Equator Initiative Case Studies
Local sustainable development solutions for people, nature, and resilient communities

TARIQUÍA RESERVE
BEEKEEPERS ASSOCIATION
Bolivia

Empowered lives.
Resilient nations.
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.

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Bolivia

PROJECT SUMMARY

Tariquía Reserve Beekeepers Association (Asociación de Apicultores de la Reserva de Tariquía - AART) is an indigenous honey producer association that has been recognized nationally for producing the best organic honey in Bolivia. The group works within the Tariquía Flora and Fauna National Reserve, a protected area covering 610,000 acres of dense, semi-deciduous, montane Tucumano-Boliviano forest. The association is certified as an ecological community organization which shares its costs, profits, production techniques and knowledge equally amongst cooperative members.

AART is responsible for the purchase and commercialization of honey from all producers on the reserve. The association incorporates traditional ecological knowledge in their honey extraction techniques. By adding value to this livelihood activity, the initiative has successfully reduced pressures on the reserve’s unique biodiversity.

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Tariquía Reserve Beekeepers Association (Asociación de Apicultores de la Reserva de Tariquía - AART) is a honey producers’ association working in southern Bolivia to promote sustainable development for the local “Chapaco” people living in the mountainous region of Tarija Department, bordering Argentina. The group works within the Tariquía Flora and Fauna National Reserve, a protected area located in the provinces of Aniceto Arce, Burnet O’Connor, Gran Chaco, and José María Avilés, approximately 110 kilometres south-east from the city of Tarija. The reserve, established in 1989, covers 610,000 acres of dense, semi-deciduous, montane Tucumano-Boliviano forest. These mountain forests range from heights of 1000 meters to 1500–2000 meters above sea level. According to the altitude, the climate varies from humid to very humid in the areas most exposed to rain and mist, with average annual rainfall of 1000 to 1,500 millimetres.

**Biodiversity of the Tariquía Reserve**

The Tariquía landscape is characterized by steep elevations, abrupt cliffs and unstable soils with high risk of erosion. It is one of the largest examples of tropical montane cloud forest under protection in all of South America. The Tarija and Bermejo rivers form the Bermejo River basin on the Bolivia-Argentine border, making the surrounding forest a vitally important regional watershed. Scientists have recorded 247 plant species in Tariquía. Native trees and large shrubs include the South American cedar, red Brazil cherry, quinine, wild walnut, and laurel. The forests are home to a wealth of mammals such as jaguars, ocelots, spectacled bears, collared peccaries, brown capuchin monkeys, tapirs, nine-banded armadillos, and brocket deer. Andean condors, whistling herons, Chilean flamingos, white-rumped hawks, scaly-headed parrots, Andean pygmy owls, and Bolivian military macaws are among the 250-plus bird species in Tariquía.

**Restrictions on local livelihoods**

The reserve is home to around 3,600 local people. Culturally, these non-indigenous communities are known as the “Chapaco” people, although some traits of the Guarani people who once inhabited the region remain. The predominant form of livelihood activity is subsistence agriculture, based on the consumption of local production; little is sold due to the lack of paved roads providing access to surrounding markets. Agricultural activities are mainly based on the production of corn, peanuts and citrus fruits, and there is also a low level of livestock rearing. Restrictions on the use of natural resources within the protected area after 1989 directly affected these livelihood activities, forcing local people to intensively farm their remaining land. Poor agricultural practices such as overgrazing, burning forests for cultivation, insufficient crop rotation, and growing crops on steep slopes all caused severe problems with soil erosion. External threats to the forest ecosystem included illegal hunting, overfishing, timber harvesting, and oil prospecting. These problems were exacerbated by a lack of clear park boundaries, and the process of constructing access roads to reach marginalized communities.

**Origins of community-based action**

In 1994, Protección del Medio Ambiente Tarija - PROMETA, a Bolivian NGO, began working to reinforce conservation within the Tariquía Reserve by introducing patrols to halt illegal activities. Simultaneously, local farmers were given training in alternative livelihood activities to reduce human pressures on the forest’s fragile ecosystem. A beekeeping project was initiated in partnership with a second NGO – Nature, Land and Life (Naturaleza Tierra y Vida - NATIVA) – eventually leading to the founding of AART in 1998. AART has sought to generate revenue for farming households in a sustainable fashion, using traditional honey extraction techniques, and without introducing chemical inputs or invasive species to the forest ecosystem. In 2003, the organic honey produced by AART was recognised as the finest in the tropical region of Bolivia. The organisation gained legal recognition in 2003. AART aims to benefit all 3,600 inhabitants of the reserve through raising household incomes from honey production.
AART’s key innovation has been the introduction of wooden hives for keeping bees. Previously, local farmers had harvested wild honey from beehives located in trees within the forest. This entailed clearing forest paths to reach the hives, and then either shaking or chopping down the tree to reach the honey. Wooden beehives have reduced the ecological cost of the activity and allowed beekeepers to harvest a greater quantity of honey. The lack of access roads within the national reserve makes small-scale commercial agriculture unviable as a livelihood activity, whereas the guaranteed organic premium received from the sale of honey has made apiculture an attractive, sustainable source of income.

Beginning with a pilot group of 12 members of the Tariquía community, the initiative is now made up of more than 80 farming families. Around 70% of these families are based in Tariquía, while the project has also successfully incorporated families in Chiquiaca and Salinas. AART operates as a cooperative, and is responsible for purchasing and marketing honey from all of the producers on the reserve. The initiative also carries out quality control tests to maintain the quality of products sold in local and national markets.

New members of the cooperative are required to pay 200 bolivianos (USD 28) to the cooperative, and maintain two functioning beehives. Depending on climatic conditions, which affect the health of bees and plant flowering cycles, a hive can produce as much as 100 kilograms of honey in a year. AART purchases this honey in bulk from its producer families, paying around 22 bolivianos (USD 3.10) per kilogram. This honey is then packaged, marketed and sold by AART. Organic certification of AART’s honey, granted by the Association of Ecological Producer Organizations of Bolivia (AOPEB), has allowed it to be sold for as much as 40 bolivianos (USD 5.70) per kilogram, generating revenue that helps to cover AART’s operational costs. The honey has also received a health registration certificate, issued by the National Service for Agricultural Health and Food Safety (SENASAG).

**Job creation and organizational structure**

Aside from marketing and selling the honey, AART employs part-time technicians to oversee the production processes, and advises on hygienic and organic standards to ensure that the honey meets quality standards. In addition to honey, the organisation has also begun to market other by-products of the beekeeping process. Propolis and pollen are both processed and sold for their medicinal qualities. Efforts have been made to develop machine processing of honey, although this is still in its infancy.

The organisation currently employs eight local people. Decisions are taken by a General Assembly, which is guided by an Executive Board. This is composed of community representatives, administrators, technical experts, and sales managers. Decisions are voted on at meetings of the General Assembly, made up of all of the honey producers, although due to transport difficulties for the communities, these meetings are infrequent.

> “Perhaps our position is to defend the rights of people who have fewer alternatives for human development and sustainable production. We promote a balanced relationship between nature, respect for cultural diversity and democratic social participation in development decisions.”

*Ivan Arnold, NATIVA Bolivia*
Biodiversity Impacts

Tariquía Flora and Fauna National Reserve is a vitally important sanctuary for wildlife and plant species in Bolivia, as well as an important watershed. Its ecological health was severely threatened during the early 1990s, when illegal logging, burning for cultivation, and other human activities imposed heavy environmental costs on the landscape. The introduction of apiculture and the formation of AART should be seen within the larger framework of efforts to better conserve this national reserve. Beekeeping has successfully reduced human impacts on the forest, and has helped to conserve its plant and animal species in three key ways.

One positive impact on biodiversity has been the introduction of modern beekeeping methods, with producers encouraged to use wooden beehives rather than cut trees to obtain wild honey. From only 30 wooden beehives in 2007, there are currently more than 120 in use by producer households. The initial cost of these hives is around 450 bolivianos (USD 65). Honey producers are able to generate enough revenue to cover this initial investment within one year, if they are able to produce a modest level of 20 kilograms of honey at USD 3.10 per kilogram. The box hives also reduce the need to cut paths through the forest to reach wild honey. Additionally, the bees themselves play an important role in pollination of flowering forest plants species.

A second result of the uptake of honey production has been the reduction in harmful income-generating activities that communities had previously relied on. Prior to the introduction of apiculture, 40% of current beekeepers were engaged in logging trees for the sale of timber. Local people had also relied on poaching animal species, illegal dynamite fishing, and the unsustainable extraction of other natural resources. Since the creation of AART, there has been a reduction in logging and animal trading in the park, both as a result of anti-poaching patrols instituted by PROMETA in 1994, and the development of alternative livelihood sources.

Finally, the outreach activities of PROMETA and NATIVA have helped to increase general environmental awareness among the target communities of Tariquía, Chiquiaca, and Salinas. The difficulties imposed on local communities by resource restrictions within the Tariquía Reserve have been offset by the development of apiculture, resulting in increased acceptance of the park’s boundaries and regulations.

Socioeconomic Impacts

The primary socioeconomic benefit of AART’s work for its target population has been income generation. By guaranteeing honey producers an organic premium, AART has ensured that this is a profitable and attractive livelihood option. More than eighty active producers receive a price of around USD 3.10 per kilogram of honey. In 2009 alone, honey production reached a peak of 12,000 kilograms, generating around USD 37,200 for producers, or an average of USD 465 per household. It should be noted, however, that apiculture is weather-sensitive and therefore carries a certain degree of economic uncertainty. Unusually cold weather during 2010, for example, caused late flowering of plants and also resulted in the death of honeybees, meaning that annual honey production fell to 4,000 kilograms.

A secondary benefit of AART’s work has been capacity-building and strengthening of local institutions. Increased knowledge of marketing and commercialisation of organic goods has provided a foundation for new ecological enterprise growth within the national reserve communities. AART’s production structure has empowered women, as they are equal stakeholders in honey production units, and have also been employed in selling organic honey products.

Increased production has also led to greater honey consumption by households. This is an important food supplement and source of nutrition, especially for children. Increased use of propolis and
pollen has also had health benefits for local people: propolis has anti-inflammatory qualities, while pollen is used for people recovering from diseases, for children with anaemia, and as a multivitamin to prevent and relieve colds.

POLICY IMPACTS

AART’s success has been a catalyst for the promotion of apiculture as a regional conservation and development strategy. Although the model of communal beekeeping associations has been present in Bolivia for more than twenty years, recognition of the successful example of AART has helped cooperative beekeeping to gain greater visibility, exposure and credibility. Apiculture initiatives are now well-established both within Tariquía and Tarija, resulting in beekeeping being included in the department’s municipal planning policy. The initial expansion of AART’s activities to both Chiquiaca and Salinas has demonstrated the viability of apiculture as a regional development strategy.

AART has also advocated for the inclusion of support mechanisms for (and greater investment in) beekeeping in the management of protected areas. The organisation has a close relationship with El Servicio Nacional de Áreas Protegidas – SERNAP, with training and support provided by the national reserve management under various administrations. In particular, AART has demonstrated the viability of beekeeping as a sustainable production alternative for isolated rural communities, without access to roads and markets, which is particularly applicable to the residents of protected areas.

At the national level, AART has yet to have a significant impact on policy. A variety of supportive policies and initiatives, if implemented, could greatly enhance AART’s work. These include:

1. Socio-environmental policies that promote poverty reduction and combat deforestation;
2. Policies that promote sustainable production processes in line with the idea of Economía Solidaria, such as organic products and eco-tourism;
3. Policies concerning sustainable land use;
4. Protectionist policies that favour domestic products over imported ones;
5. A policy that enhances the market for organic products;
6. A policy for the development of apiculture and for the production of related bee products, promoting relevant technology and research;
7. Sources of funding and credit for the development of community associations for the poorest rural populations.

“May we all achieve or seek to make a difference with good practices, stopping the effects of global warming, and caring for and respecting the environment.”

Ivan Arnold, NATIVA Bolivia
SUSTAINABILITY

AART’s work is inherently sustainable, having demonstrated the benefits of apiculture for local communities, as opposed to illegal logging or fishing, for example. As long as organic honey production continues to be a source of income for rural producers, the organisation will be able to sustain its positive environmental and socio-economic impacts. Member families are increasingly more aware of the benefits of conserving their natural environment.

Strategies for sustainability

Various challenges have been overcome by AART in its growth. External funding through PROMETA and NATIVA allowed the organisation to overcome the initial financial resources gap to meet production, collection, marketing, and administration needs. The physical geography of the terrain also represented a challenge, with little flat land, and a lack of paved roads that hindered access to markets. At the outset of the initiative there was little community participation and low productivity: only 90 kilograms of honey were produced in AART’s first year.

Several features of AART’s work have greatly enhanced their sustainability. Production requires low levels of investment that are quickly recovered, making it an attractive opportunity for otherwise economically marginalized communities with few livelihood options. It also uses the abundant wild flora in the reserve, relying on the region’s natural comparative advantage. There is a high, increasing demand for the product in local markets, and for organic products more widely. AART has been able to secure access to this specialised market over time. Finally, the producers are well-organised in a legally-recognised cooperative, and have gained both organic and health certification for their product.

Today, revenues generated from the sale of honey, propolis, and pollen ensure that the organisation is inherently self-sustaining, although its partners continue to play a key role in providing technical support. In 2007-2008, the organisation made 101,000 bolivianos (USD 14,400) from the sale of organic honey. In 2008-2009, this increased to 124,000 bolivianos (USD 17,690). Revenues fell with a lower honey harvest in 2010, however, illustrating that the initiative’s sustainability is threatened by unpredictable weather patterns in a changing climate.

REPLICATION

Replication of the initial model employed in Tariquía to Salinas and Chiquiaca was highly successful. This best practice transfer used workshops and knowledge exchanges among producers, who were able to share their experiences and provided evidence of the viability of the production model. As yet, however, AART has not been involved in replication of its model in other sites within Bolivia.

PARTNERS

The main partners to the initiative are Naturaleza Tierra y Vida – NATIVA, Protección del Medio Ambiente Tarija – PROMETA, and El Servicio Nacional de Áreas Protegidas – SERNAP.
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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.

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