CINNAMON IN LAO CAI AND YEN BAI IN THE NORTHERN REGION OF VIETNAM

A Case Study

A Case Study on the implementation of UEBT requirements on biodiversity through the Biodiversity Action Plan (BAP) approach.

i CINNAMON Cinnamomum cassia

The Facts

- Cinnamon is an aromatic evergreen tree belonging to the Lauraceae family and is distributed in China, India, Vietnam, Indonesia, and other countries. In Vietnam, it is commonly planted in Yen Bai, Lao Cai, Hoa Binh, Thanh Hoa, and Quang Nam.
- In Yen Bai and Lao Cai, some districts such as Van Yen, Tran Yen (Yen Bai) and Bac Ha (Lao Cai) have old and strong Cinnamon forests which are more than 15 years old and have been providing seedlings for the whole region.
- In Yen Bai and Lao Cai, the two Northern mountainous provinces, Cinnamon has given a significant contribution in raising people out of poverty, in particular for ethnic minorities.
- Cinnamon is central in the cultural life of the Dao people where Cinnamon trees are given as gifts to children when marry.
- Cinnamon is harvested for its culinary uses but also for wood processing and for construction.
- The Cinnamon spice is obtained from the inner bark of the tree. The bark can provide the best quality of spice when the tree is at 8–12 years old. People cut down the tree and take out the bark for producing Cinnamon sticks. The leaves are used for extracting oil or herbs in tea and other medical remedies. The core of the tree is used for fuel and construction materials. The stump is used for handicrafts.
- Cassia trees are planted in 4 ways: intensive farming, inter-cropping in home gardens, agroforestry, and planting of Cinnamon trees as part of reforestation actions.
- When Cinnamon farming is embedded in home gardens, other crops often use GMO seeds and synthetic-and in some cases-high toxicity agrochemicals. There are no systems for the disposal of agrochemical containers and other non-organic waste.
- In the last years, the cultivation of Cinnamon took place alongside the expansion of cultivated over uncultivated land and an increase in Cinnamon trees density. Pests started being more common and soil has become more degraded than in the past. Spontaneous and native plants have been reduced.



BACKGROUND

UEBT is a non-profit association that promotes sourcing with respect among companies working in the beauty, food, and natural pharmaceutical sectors.

The UEBT standard includes seven principles with requirements on how companies and their suppliers should harvest, collect, or grow ingredients from biodiversity in a way that respects people and nature. The focus is on botanicals – those many hundreds of specialty plantbased ingredients from often biodiversity-rich areas that are used in these sectors.

Since 2017, UEBT has been developing and testing with some companies and their suppliers the Biodiversity Action Plan (BAP) approach. This approach—which comes with tools and training material—provides guidance in designing and implementing concrete practices on sustainable use and conservation of biodiversity when growing and sourcing ingredients from biodiversity. Companies and suppliers defining a BAP may reach compliance with the UEBT standard and achieve UEBT certification for the ingredients included in the BAP.

Since 2021, there are BAPs in place in all continents and these are focused on various herbs, spices, and other ingredients. Some of those BAPs have been developed in Vietnam and concern promotion of practices for the sustainable use and cultivation of Cinnamon.

Those BAPs are the result of the collaboration between private companies that are members to UEBT, UEBT and the Helvetas Regional BioTrade project in South East Asia that is funded by the Swiss State Secretariat of Economic Affairs (SECO). The Helvetas Regional BioTrade project has introduced companies in South East Asia to the concept of BioTrade and has worked with the private sector to integrate the UEBT principles into everyday business practices, ensuring that trade in ingredients from biodiversity contributes to local development, biodiversity conservation and sustainable use of biodiversity.

More than 24 companies in Vietnam have been supported through Helveta's project, of which four are UEBT current full members. Two of them hold the UEBT/Rainforest Alliance certifications and have BAPs in place.

This case study presented here describes the process to set up BAPs for Cinnamon sourcing from Northern Vietnam–Lao Cai and Yen Bai provinces–as well as the biodiversity issues to be tackled and the possible actions. The case concludes with the lessons learned from the process of setting up BAPs. The case builds on interviews with companies' representatives and a review of key documents.

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.

BAP DEFINITION THE PROCESS

BAP Steps

The BAP definition builds on four steps:

- Baseline assessment what are the conditions of biodiversity in the assessed area and what do we need to prioritise
- Definition of goals and targets what do we want to achieve per each of the priorities identified
- Definition of actions and workplan what to implement to achieve targets/goals and by when
- Definition of the monitoring system which indicators are important to monitor to assess progress towards the targets/goals and how information will be collected

The baseline assessment defines the main opportunities and threats for biodiversity in wild collection or cultivation (farmed) areas. Data gathered consists of information on wild collection/farming practices and biodiversity based on qualitative/quantitative assessment. Aspects assessed are those required in Principles 1 and 2 of the UEBT standard.

The baseline assessment will serve in the definition of goals and targets in relation to the priorities identified for biodiversity in wild collection/cultivation areas. It follows the identification of appropriate actions to reach the goals and targets, based on the contextual dynamics and situation, and the stipulation of a workplan that includes information on who should implement the actions.

Finally, a monitoring system with suitable indicators is set up to track the progress of the actions in achieving the targets effectively and within due time. This last step covers the monitoring requirements in Principles 1 and 2 of the UEBT standard.

THE EXPERIENCE OF SOME VIETNAMESE COMPANIES

The companies included in this case engaged in the definition of BAPs at first to show their commitment to protect biodiversity while sourcing their ingredients. They sought to put in place a plan that would foster resilient Cinnamon production, with a long-term positive impact on biodiversity and local communities. Another initial motivation was the need to comply with the UEBT biodiversity requirements and achieve UEBT/Rainforest Alliance certification.

The definition of a BAP for the companies involved in the case implied hiring external experts. Internal expertise was lacking on how to assess relevant biodiversity threats and opportunities in the cultivation areas, on how to systematically assess the cultivation practices in place and their contribution to crop and soil health, water cycle management and other issues, and on how to set quantitative targets and related actions for future improvement.

The Helvetas Regional BioTrade project supported the companies in covering the expenses for the hiring of consultants. Moreover, the Helvetas project financially contributed to UEBT's work on identifying the consultants, training, and guiding them throughout the process of defining the BAPs.

The external consultants made sure that all relevant information was collected to have a precise assessment of risks and opportunities and to recommend targets to reach and actions to implement. The external consultants also worked and trained some internal staff on the different steps of the BAP. These staff had existing good knowledge on biodiversity, farming, and forestry. The training built on their existing knowledge and experience. The sustainability managers at the companies played a crucial role in facilitating the understanding of the BAP approach among other company staff and ensuring the engagement of the farmers.

Staff had existing good knowledge on biodiversity, farming, and forestry: training built on this existing knowledge and experience

As of the writing of this case, the companies are in their first year of BAP implementation. They do not have quantitative information that show the impact achieved so far. However, the companies are already able to highlight some early achievements. The main contribution of the BAP at this stage is that it has helped to make actions that had already been in place to be adjusted to become more robust, and it also supported a more systematic and structured approach to biodiversity conservation and sustainable use of biodiversity.

The robustness comes from the fact that actions have been reviewed and integrated considering the risks and opportunities emerging from and newly understood from the baseline assessment, as well as from the gaps identified by the UEBT certification audit.

The more structured and systemic approach is because a BAP includes many different aspects of biodiversity and farming and allows for defining targets and a monitoring system through which companies can monitor the progresses and adjust as needed.

Other positive contributions of the BAP have been seen at the level of the farmers. They have been consulted and engaged since the early stages. According to the companies, farmers already show higher awareness of what specific impact some of their practices have on

How companies begin

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

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

biodiversity, especially when talking about 'not appropriate' management of waste water and inorganic waste, hunting, or eradicating native vegetation in their farms.

Besides the positive contributions of the BAP to date, and the expected positive impact in the coming years, there are some challenges that may threaten its implementation. In terms of farmers, some of their habits are not in line with what the BAP promotes and need to change. In addition, some actions are perceived by the farmers to be too challenging to implement.

The farmers are crucial for the implementation of the actions, therefore one of the challenges ahead for the companies is to engage them even more in a dialogue about these actions. Companies are using trainings, awareness raising campaigns, and pilots, as well as long-term commercial agreements to convince farmers to collaborate. They are also using evidence such as examples of successful cases. The companies are currently targeting more than 400 small farmers.

Another future challenge for the companies is to ensure adequate internal resources and expertise. The financial support of the Helvetas Regional BioTrade project does not cover the implementation and monitoring of the BAP. For these phases, the companies are foreseeing an investment that ranges from 10,000 EUR–30,000 EUR spread over four years.

This would cover company staff and external consultants providing technical support to the farmers and running the monitoring of the plan. Moreover, the investment would cover the expenses linked to the implementation of some actions. The investment is significative considering the size of the companies and for some actions these investments may not be sufficient. In terms of expertise, internal staff need further training and practice on the BAP approach before mastering it.

Despite the challenges, the companies are planning to implement the plan and expand it either to other ingredients or to other areas for the same ingredients. The reason is that they see a value in this approach. The BAP is helping them to implement their strategy and commitments for biodiversity in a systematic and robust way. Moreover, the BAP is helping them in assessing and managing risks.

They plan to overcome the challenges by using a gradual approach, which starts from trials and piloting and expands later. Moreover, they are still looking for replicating or creating new opportunities for collaboration with external organizations and experts.

Lao Cai and Yen Bai Provinces

Lao Cai and Yen Bai are the home of three ethnic minorities (Dao, Tày and H'Mong) who are the largest indigenous groups in the North of Vietnam. The provinces are located along Hoang Lien Son Mountain Range and Red River. They are situated in three major biomes: rainforest, subtropical and temperate mountainous zones

Lao Cai is famous for the highest mountain– Fansipan–and for Hoang Lien National Park, where there are rich forest reserves known for many species of rare timber plants such as po mu (fukiena), lat hoa (*Chukrasia tabularis*), and cho chi, as well as many species of medicinal herbs. In Lao Cai forests, 150 species of birds were recorded and some plants, and all species are considered exclusive to North Vietnam.

In the Yen Bai province, the Na Hau Nature Reserve hosts diverse and genetically rare plants species, some of which are endangered or vulnerable such as Chinese Star, Po mu, Limestone needles, Silk silks, Orchid. Local fauna includes chamois, bears, black gibbons, white-cheeked gibbons, red-shanked douc langurs, Francois's leaf monkey, grey langurs, big-headed turtles, and the birds great hornbill and pheasant.





BAP FOR CINNAMON CULTIVATION

POSSIBLE GOALS, ACTIONS AND EXPECTED IMPACT

GOAL 1 RESTORE AND/OR CONSERVE HABITATS AND SPECIES IN THE CINNAMON SOURCING AREAS

Possible Actions

Raise awareness on conservation. Raise awareness within the surrounding communities on conservation practices to preserve the local biodiversity within the Cinnamon cultivation areas and beyond. Involve agencies for communication materials (e.g., signs, leaflets, posters) and provide trainings on farming practices for Cinnamon farmers.

Additionally, protect the local fauna by raising awareness on hunting, captive breeding of wild animals and on not expanding Cinnamon cultivation activities to non-farmed areas.

- Reduce deforestation. Contribute to manage a healthy watershed forest by increasing coverage and vegetation and avoiding cutting down the Cinnamon trees and other trees. Coordinate with local agencies such as commune authorities, forest rangers, community forest protection groups.
- Buffer zones. Creating buffer zones between the Cinnamon cultivation fields and the forests/water bodies to reduce risks of contamination from farming. Plant in the buffer zones native vegetation, including medicinal plants with an economic value and other beneficial plants.

This will control run-off in water bodies, while being functional to improving soil conditions and pest management for Cinnamon farmers. Traditional native medicinal plants of high economic value should be considered to enable people to easily access and harvest them, decreasing the disturbance in watershed areas.

Threats to the Northern Vietnam rainforest

Of the native vegetation in the rainforest, roughly less than 10% remains and very little is protected. What is left of the original habitat is divided in small patches scattered throughout the ecoregion, impeding the development of the ecological processes that once occurred.

Therefore, most of the outstanding biodiversity has been lost. Human activities are the main cause for this biodiversity loss. Forest conversion to other uses (e.g., infrastructures, tourism attractions, farming, residential areas), illegal burning, hunting, and logging, absence of waste management systems, among other human actions.

Nature reserves are supporting the preservation of parts of this ecoregion including Cuc Phuong, Pu Mat National Parks, and Na Hau. However, the level of awareness among the local population of the consequences of certain poor practices is low or absent.

The cultivation of Cinnamon is not the only and main cause of biodiversity degradation

Adjusting Cinnamon farming practices would therefore not be a sufficient solution: awareness-raising and collaboration with other stakeholders on existing projects is a first step to contribute to conservation of biodiversity and natural areas when actions on Cinnamon fields are not possible or sufficient.

This approach sets the ground for a sustainable human-nature coexistence that benefits wildlife, farmers, local people, and governments. Fresh clean water is a limited resource that is crucial for wildlife and humans and managing it more consciously helps to preserve this precious resource.

However, there is little awareness on how certain practices are affecting its quality and availability. In addition, local regulations on water use are limited.

The actions for sustainable use of water shall combine consciousness-raising where it is lacking and promotion of better practices where possible and most needed. The latter can happen during the processing stage of the Cinnamon

GOAL 2 MINIMIZE NEGATIVE IMPACTS OF CINNAMON PRODUCTION ACTIVITIES

Possible Actions

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- Improve water management in Cinnamon processing.
 - There are no regulations around the water used in the Cinnamon processing factories. Companies can voluntarily set up a wastewater treatment system whereby wastewater is cleaned before re-using or disposing it.

This can reduce the risk of contamination from wastewater. Moreover, companies can define a safe level of water use and extraction for processing purposes that avoids underground water depletion and keep track of the water used.

Increase knowledge on water resources management at the farm level. Raise awareness among farmers about the practices to be followed when cleaning agrochemical containers and equipment and disposing wastewater to avoid contaminating fresh water

Moreover, it is important to raise awareness on the consequences on water evaporation and underground water depletion when nearby vegetation is cut. Related to this, it is also important to explain how to use natural structures to catch rainwater and reduce water evaporation in and around the Cinnamon farms.

Waste management. Since public waste management is not in place, private management should be set-up. Secure waste containers are installed by the Cinnamon processing company in the villages and the farmers can dispose farming and private waste in there.

The company that comes and picks up the waste for the processing company will also collect the waste generated by the farmers.

GOAL 3 RESTORE RESILIENT CINNAMON AGRO-FORESTRY **ECOSYSTEMS**

Possible Actions

- Promoting Cinnamon crop varieties and resilience. Selfpropagate native local Cinnamon varieties. Farmers collect Cinnamon seeds from healthy trees and sow them for planting, eliminating the need for buying or importing Cinnamon seedlings. This contributes to a local project: the Yen Bai indigenous Cinnamon variety conservation project. Households in the surrounding areas can then buy and collect Cinnamon seeds for their nursery.
- Promote natural pest management. Adopt integrated pest management strategies with native beneficial plants and natural pests' predators. Medicinal plants are particularly suitable for this and can be planted at the edge of the Cinnamon sourcing areas. Another important practices to manage pests naturally is to lower the density of Cinnamon trees.

When agrochemicals are not applied in Cinnamon fields, but are applied in the household garden nearby, it is important to raise awareness on minimal or non-use options, and when agrochemicals are used, on better management through trainings on IPM and composting as alternatives to chemical pesticides and fertilizers.

Improve soil condition. Crop rotation (e.g., with acacia, bodhi tree) after Cinnamon is harvested is a way to improve soil conditions. Moreover, some experiments should be carried out to intercrop Cinnamon trees – in the first year after planting-with legumes to protect Cinnamon seedlings and add nutrients to the soil. Other practices imply adding natural structures to reduce the slope of the Cinnamon fields and the risk of erosion.

EXPECTED IMPACT

From biodiversity conservation techniques described in this case

A 2017 comprehensive literature synthesis that reviewed multiple scientific studies on biodiversity conservation techniques shows that:

- Planting native vegetation can contribute to water retention, soil health, purification, fire prevention, and providing habitat for native fauna.
- Improving the inter-connectivity of habitats with buffer zones increases diversity and abundance of plants, animals, birds, invertebrates and beneficial insects.
- Promoting beneficial insects and plants that can naturally combat and repel pests reduce the need for pesticides input.
- Reducing agrochemicals use decrease the negative impacts of farming on animals, birds, plants, soil, water bodies and ecosystem function. Soil fauna diversity is restored in low chemical-input systems.
- Adopting intercropping increases soil fauna, which is fundamental for soil and plant health for it stimulates nutrient cycling, soil organic matter processes, soil carbon sequestration and greenhouse gas emission reduction.

Fauna also strengthens soil physical structure and water retention capacity and unlocks nutrients availability for vegetation.

Managing wastewater avoids health damage in animals' health and populations decline and algal blooms and fish die out.

Most people practice farming in a sustainable way such as not using chemicals in cultivation and preferring to pull weeds by hand, covering the soil with weed residues for water retention and natural fertilization. However, in recent years, farmers plant new Cinnamon fields with very high density, reaching 2-3 times more than the recommended density for sustainable farming, mostly to avoid weed occurrence.

This however leads to nutrient depletion, plant underdevelopment and spreading of pests and diseases. A regenerative approach promotes natural processes that enhance healthy soil conditions, improve ground water levels, and lower the incidence of pests and diseases, eventually increasing crop resilience and ensure long-term benefits.

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Learnings to share from the Vietnam case

- BAPs can be well defined and implemented only when all the relevant parties understand its significance and embrace it.
- The availability of financial resources and expertise is crucial for the definition and implementation of BAPs. In some cases, companies and their suppliers need external support to ensure adequate resources and expertise.
- Setting a BAP allows companies to define measures to take to reduce biodiversity risk and seize opportunities. Moreover, measures are prioritised according to their relevance for the improvement of farm performance, as well as to their feasibility given the available resources and expertise.
- The BAP approach allows for checking things and changing them as things progress. The monitoring ensures a constant awareness of which measures are giving the expected results and which may require changes.
- The BAP provides an approach that can be generalised, replicated, and scaled up. It systemically involves several farmers in the same areas in the same actions to contribute to common targets. Moreover, some actions and achievements can only be reached by interacting with local organisations and allow for collaborations with existing projects.

Acknowledgement

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.

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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

Connect with us www.uebt.org | in www.linkedin.com/company/uebt