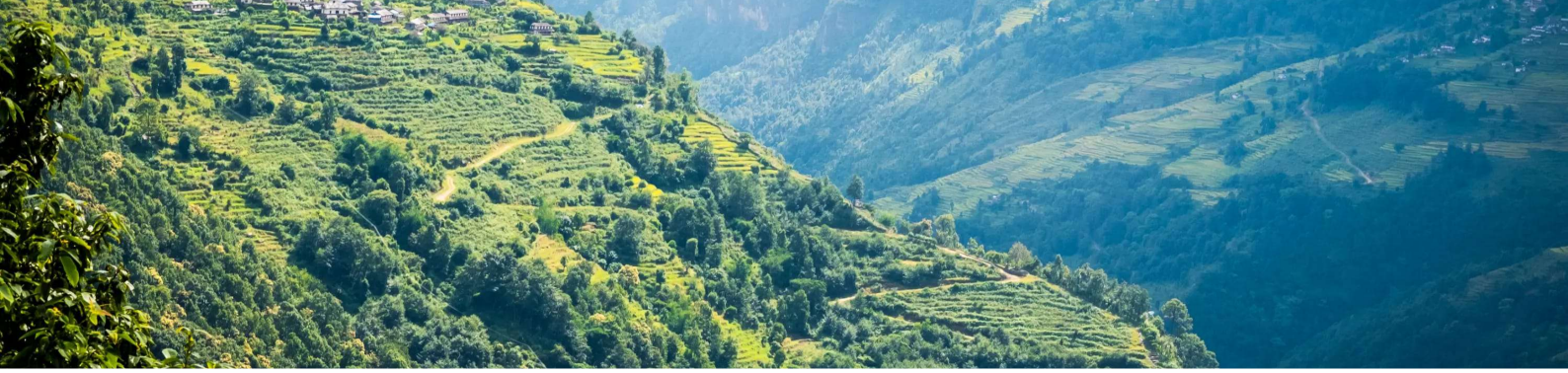
400
Trees

Located in a strategic point on the east coast of the African continent, the territory of present-day Tanzania has been for centuries the crossroads of a series of trades, exchanges and connections between the Arab, Persian and Bantu worlds. In particular, the island of Zanzibar acquired a growing centrality, until it became an important sultanate linked to that of Oman.

Today Tanzania is a country with a vast territory, three times larger than Italy, and rich in some of the most beautiful naturalistic corners of Africa. In the north-east, the territory is mainly mountainous and it is there that the Kilimanjaro is found, the highest and most famous peak of the continent. Still in the north, but on the western side, the Great Lakes region begins. That's where Lake Victoria and Lake Tanganyika are located, respectively the largest and the deepest in Africa. But perhaps the most incredible attraction that Tanzania has to offer the world are its natural parks. The Serengeti National Park, the famous Ngorongoro, the Selous reserve, the Mikumi park and the park of the Gombe Stream, small but of great importance.

The district of Rombo is one of the seven districts of the Kilimanjaro region and contains a large portion of the Kilimanjaro National Park. The project aims to decrease the exploitation of water resources and improve environmental quality by offering productive activities such as fruit production and beekeeping, but implemented with a low use of water and soil.

The project also intends to promote and disseminate an appropriate behavior with respect to the use of water, practicing reforestation of areas surrounding traditional water sources and proposing activities that generate an alternative income capable of motivating farmers to change land use and towards a less intense exploitation of natural resources such as beekeeping, an extremely profitable activity compatible with the natural forest associations in the area.



Nepal

360 m²
Tree cover gain

150
Trees

Rightly nicknamed "the top of the world" for its high peaks, Nepal actually has a very diverse natural environment: its territory includes tropical plains along the Gange river, as well as vast intermediate croplands and, of course, the Himalayas. Eight out of the world's fourteen highest peaks (over 8,000 meters) are in Nepal. The Nepalese wildlife is incredibly varied, ranging from the red panda, the snow leopard and the Bengal monitor.

Treedom started its work in Nepal in September 2017, with a project for the planting and organic cultivation of 12,000 trees. Their goal is to encourage small coffee producers, whose activities bring great profit to the local economy.

Madagascar

836 m²
Tree cover gain

350
Trees

The project area identified is located in the municipality of Vohiday, in a rural area adjacent to that of the homonymous forest. It is an area, like many other rural areas of Madagascar, where an itinerant agriculture has spread, practiced often by burning forest areas and old farmland. This practice is called slash-and-burn and is increasingly less sustainable.

The project that Treedom and Tsyriparma intend to realize wants above all to offer a permanent, sustainable and long-term alternative to this type of agriculture. The mix of forest and fruit species is designed to ensure the creation of an integrated agroforestry system, able to offer both a right biodiversity and the possibility, for the communities involved, to benefit from various crops during the seasons.

Kenya

2,398 m²
Tree cover gain

100
Trees

Kenya is crossed by the Equator from east to west and by the Rift Valley from north to south. The country is on the Indian Ocean and its flat and sandy coastline is just one of the characteristic landscapes this country offers: in fact, numerous plateaus, woodlands, savannahs and mountain ranges cover the land. Because of the Rift Valley, the Kenyan territory also includes many freshwater and salt lakes, and display a widespread geothermal activity.

The main goal of Treedom's activity in Kenya is to support reforestation on a small scale among small farmers, by encouraging their active participation. Since 2014, Treedom has been working with many local organizations to replenish depleted rural areas by involving local institutions and giving the population alternative income solutions deriving from agriculture.

Guatemala

1,999 m²
Tree cover gain

150
Trees

The entire Guatemalan territory is protected or partially protected, and there are large natural parks rich in flora (including some of the rarest orchids in the world) and fauna (from the armadillo and the puma, to the quetzal, the colorful bird symbol of the country). Our project area, in the Petén district in the north of the country, is surrounded by some of Guatemala's most beautiful parks, such as the Parque Nacional Laguna del Tigre and the Reserva de Biosfera Maya.

The project that we will develop in collaboration with the non-profit AMKA involves the planting of fruit trees. These will include: Lime, Mandarin, Mango, Cacao, Graviola (also known as Corossole or Guanàbana), Sapote (traditional fruit tree, widespread among the pre-Columbian civilizations of Central America), Guava and Orange. The trees will be planted in small-scale agroforestry systems, according to the principles of permaculture. This approach mimics natural processes, creating partnerships between different species, ones that protect the soil, diversify food production and protect biodiversity.

Ghana

5,415 m²
Tree cover gain

150
Trees

The low and sandy coasts of Ghana look onto the Gulf of Guinea, while the inner country is characterized by plains and small hills (just think that the highest peak in the country is Mount Afadjato, only 885 meters). Crossed by the equator and marked by a tropical climate, Ghana, in particular the north of the country, suffers from the advancing of the Sahara desert and the drought brought by Harmattan, the wind that blows periodically from there.

Treedom's work is concentrated in the northern region of the Daka River. The area's population is extremely dependent on natural resources and inevitably tends to exploit them massively, risking to aggravate their condition in the long run. The Treedom project aims, above all, to reinforce the local ecosystem and offer, at the same time, food and income opportunities to local communities.

Ecuador

800 m²
Tree cover gain

50
Trees

Ecuador's environmental treasure is becoming increasingly valuable. It is one of the countries defined as a "megadiverse" to underline the extreme richness and peculiarity of its ecosystems. In the province of Manabi, which overlooks the Pacific Ocean and is close to the capital Quito, we cooperate with the Universidad Estatal del Sur de Manabi - Unesum and the Federación de Agricultores Campesinas de la Zona Sur de Manbì.

The project involved the construction of an agroforestry nursery and the planting of 20,000 coffee trees to support small producers while respecting the conservation of biodiversity.

Colombia

22,259 m²
Tree cover gain

300
Trees

Treedom's project in Colombia will be launched in collaboration with Environomica and is part of the larger SFEC initiative (Sustainable Livelihoods and Forest Ecosystem). This aims to achieve ambitious objectives, to improve the environmental and social conditions of the intervention area and its inhabitants. Among the various partners involved in the implementation of the SFEC are important names such as WWF Italy and the Global Heritage Fund, which is directly involved given the archaeological importance of the area. The area, in fact, is located in the indigenous reserve on the slopes of the Sierra Nevada of Santa Marta, in the north of the country, and is next to the archaeological site of Ciudad Perdida.

Thanks to the availability of four local forest nurseries for the production of seedlings of tall trees, cacao and other fruit trees, Treedom was able to select many typical species suitable to grow in the climatic conditions of the area. These include, for example: the Pink Cedar, the Guayaba, the Guanàbana and the Criollo Cacao (a typical species of the area, capable of offering sustainable income to the farmers given the ease of sale on local markets).

Cameroon

1,649 m²
Tree cover gain

150
Trees

The diversity of the landscape is one of the features that make this country special. Located in West-Central Africa, Cameroon has a 400 Km coastline along the Atlantic Ocean: as we move further inland, the coastal plain breaks up into various plateaus, often covered by equatorial rainforests. Cameroon has no shortage of mountains: Mount Cameroon (4,095 meters) is one of the highest summits in Africa.

Treedom started its adventure right in Cameroon in 2010, by developing projects aimed at planting Cocoa trees, thus improving food safety for the rural population, increasing the local agricultural resources and offering additional income opportunities.

Company Forests

1
Forests

MTI Technology Forest

Trees planted
1,800

Keepers
0

Benefits

The trees we plant do much more than absorb CO_2: they also provide tangible economic benefits to local communities. Our carefully selected projects improve food security, generate income, and protect biodiversity, creating a positive impact on both the environment and people.

Food Security

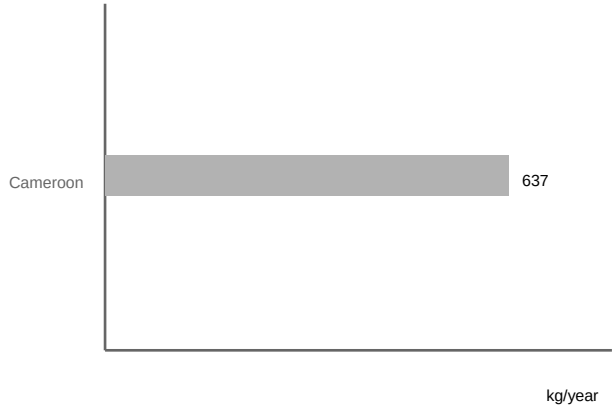
Before the advent of specialized monoculture, the rule of agriculture was different species sharing the same land. This allowed positive interaction, for example, between horticultural and tree species. Not only that, but it allowed for diversification of available food sources. Planting trees on land dedicated to agriculture is at the heart of our work and allows precisely for better food security for farmers and their families.

7,915
kg / year

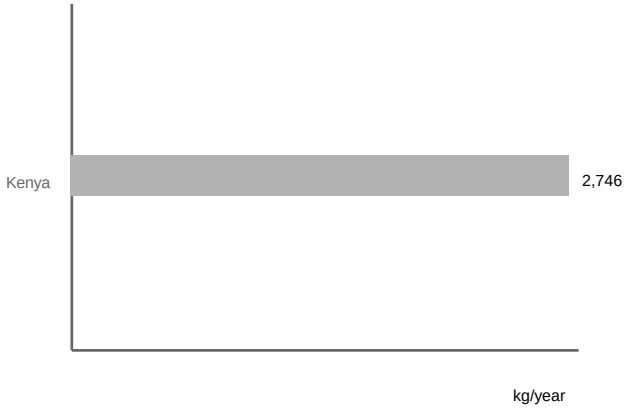
Supported SDGs

Cashew 2,352 kg/year

Banana 637 kg/year

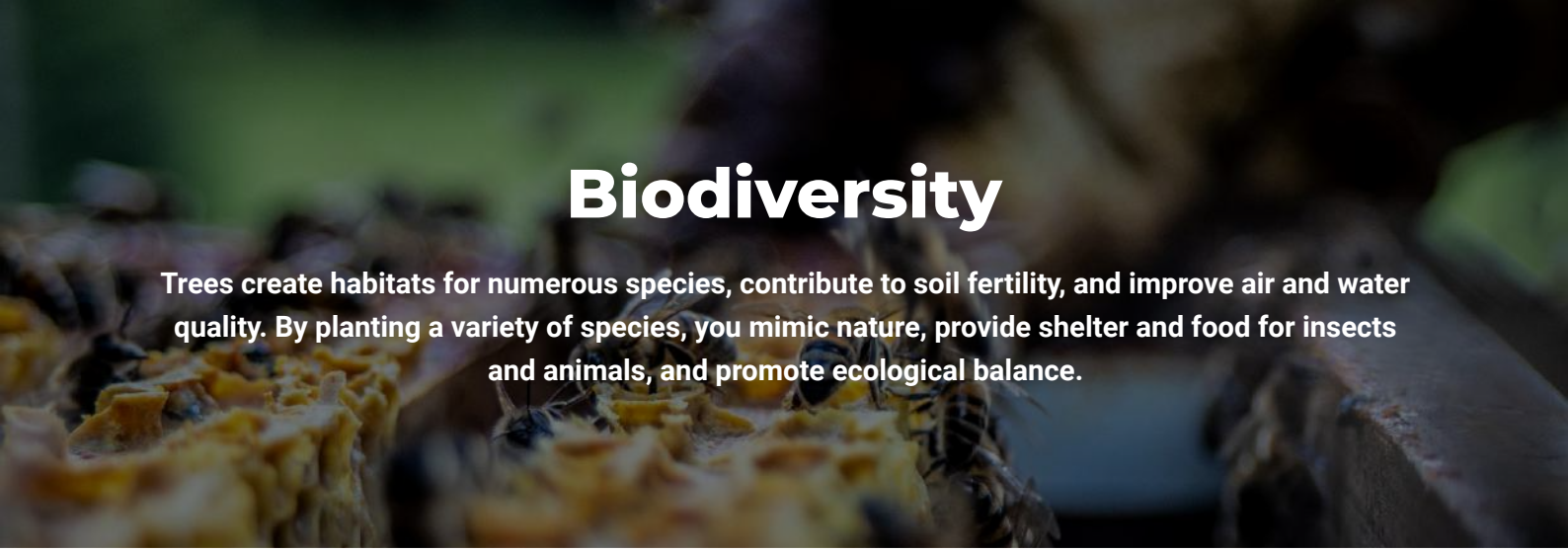


Guava 2,746 kg/year



Lime 2,180 kg/year

[1] The methodology used to calculate fruit production for the "Food Security" impact is described on the dedicated page of the Treedom website - https://bit.ly/48ld5eZ



Biodiversity

Trees create habitats for numerous species, contribute to soil fertility, and improve air and water quality. By planting a variety of species, you mimic nature, provide shelter and food for insects and animals, and promote ecological balance.

17
Species

Supported SDGs

Species at risk: 2

Species at risk of extinction in the wild. The IUCN Red List (International Union for Conservation of Nature) is a global inventory assessing the conservation status of animal, fungal, and plant species. Divided into nine categories, ranging from Not Evaluated to Extinct, it is based on information about range, population size, habitat, current threats, and conservation actions taken to mitigate them.

Acacia Mangium

Acacia Mangium (Acacia mangium)
The Acacia mangium, also known as "Mangium" or "Forest Mangrove," is an evergreen tree belonging to the Fabaceae family. Native to northeastern Queensland in Australia, Papua New Guinea, and the Moluccas in Indonesia, it is now widely cultivated in tropical regions around the world, including Asia, Latin America, and Africa.

Botanical characteristics
The Acacia mangium can grow to a height of 25-35 meters. It typically has a straight trunk, often fluted at the base, and can reach a diameter of up to 90 cm. The bark of young trees is smooth and green, while in older trees, it becomes hard and fissured, with a gray-brown color. The flowers are small, white or yellow, and grouped in spike-like inflorescences. The fruits are woody pods containing numerous hard seeds, each with a hood-like appendage that aids in dispersal.

Cultivation and propagation
Acacia mangium grows rapidly and thrives in a variety of soil conditions, even in poor and acidic soils (with a pH between 4.5 and 6.5). It is drought-resistant but requires a substantial amount of annual rainfall, preferably between 1,000 and 3,000 mm. Propagation is primarily by seed, but cuttings can also be used. The seeds require scarification to improve germination.Uses and benefits
Acacia mangium is a versatile plant with numerous uses. It is widely used in reforestation and agroforestry to improve soil fertility due to its ability to fix nitrogen. The wood is used for pulp production, timber, charcoal, and biomass. The plant also has medicinal applications, and its leaves are used as fodder for livestock. Additionally, Acacia mangium is planted for soil erosion control and water protection.

Economic and environmental importance
Acacia mangium is a significant economic resource in many tropical regions, providing raw materials for various industries and contributing to the economic stability of rural communities. From an environmental perspective, the plant is used for the reclamation of degraded lands and the conservation of biodiversity.

African Mahogany

Species at risk

African Mahogany (Khaya senegalensis)
African Mahogany, scientifically known as Khaya senegalensis, is a tree belonging to the Meliaceae family. Native to the tropical regions of West Africa, including areas of Senegal, Gambia, Guinea, and Benin, it is widely cultivated for its valuable timber and multiple medicinal applications.

Botanical characteristics
African Mahogany can grow up to 30 meters in height, with a trunk diameter that can reach up to 2 meters. The trunk is straight and cylindrical, often with buttresses at the base. The bark is dark gray, with small, thin scales that vary from red to dark pink and secrete a reddish sap. The leaves are compound, pinnate, with 3-7 pairs of oblong or elliptical leaflets, dark green on the upper side and lighter underneath. The flowers are small, white or white-yellowish, and clustered in inflorescences. The fruits are woody capsules that split into four segments, containing numerous flat, winged seeds that are dispersed by the wind. African Mahogany is known for its dense, durable wood, with a coloration that ranges from pinkish-red to dark brown.

Cultivation and propagation
Khaya senegalensis thrives in hot, humid climates, preferring well-drained soils. It is drought-resistant and can adapt to a wide range of soil conditions. Propagation is primarily by seed, but it can also be done through cuttings. The seeds require scarification to improve germination. The trees grow rapidly, reaching fruiting maturity in about 20-25 years.

Uses and benefits
African Mahogany wood is widely used for furniture making, shipbuilding, musical instruments, and luxury finishes. It is prized for its durability, insect resistance, and workability. In addition to its timber uses, the bark and seeds have medicinal applications: they are used in traditional African medicine to treat fever, headaches, and gastrointestinal issues, thanks to their anti-inflammatory and antimicrobial properties.

Economic and environmental importance
African Mahogany is a significant economic resource in many regions of West Africa. However, over-exploitation has led to a reduction in natural populations, classifying it as a vulnerable species on the IUCN Red List. Sustainable cultivation and forest management are essential for the conservation of this species. From an environmental perspective, African Mahogany contributes to soil stabilization and the conservation of tropical forests, and it is used in reforestation and agroforestry programs.

Cashew

Cashew (Anacardium occidentale)
The Cashew tree, scientifically known as Anacardium occidentale, is an evergreen tree belonging to the Anacardiaceae family. Native to Brazil, it is now cultivated in tropical regions worldwide, including India, Vietnam, Nigeria, and the Philippines. This tree is renowned for its edible seeds, known as cashews, and the false fruit called the cashew apple.

Botanical characteristics
The Cashew tree can grow up to a height of 14 meters, but dwarf cultivars, which reach a maximum height of 6 meters, are preferred for their higher productivity and faster maturation. The tree has a broad, dome-shaped canopy with low, sometimes irregular branches. The leaves are arranged in a spiral, coriaceous in texture, elliptic to obovate in shape, and measure 4 to 22 cm in length and 2 to 15 cm in width. The flowers are produced in terminal panicles, up to 26 cm long, and are initially green, turning reddish over time. Flowering occurs in two distinct seasons in regions with two dry seasons.

Fruit and propagation
The fruit of the Cashew tree is an accessory fruit known as the cashew apple, a swollen peduncle that is yellow or red in color. The true fruit is the kidney-shaped seed attached to the base of the apple, commonly known as the cashew nut. The seeds are enclosed in a hard shell containing caustic oils that must be carefully removed before consumption. Propagation is done by seed or grafting. Seeds begin to germinate about three weeks after planting, and the plant starts producing fruit between the third and fourth year. The tree's extensive root system allows it to withstand drought conditions well, making it suitable for various agroforestry practices.

Uses and benefits
Cashews are widely consumed as a snack and used in many culinary recipes. They can be processed into cashew butter or used as a base for sauces and curries. The cashew apple, rich in vitamin C, can be eaten fresh, processed into juices, jams, or distilled to produce alcoholic beverages. Beyond food uses, the Cashew tree has numerous industrial applications. The seed shell produces a caustic liquid used in the manufacture of lubricants, paints, and waterproofing materials. The tree's wood, durable and resilient, is used for making furniture and light structures.

Economic and environmental importance
The Cashew tree is a crop of great economic importance in producing countries, providing livelihoods for millions of small-scale farmers. It is known to improve soil fertility due to its ability to fix nitrogen and produce humus. It is often intercropped with crops like maize and coconut to enhance yield and soil quality. The cashew industry represents a significant source of income, with global nut production exceeding 4 million tons in 2019. Sustainable cultivation and responsible resource management are crucial for maintaining ecological balance and improving the living conditions of farming communities.

Banana

Banana (Musa x paradisiaca)
The banana, belonging to the genus Musa, is a perennial herbaceous plant of the Musaceae family. Native to the tropical regions of Southeast Asia, the banana is now cultivated in numerous tropical and subtropical areas around the world, becoming one of the most important and widely consumed fruits globally.

Botanical characteristics
Unlike many other fruit plants, the banana is not a true tree but a giant herbaceous plant that can reach a height of 2 to 9 meters. The “trunk” of the banana, known as the pseudostem, is actually formed by the overlapping bases of the leaves. The leaves are large, elliptical, and can reach a length of 2.5-3 meters. New leaves emerge from the center of the plant and form a crown at the top. Banana flowers grow in hanging inflorescences called bunches. These bunches produce both male and female flowers, with the female flowers developing into the fruit. The banana fruits are elongated berries that change color from green to yellow, orange, or red as they ripen, depending on the variety.

Cultivation and propagation
The banana thrives in warm, humid climates, with ideal temperatures between 25 and 30 degrees Celsius and annual rainfall above 1000 mm. It prefers well-drained soils rich in organic matter, with a slightly acidic to neutral pH. The plant is very sensitive to cold and does not tolerate temperatures below 10 degrees Celsius. Propagation is primarily done by dividing suckers, the shoots that emerge at the base of the mother plant. These suckers are separated and transplanted to start new plants. Bananas require careful management, including the removal of excess suckers to promote optimal fruiting.

Uses and benefits of the fruit
The banana is rich in carbohydrates, fiber, vitamins (especially vitamin C and B6), and minerals like potassium. It provides an immediate source of energy and is a staple food in many tropical regions. In addition to being consumed fresh, bananas are used to produce juices, purees, banana chips, and flours. The banana also has numerous non-food uses. The fibers from the pseudostem are used to produce ropes, textiles, and paper. The leaves are used as packaging material, for steaming food, and as fodder for livestock.

Economic and environmental importance
The banana is one of the main cash crops in many tropical countries. According to the FAO, global banana production exceeded 153 million tons in 2019. Banana cultivation supports millions of small farmers and agricultural workers worldwide, significantly contributing to local economies. From an environmental perspective, banana plantations can have both positive and negative effects. The plant helps prevent soil erosion thanks to its dense root system. However, intensive banana monocultures can lead to biodiversity loss and require significant amounts of water and pesticides.

Cacao

Cacao (Theobroma cacao)
Cacao, scientifically known as Theobroma cacao, is a plant native to the tropical regions of Central and South America. Belonging to the Malvaceae family, this plant is famous for its seeds, commonly called cocoa beans, which are the primary raw material for chocolate production.

Botanical characteristics
Cacao is a small evergreen tree that can reach a height of about 4-8 meters. The leaves are long, oblong, dark green, and glossy. Cacao flowers are small, white or pink, and grow directly on the trunk and main branches in a phenomenon known as cauliflory. The plant flowers year-round, but fruit production varies seasonally. The cacao fruits, called pods, are large, elongated capsules that contain 20 to 60 seeds surrounded by a sweet, mucilaginous pulp. The pods vary in color from yellow to red to purple, depending on the variety and stage of ripeness.

Cultivation and harvesting
Cacao grows best in warm, humid climates with consistent temperatures between 21 and 32 degrees Celsius and abundant annual rainfall. It requires rich, well-drained soil and moderate shade to protect young plants from intense sunlight. Harvesting cacao pods is a manual process that requires care and precision to avoid damaging the flowers and immature fruits. After harvesting, the cocoa beans are extracted from the pods, fermented to enhance flavor, and then sun-dried.

Uses and chocolate production
Cocoa beans are the foundation of chocolate production. After drying, the beans are roasted to develop their characteristic aroma, then ground into cocoa mass. This mass can be further processed to separate cocoa butter from cocoa powder, both essential ingredients in the production of various types of chocolate and other food products. In addition to chocolate, cocoa beans are also used to produce traditional beverages like hot cocoa, and in cosmetic and pharmaceutical applications due to their antioxidant and nourishing properties.

Economic and social importance
Cacao is an economically important crop for many tropical countries, particularly in West Africa, Latin America, and parts of Asia. Cacao cultivation provides livelihoods for millions of farmers and their families. However, the cacao industry faces several challenges, including deforestation, plant diseases, poor working conditions, and price volatility. In recent years, efforts have been made to promote sustainable farming practices and improve the living conditions of farmers through fair trade initiatives and certification programs.

Coffee

Species at risk

Coffee (Coffea arabica)

Coffee, scientifically known as Coffea arabica, is one of the most cultivated species of the coffee plant, accounting for approximately 60-70% of global coffee production. Native to the mountainous regions of Ethiopia, this plant has become a crucial crop in many tropical areas around the world.

Botanical characteristics

Coffea arabica is an evergreen shrub that can grow to a height of about 2-5 meters. The leaves are opposite, glossy, and dark green. Coffee flowers are small, white, and fragrant, similar to jasmine flowers. They bloom abundantly after rains, and their sweet fragrance fills the air of coffee plantations. The fruits of the plant, known as coffee cherries, are round berries that turn from green to bright red or yellow when ripe. Each cherry typically contains two seeds, known as coffee beans. In rare cases, a cherry may contain only one seed, called a peaberry.

Cultivation and harvesting

Arabica coffee grows best in tropical climates with moderate temperatures between 15 and 24 degrees Celsius and abundant rainfall throughout the year. It prefers altitudes between 600 and 2,000 meters above sea level, where the cool air helps develop a more complex flavor in the beans. Harvesting coffee cherries is primarily a manual process, requiring careful attention to pick only fully ripe fruits. This method, known as “picking,” ensures higher quality compared to mechanical harvesting, which does not distinguish between ripe and unripe fruits.

Coffee production process

After harvesting, coffee cherries must be processed quickly to prevent unwanted fermentation. There are two main processing methods: the dry method and the wet method. In the dry method, the cherries are sun-dried and then hulled to extract the beans. In the wet method, the cherries are pulped, fermented, and washed to remove the mucilage before drying. Once dried, the green coffee beans are roasted to develop their characteristic aroma. Roasting is both an art and a science, varying in temperature and duration, which significantly influences the final flavor of the coffee.

Economic and social importance

Coffee is one of the most important global commodities, providing livelihoods for millions of small farmers in producing countries such as Brazil, Colombia, Ethiopia, and Vietnam. The coffee industry has a significant economic and social impact, supporting local and international economies. However, the coffee industry faces significant challenges, including climate change, plant diseases, price fluctuations, and poor working conditions. In recent years, numerous initiatives have emerged to promote sustainable farming practices and improve farmers’ living conditions, such as fair trade and sustainability certifications.

Cassia

Cassia (Senna sp.)
The genus Senna includes numerous species of trees, shrubs, and herbaceous plants belonging to the Fabaceae family. The most well-known and widely used species include Senna alexandrina, Senna siamea, and Senna occidentalis, all of which are recognized for their medicinal properties and ecological value. Native to tropical and subtropical regions around the world, Senna plants are appreciated for their resilience and versatility.

Botanical characteristics
Senna plants vary widely in height, ranging from small shrubs to large trees that can reach up to 20 meters in height, as in the case of Senna siamea. The leaves are compound, pinnate, with 4-12 pairs of oval or elliptical leaflets. The flowers are generally yellow and are arranged in racemes or terminal clusters. The fruits are linear pods, often curved, containing numerous hard, flat seeds. Senna species flower year-round in tropical climates, while in subtropical climates, flowering is seasonal. The flowers attract a wide range of pollinators, including bees and butterflies.

Cultivation and propagation
Senna plants thrive in warm, sunny climates, preferring well-drained, sandy or loamy soils with a pH ranging from slightly acidic to neutral. They are drought-resistant and can grow in poor soils due to their ability to fix atmospheric nitrogen through symbiosis with soil bacteria. Species like Senna siamea are often used in agroforestry to improve soil quality, provide shade, and as a source of timber. These plants can regenerate quickly after pruning or cutting, making them ideal for sustainable land management.

Uses and benefits
Senna species are widely known for their medicinal properties. The leaves and fruits of Senna alexandrina are used as a potent natural laxative, thanks to the anthraquinone compounds present in the plant. Senna siamea, on the other hand, is used in traditional medicine to treat digestive issues, fever, and infections. The leaves and seeds of many species are also used as fodder for livestock, although some species can be toxic if consumed in large quantities. In addition to medicinal and agricultural uses, Senna plants are used as ornamental plants in gardens and parks due to their showy flowers and decorative foliage.

Economic and environmental importance
Senna plants play an important role in the rural economies of tropical regions, providing resources for the pharmaceutical, agricultural, and timber industries. They are also crucial for soil conservation and erosion prevention, especially in areas with poor soils. Senna species are used in reforestation and land reclamation programs, contributing to biodiversity and environmental sustainability.

Grevillea

Grevillea (Grevillea robusta)
Grevillea robusta, commonly known as "Silky Oak," is an evergreen tree belonging to the Proteaceae family. Native to the coastal regions of eastern Australia, it is known for its rapid growth and spectacular inflorescences.

Botanical characteristics
Grevillea robusta is a medium-sized tree that can reach a height of 18 to 35 meters, with a straight trunk and a pyramidal crown when young, which becomes broader with age. The bark is dark and deeply fissured, while the young branches are covered with a fine silvery hair. The leaves are compound, ranging from 15 to 30 cm in length, and divided into 11-31 narrow, pointed lobes. Young leaves are tomentose and silvery in color, while mature leaves are green and glossy on the upper side and lighter underneath.

Cultivation and uses
Grevillea robusta prefers warm, sunny climates and thrives in well-drained soils rich in organic matter. It is a drought-resistant species, but young trees require regular watering. It is commonly planted as an ornamental tree in gardens and along streets, but it is also used in agroforestry as a windbreak and to improve soil quality through humus formation. The wood of Grevillea robusta is valued for its silky texture and yellow-brown color, and it is used in the manufacture of furniture, musical instruments, and marquetry. The leaves have traditional medicinal uses, such as in China where they are used to treat minor cuts.

Ecological importance and conservation
The tree plays an important role in the ecosystem, providing food and habitat for many species of birds and insects. However, some species of Grevillea are threatened by habitat loss and competition with invasive species. Conservation programs and sustainable cultivation are essential to protect these unique species and promote biodiversity.

Guava

Guava (Psidium guajava)
Guava, scientifically known as Psidium guajava, is an evergreen plant belonging to the Myrtaceae family. Native to the tropical regions of Central America, northern South America, and the Caribbean, it is now cultivated in many tropical and subtropical areas around the world, including India, China, Southeast Asia, and tropical Africa.

Botanical characteristics
Guava is a small tree or shrub that can grow up to a height of 10 meters, but it generally remains between 3 and 6 meters tall. The trunk is short, with smooth bark ranging in color from light green to reddish-brown, peeling off in thin strips. The leaves are opposite, oval or elliptical in shape, 7 to 15 cm long, with a smooth upper surface and slightly hairy underside. The fruit of the guava is a globose or pear-shaped berry that varies in size from 2.5 to 10 cm in length. The skin can be green, yellow, or pink, and the inner pulp varies from white to pinkish to red, depending on the variety. The pulp is juicy and contains numerous small hard seeds. Guava fruits are known for their high vitamin C content and other nutrients.

Cultivation and propagation
Guava thrives in warm, humid climates, preferring well-drained, slightly acidic soils, but it is tolerant of a wide range of soil conditions, including sandy and clayey soils. Propagation is primarily by seed, but cuttings and grafting can also be used to maintain varietal characteristics. Guava plants begin to bear fruit within 2-4 years of planting. The fruits are harvested when they change color and start to release their characteristic aroma. Guava is known for its resistance to drought periods and its ability to recover quickly after cutting or pruning.

Uses and benefits of the fruit
Guava is consumed fresh or processed into a variety of food products such as juices, jams, jellies, and desserts. The pulp is rich in vitamin C, antioxidants, fiber, and minerals, making it nutritious and beneficial for health. Guava leaves are used in traditional medicine to treat gastrointestinal disorders, infections, and other ailments due to their antimicrobial and anti-inflammatory properties.

Economic and environmental importance
Guava is an economically important crop in many tropical and subtropical regions, providing a source of income for millions of farmers. The plant is also used in reforestation and agroforestry projects for its ability to improve soil fertility and provide shade.

Tephrosia

Tephrosia (Tephrosia vogelii)
Tephrosia is a genus of plants in the Fabaceae family, comprising over 350 species distributed in tropical and subtropical regions worldwide. Among the most well-known species are Tephrosia purpurea and Tephrosia vogelii, valued for their various uses in agriculture and traditional medicine.

Botanical characteristics
Tephrosia purpurea is a perennial herbaceous plant that can grow up to 1.5 meters in height. The leaves are compound, with 7-15 oblanceolate or obovate leaflets, and may be glabrous or densely hairy. The flowers, ranging in color from white to purple, are arranged in racemose inflorescences up to 25 cm long. The fruits are pods containing oblong seeds.

Cultivation and agricultural uses
Tephrosia is cultivated in many tropical regions as a green manure crop to improve soil fertility. The roots of Tephrosia form nodules that host Rhizobium bacteria, which can fix atmospheric nitrogen, thereby increasing the nitrogen content in the soil. This makes it an ideal plant for intercropping with crops like maize and coffee, where it helps to enhance the yield of the main crops. Tephrosia is known for its insecticidal properties. Leaf extracts are used as natural pesticides to protect crops from insects and pests, reducing the need for chemical pesticides. The leaves can be applied directly to plants or used to prepare sprayable solutions.

Medicinal and traditional uses
Tephrosia is widely used in traditional medicine. In Ayurveda, it is known for its anthelmintic, antipyretic, and anti-inflammatory properties. It is employed in the treatment of various conditions, including leprosy, ulcers, asthma, tumors, and diseases of the liver and spleen. The roots, in particular, are used to prepare decoctions for digestive disorders and rheumatism. In some cultures, such as in Polynesia, Tephrosia roots are used as fish poison. They contain compounds like tephrosin, which stun fish without harmful effects on mammals, thus facilitating fishing.

Ecological importance and conservation
Tephrosia plays a significant role in soil stabilization and erosion prevention due to its extensive root system. However, some Tephrosia species are threatened by habitat loss and competition with invasive species. Conservation efforts are essential to protect these plants and promote their sustainable cultivation.

Water Protection

Trees owe their existence to water. But the relationship between trees and water is actually more complex than that and is based on a mutual exchange in which trees, yes, owe water for their existence, but they reciprocate in many ways. They do this by filtering water into the soils and purifying it, providing shade for waterways and mitigating evaporation, and creating distinctive habitats such as those in Mangrove forests. That between water and trees is truly a mutually beneficial relationship.

65
Mangroves

Supported SDGs

65
White Mangrove

Marvelous Mangroves

Mangroves are true natural wonders! These extraordinary coastal ecosystems thrive where fresh and saltwater meet, thanks to their aerial roots that stabilize the seabed and create vital habitats for a multitude of marine and terrestrial species. Imagine forests that not only protect coastlines from erosion and storms by reducing wave energy and preventing floods, but also provide refuge and nourishment for fish, reptiles, amphibians, crustaceans, and birds. Their intricate roots offer a safe haven from predators.

Mangroves not only enhance fishing, ensuring the survival of local communities, but are also crucial in the fight against climate change. With their ability to absorb CO_2, they significantly contribute to reducing greenhouse gases. In short, mangroves are essential not only for biodiversity but also for protecting our coasts and the well-being of our planet.

Climate

Every tree, in the course of its life, absorbs CO2 from the atmosphere, fixing it in its woody parts. The effects of this activity are all the greater the longer trees are enabled to grow and live. Today we know that the excessive concentration of CO2 in the atmosphere is one of the main causes of global warming, which, trees can help counteract in the most natural way possible.

446,275 kg
of absorbed CO_2

Supported SDGs

How CO_2 Storage in Plants Happens.

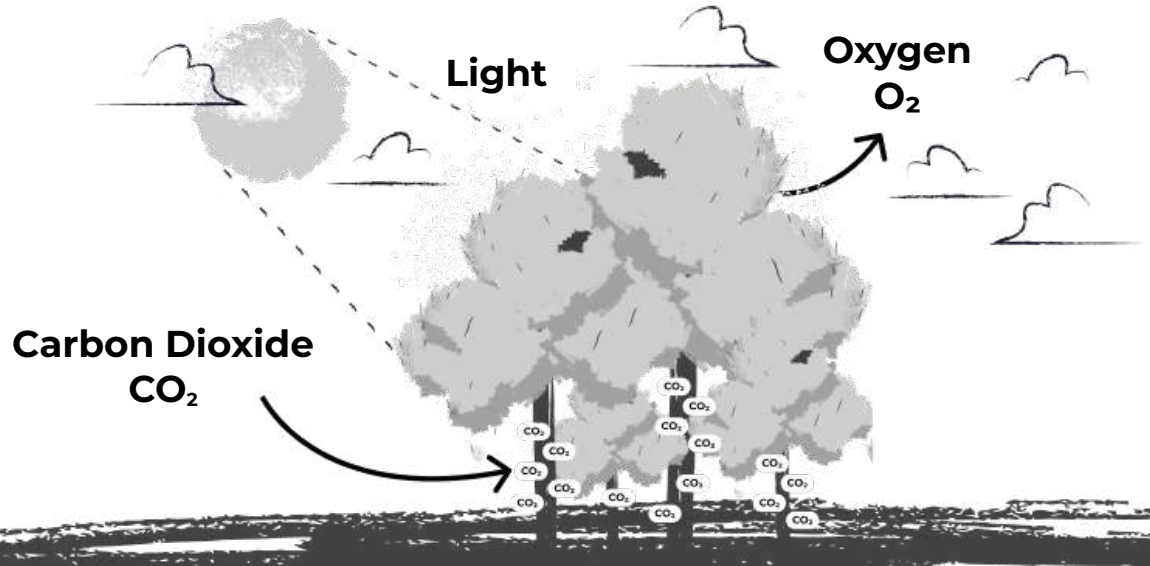
Plants, through the process of photosynthesis, absorb carbon dioxide (CO_2) from the atmosphere. Here is an overview of how this fundamental process occurs:

1. Photosynthesis
During photosynthesis, tree leaves absorb sunlight. Using the energy of light, plants convert CO_2 and water into glucose (a sugar that serves as an energy source) and oxygen, which is released into the atmosphere.

2. Biomass accumulation
Carbon derived from CO_2 is incorporated into plant tissues, such as leaves, trunks, roots and branches. This process is known as biomass accumulation.

3. Growth and carbon sequestration
As the tree grows, it continues to accumulate carbon in its structure. Older and larger trees contain more biomass and therefore more carbon than young trees.

4. Soil Interaction
Some of the CO_2 absorbed by plants is transferred to the soil through roots and the decomposition of organic matter. This further contributes to the storage of carbon in the soil, which can be trapped for long periods of time.



How is the amount of CO_2 absorbed by trees calculated?

Allometric equations

A tree, during its growth, stores carbon, removing carbon dioxide (CO_2) from the atmosphere and transforming it into biomass through the process of photosynthesis. A widely recognized method for quantifying the CO_2 stored through this process, therefore, consists in considering the Total Biomass (BT) of the tree at a given time and evaluating how much of it is composed of carbon.

47%

Average percentage of the dry weight of the biomass is carbon

According to the Intergovernmental Panel on Climate Change (IPCC), the carbon content in tree biomass is on average 47% of the dry biomass. The molar mass of carbon (C) is 12 g/mol while the molar mass of carbon dioxide (CO_2) is 44 g/mol, therefore, for every gram of carbon we have 44/12=3.67 g of CO_2. Following this logic, to quantify the CO_2 stored in the roots, trunk and branches of the tree, the BT must be multiplied by 0.47 and by 3.67.

How to calculate CO_2 stored in roots, trunk and branches

$$\mathrm{CO_2} = \frac{47}{100}(BT \cdot 3,67)$$

So, the only data that remains to be calculated is the BT of Treedom trees. For this very purpose, we resorted to allometric equations of the planted species. Allometric equations consist of mathematical models that allow us to estimate the biomass or volume of the tree, based on its most easily measured dimensions (such as stem diameter or height). In collaboration with researchers at the University of Milan (Department of Agricultural and Environmental Sciences - Production, Land, Agroenergy), allometric equations of planted species were collected, updated and expanded in order to create a computational model that would allow us to estimate the BT of our trees once they reach 20 and 40 cm stem diameter at breast height. The calculation is done ex ante and referred to a certain period of time.

Therefore, the assumption is adopted that the tree will remain alive and grow at a rate similar to that expected throughout the period under consideration. In addition, to ensure that the total CO_2 absorbed is calculated according to the precautionary principle, extra plantings are carried out in addition to replacements for natural mortality.

Social Inclusion

In our projects we try to develop the potential of communities by putting economic resources, tree power and our know-how at their service. In this way we can initiate profound changes. We work with communities that sometimes face more or less overt discrimination. Gender, ethnic, social or other types of discrimination. The goal is to overcome all prejudice and make a contribution for long-term changes.

Supported SDGs

For a world that is not only greener, but fairer

Agroforestry projects have a positive impact not only on the environment but also on social inclusion, primarily involving local populations. In developing countries, through tree planting and management, people find opportunities for economic and social growth. Women, who often have limited access to the job market, play a crucial role. By participating in these projects, they gain skills and economic independence, becoming key actors in their communities' development.

Similarly, our projects in Italy provide opportunities for inclusion for people with disabilities or former inmates, offering them work and training paths. This approach not only supports sustainable development but also creates a strong social impact, improving the lives of the vulnerable, fostering social cohesion, and offering a path to redemption through work tied to the environment.

Treedom impact measurement

The impact measurement of Treedom's projects, validated by B Corp certifications and dedicated studies, demonstrates concrete benefits for the environment and communities, enhancing sustainability, income, and biodiversity.

Treedom B Corp Certification

To measure the impact of our activities, we use the Benefit Impact Assessment, the same standard used for B Corp certification. Since 2014, Treedom has been one of the first companies in Europe and Italy to adopt this methodology.

The B Impact Assessment (BIA) is a free and confidential platform that helps companies measure and manage their positive impact on workers, communities, customers, and the environment.

Treedom has achieved a score of 121.1, significantly higher than the average score of 50.9 for companies completing the assessment.

Treedom B Corp Score

GOVERNANCE	WORKERS	COMMUNITY	ENVIRONMENT	CUSTOMERS
20.1	38	26.9	32.5	4.7

TOTAL **122.4**

- 122.4 - Treedom's overall B Impact score
- 80 - qualifies for B Corp certification
- 50.9 - Median score of companies completing the assessment

Previous overall B Impact scores

2016 Overall B Impact Score	**107.1**
2014 Overall B Impact Score	**114.9**

Benefit Corporation

For over fourteen years, Treedom has been combining business activity with environmental and social sustainability. For these reasons, Treedom 2020 has acquired the legal status of a Benefit Society. A new legal form of business that ensures the basis for the creation of shared value in the long run. The Benefit Society (SB) is a recognized corporate form that combines a profit-making purpose with an additional purpose represented by one or more social goals.

The three pillars of a Benefit Society are: purpose, accountability, and transparency.

Purpose

The commitment to create a positive impact on society and the environment, promoting favorable conditions for the prosperity of both.

Responsability

Include the company's impact on society and the environment in strategic planning, considering all stakeholders involved.

Trasparency

Communicate and report annually on the results achieved and future objectives to all stakeholders.

Altis Impact Analysis

In 2022, we decided to conduct a further analysis to assess the global impact of Treedom's agroforestry projects. With the support of ALTIS - Università Cattolica, we developed a model for monitoring and measuring the impact of these projects, aiming to determine how and to what extent they affect the involved stakeholders.

Measuring impact involves evaluating the effects generated by an organization's activities on the territory and the community, through a quantification of the relative importance that stakeholders attribute to the changes experienced in their lives due to the organization's work. To carry out this impact measurement, three countries – Kenya, Madagascar, and Nepal – and their associated projects have been selected. This approach allows for the examination of diverse dynamics and cultures, which are representative of the full range of Treedom's active projects.

ALTIS project countries

Kenya **Madagascar** **Nepal**

Through open-ended interviews it was possible to investigate the relationships and effects of Treedom's projects on both the staff of Treedom's partners and the farmers involved in the projects, identifying:

- Distinctive characteristics of Treedom's activities and relationships;
- Perception of the effects generated by Treedom's activities;
- Possible contribution of actors outside Treedom to the generation of the effects identified above;
- Potential risks and negative impacts.

Altis impact analysis

Focus Kenya

Focus Kenya

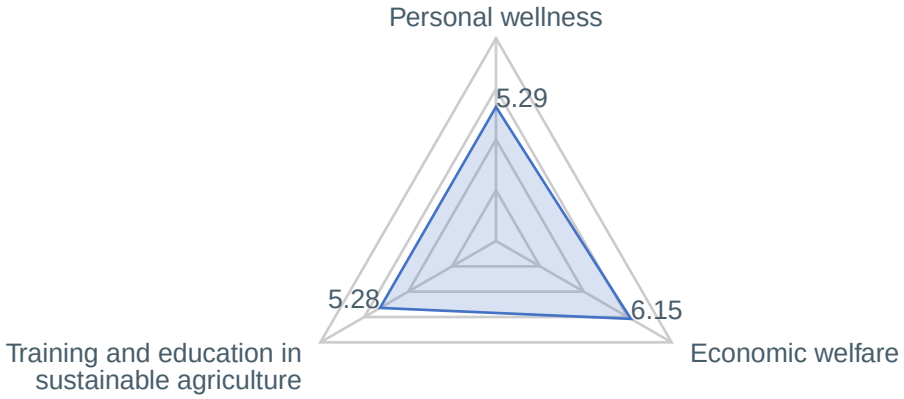
The following are the results of an impact analysis conducted in partnership with ALTIS - Catholic University, focusing on Kenya, where the company supported a tree planting initiative. All reported quantitative findings are based on a scale of 7.00, representing the highest perceived impact by respondents.

Evaluation of impact perception for farmers

The data reveals that Kenyan farmers experienced a positive change in the area of Training and Education in Sustainable Agriculture, with a score of 6.15. The scores for Personal Well-being and Economic Well-being were 5.29 and 5.28, respectively.

FARMERS: Change experienced in impact dimensions in Kenya

(on a scale of 1-7, where 1 indicates a strongly negative impact, 4 no impact, 7 a strongly positive impact)



Evaluation of perceived impact for local partners

By examining the impact dimensions across the country, it is evident that Kenya's local partners observed substantial improvements in multiple areas, with an average perceived change across four dimensions of 6.22. Notably, Kenyan organizations reported significant growth in territorial recognition (6.43), organizational management and development (6.30), and access to financial resources (6.31).

LOCAL PARTNERS: change experienced in the impact dimensions in Kenya

(on a scale of 1-7, where 1 indicates a strongly negative impact, 4 no impact, 7 a strongly positive impact)

Evaluation of perceived impact for staff of local partners

Employees of Kenyan organizations working with Treedom also experienced notable changes across three impact dimensions. In particular, the Training and Education in Sustainable Agriculture dimension achieved a high score of 6.56.

STAFF OF THE PARTNER: change experienced in the impact dimensions in Kenya
(on a scale of 1-7, where 1 indicates a strongly negative impact, 4 no impact, 7 a strongly positive impact)

Altis impact analysis

Focus Madagascar

Focus Madagascar

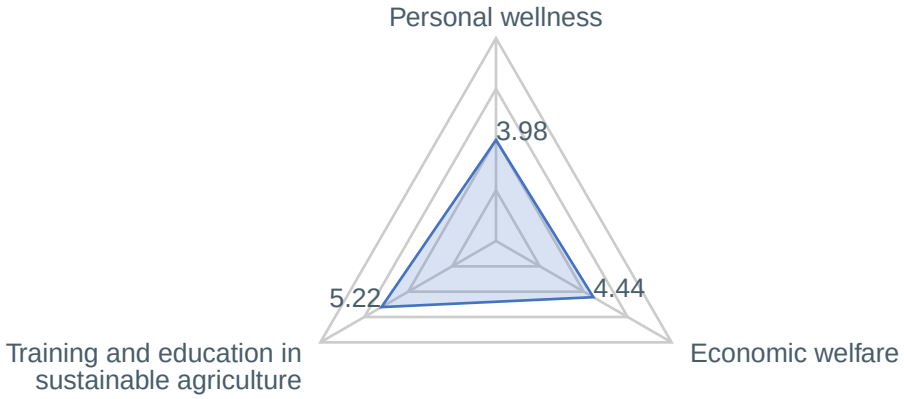
The following are the results of an impact analysis conducted in collaboration with ALTIS - Catholic University, focusing on Madagascar, where the company contributed to a tree planting initiative. All reported quantitative results are based on a maximum scale of 7.00, which indicates the highest perceived impact by respondents.

Evaluation of impact perception for farmers

The data shows that Malagasy farmers experienced a positive change in the area of Training and Education in Sustainable Agriculture, scoring 5.22. Personal Well-being and Economic Well-being scores were 3.98 and 4.44, respectively.

FARMERS: Change experienced in impact dimensions in Madagascar

(on a scale of 1-7, where 1 indicates a strongly negative impact, 4 no impact, 7 a strongly positive impact)



Evaluation of perceived impact for local partners

An analysis of impact dimensions within the country indicates that Madagascar's local partner observed notable changes in various areas, with an average perception of change across four dimensions at 6.21. Specifically, the Malagasy organization saw significant improvements in sustainable agricultural practices (6.50), access to financial resources (6.43), territorial recognition (6.17), and organizational management and development (5.75).

LOCAL PARTNERS: change experienced in the impact dimensions in Madagascar

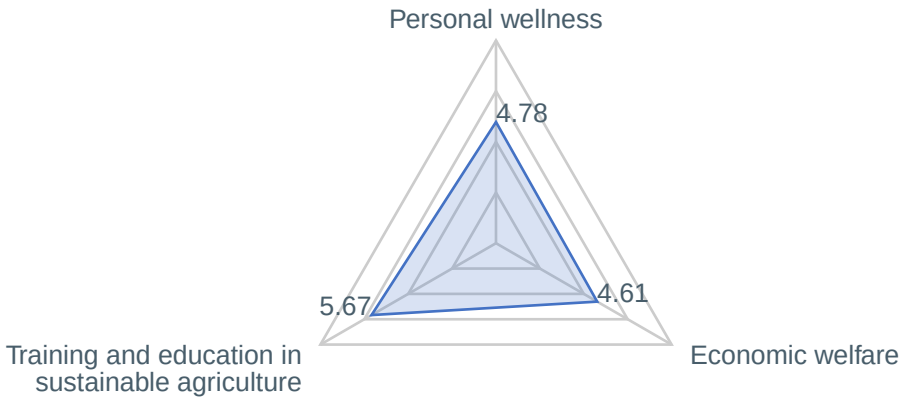
(on a scale of 1-7, where 1 indicates a strongly negative impact, 4 no impact, 7 a strongly positive impact)

Evaluation of perceived impact for staff of local partners

Staff members from the Malagasy organization working with Treedom also reported meaningful changes in three impact dimensions, with Training and Education in Sustainable Agriculture recording a score of 5.67.

STAFF OF THE PARTNER: change experienced in the impact dimensions in Madagascar

(on a scale of 1-7, where 1 indicates a strongly negative impact, 4 no impact, 7 a strongly positive impact)



Altis impact analysis

Focus Nepal

Focus Nepal

The following are the results of an impact analysis conducted in collaboration with ALTIS - Catholic University, focusing on Nepal, where the company contributed to a tree planting initiative. All quantitative findings are reported on a 7.00 scale, representing the highest perceived impact by respondents.

Evaluation of impact perception for farmers

The data indicates that Nepalese farmers experienced a positive change in Training and Education in Sustainable Agriculture, with a score of 5.36. Personal Well-being and Economic Well-being scored 4.02 and 4.72, respectively.

FARMERS: Change experienced in impact dimensions in Nepal

(on a scale of 1-7, where 1 indicates a strongly negative impact, 4 no impact, 7 a strongly positive impact)

Evaluation of perceived impact for local partners

When analyzing impact dimensions for Nepal, the local partner reported changes across several areas, with an average perception of change across four dimensions at 4.75. Notably, the Nepalese organization reported a significant increase in sustainable agricultural practices, scoring 6.22.

LOCAL PARTNERS: change experienced in the impact dimensions in Nepal
(on a scale of 1-7, where 1 indicates a strongly negative impact, 4 no impact, 7 a strongly positive impact)

Legal status and memberships

In 2020, Treedom became a Benefit Corporation: an Italian legal status that pursues social and environmental benefits in addition to profit. To maximize its positive impact, Treedom is part of several international networks that work every day to make this world a better place.

Our certifications

Certified B Corp

since June 2014

Since 2014, Treedom has been a part of the Certified B Corporations, a network of companies distinguished by their high environmental and social performance.

Network and partners

AICS partners

Solar Impulse Foundation Members

Signatories of Terra Carta

Members of Leaders for Climate Action

Acknowledgements

Treedom's commitment to improving the well-being of the environment and people has been recognized over the years by many prestigious awards.

Awards

United Nations Best Small Business Competition

July 2021

Treedom was honored among the best small and medium-sized enterprises (SMEs) around the world transforming food systems for a better tomorrow.

2021 Real Leaders Impact Awards

January 2021

Annual global ranking of positive impact companies driving positive social impact across all major sectors of the economy.

Pledges

UN Global Compact

May 2012

The UN Global Compact is a voluntary initiative based on the membership of CEOs committed to sustainability.

UN Climate Neutral Now

June 2021

Launched by the UNFCCC secretariat to convince as many actors as possible to take climate action.

The Climate Pledge

August 2021

Network of companies and organizations committed to achieving zero emissions before 2040

Our Impacts Reports

In 2020, Treedom produced its first Impact Report, a document that measures and communicates in detail the effects of our activities. This type of reporting aligns with our long-standing commitment to assessing and sharing the impact of our initiatives. Below, you can find the Impact Reports for each year.

Scan the QR code or click "Download" to see our impact budgets.

Download

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