



TECHNICAL PAPER SERIES

Ecuador generates a proposal to strengthen the orchid value chain in the Amazon region (Napo, Morona Santiago and Zamora Chinchipe)

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ABSTRACT:

The proposal to strengthen the orchid value chain in Ecuador is based on a situational diagnosis based on a territorial development approach, identifying how all the actors interact to integrate the value chain, and the existing restrictions and strengths in the three provinces that are the subject of this study. Meanwhile, the gathering of information on productive initiatives already generated in the territory was complemented with a market study of orchid products, sub-products and services and their derivatives. At the same time, strategies were determined to improve the living conditions of local orchid producers through a business plan with their respective value proposition, commercialization, profitability and sustainable management of orchid production in these Amazonian areas. Considering that the implementation of a business plan also implies improving the capacities and empowerment of local producers, a strengthening plan is designed based on the situational diagnosis with a territorial approach that contributes to the implementation of endogenous strategies, taking advantage of the use of orchids to improve the economy of the families linked to this activity.

KEYWORDS: Orchids; conservation; sustainable management; in vitro propagation, productive chain, associativity, biotrade; Ecuador; Amazon; value chain; Napo; Morona Santiago; Zamora Chinchipe; orchid route; Bioamazon Project; Ministry of Environment and Water; biodiversity.

Orchids, because of their beauty¹ and elegance, are the oldest and most valued plants in the world, with an estimated 25 to 35 thousand species and occur in all continents. These plants belonging to the Orchidaceae family whose origin dates back 65 million years, have a wide presence in the

Ecuadorian territory at the level of all provinces and regions of the country, a factor that has allowed the country to be classified as mega diverse (Ministry of Tourism, 2013).

¹ considered one of the most attractive flowers due to its particular shape and vibrant colors.

Ecuador is home to 14% of the world's orchids and 4 of the 5 existing subfamilies worldwide, 20 tribes, 30 sub-tribes, 273 genera, 4,032 classified and published species, 1,714 endemic species and at least 400 species in the process of study and consequent description are present (Ministry of Tourism of Ecuador 2018).

This sector shows the capacity to generate integration, not only in economic, commercial and productive aspects, but also in environmental, social, tourism and cultural aspects. The great variety of orchids present in Ecuador is due to its geographic location with a wide variation of climatic zones, microclimates and habitats that have been used for production and commercialization in the national and international markets.

This assessment was carried out by the consulting firm MAG & PARTNERS, contracted by the Regional Project for Management, Monitoring and Control of Fauna and Flora Species Threatened by Trade (Bioamazon Project) implemented by the Permanent Secretariat of the Amazon Cooperation Treaty Organization (PS/ACTO) with financial support from the German Development Bank (KfW) and at the request of the Ministry of Environment and Water (MAAE) of Ecuador.

THE ORCHID MARKET IN ECUADOR

The information reported by the Central Bank of Ecuador corresponding to the participation in the foreign trade of orchids, through the tariff subheadings 0603130000 "Orchids" and 060290100 "Orchids including rooted cuttings" (Figure 1), determines that in the last 5 years Ecuador has specialized in exporting orchids in vitro in the process of growth, not in products ready for sale to the end user.

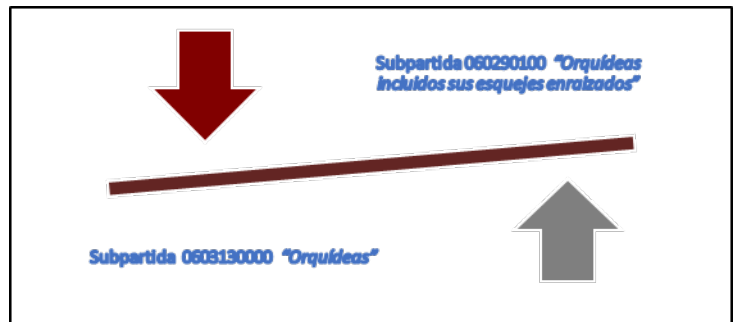


Figure 1. Tariff subheadings. Source: Central Bank of Ecuador. Prepared by: MAG & PARTNERS.

Exports of Orchids, including their rooted cuttings are large and steady in terms of export revenue, and from 2016 to 2019 their main destinations were the United States, Germany and Singapore. And according to the CITES Database (<https://trade.cites.org/>), these first two countries also lead the international orchid market in terms of imports.

In Latin America, for the cumulative period from 2016 to 2019, Costa Rica cumulatively leads the region's exports, followed by Brazil and Ecuador in terms of units exported (Figure 2).

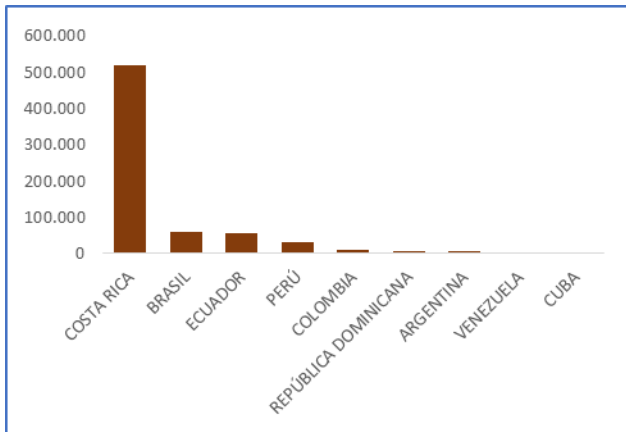


Figure 2. Main orchid exporting countries in Latin America (units). Source: CITES Database. Prepared by: MAG & PARTNERS.

As part of the analysis carried out, it was identified that the main player in Ecuadorian orchid exports is the company *Géneros Ecuatorianos Ecuagenera Cía. Ltda.*, which with 30 years of experience has achieved important competitive and comparative advantages, positioning itself as one of the main players in the international market. On the other hand, based on the information gathered in the territory, the orchid value chain was established, which is made up of the following links (Figure 3): Inputs where you can find suppliers of propagation material, agrochemicals, fertilizers, growing media, biostimulants, seeds and other necessary materials, Production whose link is led by *Géneros Ecuatorianos Ecuagenera Cía. Ltda.*; Distribution where it became evident that small producers market their products, both plants and cut flowers, to tourists or collectors who visit them in their homes and nurseries without having traceability logistics to the final consumer.

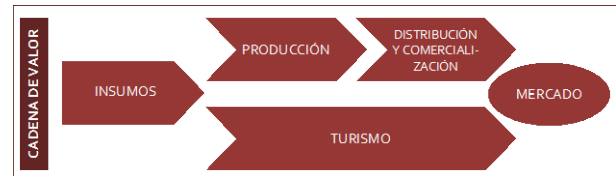


Figure 3. Orchid value chain. Prepared by: MAG & PARTNERS.

In the orchid market, tourism stands out as a particular element, considered as a transversal link, since those who demand this service like to see it from the production phase to the commercialization of the products.

ORCHID GROWERS' PROBLEMS

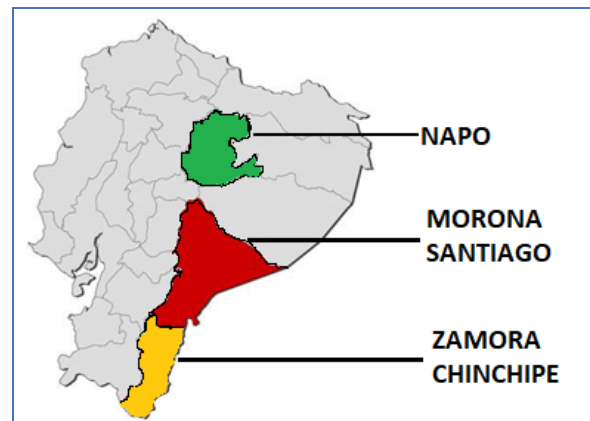


Figure 4. Geographical location of the three provinces in this study.

The needs and behaviors of orchid producers in the three Amazonian provinces of Ecuador (Figure 4) where the study is focused show a significant barrier to entry for new actors and competitors, and there is also a low level of rivalry in the sector, due to the fact that it is led by the company *Géneros Ecuatorianos Ecuagenera Cía. Ltda.*, which has a wide learning curve over all the links of the chain, generating a total forward and backward integration, with an important participation in

international trade. In addition, there are small local orchid growers, most of whom are involved in an activity adopted for entertainment, in which their passion, time and resources are used for the maintenance and conservation of orchids outside their natural habitat, where the commercialization of these species is not the main activity for obtaining family income. On the other hand, the local communities themselves promote community development through tourism initiatives based on orchids and focused on conservation, observing great market opportunities at the local level and generating linkages with other activities in each of the provinces.

On the other hand, the bargaining power of both buyers and suppliers is low; for the orchid value chain, there is no specific supplier of specialized inputs for the reproduction of these species that has significant bargaining power. For the legal commercialization of orchids, patents granted by the National Environmental Authority are required. Orchid growers in the three provinces are aware of the current regulations that typify crimes against wild fauna and flora; however, in spite of this, they have decided to remain illegal. This is due to the lack of resources to hire experts to develop certain requirements for obtaining patents, since they see orchid production and commercialization as a complementary source of family income. But, on the other hand, the illegal trafficking of orchids and their sale at low cost and without control is permanent in the markets of these provinces.

There is no evidence of a threat of substitute products, because these species are unique with special characteristics that are aligned to a factor of tastes and preferences on the part of consumers. Rather, the main factors limiting the entry of new competitors into the sector are the lack of: patents, product

differentiation, start-up capital, specialized technology, innovation, development and knowledge of the entire orchid in vitro propagation process.

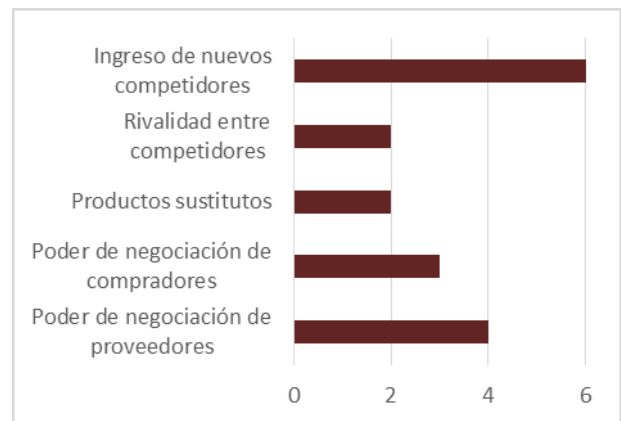


Figure 5. Five Competitive Forces of Orchids. Prepared by: MAG & PARTNERS.

HOW DO WE SOLVE THE PROBLEM?

Business Plan

Based on operating conditions, availability of inputs and territorial characteristics, a mixed-method business proposal is established to take advantage of all available resources, offering products, by-products and services to intermediate and end users, distributing sources of income and reducing costs and investments.

Table 1 – Portfolio of products, by-products and services related to the orchid production chain in Ecuador by 2020.

CODE	PRODUCTS, BY-PRODUCTS AND SERVICES
P001	Seed and Cuttings Production
P002	Substrates
P003	Orchid Plants
SP001	Orchid Flower
SP002	Vanilla
S001	In Vitro Orchid Reproduction
S002	Orchid Acclimatization
S003	Orchid Management Course - "Commercial Purposes".
S004	Visits to growers' nurseries, exhibition sites.

Prepared by: MAG & PARTNERS.

The business model was structured with a maximum operating capacity that a local player can assume based on its economic financing conditions. It should also be noted that the financial viability analysis model assumes possible negative external shocks by establishing variable sales of up to 50% of the estimated sales for the entire period considered for the project. Thus, together with the dynamic operational capacity, the benchmark labor required to produce the products and services was established. This definition was given under the following approach:

Mano de Obra Requerida = Si (Valor <= X; "1 persona trabaja"; Si (Valor < Y; "2 personas trabajan o se asocian"; Si (Valor < Z; "3 personas trabajan o se asocian"; 0))

As a result of the different financial scenarios, generation of indicators and territorial structural analysis, a comprehensive evaluation of the project was carried out, as well as an analysis for each pre-established product and service.

Table 2 – Financial Feasibility of orchid production in Ecuador in 2020.

JOINT PROJECT	\$ 257,719.33
INVESTMENT	\$ 57,167.90
CURRENT VALUE OF SERVICES	\$ 314,887.23
Seed and Cuttings Production	\$ 108,095.19
Substrates	\$ 8,565.55
Orchid Plants	\$ 203,522.15
Orchid Flower	\$ 3,103.16
Vanilla	\$ 8,976.18
In Vitro Orchid Reproduction	(\$ 54,166.49)
Orchid Acclimatization	\$ 2,876.36
Orchid Management Course - "Commercial Purposes".	\$ 21,474.24
Visits to growers' nurseries, exhibition sites.	\$ 12,440.89

Source: On-site information gathering. Prepared by: MAG & PARTNERS.

Under the assumption of offering all products and services (without excluding each other), the project reaches a Current Net Amount of \$ 257,719.33, being the In Vitro Orchid Reproduction service the only one that is not profitable for a local producer, since it requires an important investment and a large scale production to reach financial profitability.

In view of this situation, a scenario analysis was performed, excluding the "In Vitro Orchid Reproduction" service, ensuring profitability based on the assumptions of linear sales projection and random sales projection.

The service of In Vitro Orchid Reproduction needs to be addressed in a timely manner. Other productive initiatives may be promoted individually or collectively, taking into account market demand, exclusion due to profitability and production volume management.

The project should pursue a value proposition that aims to take advantage of market space with the following strategies:

- Certifications of product quality and origin;
- Packaging and arrangement of the plant;
- Advice on the handling and care of the plant;
- Associativity and environmental conservation;
- R&D+i (research + development + innovation).

Strengthening Plan

The main challenge to implement the suggested business model is focused on improving the capacities and empowerment of local producers. In this sense, a strengthening plan is presented with endogenous strategies that will guarantee the use of orchid production and the generation of higher income for these families.

To this end, it will be necessary to identify the actors of the territory that wish to join this project and establish commercial relations, through an association between the actors of the geographical area, in order to generate advantages and capacities; guaranteeing sustainability of the productive initiatives of

orchids and their derivatives, through cooperativism, strategic positioning in the market and legality.

Once the Association is formed, it should focus on the design of an "ORCHID ROUTE" (Figure 6), as the main marketing strategy, in order to promote the portfolio of orchid products and services and their derivatives.

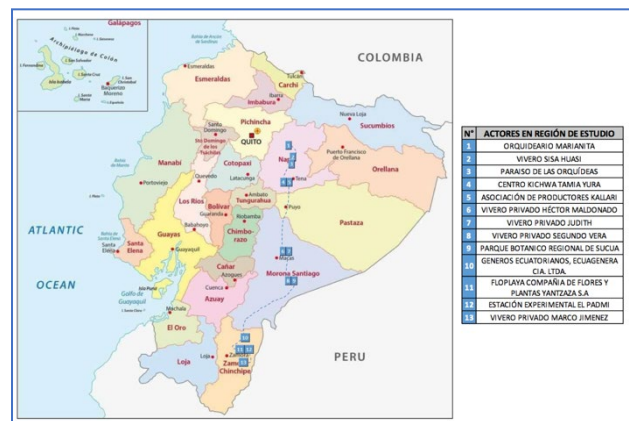


Figure 6. Orchid Route. Source: On-site information gathering. Prepared by: MAG & PARTNERS.

The design of this Route should be carried out with the competent Ministries and stakeholders in the territory, since it will be necessary to strengthen: the conditions of tourism initiatives and knowledge, valuation, conservation and sustainable management of heritage and the concept of tourism, which through practical learning of the role of nature, culture and history, will increase the knowledge of each tourist.

To this end, after analyzing the strengths, opportunities, weaknesses and threats, and identifying constraints as key elements for the generation of strengthening strategies, a national action plan is presented within the

framework of the orchid sector. It is designed around strategies to strengthen the value chain by promoting the development of small producers and initiatives focused on the conservation, management and sustainable use of species with a view to increasing income, improving conditions for local communities, reducing endangered species, and improving the capacities of small producers. The implementation of this program is intended to promote research and development of the orchid sector, as well as to increase the economic sustainability of producers and their families through diversification of income sources and greater linkage of activities that can be exploited through orchids, facilitate access to differentiated markets with greater added value, and promote investment in sustainable production practices in the sector.

This instrument is built as a strategic input and support for the National Environmental Authority in terms of the implementation and definition of public policy for the development of the orchid sector. The strategic objectives seek to guide actions and efforts for the development of the sector and small producers with a focus on the conservation and sustainable use of species. Thus, the strengthening plan is composed of 3 strategic objectives that address the sector from an intersectorial and participatory vision, incorporating each of the actors and productive initiatives, with the actions required and necessary to promote the development of the sector.

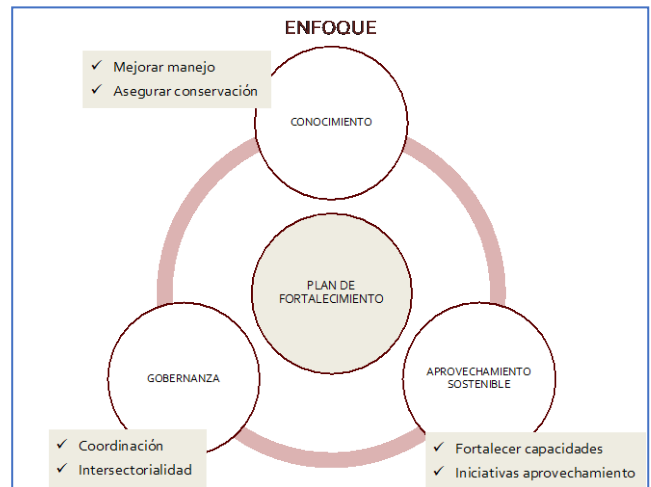


Figure 7. Strategic axes for a strengthening plan to promote the development and conservation of the orchid sector in Ecuador. Prepared by: MAG & PARTNERS.

Vision of the strengthening plan

To be the country recognized worldwide for the conservation of orchid diversity and their habitats, generating economic benefits through the management and sustainable use of the species, improving the conditions and quality of life of the communities and small producers in the sector.

Mission of the strengthening plan

Promote the development of the orchid sector and conservation through coordinated actions that strengthen the technical capacities, management, and sustainable use of the species by the sector's stakeholders and small producers.

Strategic objectives of the strengthening plan

Figure 7 shows the strategic axes that form the basis and support of the strengthening plan:

Strategic Objective 1: To expand the knowledge about orchids in Ecuador, in order to improve their management and ensure their conservation.

Strategic Objective 2: Promote the sustainable management and use of orchids in Ecuador, strengthening the capacities of the actors linked to the value chain.

Strategic Objective 3: Strengthen the governance and inter-sectoral coordination of the orchid value chain.

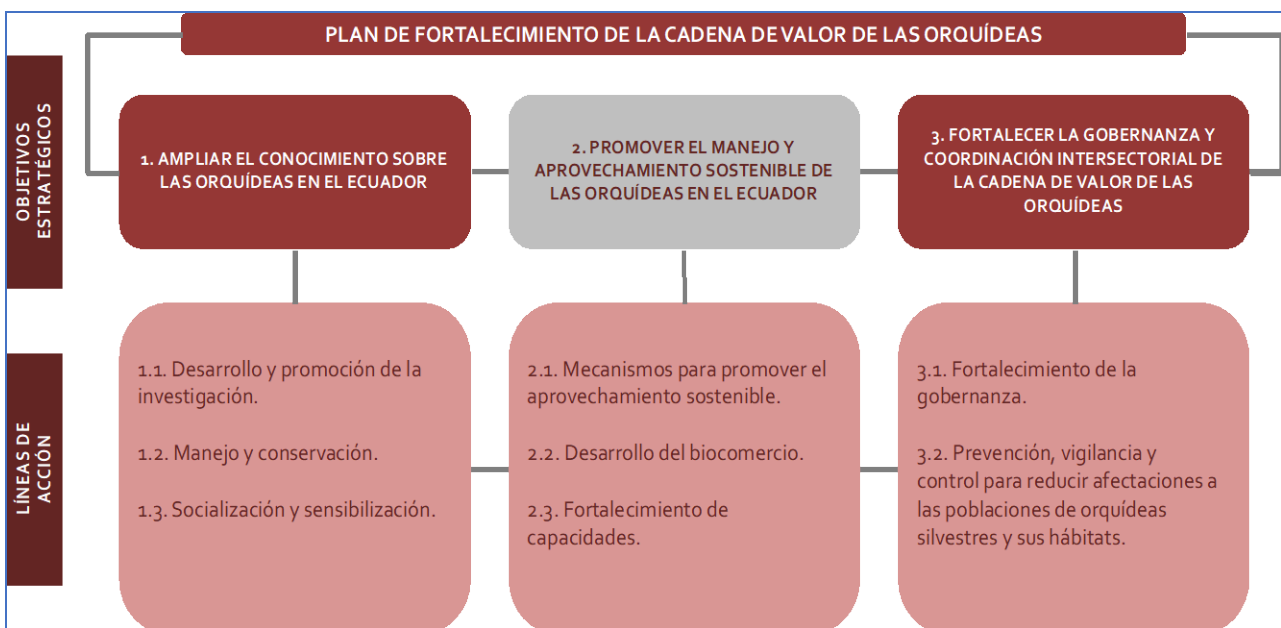


Figure 8. Strategic objectives and lines of action for a plan to strengthen the orchid value chain in Ecuador. Prepared by: MAG & PARTNERS.

CONCLUSIONS AND RECOMMENDATIONS

According to the study, the first step is the improvement of the capacities and empowerment of local producers according to the strengthening plan designed, achieving a better use of orchid production and the generation of higher income for the families, through the implementation of the suggested business model. This should be followed by the establishment of commercial relations, through an association between the actors in the geographical area, generating advantages and capabilities. Once the Association is formed, the design of an "ORCHID ROUTE" is proposed as the main marketing strategy to promote the portfolio of orchid products and services and their derivatives. The implementation of the business model, together with the proposed strengthening plan, will be able to integrate not only economic, commercial and productive aspects, but also environmental, social, tourism and cultural aspects, contributing to the local development of these three provinces.

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