

Agricultural Tourism as a Strategy for Sustainability and Development of Smart Destinations: A Case Study of the APAVI Association

Ferdinand Cruz¹, Andres Drouet¹, Marcelo Leon^{2,*}, Fabricio Echeverria³ and Carlos Robalino-Lazo⁴

¹Universidad Estatal Peninsula de Santa Elena, La Libertad, Ecuador

²Universidad Ecotec, Samborondon, Ecuador

³Corporacion Universitaria de Asturias, Bogota, Colombia

⁴Universidad Tecnológica Empresarial de Guayaquil, Guayaquil, Ecuador

Abstract

The tourism sector, in its ongoing pursuit of more responsible and sustainable development models, has identified the smart destination framework as an optimal paradigm for integrating innovation, technology, and sustainability. Within this context, agrotourism emerges as a strategic approach to rural development that not only diversifies the tourism offer but also fosters community resilience and environmental stewardship. This study presents a case analysis of the Asociación de Pequeños Productores Agropecuarios Visión Integral (APAVI), located in the province of Santa Elena, Ecuador, recognized for its leadership in agroecological production and sustainable development. For over fifteen years, APAVI has promoted agroecological practices in a territory of high ecological value, encompassing virgin forests with rich biodiversity (Colonche and Manglaralto parishes). Employing a participatory methodological approach, the study documents the outcomes of a model grounded in the restoration of agrobiodiversity, the application of appropriate technologies, and community-based training. The findings reveal a positive impact on 247 families, with significant empowerment of women and youth. Evidence of successful transitions to sustainable agricultural practices, farm diversification, and product commercialization is presented, demonstrating increased household income and enhanced natural resource management. The conclusions underscore that the APAVI model is not only economically viable and socially equitable but also serves as a foundational element in the development of a sustainable agrotourism destination. Statistical data from the project, implemented in collaboration with the NGO Heifer Ecuador, were analyzed with particular attention to the model's replicability in smart tourism destinations. Key components include the integration of ICTs, sustainability principles, community engagement, environmental conservation, formalized partnerships, and standardized visitor experiences—positioning Santa Elena as a reference point for smart and responsible tourism.

Keywords

Agrotourism, Sustainability, Smart Destinations, Ecuador, Community Development

1. Introduction

Tourism, widely regarded as a driver of comprehensive economic development, faces the urgent challenge of reinventing itself through more sustainable and responsible models. Innovation in development plays a pivotal role in identifying and implementation of new solutions to meet social needs [1]. The growing demand for truly authentic experiences and visitors' environmental awareness have stimulated the search for new alternatives to mainstream tourism, placing sustainability at the center of academic and professional debate. The weak link between agro-industrial innovation and experiential tourism in rural Latin American contexts represents a persistent problem that limits the utilization of the productive, cultural, and territorial potential of these regions [2]. Globalization creates an uncertain

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*Corresponding author.

✉ fcruz@upse.edu.ec (F. Cruz); adrouet@upse.edu.ec (A. Drouet); marceloleon11@hotmail.com (M. Leon);

pecheverr@gmail.com (F. Echeverria); carlosrobolino36@gmail.com (C. Robalino-Lazo)

ORCID 0000-0001-6756-3615 (F. Cruz); 0000-0001-9985-0846 (A. Drouet); 0000-0001-6303-6615 (M. Leon); 0000-0002-4921-1111 (F. Echeverria); 0009-0007-3791-0373 (C. Robalino-Lazo)



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outlook for the population, demanding dynamism, transformation, adaptation, the exchange of practices and cultures, and international access for the business community, a situation that demands interaction between countries in social, economic, technological, political, and environmental aspects. Small rural producers are not immune to this scenario or the changes it entails for agricultural development.

In this context, the concept of "smart tourist destinations" has emerged as a progressive management model that integrates innovation, technology, accessibility, and, crucially, sustainability to improve both the visitor experience and the quality of life and development of local communities. The term "community development" requires conceptual clarification, as there is considerable ambiguity in its meaning, as can be seen by analyzing the historical context and the different meanings given to both terms (development and community) [3].

Ecuador is recognized for its cultural richness and biodiversity, holds significant potential for the advancement of alternative tourism. Given its geographic, economic, and sociocultural potential, it has the potential to promote and develop agrotourism as a sustainable alternative for local development and for the well-being of its citizens [4]. The province of Santa Elena, traditionally known for its sun, sand, and nightlife, possesses a rich natural and cultural heritage that has not been widely recognized in the tourism market. In the parishes of Colonche and Manglaralto, vast virgin forests rich in flora and fauna coexist, influenced by the Chongón Colonche mountain range, with an ancient tradition of agricultural production. However, promoting these forests as sustainable destinations and integrating rural communities into the tourism value chain remain an underexplored and underutilized field. It is worth noting that farmers highlight the need for extension institutions to support the training of their technicians and develop a systematic training plan that includes both productive topics and extension methodologies [5].

Agrotourism emerges can be considered a strategic solution within this context. It refers to tourism activities conducted on agricultural properties (farms or plantations), where the actors supplement their income with some form of tourism in which, in general, they provide accommodation, food and the opportunity to become family [6]. This type of tourism offers a direct connection with nature and the agricultural field, but also encourages economic diversification, biodiversity conservation and rural community empowerment. In parallel with the expansion of agribusiness as a paradigm in agricultural production, a network is born that defends family production, from an agroecological conception [7].

This study centers on the case of the Asociación de Pequeños Productores Agropecuarios Visión Integral (APAVI), a community organization in Santa Elena that has promoted sustainable and agroecological agricultural production for more than 15 years. From a more optimistic perspective, NGOs could constitute an important source of challenge to socioeconomic norms by demanding equity, a demand shared by a majority of citizens in most states [8].

Through its initiatives, APAVI has demonstrated successful resilience, social innovation, and natural resource management, which has not only improved the quality of life of its members but also ensured the preservation of the area's natural resources. In Ecuador, there are peasant organizations dedicated to agricultural production activities, whose work over the years has made them true leaders in rural community associations and cooperatives. One of the organizations present on the Ecuadorian coast is the Association of Small Agricultural Producers VISION INTEGRAL, "APAVI." NGOs reject the charitable or welfare approach, which is based exclusively on providing something material to a person in a lower economic situation than the social average [9].

In the Santa Elena Peninsula, APAVI has spearheaded socio-organizational, agroecological, economic-financial, and educational processes, which have significantly contributed to improving the quality of life of families and their communities in the Colonche and Manglaralto parishes of the Santa Elena province. The associative theme is recognized as a tool for rural development, as well as a socio-business strategy to improve human capacities, articulate markets, and create economies of scale for small and medium-sized rural producers, leading to the competitiveness of the agricultural sector [10, 11].

The purpose of this paper is to analyze the results of the APAVI project to demonstrate the significant agrotourism and ecological potential in the area. Through the interpretation of its statistical results on agroecological production, productive diversification, rural income generation, and, most importantly, community participation and the conservation of natural and water resources, this paper argues that

APAVI's initiatives represent a fundamental pillar for the development of a smart and sustainable community destination. This paper seeks to socialize and disseminate these results, promoting debate on how rural community management, agroecology, and ecosystem conservation can be the foundations of an alternative, diverse, innovative, and, above all, sustainable tourism offering in the rural area of Santa Elena and around the world.

2. Methodology

This study employs a mixed-methods approach, combining qualitative and quantitative techniques to analyze the working model of the Asociación de Pequeños Productores Agropecuarios Visión Integral (APAVI), in coordination with the NGO Heifer Ecuador. The methodology is grounded in data and insights drawn from the project report "Recovering Coastal Agrobiodiversity to Improve Peasant Production and Nutrition."

The research included a document review of institutional reports (2013–2023), statistical analysis of key indicators (number of beneficiaries, production, income, participation), and triangulation with records of training sessions, fairs, community sales, and agroecological plantings. The systematization of experiences allowed for the identification of replicable elements for the development of agrotourism within the framework of a smart tourism destination.

APAVI's intervention was focused on a participatory rural extension model, which sought to empower farmers in the Colonche and Manglaralto parishes through knowledge transfer and capacity building. The main components of this methodology were:

1. **Participatory Assessment and Planning:** The process began with an analysis of the farmers' needs and potential. This approach identified challenges in production, marketing, and natural resource conservation, as well as opportunities to integrate agroecological and sustainable management practices into their daily lives. Based on this analysis, the project's objectives and goals were defined, which included improving family nutrition, generating new income, protecting natural water sources, and strengthening the association's organizational structure.
2. **Training and Technical Assistance:** APAVI held training workshops and specialized technical assistance sessions. These activities covered essential topics such as organic soil management, organic fertilizer production, crop diversification and rotation, sustainable farm animal husbandry (pigs and chickens), and afforestation and reforestation with native and timber species on farms. This component was essential to ensuring the adoption of new practices by rural families in the area [12].
3. **Provision of Productive Resources:** The methodology included the delivery of resources (production materials) to beneficiary community families so they could implement the techniques learned in the training sessions. This was achieved through the distribution of fruit plants and native timber species, as well as farm animals for breeding. The distribution of these resources was not only seen as an incentive for participation but also served as a means of farm diversification, becoming a pillar of peasant agroecology.
4. **Organizational Strengthening:** A fundamental aspect of APAVI's work was strengthening the rural community structure. Active participation in assemblies and meetings was encouraged, women and youth leadership was promoted (evidenced by the participation of 35 women producers and 185 young people in flora and fauna conservation activities), and associative marketing mechanisms were created to overcome the challenges of existing intermediation in the area [13].
5. **Monitoring and Evaluation:** The ongoing monitoring of the APAVI project allowed for the documentation of quantitative and qualitative results, including the number of families benefited, the quantity of products marketed, and the impact on improved soil management and the protection of water sources. The data presented in the Results section of this paper come from this monitoring process and serve to support the effectiveness of the APAVI methodology in developing a sustainable agrotourism model.

3. Results

The outcomes of the project implemented by the Asociación de Pequeños Productores Agropecuarios Visión Integral (APAVI) in the Colonche and Manglaralto parishes of Santa Elena province reveal a significant impact on improving the living conditions of participating rural communities and on consolidating an agroecological production model that lays the foundation for the development of sustainable agrotourism. In Ecuador, there are peasant organizations dedicated to agricultural production activities, whose work over the years has made them true leaders in rural community associations and cooperativism [14].

The most relevant findings are presented below:

Table 1

Bio-entrepreneurship, Colonche and Manglaralto parishes.

No.	Parish	Name of the Organization	Name of the bioenterprise
1	Manglaralto	Noble Guadua Corporation	Making reusable straws, lamps, ornaments, furniture, construction
2	Colonche	Association of Small Agricultural Producers Comprehensive Vision	Agroecological Baskets
3	Colonche (Aguadita Commune)	Palo Santo Agroforestry Production Association	Sacred Essence (Palo Santo Oil)
4	Manglaralto (Dos Mangas Commune)	ASOPROMAHER (Magic Hands Herlinda Designs Artisan Production Association)	Toquilla straw hats, bags, tagua crafts
5	Colonche (The Hills)	Honey of Hope Agroforestry Bee-keeping Association	Honey, by-products and derivatives
6	Manglaralto (Barcelona Commune)	Hat Hut	Handicrafts made from toquilla straw
7	Manglaralto (Barcelona Commune)	Manglaralto Self-Employed Agricultural Workers Association (ATAM)	Agroecological Farms
8	Manglaralto	Carlos Guerrero Association	Organic fertilizers and agricultural products
9	Colonche	Cooproacmar Aquaculture Production Cooperative	OysterFarming Tourism
10	Colonche	Climbing Goals Association	Products from the Las Limas Forest. Palo Santo and Palo Santo essence

Rural Community Social Impact and Empowerment: The project surpassed its initial target of 100 families, ultimately benefiting 247 rural households an indicator of strong community receptivity and engagement. Notably, 44.64% of the participants were women heads of household, which emphasizes the project's positive relationship with female empowerment and social inclusion in sustainable agricultural production.

Community social work positively impacts the empowerment of rural communities by contributing to the development of people's capacities to make decisions, manage resources, and solve problems. Empowerment is a complex process that involves developing autonomy, the capacity for action, and taking control over one's own life [15]. Furthermore, the participation of 185 young people in ecosystem conservation activities demonstrates the direct transfer of knowledge between generations (older adults) in rural communities and the commitment of these young people to the sustainability and preservation of their territory.

Table 2

Projected number of beneficiary families, Heifer – APAVI - Source: (Cruz et al., [14]).

ORGANIZATION	Year 1	Year 2	Year 3	TOTAL
Comprehensive Vision	30	35	35	100

Innovation and agricultural diversification: The results demonstrate a successful transition toward an agroecological model. Diversification was achieved on 12 agricultural farms, encouraging and incorporating the raising of farm animals and the planting of fruit trees and native forest species. Over

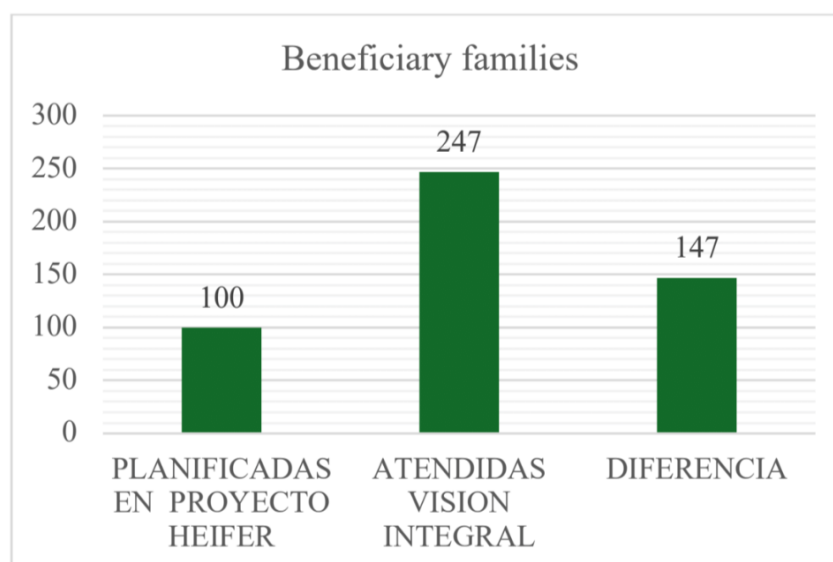


Figure 1: Number of families benefited by the project execution (2023).

the years, the technical and diversification of the agricultural sector has advanced, giving rise to new ventures such as poultry, pork, and crop production [16].

Table 3

Reactivated Surface.

Activity/Crop	Financed Area/ Reactivated Infrastructure
Watermelon	49
Yellow corn	29
Pepper	50
Tomato	27
Grape	14
Asparagus	7
Mango	14
Papaya	8
Total, Agriculture	198 hectares reactivated
Broiler birds	52
Improved Pigs	12
Total, livestock	64 poultry and pig sheds reactivated

Small rural producers are no strangers to this scenario, nor to the changes it entails for agricultural development. Of the 247 families, 75% improved their soil management through cultural practices such as no burning in new production areas and crop association to foster symbiosis, and 73% of rural families conserved native animal species (chickens, turkeys, ducks, and goats). This farm diversification became a fundamental pillar for ecosystem resilience and food security for rural families, key elements of a smart and sustainable destination. The delivery of productive resources, such as 210 fattening pigs and 16,000 chicks, catalyzed this change, allowing for the reactivation of 64 sheds in different communities and the emergence of a local value chain. Integrating agroindustrial innovation and experiential tourism is viable and strategic, provided that participatory policies that enhance local capacities and collaborative networks are implemented [2].

Associative Marketing: The project directly impacted the microeconomies of 90 families through individual and associative marketing strategies of their products. It is evident that certified and associated farms, by working without intermediaries, manage attractive prices for their members, which allows for higher net incomes compared to other farms [17]. The direct sales strategy used was especially successful, with 35 peasant women chicken producers who market their product in their own communities, either

Table 4

Items granted for reactivation and for productive activity

Productive activity	# resources granted
Watermelon cultivation	16
Corn cultivation	18
Pepper cultivation	29
Tomato cultivation	17
Grape Cultivation	19
Asparagus Cultivation	11
Mango cultivation	25
Livestock production (broiler chickens)	60
Pig production	16
Onion Cultivation	15
Papaya	9
Total, delivered	235

as fresh produce or at traditional food fairs. This practice not only generates income but also reduces the intervention and dependence on intermediaries, increasing profitability for peasant producers. The sales volumes generated, such as 8,000 watermelons and 2,200 slaughtered chickens, demonstrate the economic viability of the agroecological model and the potential for an agrotourism offering that connects consumers directly with the producer, allowing them to experience the unique origins of the products they consume.

Table 5

Commercialized production of the project.

Marketed product		Unit of measurement	Total
Agricultural	Watermelon	Unit	1900
	Corn	Quintal	420
	Pepper	35 kg bag	1980
	Tomato	Box	416
	Grape	Kg	250
	Asparagus	Kg	320
Livestock	Broiler chickens	Ton.	28
	Pig	Ton.	11.6

Sustainability of natural resources: Attention to the socio-environmental variable as an element of an organization's management must be addressed in the understanding, scope of possibilities, and control of the entity's socio-environmental risk [18]. The results section also highlights the project's commitment to the pillar of environmental sustainability. The planting of 2,000 native tree plants such as carob, porotillo, and perlillo, and timber trees such as guayacán, is documented for reforestation, and, essentially, that 107 families planted guadua kunt, muyuyo, and porotillo cane plants to conserve their water sources. These figures show a change in the mentality of small agricultural producers, who now consider their farms not only as production units, but also as a space for environmental conservation. Sustainable agriculture thus plays a key role in the current landscape, as natural resources tend to be depleted at any given time, and alternatives are being sought that will improve the current landscape of global agriculture and food [19]. This focus on water resource management is directly relevant to the conference, as sustainability is a central component of tourism planning in smart destinations.

The model promoted by APAVI represents a valuable partnership between environmental sustainability, social inclusion, and the rural economy. This proposal can be transformed into agritourism through the use of digital technologies applied to smart tourism, in line with the pillars defined by the Smart Tourism Destinations Network (STTN): innovation, technology, sustainability, accessibility, and governance. Agritourism has become an important global partner in the development of the tourism sector; innovation and technology represent opportunities for the growth of this activity in small

Table 6

Main mammals present in the Chongón Colocnhe mountain range.

Family	Scientific name	Common name
MYRMECOPHAGIDAE	Mexican Tamandua	Anthill
	Alouata palliata	Howler monkey
	Cebus albifrons subsp . aequatorialis	Monkey
CANIDAE	Pseudalopex sechurae	Wolf dog, mountain dog, little wolf
PROCYONIDAE	Nasua nose	Cuchucho
	Potus flavus	Cusumbo
MUSTELIDAE	Eira barbara	Mate head
FELIDAE	Heirpailurus jaguar aroundi	Wild cat, Smoked margay
	Leopardus pardalis	Margay
	Panthera onca	Tiger, Jaguar
TAYASSUIDAE	Peccary tajacu	Peccary
CERVIDAE	Mazama americana	Kid, Goat, Red Deer
DASYPROCTIDAE	Dasyprocta punctata	Guatuso
AGOUTIDAE	Agouti paca	Glove, Glove

communities, impacting local development [20].

Thus, in a rural context, a tourist destination can become smart when it leverages technological infrastructure (5G connectivity) to improve the tourist experience and strengthen the decision-making process. This does not, however, neglect aspects related to sustainability, empowerment of the local population, economic diversification of rural areas, quality of life, and improvement of all kinds of services [21].

ICT and smart tourism:

- Digital platforms for promoting agroecological farms as tourist destinations.
- Georeferencing biocorridors and productive routes (e.g., cocoa route, lemon route, organic agriculture route).
- Augmented reality tools and QR codes to interpret crops, ancestral knowledge, and local biodiversity.
- Online booking systems and direct marketing through apps or digital marketplaces.

The agroecological approach implemented on the farms guarantees pesticide-free production, preserves native species, and promotes food sovereignty in rural communities. Furthermore, the conservation of water sources and reforestation (with native species such as sugarcane and bamboo) are attractive for nature tourism and hiking, as they can serve as a natural observatory for biological species such as birds and mammals in their natural environment.

Agrotourism value proposition

Based on the APAVI experience, the following components are proposed for a community-led agrotourism circuit in Santa Elena:

- Experiential visits to agroecological farms (production, processing, tasting and purchasing).
- Learning experiences (agroecology workshops, ancestral cooking, production of agrobioproducts, making handicrafts with tagua and toquilla straw).
- Hiking, ecological walks, and viewing of local flora and fauna in the tropical forests influenced by the Chongón Colonche mountain range.
- Digital promotion through interactive channels, social media, tourism apps, and GIS systems.
- Agreements with government institutions, NGOs, and educational institutions to develop scientific and academic tourism.

A proposal like this could diversify income in rural communities, foster territorial roots, reduce youth migration, and position the communities of Santa Elena as a smart tourist destination with a strong agroecological focus.

4. Conclusion

The results of this case study underscore that the associative community development model implemented by the APAVI Association in Santa Elena constitutes a robust agroecological production initiative, becoming a key element in the creation of a sustainable and smart agrotourism destination. This work exemplifies how the organization has integrated the fundamental principles of sustainability and governance in the area, improving the quality of life of its associated community members and preserving their natural heritage.

The project's achievements through agricultural diversification, the protection and preservation of water sources, and the increasing empowerment of women and youth have not only generates additional income but have also cultivated a tourism asset of high social value: a rural community deeply committed to environmental stewardship, with traditional, endemic, and high-quality products. The presence of pristine, humid tropical forests rich in biodiversity adjacent to APAVI's agroecological farms, coupled with producers engaged in add transformation of raw materials, creates a unique opportunity to design a tourism offering that combines the experiential experience of agricultural production with ecotourism for environmental conservation.

APAVI's experience stands as compelling evidence of the transformative power of sustainable community development, but also as a replicable model for transforming rural territories into smart and competitive tourism destinations. By integrating agroecology, innovation, and community participation, the Santa Elena region is the potential to emerge a benchmark for sustainable tourism at the regional and global levels.

5. Recommendations

To harness and showcase the local agrotourism potential of the Santa Elena Peninsula, and directly connect with the five pillars of a smart destination, the following strategic recommendations apply:

- Regarding governance, it is recommended to establish a strategic alliance between APAVI, local tourism authorities, and academic institutions operating in the region. This collaboration framework will enable the development of coherent policies for the promotion and regulation of agrotourism activities, ensuring that benefits are distributed equitably among participating rural farming families.
- To promote sustainability, APAVI's agroecological farms should be certified under recognized environmental quality standards, also known as green seals. This would increase the credibility of the tourism offering, adding additional value so that visitors can have a responsible and experiential experience.
- The adoption of technological tools for the promotion and management of community agrotourism should be encouraged. These should include the development of an app or digital platform for making reservations, creating QR codes on farms so that interested parties can obtain information on crop types, harvest dates, and production management. Likewise, the use of georeferencing systems to design integrated tourist routes that connect farms with forests and other areas of natural interest.
- Design a marketing program that enhances the accessibility of agritourism, suitable for all audiences, including people with reduced mobility, from family groups including children to teachers and other researchers interested in the study of flora and fauna.

Declaration on Generative AI

The authors have not employed any Generative AI tools.

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