Carnaúba Viva
Brazil

Equator Initiative Case Studies
Local sustainable development solutions for people, nature, and resilient communities
UNDP EQUATOR INITIATIVE CASE STUDY SERIES

Local and indigenous communities across the world are advancing innovative sustainable development solutions that work for people and for nature. Few publications or case studies tell the full story of how such initiatives evolve, the breadth of their impacts, or how they change over time. Fewer still have undertaken to tell these stories with community practitioners themselves guiding the narrative.

To mark its 10-year anniversary, the Equator Initiative aims to fill this gap. The following case study is one in a growing series that details the work of Equator Prize winners – vetted and peer-reviewed best practices in community-based environmental conservation and sustainable livelihoods. These cases are intended to inspire the policy dialogue needed to take local success to scale, to improve the global knowledge base on local environment and development solutions, and to serve as models for replication. Case studies are best viewed and understood with reference to *The Power of Local Action: Lessons from 10 Years of the Equator Prize*, a compendium of lessons learned and policy guidance that draws from the case material.

*Click on the map to visit the Equator Initiative's searchable case study database.*

Editors
*Editor-in-Chief:* Joseph Corcoran
*Managing Editor:* Oliver Hughes
*Contributing Editors:* Dearbhla Keegan, Matthew Konsa, Erin Lewis, Whitney Wilding

Contributing Writers
Edayatu Abieodun Lamptey, Erin Atwell, Toni Blackman, Jonathan Clay, Joseph Corcoran, Larissa Currado, Sarah Gordon, Oliver Hughes, Wen-Juan Jiang, Sonal Kanabar, Dearbhla Keegan, Matthew Konsa, Rachael Lader, Patrick Lee, Erin Lewis, Jona Liebl, Mengning Ma, Mary McGraw, Gabriele Orlandi, Brandon Payne, Juliana Quaresma, Peter Schecter, Martin Sommerschuh, Whitney Wilding, Luna Wu

Design
Oliver Hughes, Dearbhla Keegan, Matthew Konsa, Amy Korngiebel, Kimberly Koserowski, Erin Lewis, John Mulqueen, Lorena de la Parra, Brandon Payne, MariaJosé Satizábal G.

Acknowledgements
The Equator Initiative acknowledges with gratitude Carnaúba Viva, and in particular the guidance and inputs of Dario Gaspar Nepomuceno. All photo credits courtesy of Dario Gaspar Nepomuceno. Maps courtesy of CIA World Factbook and Wikipedia.

Suggested Citation
PROJECT SUMMARY

Working in the caatinga ecosystem of northeastern Brazil, Carnaúba Viva has introduced innovative means of sustainably managing the carnauba tree (*Copernicia prunifera*), a locally-abundant palm species whose leaves can be used for wax production. Working with the indigenous people of the Jaguaribe-Açu territory and in partnership with the Brazilian Ministry of Environment, the initiative has developed sustainable harvesting of carnauba tree derivatives that has underpinned conservation efforts and improved local livelihoods.

Carnaúba Viva has intervened on the supply and demand sides of carnauba processing. Technical training in improved pruning, reforestation and in-vitro seed cultivation has boosted productivity of local producers. Market interventions have involved promoting carnauba tree fibers as an alternative to aluminum insulating plates and carnauba wax fiber belts for use in the oil and gas industry.

TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background and Context</td>
<td>4</td>
</tr>
<tr>
<td>Key Activities and Innovations</td>
<td>5</td>
</tr>
<tr>
<td>Biodiversity Impacts</td>
<td>6</td>
</tr>
<tr>
<td>Socioeconomic Impacts</td>
<td>6</td>
</tr>
<tr>
<td>Policy Impacts</td>
<td>7</td>
</tr>
<tr>
<td>Sustainability</td>
<td>8</td>
</tr>
<tr>
<td>Replication</td>
<td>8</td>
</tr>
<tr>
<td>Partners</td>
<td>8</td>
</tr>
</tbody>
</table>
Carnaúba Viva works in the distinct “caatinga” ecosystem of northeastern Brazil, in the state of Rio Grande do Norte. The basis of the project is the carnauba tree (*Copernicia prunifera*), a species of palm native to the region. The palm is popularly referred to by the indigenous population as the “Tree of Life” because of its many values to local people. The fruit and pit from the tree can be eaten, the wood is widely used in construction, and the leaves can be processed to extract what is famously among the hardest naturally-occurring waxes in the world. Carnauba wax is coveted for use in the cosmetics, food, pharmaceutical and auto industries. While the carnauba tree grows in other countries and regions of the world, it is only in Brazil that there is enough rainfall for the palm to produce wax. The carnauba tree produces the wax to protect itself from dehydration.

**Adding value to indigenous resource use**

Carnaúba Viva supports indigenous people within the Jaguaribe-Açu territory in sustainably harvesting carnauba tree derivatives and in connecting to lucrative market supply-chains. Projects range from carnauba wax extraction to advancing new technologies. In partnership with the Ministry of Environment, Carnaúba Viva conducts training with indigenous people to transfer knowledge related to the management and harvesting of carnauba derivatives. On the supply side, Carnaúba Viva supports activities in pruning, reforestation and the in-vitro cultivation of seeds, all of which are helping to create and sustain livelihoods in one of the most environmentally degraded and economically marginalized regions of Brazil. On the demand side, the group has perhaps been most successful in two areas: i) promoting carnauba tree fibers as an alternative to aluminum insulating plates; and ii) promoting carnauba wax fiber belts for use in the oil and gas industry.

The Carnaúba Viva initiative was born in 2004 and has the stated objective of transforming the processes of carnauba extraction within the Jaguaribe-Açu territory to develop a viable supply-chain for community wellbeing. The emphasis on community wellbeing is holistic, and is inclusive of social, environmental and cultural values in addition to improvements in the local economy. The initiative aims to create jobs and provide a measure of economic security for an already marginalized population. Local culture and traditional knowledge, however, are equally important to the Carnaúba Viva model and underpin a local conservation ethic that is essential to the long-term sustainability of the organization. The group’s vision, more broadly conceived, is to organize and educate those involved in the sustainable extraction of carnauba tree derivatives, such that they can live with dignity, achieve economic security and contribute to the conservation and sustainable use of both the carnauba tree and the caatinga ecosystem.

**Environmental threats and a partnership-driven model**

Carnaúba Viva evolved partly in response to the growing fragmentation of carnauba tree extractive activities within the Jaguaribe-Açu territory. Architects of the program observed a lack of coordination in the extraction process. A lack of communication and coordination was leading to inefficiencies in the supply-chain. Additionally, growth in a number of industrial sectors was beginning to threaten the carnauba tree and local ecosystems. Oil extraction, the ceramic brick and tile industry, shrimp farming, and irrigated horticulture – all had the combined effect of dislocating local inhabitants from their land and eroding local biodiversity. For sustainable extractive activities to stay competitive, and to increase the number of local beneficiaries, it would also be necessary to attract new partners.

Carnaúba Viva has been successful in attracting the right combination of partners to ensure a steady demand for sustainably and locally harvested carnauba tree derivatives. The organization has created a supply-chain that links local producers with bigger markets and larger industries. One transformative partnership has been with Petrobras, a Brazilian multi-national energy company. Carnaúba Viva sources sustainably harvested carnauba tree fiber from local communities to produce steam transmission line coverings. The carnauba fiber offers a more durable, sustainable and cost-effective alternative to the aluminum coverings previously used by Petrobras.
Carnaúba Viva activities are aimed at the conservation and sustainable use of the carnauba tree and improving the livelihoods of local communities by connecting them with more lucrative and better-coordinated supply chains. Project activities are largely focused on value-added secondary processing of carnauba derivatives.

**Key programme areas**

One specific activity is a project called the ‘Transfer of Technology and Development of Carnauba Products’. Under this project, local communities are trained in sustainable extraction and craft techniques, and are supported in sharing this knowledge with other communities. Training includes the use of solar dryers for carnauba leaves, which allow for faster drying and ultimately better quality powder for use in the production of carnauba wax. The project is a partnership with the State University of Rio Grande do Norte and is funded by both the Ministry of Agrarian Development and the National Council for Scientific and Technological Development.

Carnaúba Viva is also involved in a related project called ‘The Rebirth of Carnauba’. The project involves the installation of carnauba powder processing units in new communities entering the production supply-chain. Job creation, income diversification, environmental education and local empowerment are all primary objectives. The project is a partnership with the municipality of Ipanguaçu and is funded by the Ministry of Agrarian Development and the Açu-Mossoro territory.

Another related project the organization leads is ‘In-Vitro Production of Carnauba Seedlings’, which focuses on cultivating carnauba seedlings in nurseries and laboratories for tree-planting efforts by participating communities. The project is a partnership with the Federal University of Rio Grande do Norte. Finally, the group operates a Fair Trade Centre, which aims to market local and family-level farming products.

Taken together, these projects focus on making the carnauba production chain work for local people. Carnaúba Viva uses these project activities to promote traditional cultural values (e.g. pride in indigenous heritage), local knowledge, social inclusion, environmental awareness, and sustainable livelihood options that empower local people. The organization has managed to take a sustainable activity and generate new sources of income for over 700 people.

**Fusion of modern and traditional knowledge**

One noteworthy innovation of Carnaúba Viva is the combination of traditional knowledge and modern technology. Traditional knowledge is the basis of all facets of carnauba wax extraction and production. This is empowering for the local farmers, and engenders community ownership of project activities. This local knowledge, however, has been complemented by more modern technology – solar dryers for powder extraction and wax production, shakers for powder removal, and personal protective equipment to reduce workplace injuries. Another innovation has been wholesale improvements in local livelihoods without damaging the environment. Prior to the project, carnauba trees were being logged at alarming rates, largely for use in the tile and brick industries. The success of the project has demonstrated to other communities the viability of environmental conservation initiatives that also work for people.
**Impacts**

**Biodiversity Impacts**

Carnaúba Viva has advanced a market supply-chain model that protects the carnauba palm and its surrounding ecosystem. This caatinga ecosystem, deriving from a Tupi word meaning ‘white vegetation’, consists primarily of small, thorny trees that shed their leaves seasonally. Cacti, thick-stemmed plants, thorny brush, and arid-adapted grasses make up the ground layer. Common to the north-east of Brazil, the Caatinga covers an estimated 10% of Brazil’s land area.

The Carnaúba Viva initiative provides a sustainable livelihood alternative to the pervasive and environmentally deleterious extractive industries in the region – mining, oil and gas, brick and tile, shrimp farming, and irrigated horticulture. Expansion of these industries was leading to deforestation, biodiversity loss and the degradation of the caatinga ecosystem. By contrast, carnauba wax extraction does not require land conversion or the felling of trees and so has the potential to be a sustainable non-timber forest product.

Environmental education is also a central component of Carnaúba Viva’s work. Awareness-raising campaigns are targeted at landowners and convey not only the need to conserve local biodiversity to maintain the integrity of the region’s ecosystems, but also the economic opportunities presented by carnauba extraction. Campaigns highlight conservation incentives to landowners and encourage more sustainable land-use choices.

The initiative does not as yet have a systematic biodiversity monitoring and evaluation program in place. A partnership is being explored, however, with the Ministry of Environment and the Chico Mendes Institute to build this capacity.

**Socioeconomic Impacts**

Carnaúba Viva has effectively transformed the local economy. The primary target population is carnaubeiros – the agricultural workers and craftspeople involved in various aspects of the carnauba supply chain. Currently, the initiative works with over 700 people from 12 municipalities of Rio Grande do Norte.

When the initiative began in 2004, women were the primary target population. Beginning in 2007, the project expanded its scope to include male agricultural workers. Male and female, all were working in the production of coverings made from carnauba fiber. In 2009, the project expanded to other facets of the supply-chain, including those specializing in the cutting of leaves and removal of powder from carnauba straw. The initiative is currently building a carnauba wax production plant in Ipamguacu. Following its completion, the number of local people involved in the project will grow substantially.

Prior to the initiation of the project, local women making goods from carnauba straw had little access to markets and were unable to set prices for their products. Standards of quality control were absent (again affecting market price) and the scope of the social organization needed to address these problems was beyond the capacity of any single cluster of producers. Carnaúba Viva has provided these women – and many more local producers since – with market access, bargaining power, quality control standards,

<table>
<thead>
<tr>
<th>Year</th>
<th>People</th>
<th>Target Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>50</td>
<td>Artisans</td>
</tr>
<tr>
<td>2005</td>
<td>130</td>
<td>Artisans</td>
</tr>
<tr>
<td>2006</td>
<td>250</td>
<td>Artisans</td>
</tr>
<tr>
<td>2007</td>
<td>329</td>
<td>Artisans</td>
</tr>
<tr>
<td>2008</td>
<td>500</td>
<td>Artisans</td>
</tr>
<tr>
<td>2009</td>
<td>550</td>
<td>Artisans and carnauba workers</td>
</tr>
<tr>
<td>2010</td>
<td>700</td>
<td>Artisans and carnauba workers</td>
</tr>
</tbody>
</table>

Source: Carnaúba Viva (2010)
and a professional network. The supply chain has been shortened, allowing local extractors and producers to sell directly to industrial buyers.

The organization has overseen an average increase in household income of 5 per cent per year, and has improved job security in an uncertain and sparse economic climate. Project revenues have been reinvested into community development projects, as well as cultural, artistic and sports activities including environmental research, capoeira classes, theatre, and visual arts.

Importantly, the initiative has empowered an economically marginalized segment of the population. Income growth is based on local knowledge and a sustainable activity. Improvements have been observed in improved access to education, improved maternal health and reduced infant mortality.

POLICY IMPACTS

Perhaps one of Carnaúba Viva’s most significant accomplishments has been the creation of the Jaguaribe- Açú territory, securing land tenure for communities engaged in sustainable natural resource management. The Jaguaribe- Açú territory is comprised of 37 municipalities in the states of Rio Grande do Norte and Ceará. The initiative worked with the Ministry of Environment to gain formal legal recognition of the territory, which is now under community-based land management. Recognition was granted based on the high regard of the governments in Rio Grande do Norte and Ceará for Carnaúba Viva. The organization is also active in a range of management groups, including those of the territory of Jaguaribe-Açú, the territory of Açú-Mossoro, the Watershed Committee of the Piranhas- Açú River, the Municipal Council on the Environment for Açú, and the Advisory Committee of FLONA.

“Life has to be the dominant value. Public policy should be focused on the preservation of life in all of its forms, not be a form of bargaining to advance special interests.”

Dario Gaspar Nepomuceno, Carnaiba Viva
SUSTAINABILITY

Project sustainability is definitely tied to continued demand from Petrobras. While the organization benefits from the business relationship, a change in demand for sustainably harvested carnauba products from Petrobras would deliver a crippling blow to Carnaúba Viva.

To improve its sustainability, Carnaúba Viva is investing in mentoring programs, community mobilization, awareness-raising on environmental conservation, and management training. The initiative is looking to expand to other regions, to partner with a wider range of environmental agencies and companies (to diversify its demand sources), to provide human resources training and to establish a credit line in order to finance small ecosystem-based business ventures.

REPLICATION

The initial target population of the project was the communities working in Palheiros III, or roughly 100 agricultural workers and extractors. Carnaúba Viva has expanded to cover the wider territory of Jaguaribe-Açu and now works with over 700 local people. The initiative has also expanded to virtually all aspects of the carnauba derivative production chain. Eight cooperatives (or mini-federations) have been created to facilitate the peer-to-peer exchange of knowledge and lessons learned. Plans are underway to expand work into other northeastern states in Brazil where carnauba grows.

PARTNERS

Currently, Petrobras is the organization’s most important partner on the demand side of the business model.

The Federal University of Rio Grande do Norte has provided support with proposal writing and project design, particularly for the ‘Technology Transfer and Development of Carnauba Products’ project and the ‘In-Vitro Production of Carnauba Seedlings’ project. The municipal governments of Ipanguaçu and Assu provide broad level support, both for specific projects as well as ongoing operations. SEBRAE and Cordão de Ouro have, respectively, partnered with Carnauba Viva to provide community training.
Click the thumbnails below to read more case studies like this:

- Carnaúba Viva website [http://www.carnaubaviva.org.br/](http://www.carnaubaviva.org.br/)
- Carnaúba Viva Photo Story (Vimeo) [http://vimeo.com/15960796](http://vimeo.com/15960796)
- Video on Carnaúba Viva, 2012 (YouTube) [http://www.youtube.com/watch?v=hYXjZn2KYhM](http://www.youtube.com/watch?v=hYXjZn2KYhM)

The United Nations Development Programme (UNDP) is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life.

The Equator Initiative brings together the United Nations, governments, civil society, businesses and grassroots organizations to recognize and advance local sustainable development solutions for people, nature and resilient communities.

©2012 by Equator Initiative
All rights reserved