



# RENEWABLE ENERGY BRINGS ABOUT IMPROVEMENTS IN PEOPLE'S LIVELIHOODS AND HELPS FIGHT CLIMATE CHANGE

## Challenges

The Model Forest is situated in Chile's Mediterranean ecoregion, one of the 34 biodiversity hotspots in the world catalogued by "Conservation International". Agriculture, livestock, the use of trees for firewood and charcoal as well as the extraction of humus from the forest (topsoil that is rich in organic matter) are practices that have contributed to the degradation of these forests that are so characteristic of the territory. Several species of the native forest have been declared vulnerable or endangered such as the Northern Belloto (*Beilschmiedia miersii*) and the Southern Belloto (*Beilschmiedia berteroa*).

Moreover, the districts of Coltauco and Doñihue, which are part of the territory influenced by the Model Forest, have been declared by the Ministry of the Environment as areas saturated by the high



**Cachapoal Model Forest, Chile**

Established: 2008 | Area: 105,000 ha

## Facts

- The Model Forest is located in the central part of the country, which is the area with the highest population density and where there is significant pressure on natural resources produced by a variety of forestry and agricultural activities.
- In this area, the forest is valued for the production of firewood and charcoal, the extraction of non-wood forest products such as leaves and fruit, activities such as beekeeping and tourism, and the production of services such as water and soil.

indices of suspended particulate matter in the air, as a result of slash-and-burn practices, forest fires and the misuse of firewood. Luis Martínez, Head of Chile's Special Programs Unit of the National Forest Corporation (Corporación Nacional Forestal), says that Chile could be one of the countries most affected by climate change and, accordingly, the State is concerned with adopting measures to fight and mitigate this phenomenon through lower carbon emissions and the protection of forested areas.

## Finding solutions

Since the establishment of the Model Forest in 2008, its partners have been promoting a strategy to contribute to family and local development, and encourage a better relationship between people and natural resources, as well as to cut down on use of firewood as fuel and, accordingly, the emission of gases into the atmosphere. This strategy is based on promoting the use of unconventional forms of renewable energy as a way of encouraging the rational use of the area's natural resources to ensure the ecological integrity of the ecosystem, without overlooking the socio-economic development of the community.

Within the context of the Model Forest, and thanks to opportunities and alliances with several different partners, the actions involve people from the urban and rural parts of the territory who have a certain level of interest in its natural resources and, consequently, in the use of the firewood.

Solar cookers and dehydrators, as well as biodigesters for biogas production, are the main clean energy technologies being used. They make it possible to take advantage of resources such as sunlight and certain agricultural and forest products, thus minimizing the cost of living for these families. The Model Forest also works on awareness, training and the promotion of these technologies in communities, schools and local governments.



*Renewable energy is energy that comes from resources that are continually replenished and inexhaustible on a human scale: solar, wind, hydraulic, biomass and geothermal.*

## Solar cooker and dehydrator

Solar energy can be used to heat water as well as for cooking and drying food. Solar devices such as fruit dehydrators, water collectors and solar cookers help to reduce the use of charcoal and firewood. These technologies also make it possible to take advantage of fruit and other forest materials that would otherwise be thrown away, thus creating an additional source of income and helping to lower air pollution in the communes.

## Biodigester

The biodigester uses animal feces and any other degradable material to produce biogas through an anaerobic process. It helps to lower the emission of gases into the atmosphere from animal waste, and reduces the use of firewood and charcoal as fuel. The biogas is used by households for cooking and heating.

## Vermiculture

Vermiculture transforms organic waste from agriculture into humus that is used as compost for crops. This practice is aimed at avoiding the extraction of humus, a recurrent practice that is extremely harmful to the regeneration of the forest. It also promotes the development of a sustainable activity for farmers.

## Results and impacts

This strategy has made it possible to build alliances with public and private bodies that facilitate the leverage of funds to finance innovative projects connected with the promotion of clean energy, the collective construction of a device and community training in topics such as climate change, renewable energy, the use of firewood and the sustainable management of the native forest. The National Forest Corporation, the National Energy Commission, the Ministry of the Environment, the Foundation for Overcoming Poverty (Fundación Superación de la Pobreza), the municipalities of Doñihue, Coltauco and Las Cabras as well as local organizations such as schools, neighbourhood associations and ecological groups have been key partners in achieving this goal. According to Leonardo Duran, coordinator of the Cachapoal Model Forest, “These types of projects can only be implemented if you have built up a basic group of institutions to contribute funding, knowledge and other elements to help support these processes over time.”

Since 2008 to date, approximately 200 to 250 people have benefited from high investment projects or initiatives in which every family built their own device. Using fruit dehydrators, families can sell their produce on the local market, either directly or through intermediaries. At the same time, the biogas produced by the biodigester results in savings on the monthly gas bill (the equivalent to US\$80), minimizes the use of firewood, and can be used in the production of goods such as jams that generate an additional income for the family. Through these projects, a value chain is being created that is based on the promotion of clean energy. The intention is for these numbers to increase in the future, and to this end, projects are now being carried out in conjunction with several local organizations that are financed by the Ministry of the Environment’s Environmental Protection Fund, in which resources are committed by the organizations and the Model Forest.

These tools help to minimize the use and extraction of firewood, which in turn helps in the upkeep of the goods and services provided by the forest, as well as in limiting the emission of gases into the atmosphere, thus contributing to the great challenge represented by climate change. These different initiatives illustrate the positive effects of unconventional renewable energy in aspects such as family economy, forest exploitation and environmental awareness. “To reinforce this work as a Model Forest, the economic and environmental impacts of the use of these technologies needs to be monitored,” points out Leonardo Duran. This process enables the construction of a social fabric, a critical mass of stakeholders who already look upon the use of unconventional renewable energies as a way of life, are trained in the construction and use of these devices and are aware of the benefits for the environment, their families and local development.

“The Model Forest also seeks to have a political impact,” adds Leonardo Duran, “so that in the future, clean energy and other topics may be included in the curriculum as part of environmental education as well as in development policies that are being implemented by institutions at a local level.”

### To find out more

- International Model Forest Network: [imfn.net](http://imfn.net)
- Video: [youtu.be/C0t1DeFUdnw](https://youtu.be/C0t1DeFUdnw)

*The International Model Forest Network brings people together to test and apply innovative approaches to the sustainable management and use of the world’s landscapes and natural resources.*

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