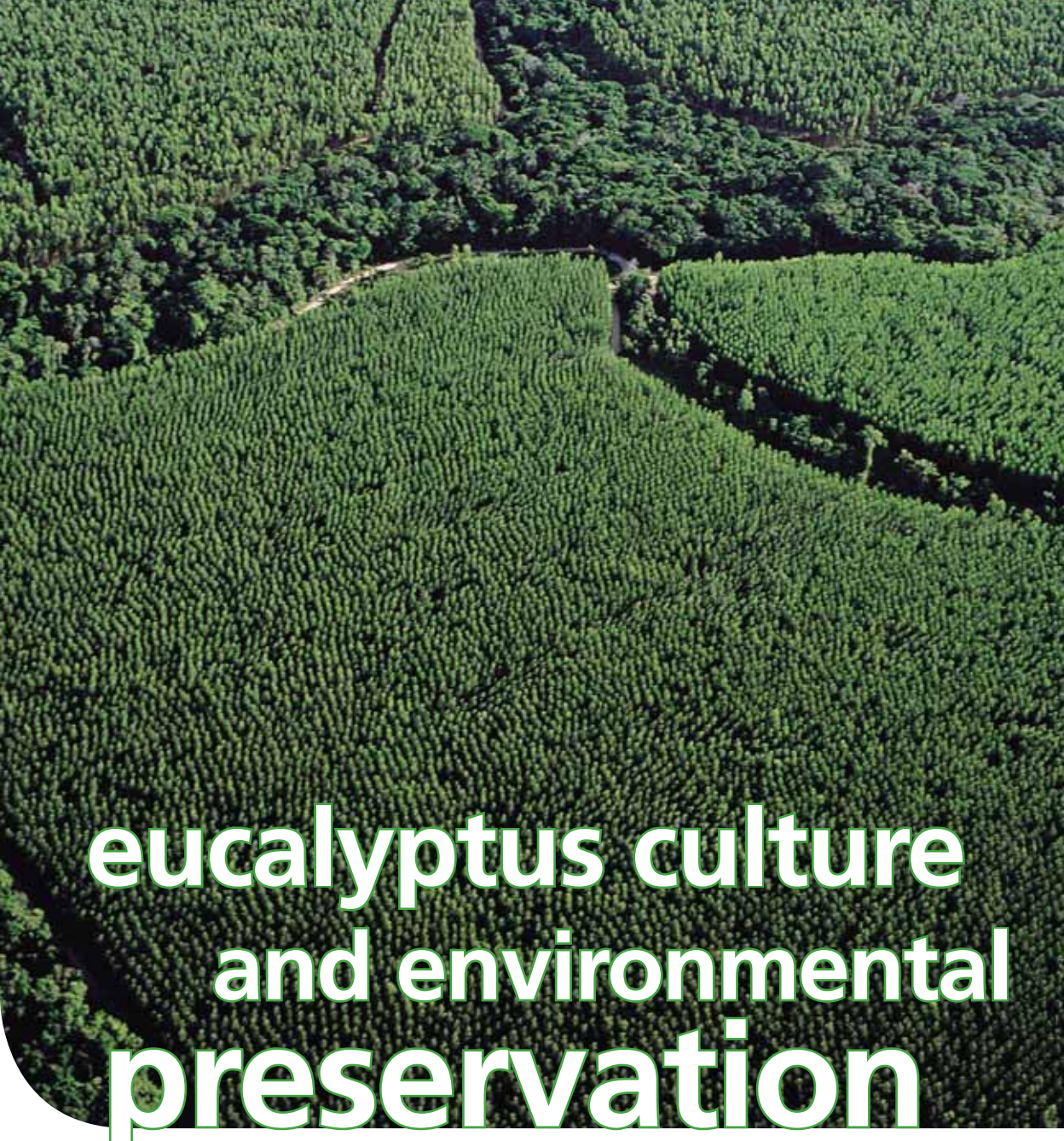


eucalyptus culture and environmental preservation

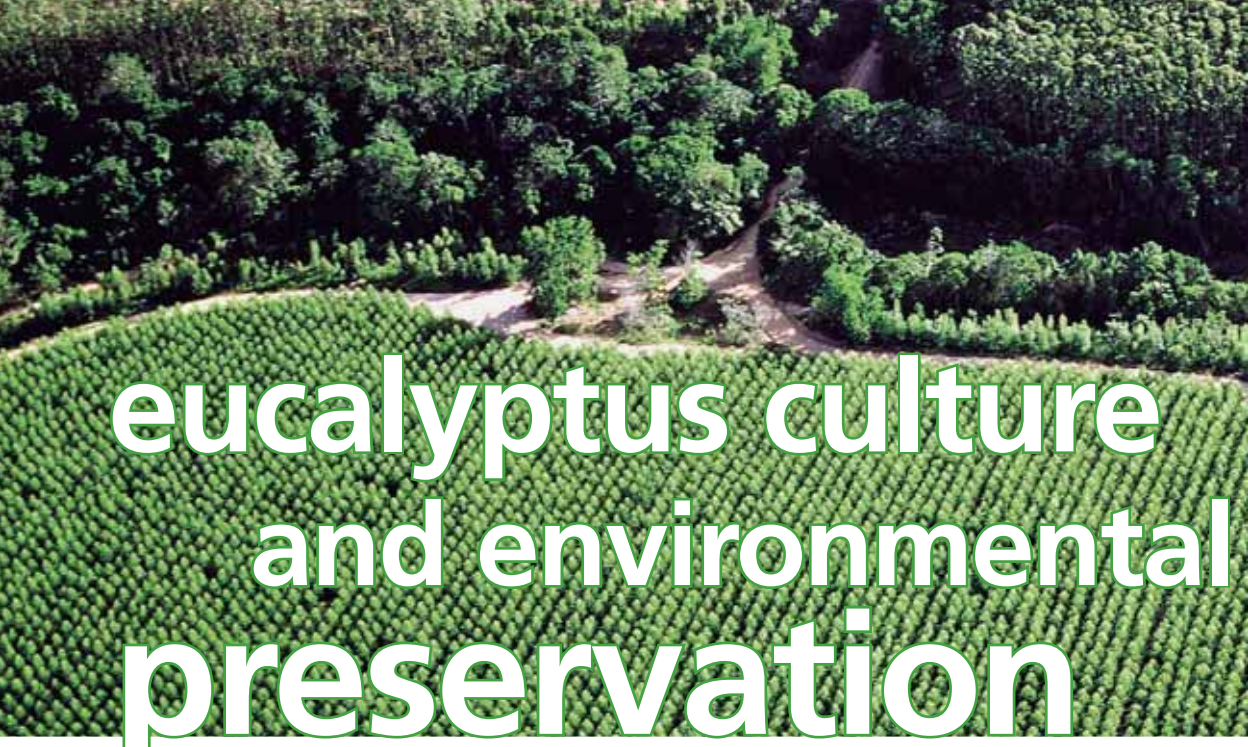
SUZANO
PAPEL E CELULOSE

summary

eucalyptus culture and environmental preservation

suzano papel e celulose

Mucuri, South of the state of Bahia
planted and native forests



eucalyptus culture and environmental preservation

forestry **planting** reduces the pressure on **native forests**

planted areas interspersed between native vegetation corridors (above)

Suzano Papel e Celulose is a Brazilian company, established over eight decades ago, and its path is marked by pioneer spirit and innovation, working together with society for development and always respecting the environment. It is a global pioneer in the development of eucalyptus pulp production technology – currently used in large scale, not only in Brazil, but all around the world –, Suzano Papel e Celulose is one of the major pulp & paper producers in Latin America.

By the end of this decade, with the expansion of its industrial unit located in the city of Mucuri, located in the southern region of the state of Bahia, currently underway, the Company will be among the ten major pulp producers in the world, being the second largest in eucalyptus pulp.

Since all of Suzano Papel e Celulose's production is made from trees exclusively planted for this purpose, it is also responsible for vast plantation areas, that are both self-owned or through forestry incentive projects. In all of them, sustainable forestry management is applied – a set of technologies and management practices that are able to consolidate eucalyptus culture in an economically viable manner, while preserving natural resources and the environment, as well as taking into consideration local communities.

planted forests

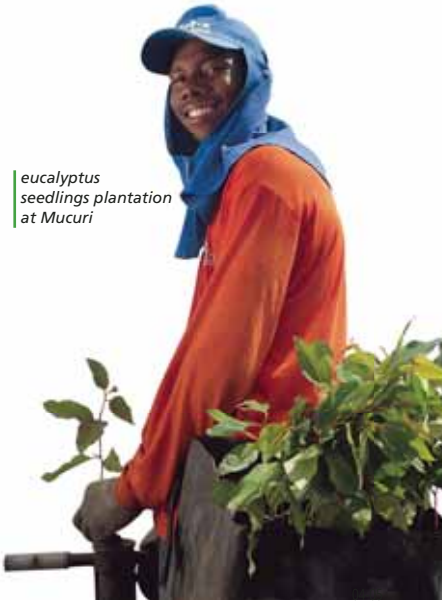
All around the globe, native forests were irrationally exploited throughout the centuries, as a result of great demand for wood, which for a long time was the main fuel available and raw material for construction projects.

Currently, planted forests are gradually taking over that role, promoting preservation and recovery of the remaining native forests.

Brazil has the seventh largest area of planted forests worldwide. Accounting for approximately 5.5 million hectares.

7.7% of Brazil's agricultural areas. The planted forests provide obvious environmental gains, given that it reduces the pressure on native forests, and also allows for recovery of degraded areas and preservation of the soil. Brazil's climate and forestry management technology developed domestically in turn, make eucalyptus culture an extremely promising, economically viable, environmentally friendly and socially fair activity.

Suzano Papel e Celulose, through this publication, wishes to promote the importance and advantages of Eucalyptus culture for the economy, environment and Brazilian society and hopes to clarify some fallacies that people may believe in regard to this culture. The forestry management practices employed by the company have proved that it is possible to carry out such activities while at the same time minimizing the impact on the environment and all stakeholders.



eucalyptus seedlings plantation at Mucuri

forestry business

planted forests

planted areas

5.5 million hectares

preservation areas

1.6 million hectares

value added

US$ 23 billion

exports

US$ 7.5 billion

surplus

US$ 5 billion

taxes

US$ 3.4 billion

workforce

4.1 million

(direct and indirect)

roads and highways

100 thousand km

source: Abraf (Brazilian Association of Forest Plantation Producers) – 2004 / Brazilian Society of Silviculture – 2005

Planted forests already account for 5.5 million hectares in Brazil. The majority, over 3 million hectares, is destined to the production of pulp & paper, but such culture also meets the requirements of forestry companies seeking to generate energy, the furniture sector, production of wood panels and lumber.

The productive chain, whose base is planted forests, creates approximately 4.1 million jobs and accounts for 4.5% of the Gross Domestic Product (GDP). Although these figures are quite significant, Brazilian market share in the global market is yet small and the planted forest sector is in expansion.

Forest planting is an activity that increasingly is becoming a good business attracting an ever growing number of small and medium rural land owners. In 2005, this segment was responsible for 23% of new planted forest areas, through forestry incentive projects.

planted forests: activity undergoing expansion that attracts an increasing number of small and medium rural land owners

eucalyptus forests

eucalyptus culture represents 64% of planted forests in Brazil. Eucalyptus is used as raw material for the production of pulp & paper, charcoal, veneers and particle board.

forest planting has been attracting an increasing number of small and medium **rural land owners**

current planted areas

eucalyptus

3.3 million

pinus

1.9 million

others*

0.3

Brazilian Society of Silviculture – 2005
**acacia, araucaria, teak, populus and rubber tree*

eucalyptus culture

The eucalyptus, a tree originally from Australia, evolved throughout thousands of years in several different environments, which has given it considerable resistance, and allows it to grow fast.

These characteristics allied along with the fact that it easily adapts to the most diverse soil and climate conditions make the eucalyptus an ideal species to use in planted forests and an alternative for natural forests.

Systematic plantation began in the first three decades of the 19th century and, in the 20th century, the eucalyptus became the most planted forestry species in the world, as a result of the growing demand for wood for the most diverse applications.

Currently there are over 700 species of eucalyptus on the planet. They belong to the Myrtle family – the same family as the guava, Brazilian Grape tree and Surinam Cherry trees.

in the 20th century, the eucalyptus became the most planted forestry species in the world

eucalyptus in Brazil

The first eucalyptus trees arrived in Brazil circa 1825, at the Jardim Botanico (Botanical Garden) in the city of Rio de Janeiro, as an ornamental plant. Later, in 1868, it started being planted in the state of Rio Grande do Sul for firewood and as a windbreaker.

Eucalyptus culture itself actually began in the beginning of the 20th century. Edmundo Navarro de Andrade, Forestry Service Director of the Companhia Paulista de Estradas de Ferro (São Paulo Railway), was a pioneer in its cultivation. After having conducted much research with several species, he chose the eucalyptus to produce railway sleepers and, mainly, for firewood to charge the steam locomotives boiler's that were used at that time. At the end of the 30s, eucalyptus was already being planted in scale and was being used as fuel in the steel industry and as firewood for home ovens – the ovens on liquefied petroleum gas (LPG) as we know today only became common in Brazil after the war, in the late 40s.

Gradually, eucalyptus made its mark as an alternative energy source, reducing the pressure on native forests, which were already very destroyed with the progress in agriculture and wood exploitation. By the 60s, eucalyptus accounted for approximately 400 thousand hectares of the planted areas. From then on, the picture changed significantly.

In 1966, the Brazilian government launched a tax incentive program to encourage reforesting, mainly with eucalyptus and pinus trees. The planting areas multiplied especially in the southern and southeastern regions, areas practically destitute of natural forests. Less than ten years later, in 1973, a FAO report stated that eucalyptus plantations area in Brazil was the largest worldwide, accounting for over 1 million hectares, more than double in comparison to India, which ranked second in the report.

railway **sleepers**, **firewood** for home ovens and steam locomotive **boilers**: thus the use eucalyptus increased **in Brazil**

eucalyptus forest (to the left)*: Brazil has one of the largest planted areas in the world*

paper made from **eucalyptus pulp**: Brazilian technology developed by **Suzano Papel e Celulose**

eucalyptus pulp

At that time, in addition to meeting the demand for firewood and charcoal, eucalyptus culture was also used in pulp production – a novelty that would soon be adopted around the globe.

Eucalyptus pulp was developed by the Company in the 50s. At that time, the challenge was to find an alternative to pinus pulp, imported raw material, produced from a tree that typically grew in colder climates, whose supply was often scarce for long periods, as had occurred during World War II.

Leon Feffer, Suzano Papel e Celulose's founder and his son Max Feffer carried out research with several different species, and chose the eucalyptus. By the late 50s, Suzano Papel e Celulose already added portions of eucalyptus pulp to the mass of pinus pulp it produced. In 1961, the Company began to produce paper exclusively from eucalyptus pulp. Three years later, it began to export pulp.

Brazil transformed itself from an importer into an exporter. Given that its average growth cycle is seven years, eucalyptus became the best option to produce printing & writing paper, tissue paper and paperboard. Eucalyptus culture gained market and spread throughout Brazil and around the globe.

paper reels (above) *and pulp sheets* (to the right)

research & development

With all the pioneer activity, eucalyptus culture did not have sufficient scientific grounds to sustain its use during the initial stages. Underdeveloped management techniques, as well as inadequate species selection according to planting area conditions, resulted in low productivity and inadequately managed forests.

Nonetheless, over the past 30 years, companies and research centers have gained much scientific expertise regarding the various eucalyptus species, improved the species, improved seedling production, soil preparation and preservation, planting and techniques to monitor planted forests, as well as conservation techniques and practices to preserve and recover degraded areas, of freshwater bodies and native vegetation.

Currently Brazil has one of the strictest environmental legislations in the world, and every forestry project is require to undergo an extremely rigorous environmental licensing process.

quality standards: Suzano Papel e Celulose nursery in Mucuri (BA) and lab in the city of Itapetininga (SP)

facts and fallacies

through **sustainable management**, eucalyptus culture provides **environmental benefits**

Science developments and experience gathered over decades of planting are the best evidence that eucalyptus culture is sustainable, that is, economically viable, provides significant environmental benefits and can benefit vast portions of the population, specially the neighboring communities. Nonetheless, some fallacies still exist. We will try to clarify them.

water

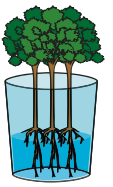
does eucalyptus dry up the soil?

Eucalyptus leaves or crown retains less rain water that tropical forest trees, which are more dense. In these forests, great part of the water is retained in the trees' crown, and evaporates back into the atmosphere.

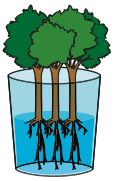
Eucalyptus roots do not grow more than 2.5 meters deep and do not reach water table, almost always located at greater depths. Much of the water absorbed during tree growth comes from the soils superficial layer, fed by the rain.

In addition to that, its efficiency in using up the water ensures higher productivity when compared to other agricultural crops – that is, eucalyptus produces more biomass per quantity of water absorbed.

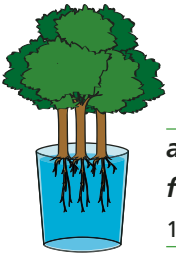
water consumption



eucalyptus forest
900 mm/year



atlantic rainforest
1.200 mm/year



amazon forest
1.500 mm/year

water use efficiency

(amount of biomass per liter of water consumed)

eucalyptus
0.0029 kg/l

sugarcane
0.0018 kg/l

corn
0.00108 kg/l

beans
0.0005 kg/l

preservation of native woods and freshwater bodies: to the left, Mucuri River, in Bahia; to the left, at the top, spillway in the preservation area

soil conservation **helps** maintain **rivers and streams**

soil

does eucalyptus weaken the soil?

Eucalyptus has a root system made up of a central root and a great network of secondary roots, that are beneficial to the soil. Makes it more structured, increases water retention, draining and aeration capacity. This root system tends to bring nutrients closer to soil surface. Such characteristic, along with management techniques, such as minimum tillage, developed by Suzano Papel e Celulose, promotes intense incorporation of organic biomass to land – such as leaves, bark and roots, helping to recover its fertility.

Nutrients used by the eucalyptus are replenished by the decomposition of said organic biomass and also through fertilization. Soil conservation helps improve the quality of water resources.

protection area amidst plantation area, in the city of São Luís do Paraitinga (SP)

biodiversity

does eucalyptus culture create vast green deserts?

Eucalyptus plantations cohabit with many other Brazilian fauna and flora species, naturally coexisting with other plants in its subforest providing shelter and necessary food to different species of fauna.

Brazilian environmental legislation requires that at least 20% of lands be allocated to native vegetation preservation, as well as the freshwater body areas. Suzano Papel e Celulose allocates approximately 40% of its land for environmental preservation, maintaining high conservation value natural reserves .

Planting in not very long stands, interspersed between native vegetation preservation areas, and the interconnection between these areas create vast ecological corridors through which native fauna freely roams and reproduces.

Eucalyptus plantations may coexist with other agricultural cultures and pasture, as occurs in forestry development projects backed by the Company, which promote production diversification thus making the economy more dynamic and creating jobs and generating income for the local population.

native flora and fauna find shelter in Suzano Papel e Celulose's preservation areas

social inclusion

is the eucalyptus a socially excluding culture?

Eucalyptus culture creates and distributes wealth in many different ways within the communities where it is carried out. Direct and indirect jobs, taxes levied at the three different levels and that must be applied locally; investments in infrastructure, such as roads/highways and general transportation improvements, creation and improvement of health and education services.

Additionally, socially responsible companies seek to include workers from the local communities in their productive chain, be it as wood suppliers, through forestry incentive projects, or as service providers.

workers in São Luís do Paraitinga (above) *and at the nursery in Mucuri, Bahia*

against the greenhouse effect

We are undoubtedly currently undergoing climate and environmental changes. One of the major causes pointed out by scientists is the greenhouse effect, the gradual increase of carbon dioxide concentration in the atmosphere, mainly as a result of burning fossil fuels. Reforesting helps to sequestrate the excess carbon dioxide in the atmosphere.

Forests yet in formation absorb carbon dioxide, a fact acknowledged and valued by the Kyoto Protocol – an international agreement in effect since February 2005, whose purpose is to reduce mainly carbon dioxide emissions by 5.2% by 2012. Thus, it establishes limits for emissions of industrialized countries and creates the "clean development mechanisms", that include initiatives ranging from generation of non-polluting energy, such as solar energy, to projects that contribute towards removing carbon dioxide from the atmosphere, such as forest planting and recovery of degraded areas. Carbon credits are one of these mechanisms.

Companies that develop activities which result in carbon sequestration from the atmosphere receive emission reduction certificates, or carbon credits. Those companies that are not able to reduce their emissions can opt to use a compensation mechanism to purchase such credits.

The Chicago Climate Exchange (CCX) – entity established in the same model as commodities exchanges – is one of the main mechanisms to negotiate carbon credits. Suzano Papel e Celulose is the first company with exclusive eucalyptus forests in the world to be listed on the CCX.

suzano papel e celulose

eucalyptus culture and sustainable management

eucalyptus plantation in Southern Bahia (above) *and preservation area in São Paulo* (below)

Suzano Papel e Celulose's commitment to sustainability led it to develop the concept of sustainable management, a set of technologies and management practices focused on economic growth, ecologic equilibrium and social development.

The company believes that correct forestry management allows one to simultaneously improve eucalyptus culture and environmental conditions. Its preservation practices seek to maintain biodiversity and, when necessary, adopt processes to progressively recover, improving vegetal growing conditions, reduce soil exposure and preserve water resources.

scientific research

Pioneer spirit, innovation and commitment towards development through partnerships with the community are cornerstones that mark Suzano Papel e Celulose's path throughout its eighty years in the market. It spearheaded the development worldwide of eucalyptus pulp because it believed in it and invested years in research and development. It was also a pioneer in establishing, in 1957, a Steering Committee of Natural Resources, currently dubbed Forestry Management Unit, betting on scientific research applied to improving silviculture. In the 80s, Suzano Papel e Celulose innovated when it created an Environmental Management Department and, in 1996, was the first company in the pulp & paper sector to receive ISO 14001 environmental certification.

With over three decades of research, in its own laboratories and through partnerships with research centers throughout Brazil and abroad, Suzano Papel e Celulose has gathered vast knowledge regarding genetic improvement, biotechnology, forestry management, environmental preservation and sustainable seedling production in the most diverse environments.

over **three decades** of scientific research applied to **productivity improvement** and sustainable **management**

lab in the city of Itapetininga (SP) scientific research seeking to increase productivity of plantations

certifications

improvement in general management and forestry management, as well as training of its employees, be it its in-house team or service providers, has allowed the company to obtain several certifications.

ISO 9001

quality in processes and products

ISO 14001

effective management of environmental impacts and its activities

OHSAS 18001

an acknowledgment that the company employs the best occupational health and safety practices

selo FSC – Forest Stewardship Council

seal forestry management with respect towards the environment and surrounding communities. The Suzano Papel e Celulose Unit Located in the city of Mucuri (state of Bahia) was awarded with the FSC seal in 2004, and the Unit located in the city of Suzano is undergoing the certification process, expecting to be awarded with the seal by the end of 2006

atlantic rainforest preservation area in São Luís do Paraitinga (SP), in a Suzano Papel e Celulose preservation area

biodiversity

At Suzano Papel e Celulose, eucalyptus culture is carried out on non-continuous areas spread amid native forest reserves, composing a mosaic of biodiversity. Reserves account for approximately 40% of the Company's total area – i.e. 125 thousand hectares. Preservation of the biodiversity in the planted areas is ensured through meticulous environmental planning, which is carried out by a multidisciplinary team. The practices employed that allow sustainability of the system include respect of the water sources and boundaries between corridors of the native forest allowing movement of fauna and restoration of native flora.

horned frog in preservation area located in the south of the state of Bahia; below, Company technician monitoring the native forest at Mucuri (BA)

sustainable management practices include employment of techniques to **preserve biodiversity**

control

The policy to Preserve Biodiversity under Sustainable Management of the Plantations, upheld by Suzano Papel e Celulose since 1999, implies in ongoing monitoring of biologic diversity in its areas. The Bioindex (the Biological Diversity Index) allows one to evaluate the composition of the genetic groups of clones and of eucalyptus seeds ready for planting, as well as the proportion of native reserves found in the mosaic, type and fragmentation of vegetation coverage.

Therefore it is possible to determine which areas require more attention from a biological diversity standpoint, focusing forestry management on efforts to increase diversity.

mountain rivers in São Paulo (above)
and lowland rivers in Bahia (below)

atlantic rainforest

Identified as a Natural World Heritage site by Unesco, the atlantic rainforest is the biome that contains the greatest biodiversity on the planet and also one of the most endangered. What originally spanned a vast region of over 1.3 million square kilometers now sparsely lies (7.3%) in fragments of non-continuous areas.

It covers diverse forest ecosystems, which offers a wealth of genetic and scenic resources. Scientists estimate that 55% of its tree species and 40% of its non-tree species are endemic, as well as 70% in the case of bromeliads and orchids. Thirty-nine percent of the mammals that live in the forest are also endemic, not only that, but also this forest is home to over 15% of the primates found in Brazil.

monitoring native forests

environmental preservation areas up kept by the Company include atlantic rainforest and savannah reserves, deemed to be true ecologic treasures, the high conservation value forests. They are remaining fragments of original native vegetation, rich in biodiversity, where endangered species may be found, quite often endemic. Sophisticated environmental preservation monitoring programs are carried out in these areas, in partnership with research centers and universities, such as the Federal University of Viçosa and the Institute of Forestry Research and Analysis (Ipef) of the University of São Paulo, among others, seeking to assess the health of the forests, prevent potential impacts and improve the Company's preservation technology. In specific areas, the species found in the flora are identified and measured, recording the ecologic succession, in other words, the natural sequence with which different species come about and develop within a determined ecosystem.

and the avifauna

the atlantic rainforest shelters **over 600 bird species** and their presence is an indicator of the **ecosystems' health**

The existence of birds is a universally recognized indicator of the environmental conditions of any determined area. Therefore, monitoring the avifauna is a manner to keep abreast with shifts and results obtained from improvements made to forestry management and the environment. Suzano Papel e Celulose is investing in such monitoring in its plantations, counting on the support and partnership obtained from the technical team from different research centers and universities such as the Pro-Nature Foundation (Funatura). Monitoring is carried out in high conservation value forests, in the corridors between the fragmented native vegetation and the plantations.

In São Paulo, monitoring has already identified the presence of 30% of the species existing in the entire state, nine of which are on the state list of endangered species, such as the *Accipiter poliogaster* forest hawk, or the Buffy-fronted seedeater, *Sporophila frontalis*.

green-headed tanager (above) *and brazilian tanager, birds originally from the atlantic rainforest, found in Suzano Papel e Celulose preservation areas*

collection of seeds, **production of seedlings** in nurseries and planting: **silviculture** recovers **forestry areas**

replanting forests

In the south of the state of Bahia and north of the state of Espírito Santo, where Suzano Papel e Celulose's properties include vast extensions of old pasture, the company has already planted 1.95 million seedlings of different native species, over the past 15 years, to recover the vegetation coverage.

With technical assistance from the School of Agriculture Luiz de Queiroz (Esalq-USP), Suzano Papel e Celulose has been able to optimize its restoration methodology to recover degraded land, employing many different techniques, depending on the condition of the land. In 2006, 260 hectares shall be replanted, with seedlings of 90 different species from the atlantic rainforest, developed in nurseries based from seeds collected in different areas of Suzano Papel e Celulose's properties.

silviculture teams plant native seedlings species

sustainable management and water

Management techniques that protect the soil against erosion also help avoid silting of watercourses. In all its plantations, Suzano Papel e Celulose complies with preservation of freshwater body norms as determined by law, maintaining native vegetation in at least 50 meters around water sources and 30 meters along watercourses. However its initiatives go beyond the bare legal requirements: it conducts integrated management of micro watersheds found in its land, monitors quality and availability of both superficial water, as well as freshwater body, in partnership with Ipef.

At the Suzano Papel e Celulose units, effluent treatment recovers all chemical products used in the pulp and paper production process. Organic waste is treated through biological processes so that water that returns to the environment does not impact the environment, also complying with Brazilian and international environmental control standards.

protecting freshwater body and **controlling effluents** preserves quality and amount of **water available**

sustainable management includes preservation of water resources

plantations interspersed between native forests preserve biodiversity

mosaic planting and minimum tillage

Mosaic planting is one of the elements of sustainable management: plantation stands are not very big and, whenever possible, interspersed between fragments of native vegetation, thereby creating "ecologic corridors". Since eucalyptus is harvested every seven years, the objective is to divide the plantation areas in seven sections, planted in rotation, one each year. This same concept is applied to harvest, therefore reducing the environmental and visual impact.

The minimum tillage technique is employed essentially to preserve the soil: all waste from the harvest – foliage, bark and branches – remains on the plots, which forms a cover that protects the soil from erosion, maintaining its humidity and providing micronutrients.

Suzano Papel e Celulose's nurseries: technology applied to production of high-grade seedlings

nurseries

Suzano Papel e Celulose produces most of the seedlings that will be used in their plantations, at its nurseries located in Alambari (state of São Paulo) and Mucuri (state of Bahia). Clones and seeds developed by Suzano Papel e Celulose itself, from selected samples, are used. The seedling production cycle takes 120 days. It starts off with the selection of buds in the mini-greenhouse – a covered and protected area – and their placement in tubes for rooting. Subsequently, the small saplings, or seedlings, develop for 35 days in a controlled temperature environment; they then are placed for a while in acclimatized areas to adapt to field conditions after which they are ready to be planted.

partnerships with the community

Social and environmental sustainable development is part of Suzano Papel e Celulose's management strategy. That is why the Company holds and supports a number of programs in partnership with the community, on a number of different fronts.

project developed in the south of Bahia: eucalyptus is grown along with cattle grazing

forestry incentive programs

Includes a number of small and medium land owners in the pulp and paper production chain, such as wood suppliers, benefiting all parties involved. For owners, silviculture assures an attractive return on investment, at a low risk, providing diverse use of their land – increasing both its profitability, as well as creating more jobs. In the region of Alto Tietê, located in the state of São Paulo, approximately 570 owners participate in the program, and in the states of Bahia and Espírito Santo, another 250 land owners also participate in the program.

The Company provides processing materials (ant pesticide, herbicide and fertilizer), technical support, eucalyptus and native species seedlings to enrich the preservation areas. Land owners undertake to carry out sustainable management, abiding by environmental, social, tax and labor laws.

Reciclato® project

developed by Suzano Papel e Celulose in partnership with the Ecofuturo Institute, the project promotes coops with recyclable material collectors, buying scrap paper to produce Reciclato® – the first Brazilian recycled paper produced on an industrial scale.

The first partnership was established with the Coop of Scrap and Recyclable Material Collectors (Coopamare), from São Paulo, in 2001 and, currently, the company has commercial ties with approximately 50 coops.

coops with recyclable material collectors in the Reciclato® Project

Ecofuturo

The Ecofuturo Institute is a non-governmental organization established by Suzano Papel e Celulose in 1999. Its object is to leverage socio-environmental solutions and expand sustainable development activities in Brazil.

multi-purpose eucalyptus

Eucalyptus forests may provide a number of benefits for surrounding communities. To leverage such benefits, Suzano Papel e Celulose develops programs focused on creating jobs and generating income.

bee-keeping

Eucalyptus flowers are extremely productive for bee-keeping and, to take advantage of this potential, the Company develops bee-keeping programs in partnership with bee-keeping associations, public entities and other companies around its plantations. In Bahia and Vale do Jequitinhonha (in the state of Minas Gerais), the Helpful Bee-Keeping Program is focused on developing new bee-keepers and, and training interested individuals living in the region, by providing kits with basic equipment to carry out the activity.

packaging, furniture, arts & crafts, firewood, charcoal, bee-keeping: **eucalyptus forests** are multi-purpose, generating **benefits** for **surrounding communities**

arts & crafts

Eucalyptus scrap that may not be used in pulp production may be used as raw material to create objects with differentiated designs. The objective of the Productive Community Program is to train people from the surrounding communities around Suzano Papel e Celulose to produce environmentally-friendly products. An arts & crafts center in São José, in the district of Alcobaça (state of Bahia), and two new training centers, one in Helvécia, Nova Viçosa district (Bahia), and Biritiba-Mirim (São Paulo) have already been set up.

kit provided by the Helpful Bee-Keeping Program, including required equipment to carry out activities (above)*, and arts & crafts center of the Productive Community Program, based in São José, Alcobaça (Bahia): objects produced from eucalyptus bark* (to the right)

environmental education

Suzano Papel e Celulose maintains and supports, wherever it operates, different projects focused on environmental education, elementary and secondary education, reading and writing programs and adult education, as well as cultural and sports programs, child assistance and health programs.

seedling project and *seed clubs*

It involves seven municipalities in the south of Bahia and north of Espírito Santo. The objective is to train public school teachers to provide environmental education and promote awareness and environmental preservation practices to their students and community. Since 1999 it has already trained over 1,500 teachers, reaching approximately 43 thousand students. The *Seed Clubs* are volunteer school preservation associations – there are 50, involving approximately 1,500 students.

project trails

Is a program of guided tours through planned trails at native forest reserves located in the south of Bahia (Mucuri and Caravelas) and in São Paulo (Itatinga). With this program, The Company seeks to share the knowledge it has gained about native forests in the region, and at the same time, provide a new venue for environmental education and community leisure.

community vegetable garden: an initiative of the Seed Club *of the Municipal School of Itabatã, Mucuri district* (above)*; and planned trails through preservation areas in the same municipality* (below)

parque das neblinas: center to disseminate sustainable practices

Parque das Neblinas is an environmental preservation area located in Bertioga (state of São Paulo), next to the state park of Serra do Mar, a region declared by Unesco, in 1991, as a Natural World Heritage site and Reserve for the Atlantic Rainforest Biosphere. Containing 2.8 thousand hectares, the park is managed by the Ecofuturo Institute and maintained by the Suzano Group.

It is a live laboratory of sustainable management, preservation and restoration of native flora practices, in addition to being a place for eco-tourism and environmental education.

Private Reserve of Natural Resources

Part of Parque das Neblinas, i.e. 518 hectares, shall become part of the national network of preservation units, classified as a Private Reserve of Natural Resources (RPPN). The process is currently in progress with the Brazilian Environmental Protection Agency ("Ibama") representing the acknowledgement of the high conservation value area, given the preservation and wealth of its biodiversity.

corporate advocacy

Suzano Papel e Celulose makes a great effort to exercise its role as a model company and actively participate in entities that represent the pulp & paper segment in the major national and international forums related to sustainable development issues, such as the National Forest Council, the Committee on Forestry of Food and Agricultural Organization of the United Nations (FAO/UN) and the World Business Council for Sustainable Development (WBCSD).

With the knowledge it has gathered on forestry management and environmental preservation, Suzano Papel e Celulose is committed to contribute towards drafting standards, making recommendations for public policies to promote silviculture in Brazil, promoting sustainable development and improvement of quality of life.

Dolphin project *at Mucuri* (above) *providing education, culture and advocacy; and Arts & Crafts Center of the* Productive Community Program*, based in São José, Alcobaça (Bahia): creating jobs and generating income*

glossary

avifauna
group of bird species found in a specific area.

biodiversity
all species and its natural habitats existing in a specific area.

carbon sequestration
uptake and storage of carbon dioxide by plants and trees during respiration and photosynthesis processes.

degraded area
area that has lost its natural capacity to generate benefits via natural processes or by human intervention.

ecological corridors
part of natural or semi-natural ecosystems related to preservation areas and other natural environments that facilitate circulation of species.

effluents
waste and/or emissions generated from production process.

endemic
native from a determined geographic region or ecosystems and limited to said area.

environmental management
group of activities and practices that, carried out in harmony, enable socioeconomic development and environmental preservation.

environmental monitoring
monitoring and qualitative and quantitative analysis of natural resources seeking to understand its conditions through time; basic control and environmental preservation tool.

fiberboard
sheet or boards made out of wood fiber bonded together by resins and compressed. Used for the production of furniture, among other purposes.

forestry incentive programs
initiative to promote rural development based on forestry plantations; which has proved to be an efficient mechanism to expand the forestry base to supply the pulp & paper, furniture or power generation sectors.

fossil fuel
petroleum, mineral coal or natural gas, among others. Deposits of organic material, such as animal and plants, occurred millions of years ago, transformed by specific geological conditions. When burned, they release energy and carbon-containing gases.

eucalyptus flower (below) *and seedling in the nursery* (above)

fragment
remainder of natural ecosystems that is isolated as a result of natural or artificial barriers.

freshwater body
any body of water, superficial or underground, a real or potential source for human or animal consumption, or yet irrigation purposes.

genetic improvement
genetic modifications made on the constitution of live organisms seeking to obtain a superior grade within the species.

greenhouse effect
warming of the lower layers of the atmosphere as a result of increase of concentration of specific gases, such as carbon dioxide and methane, among others, within the atmosphere.

high conservation value forests (HCVF)
are forests that have significant levels of biodiversity, rare ecosystems, that are threatened or endangered; which are essential to meet the basic needs of the local communities.

legally delimited reserve
portion of a rural property, which as determined by law shall be set aside for to preserve natural resources, ecological processes, shelter and protect native flora and fauna.

minimum tillage
plantation practice that seeks to reduce number of possible disturbances of the soil.

mosaic planting
system of planting forests composed of subdivisions (stands, blocks or plots) that among themselves have different compositions of genetic materials, ages and native reserves.

silting
accumulation of earth, sand and other materials at the bottom of valleys, rivers, lakes, channels and dams.

silviculture
science applied to growing, tendering of forests and exploitation of forest resources.

soil erosion
wearing away of soil by water and/or wind.

sustainable development
development that seeks economic growth along with social equity and preservation of natural resources, therefore ensuring that the needs of the current generation is met without compromising the needs of future generations.

riparian forest
forested area of land adjacent to a body of water such as rivers, lakes, dams, streams and springs.

water table
under freshwater body deposit located at different depths.

for more information

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references on the net

Abraf – Brazilian Association of Forest Plantation Producers
www.abraflor.org.br

Ambiente Brasil – site that covers environmental issues
www.ambientebrasil.com.br

Bracelpa – Brazilian Pulp and Paper Association
www.bracelpa.org.br

DEPRN – State Bureau for Preservation of Natural Resources, São Paulo State Environment Secretariat
www.ambiente.sp.gov.br/deprn/deprn.htm

Embrapa Florestas – Brazilian Publicly Funded Agricultural Research Institute – Forestry Unit
www.embrapa.br/linhas_de_acao/temas_basicos/florestas/index_html/mostra_documento

FAO – Food and Agricultural Organization of the United Nations
www.fao.org

Florestar São Paulo – Development Fund Florestal
www.floresta.org.br

FSC Brasil – Brazilian Management Council
www.fsc.org.br

Funatura – Pro-Nature Foundation
www.funatura.org.br

Florestal Foundation – Foundation for Conservation of Forest Production in the state of São Paulo
www.fflorestal.sp.gov.br

Global Compact
www.unglobalcompact.org

Ibama – Brazilian Environmental Protection Agency
www.ibama.gov.br

IEF – Minas Gerais State Forest Institute
www.ief.mg.gov.br

Imaflora – Institute of Forestry and Agricultural Management and Certification
www.imaflora.org

Ipef – Institute of Forestry Research and Analysis
www.ipef.br

Pronaf – National Program for Forestry
www.mma.gov.br

SEIA – Bahia State System of Environmental Information
www.seia.ba.gov.br

SBS – Brazilian Silviculture Society
www.sbs.org.br

UFV – Federal University of Viçosa
www.ufv.br

WBCSD – World Business Council for Sustainable Development
www.wbcsd.org

credits

Suzano Papel e Celulose

Corporate Communication and Social Responsibility

Forestry Business Unit

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