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SOURCING<sup>®</sup>  
WITH RESPECT

BIODIVERSITY ACTIONS

# ALOE VERA IN SOUTHERN MEXICO

## A Case Study

A Biodiversity Action Plan (BAP) provides guidance in designing and implementing concrete practices on sustainable use and conservation of biodiversity when growing and sourcing natural raw materials.



### ALOE VERA *Aloe vera*

#### The Facts

- An evergreen and perennial plant that lives between 5 to 25 years
- Succulent plant that mostly reproduces asexually through the production of aloe vera pups
- Native to the Arabian Peninsula, it thrives in sub-tropical and tropical regions, but is also widely distributed across semi-arid and arid regions
- Cultivated around the world for health and beauty purposes; produces a gel with moisturizing and healing properties
- Farms included in this case study are small-scale, traditional farms in which aloe vera is grown following organic practices and nestled among fruit trees such as citrus, mango and banana.

#### Biodiversity and its threats

Aloe vera is cultivated in Southern Mexico in places surrounded by deciduous forests, mangroves and evergreen subtropical lowland. These ecosystems are rich in species of fauna and flora only found in Latin America.

However, this biodiversity is threatened by hunting, illegal logging and agricultural expansion which has led to the deterioration of the flora, water scarcity, soil degradation and displacement of wildlife due to habitat deterioration.

#### “Aguadas” and “sartenejas”: crucial features of the local ecosystem

Water is scarce in the study region because of increased droughts in the Yucatan Peninsula, as the soils has high carbonate content that inhibits the formation of permanent water sources such as flowing rivers or surface water bodies. Unique features of rainwater accumulation have developed in this landscape, known locally as “aguadas” (waterholes) and “sartenejas” (natural rock pools of small size).

These features are sparsely distributed in the landscape, and most dry out at the beginning of the dry season. Still, they form the most important, if not only, source of water available for wildlife and people during the dry period. Many different species visit them, including protected species of cats, large-hoofed mammals such as tapirs, and birds. These key features and the biodiversity they host are threatened by climate change and human activities, including use of these areas as hunting sites. In addition, destruction of the surrounding vegetation causes increased evaporation of the aguadas and sartenejas.

Collaboration among local manufacturers, farmers and other stakeholders is crucial to achieve some of the desired actions for the sustainable use of biodiversity.

By collaborating with local authorities, land owners or other farmers, more efficient measures can be applied on issues that go beyond aloe vera production, such as on managing waste or reducing pollution from agrochemicals.



## SUSTAINABLE USE

### **GOAL 1 RAISE AWARENESS AND IMPROVE COMMUNITY PRACTICES**

#### **Possible Actions**

- **Establish storage facilities for solid waste.** Collaborate with local authorities to improve domestic waste management in the communities producing aloe vera.  
  
The collaboration with local authorities is necessary to improve waste management by increasing and improving infrastructures through the allocation of special storage facilities for solid waste and plastic containers. Inform workers of the adequate disposal practices at the storage points.
- **Raise awareness among local communities about biodiversity conservation.**
  - Ensure that producers and their community get adequate environmental education and know why biodiversity conservation is important.
  - Teach them how to conserve rainwater and the different ways to harvest rainwater.
  - Raise awareness on important biodiversity threats such as hunting, logging, forest fires, pollution from waste and deforestation.

### **GOAL 2 CONSERVE NATURAL RESOURCES IN THE CULTIVATION SITES**

#### **Possible Actions**

- **Prevent soil erosion and invasive species.** Incorporate beneficial weeds in the soil to avoid invasive species and to provide natural soil cover to reduce the risk of erosion.
- **Improve soil health.** Incorporate organic fertilizers prepared by producers with inputs such as compost. Examples of this include bokashi fertilizer, banana infusion and worm leachate. Organic fertilizer applied in a controlled manner will add organic matter to the soil, and contribute to moisture retention and overall soil health.
- **Prevent the contamination in the cultivation sites by agrochemicals to conserve flora, water bodies and soil.**  
Aloe vera farmers included in this case study do not use synthetic agrochemicals, however neighboring farmers do. Local authorities also use herbicides and other products in public greenery.  
  
To limit risks of cross-contamination to the aloe vera, sign agreements with local authorities and neighboring farmers to limit or end the use of agrochemicals near the aloe sites. Install or expand native hedgerows around the aloe vera to reduce agrochemical drift.
- **Improve water use efficiency in the farms.** Train producers in good irrigation practices to reduce the volume of water used for irrigation, e.g., only rainwater in the rainy season, irrigating in the dry season only when the crop requires, systems to harvest rainwater and store for later use. Actions to improve soils also contribute to better soil moisture retention and reduce the need to apply additional external sources of water for the plants' growth.





## GOAL 3 CONSERVE NATURAL RESOURCES IN THE CULTIVATION SITES

### Possible Actions

- **Define buffer zones near the production sites** where deforestation, land conversion and any other form of ecosystem degradation is not allowed. This may require establishing partnerships and agreements with landowners when aloe vera producers do not own the land.  
  
Place signs to inform the local communities about the existence of the buffer zones and raise awareness on the reasons to set these areas aside for conservation.
- **Conserve and restore aguadas and sartenejas.** Map those located near the production sites, educate local communities about their importance and raise awareness on hunting. Support and engage producers in actions to restore and conserve aguadas and sartenejas based on advice from local experts.
- **Engage farmers in the monitoring of the biodiversity actions.** This increases their awareness of biodiversity, promotes their engagement and provides regular monitoring at a local level.

### EXPECTED IMPACT

Based on studies conducted in Mexico and a 2017 comprehensive literature synthesis<sup>1</sup> that reviewed multiple scientific studies on biodiversity conservation techniques:

- **Water is not easily accessible by fauna in the region.** Research has shown that aguadas and sartenejas are structures that allow the accumulation of rainwater and are crucial to fulfil the basic needs of various animals.
- **Retaining areas of natural or semi-natural vegetation** meant as buffer zones around important habitats helps protect fauna and flora. Buffer strips increase diversity or abundance of plants, invertebrates and birds.
- **The plantation of hedges around the production sites** can minimize runoff of agrochemicals into the farm, however they also serve as corridor, refuge, breeding and feeding areas for wildlife. This can lead to the increase of fauna and flora species in the area.
- **Providing soil cover by using weeds or grass** has been proven to reduce soil erosion and increase organic matter, which in turn improves the soil's ability to store and supply nutrients.
- **The application of compost in agricultural soils** leads to higher microbial biomass, reduced soil erosion and water runoff, higher carbon levels and organic matter and to higher crop yields.

### Water is crucial but scarce in the production region

It is therefore important to preserve natural water bodies like the 'aguadas' and 'sartenejas' which are a key water source for people and wildlife in the region.

Water consumption can be reduced in regions where water sources are limited through the application of practices such as rainwater harvesting for domestic or agricultural uses.



CONSERVATION



HARVESTING ALOE VERA | INSET: BAIRD'S TAPIR, PATRICIO BAIRD



## The UEBT Standard

UEBT's standard – through its requirements for Principles 1 and 2 (Conservation of Biodiversity/ Sustainable Use of Biodiversity) – guides its members and their suppliers to define and implement systemic approaches to biodiversity conservation and sustainable use. To facilitate this process, UEBT recommends companies adopt Biodiversity Action Plans as a strategic road map for businesses to contribute to stemming the loss of biodiversity on Earth.

## HOW TO BEGIN?

Acting for biodiversity means acting in a systemic and context specific way. You can:

- Assess opportunities and threats to biodiversity in the context of your sourcing.
- Implement actions that focus on conservation, restoration, and sustainable use.
- Plan different measures and coordinate with different actors along the supply chain.

## Roles and responsibilities

- The company defined this Biodiversity Action Plan (BAP) with the support and feedback of UEBT, and supervises the implementation and monitoring of the actions.
- The company commits financial resources, expertise and staff time to implement the measures.
- Collaboration with other stakeholders, including local authorities, environmental organisations, neighbouring owners, is a key point for the success of the actions in this BAP.
- Farmers are responsible for the implementation of the actions on their farms and are engaged to support and monitor the actions of biodiversity conservation.

The initial motivation to implement biodiversity actions was to comply with the UEBT standard and address the pressing challenge of water scarcity. The approach motivated the company to expand their actions for biodiversity conservation so that they could communicate these actions to their stakeholders.

## Learnings to share

Close relations between the company and producers allowed the company to have a good understanding of the needs of the producers and ensure that the BAP addressed their needs.



The cultivation model was already low intensive and following good practices. Still, the company was aware of which improvements could be made to improve biodiversity impacts even further.

The BAP approach allowed the company to put these ideas together and systematize them for implementation in the farms involved. The baseline assessment also highlighted other possible areas of actions. Several of the improvements identified did not depend on the company and their producers but required collaboration with other stakeholders such as local authorities and neighboring owners.

## About UEBT and this work

UEBT wishes to thank Mexialoe, whose work inspired this case.

This case study is one of many examples of plans and types of actions that can be taken to reduce negative impacts on biodiversity or promote positive impacts.

UEBT has drawn this material from its work with various companies and provides these cases to inspire companies to take concrete actions in their own supply chains.

## References

- <sup>1</sup> Smith, R.K., Meredith, H. and Sutherland, W.J. (2017) in: W.J. Sutherland, L.V. Dicks, N. Ockendon and R.K. Smith (eds) *What Works in Conservation 2017*. Open Book Publishers, Cambridge, UK. (Smith et al; 2017)
- <sup>2</sup> Delgado, C., and Mendoza, E. (2020). La importancia de las sartenejas como fuente de agua para la fauna silvestre en la región de Calakmul, Campeche. *Biodiversitas*.
- <sup>3</sup> Hurtado, R. R., O'Farrill, G., Sima, D., Andrade, M., Padilla, A., and Sosa, L. (2010). Las aguadas de Calakmul: Reservorios de vida silvestre y de la riqueza natural de Mexico. *Biodiversitas*.



## UEBT

De Ruijterkade 6, 1013 AA, Amsterdam, The Netherlands | Telephone: +31 20 22 34567 | Email: info@uebt.org

Representation in Brazil France India Madagascar Vietnam

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