

Brazil: Sustainable forest management helps protect valuable ecosystems



Certification:



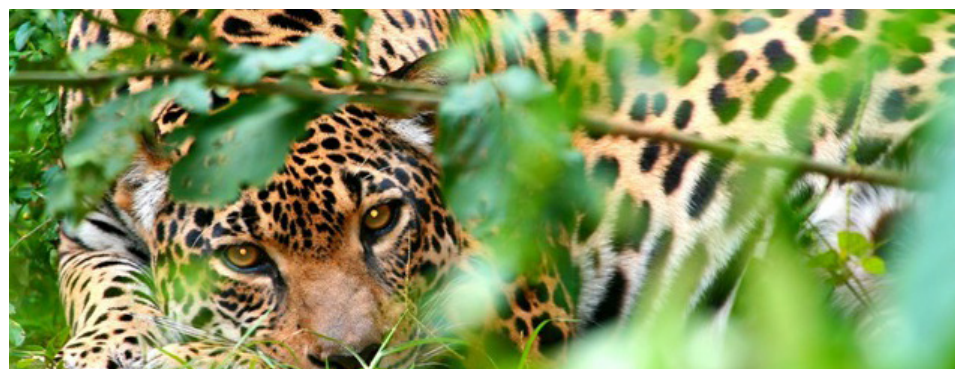
Key Facts



Background

The Amazon, the world's largest rainforest, covers an area of about 8 million square kilometers. It is also the dominant feature of Amapá, which is Brazil's second least populous state. Unexplored rainforest covers over 70% of its area. In recent years the rate of deforestation has been steadily declining, dropping by 71% between 2004 and 2014. This is due to government policies demarcating protected areas and recognising land claims of indigenous people. The World Bank records that socio-economic progress has lifted 29million people out of poverty since 2003 but many people still rely heavily on forests for energy.

Deforestation in the Brazilian Amazon has been an important environmental topic for several decades, but it is a persistent problem. Forests are still cleared for agriculture or cattle ranching and illegal logging expands at an alarming rate. This applies immense pressure on the rainforest's treasured biodiversity.



The Project

In 2000, the Jari Group acquired a large portion of the Jari Valley rainforest. The valley is home to over two thousand rural families, and acts as an ecological corridor in connecting several high value conservation areas. Its rich biodiversity includes over 54 threatened species of plants, and over one hundred threatened animals. The project is focused on protecting forest cover, monitoring conservation and implementing a variety of activities designed to reduce deforestation risks. Local communities are included in this effort, with the Jari Foundation focusing its efforts on the growth of sustainable businesses which serve the dual purpose of providing income to the community and protecting the forest.

Location:

State of Amapá, Brazil

Project type:

REDD+

Total emission reductions:

» 115,000t CO₂e p.a. «

Project standard:

Verified Carbon Standard

Project start date:

April 2011

Sustainable Development

By supporting this project you'll contribute to the following Sustainable Development Goals:



SUSTAINABLE DEVELOPMENT GOALS

While focusing on reducing greenhouse gas emissions, all our projects also generate multiple co-benefits. These are supportive of the United Nations Sustainable Development Goals.



1 NO POVERTY



No poverty

The local population is closely involved in the activities of the project and benefits from improved income opportunities as provided by initiatives for sustainable land use. Improved cultivation methods help to increase crop yields in agriculture.

8 DECENT WORK AND ECONOMIC GROWTH



Decent work and economic growth

The project will deploy rural technical assistance, coordination with stakeholders, trainings with relevant organizations, and support in facilitating market access for sustainable products. This will provide employment opportunities to locals.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Responsible consumption and production

The project works closely with local communities to develop sustainable business models which provide viable alternatives to livelihoods which have often relied on the destruction of the rainforest.

15 LIFE ON LAND



Life on land

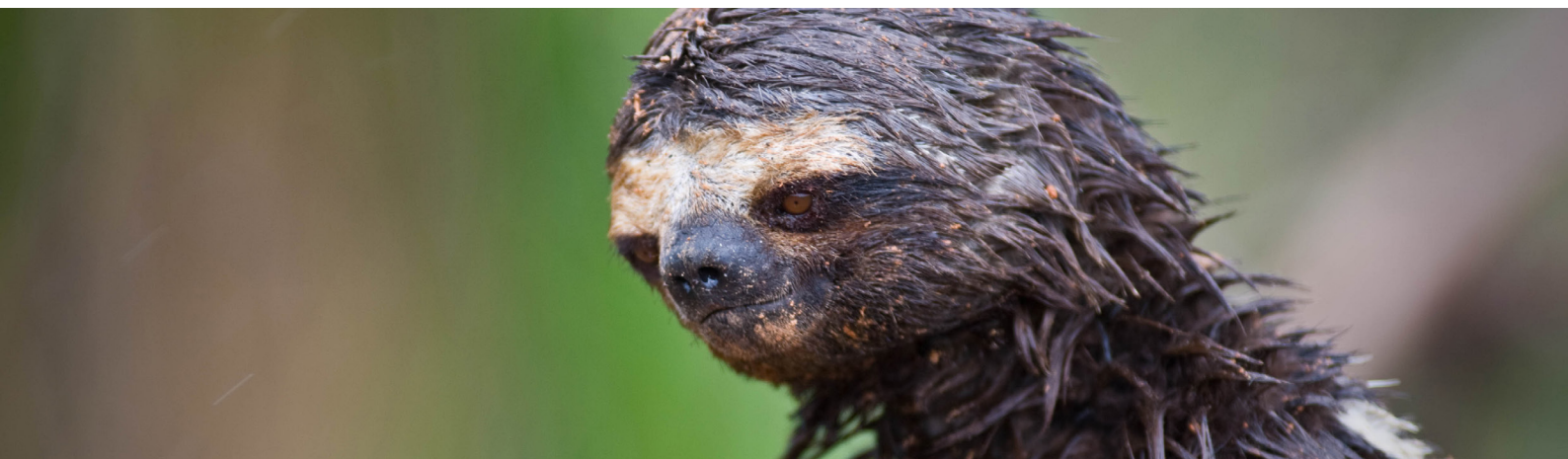
The Jari Valley is home to a unique, high-value ecosystem with over two thousand species of animals, many of which are of extreme ecological importance. The project's efforts in preserving biodiversity will protect these endangered and important animals as well as their habitats.

17 PARTNERSHIPS FOR THE GOALS



Partnerships for the goals

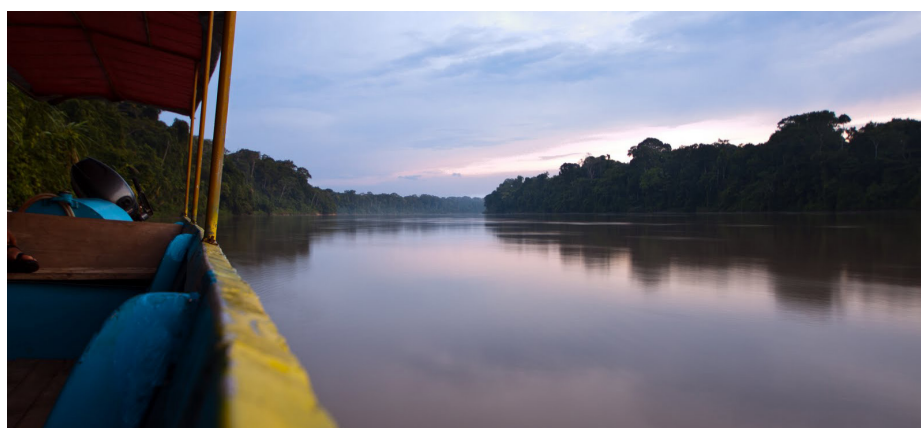
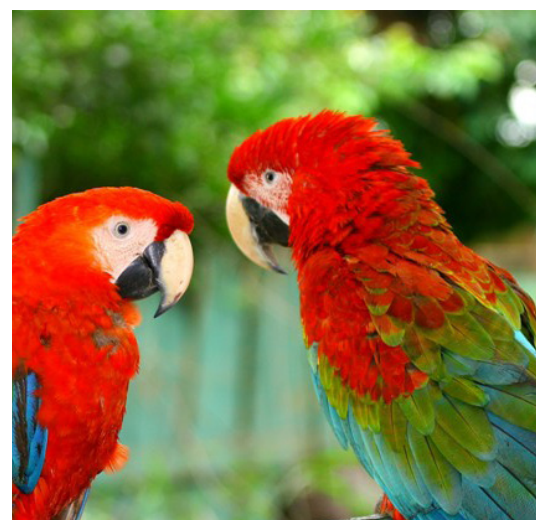
The project coordinates scientific research in the area, promoting studies which focus on the efficient use of natural resources and the impact on biodiversity. This makes the project responsible as it encourages environmental awareness and sustainable living.



Technology brief – how it works

Carbon circulates within a cycle, consisting of the atmosphere, the plant, plant litter and the soil. Carbon dioxide drawn from the surrounding atmosphere is the main input of any plant's photosynthesis processes. The outputs are water, oxygen and carbohydrates. The latter are built into the plant's fibre thereby fixing carbon in the plant's biomass. Ultimately, the carbon re-enters the atmosphere from decaying biomass litter or soil respiration.

Deforestation breaks this cycle with multi-fold negative effects. Firstly, burning biomass directly increases the amount of carbon dioxide in the atmosphere. Secondly, it reduces the biosphere's absolute capacity to fix carbon. Thirdly, the removal of plant cover accelerates the rate at which carbon fixed in soils is respired into the atmosphere. Lastly, the erosion of soils impedes the long-term recovery of vegetation on degraded areas. This is a particularly challenging issue in tropical climates where soils are mostly poor in nutrients.



Project Standard



The Verified Carbon Standard (VCS) is a global standard for the validation and verification of voluntary carbon emission reductions. Emissions reductions from VCS projects have to be real, measurable, permanent, additional, unique, transparent, and third-party verified. Assessed against the background of the total volume of emission reductions, VCS is the globally leading standard for voluntary carbon offsets.

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For more information on other projects in our portfolio please visit our website:

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India: 34.4MW Wind Power Project

Producing clean energy in the
State of Karnataka



Certification:
Gold Standard
Climate Partner & Sustainable Development



Key Facts

Location:
Karnataka, India

Project type:
Renewable Energy – Wind

Total emission reductions:
» 66,000t CO₂e p.a. «

Project standard:
Gold Standard

Project start date:
December 2007

Background

India is already today the 7th largest economy in the world and the country is rapidly growing - both in economy and in population. This growth, however, has also brought about problems for the country. For example, since the year 2000, energy consumption has already doubled. Fossil fuels are responsible for meeting most of the demand. Coal plays a particularly significant role, accounting for around three quarters of total energy consumption.

As a result of this, India's energy system is not only very carbon intensive, but also a key source of other harmful emissions. In the last 40 years, emissions from fossil fuels have increased by around 900%. According to the WHO, 11 out of the 20 cities with the poorest air quality are found in India. The use of renewable sources helps to fight against this and India has huge potential for harnessing renewables.



The Project

The project involves the construction and operation of 43 wind turbines in the Gadag district of Karnataka in southwest India. Each turbine has a capacity of 0.8MW and the total installed capacity of the windfarm is 34.4MW. Each year, the project will produce around 70,000MWh of clean electricity. This will be delivered to the regional power grid. In this way, the project contributes to reducing the supply-demand gap in Karnataka and helps to diversify the energy mix whilst reducing carbon intensity of the supply system.

Sustainable Development

By supporting this project you'll contribute to the following Sustainable Development Goals:



SUSTAINABLE DEVELOPMENT GOALS

While focusing on reducing greenhouse gas emissions, all our projects also generate multiple co-benefits. These are supportive of the United Nations Sustainable Development Goals.



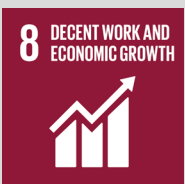
Good health and well-being

According to the WHO, 11 out of the 20 cities with the worst air pollution in the world are located in India. Diversifying the energy mix will improve air quality and reduce related health risks.



Affordable and clean energy

The increased share of sustainable and zero-emission wind energy within the energy mix reduces the carbon intensity of India's power grids. By reducing the supply-demand gap, the project also reduces risk of power shortages.



Decent work and economic growth

The project provides employment opportunities for locals, which reduces localised poverty and supports sustainable economic growth.



Industry, innovation and infrastructure

The project contributes to establishing modern technologies which utilize sustainable resources and it strengthens the uptake of renewable technologies in India. Furthermore, the project improves local infrastructure, which in turn reduces transmission losses.



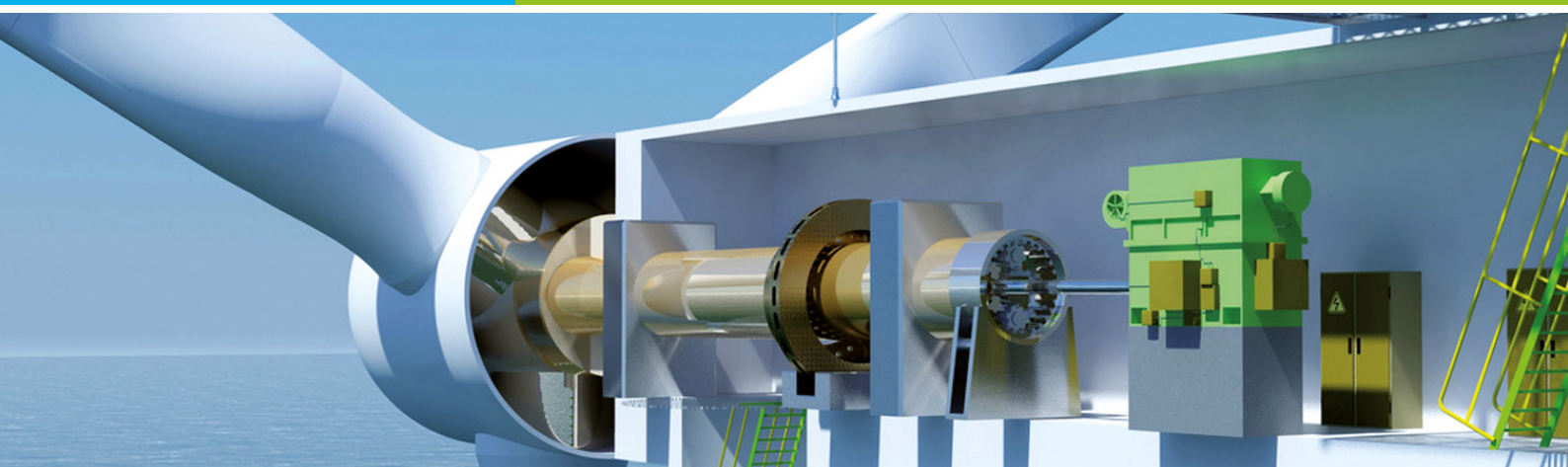
Climate action

As the project utilizes renewable resources instead of fossil fuels, it contributes to a significant reduction in annual carbon emissions. This contributes towards climate protection.



Life on land

Alongside the production of carbon emissions, fossil fuels also produce air pollutants such as sulphur dioxide and nitrogen oxides, which are the root cause of acid rain. As the project avoids fossil fuel consumption, it in turns reduces the risk of acid rain, which is a widespread problem in India.



Technology brief – how it works

Driven by the kinetic energy of moving air, the mechanical energy created by a rotor is fed into an attached generator to produce electricity. Output can vary depending on wind speed and this is ultimately determined by atmospheric conditions, although it is also influenced by ground characteristics. A rough surface exerts significant friction, effectively consuming energy and thereby slowing down the moving air. Smooth surfaces cause very little friction, the most obvious example being higher wind speeds in coastal areas.

It is therefore important to site wind farms carefully to maximise their potential. Over the last two decades wind power technology has rapidly improved.



Project Standard



The Gold Standard is an award winning certification standard for results based project finance and is recognised internationally as the benchmark for quality and rigour in certifying environmental and socio-economic project outputs. Established in 2003 by the World Wide Fund For Nature (WWF), the Gold Standard today is trusted and endorsed by NGOs, governments and multinationals including United Nations agencies worldwide.

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India: 100.5MW Wind Farm

Providing India's grids with green electricity



Certification:

Gold Standard
Climate Change & Sustainability Development

Key Facts



Background

With one of the largest economies in the world and rapid development, India is set to contribute more than any other country in the projected rise in global energy demand, accounting for almost a quarter. The International Energy Agency estimates that, with the Indian economy expected to be 5 times its current size by 2040, the national power system will need to quadruple in size.

Today, around a quarter of all those in the world without electricity can be found in India. To support its growing economy and continue to bring more people out of poverty, India must increase its power generation capacity. However, a large share of India's power comes from fossil fuels, which has a detrimental effect on the environment and 11 of the world's 20 most polluted cities are in India. It is estimated that the average life expectancy is shortened by 23 months due to poor air quality. Therefore, it is vital that India diversifies its energy mix and invests in renewable resources.



The Project

The project spreads itself across 14 villages in the districts of Ratlam and Mandsaur. A total of 67 wind turbines, each with a capacity of 1.5MW, are installed across this site. The total installed capacity of the wind farm is 100.5MW and the project will deliver 180.5 GWh of clean electricity to the Indian power grid.

As the average electricity consumption in India stands at just over 1MWh per capita, the project provides enough power to meet the needs of 180,000 Indians every year. Furthermore, 23% of generated power is lost in India every year due to poor transmission lines so the project will contribute to improving transmission lines.

Location:

Madhya Pradesh, India

Project type:

Renewable Energy – Wind

Total emission reductions:

» 173,000t CO₂e p.a. «

Project standard:

Gold Standard

Project start date:

December 2013

Sustainable Development

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SUSTAINABLE DEVELOPMENT GOALS

While focusing on reducing greenhouse gas emissions, all our projects also generate multiple co-benefits. These are supportive of the United Nations Sustainable Development Goals.



3 GOOD HEALTH AND WELL-BEING



Good health and well-being

Since wind energy produces no emissions, the additional power will replace electricity that would have otherwise been generated through fossil fuels. This will thus contribute to the reduction of air pollution in India, reducing the health issues associated with poor air quality.

7 AFFORDABLE AND CLEAN ENERGY



Affordable and clean energy

Wind power is a zero emission source of energy. With Madhya Pradesh being one of the top spots for wind power generation in India, climatic conditions also make it a cost-effective energy source.

8 DECENT WORK AND ECONOMIC GROWTH



Decent work and economic growth

The project will create employment opportunities in the construction, operation and maintenance of the wind farm. Furthermore, wind power stimulates the renewable energy market in India, which is attractive for foreign investment.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Industry, innovation and infrastructure

The project is located in a rural part of India which means access roads and local infrastructure will be improved. Furthermore, modern transmission lines will help reduce the significant power loss that hinders Indian development.

10 REDUCED INEQUALITIES



Reduced inequalities

As the project is based in a rural area, locals will benefit from employment opportunities, stimulation of the local economy, improved infrastructure and a direct power supply from a clean resource.

13 CLIMATE ACTION



Climate action

The project contributes to the diversification of India's energy mix, reducing fossil fuel dependency and encouraging a switch to cleaner energy. By reducing anthropogenic greenhouse gas emissions, the project helps to mitigate climate change.

15 LIFE ON LAND



Life on land

In the absence of the project activity, an equivalent amount of electricity would have been generated from power plants connected to the grid, the majority of which are based on non-renewable fuels. Thus, the project helps to prevent the emission of various air pollutants and help fight the causes of acid rain.



Technology brief – how it works

Driven by the kinetic energy of moving air, the mechanical energy created by a rotor is fed into an attached generator to produce electricity. Output can vary depending on wind speed and this is ultimately determined by atmospheric conditions, although it is also influenced by ground characteristics. A rough surface exerts significant friction, effectively consuming energy and thereby slowing down the moving air. Smooth surfaces cause very little friction, the most obvious example being higher wind speeds in coastal areas.

It is therefore important to site wind farms carefully to maximize their potential. Over the last two decades wind power technology has rapidly improved. The size and power output have consistently increased while lowering the cost per electricity unit. Constructions with a maximum power output of three megawatts are now considered standard technology.



Project Standard



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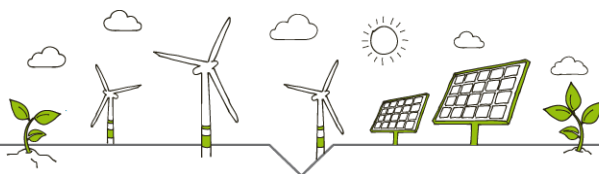
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Certificate

for



TEEKANNE Group

compensates for carbon emissions resulting from the operation of the vehicle fleet, use of refrigerants as well as gas and heating oil consumption in 2020 and 2021 through carbon offsetting.

This certificate confirms that these emissions were offset by emission reductions in the following climate protection projects

Clean Energy through Wind Power, India
Avoided Deforestation, Brazil

First Climate has permanently and irrevocably retired the corresponding emission reduction certificates from the market.

Bad Vilbel, December 2021

Olaf Bachert, CEO

