

# The Agroecology in Latin America: A Brief Review

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**Abstract:** Over the course of the history Agroecology has been advocated by different actors, contexts and challenges. This paper analyzes the evolution of the Agroecology in Latin American countries, their actors and impacts on society. Early in the 80s, the ideas related to Agroecology were dispersed and came from other approaches such as sustainable and organic agriculture in most of the Latin American countries. The pioneers of Agroecology, inspired by the indigenous and farmer knowledge, supported to the local actors through intensive campaigns of training, e.g., seminars, conferences, workshops, research and PhD programs with high impact in the Latin American countries. The analysis of the current challenges of the Agroecology shows that are in different state of development according to the context of each country. Brazil, Cuba, Uruguay and Nicaragua show the more advance institutionalization of Agroecology in term of public policies. It might be due to that the agenda to promote the Agroecology is more related to the food system rather than focus on the agricultural sector.

**Key words:** agroecology, Latin America, food system

## 1. Introduction

The Agroecology is recognized as strategy to tackle big challenges of the humanity such as the climate change, food security, malnutrition and health [1]. In despite of the different schools of thought, Agroecology is a framework to achieve a use more efficient of the natural and social resources. The Latin America region is one of the pioneers' regions where the agroecological approach have been developed [2]. In the early 1980s international NGOs played an important role in promoting sustainable agriculture development projects [3]. Although the practices were useful but were not recognized by the national research institutions because Agroecology was not known [4]. These practices were widely adopted by hillside small farmers. Working in an empirical way, farmers

enriched the practices and mixed traditional with more modern alternative ones, leading to productivity improvements and enhancement of the resiliency of their production systems. Through informal horizontal exchange networks (Campesino a Campesino) farmers shared experiences and knowledge [5]. Gradually, small farmers transformed a simple set of "sustainable practices" into an agroecological field school, where many academics learn Agroecology in the practice. Our objective was to provide a brief description of the evolution of Agroecology as a contribution to the understanding of the current challenges that face Agroecology in the region.

## 2. The Evolution of the Agroecology in Latin American

In Latin American the Agroecology born mainly

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from the peasant and ONGs organizations. The agroecology was mainly adopted by the non-governmental (NGOs) in the 90s was promoted by MEALA (Movimiento Agroecológico Latinoamericano) and CLADES (Consortio Latinoamericano de Agroecología y Desarrollo (CLADES) that developed training and research activities to strengthen the capacities of professionals and peasants in the principles and practices of the agroecology [3]. In this decade, there were known the books of the two major agroecologist influencers in Latin America, Miguel Altieri [6] and Stephen Gliessman [7].

During the 2000s a more academic movement was developed by SOCLA (Sociedad Científica Latinoamericana de Agroecología), funded by Miguel Altieri [6], have organized five congresses in different countries of Latin America. In addition, SOCLA has founded two academic PhD programs in collaboration with the universities of Antioquia, Colombia and the UNA (Universidad Nacional Agraria, Nicaragua) aimed to educate to a critical mass of professionals all over Latin America countries. SOCLA also have organized a research network named REDAGRES (Red Iberoamericana de Agroecología para el Desarrollo de Sistemas Agrícolas Resilientes al Cambio Climático) in which participated SEAE (Sociedad Española de Agricultura Ecológica) that organized an important working group of researches focused on Agroecology and resilience to climatic change [8]. As a result, the publication on Agroecology increased in journals such as LEISA, the Agroecology (SEAE/ Universidad de Murcia) and the journal of ABA (Asociación Brasileña de Agroecología).

Early in the 2000s, in Central America, was organized the GAAS (Grupo de Asesoría en Agricultura Sostenible), supported by European cooperation agencies, that promoted the expansion of the MCaC (Movimiento Campesino a Campesino) to Cuba via the ACAO (Asociación Cubana de Agricultura Orgánica) incubated into the ANAP

(Asociación Nacional de Agricultores Pequeños), all of them part of the LVC (La Vía Campesina), the most important transnational peasant movement. In the middle of 2000s, the SOCLA began to interact with the MCaC in Central America, when it became clear that the peasants developed practices that were in correspondence with the theoretical framework of Agroecology [2]. In the end of the 2000s, the LVC adopted the Agroecology as a scientific basis to elaborate its own approach on food sovereignty given to the agroecology a connotation of social movement.

According to LEISA [9], in 2016 there was a Latin American initiative named “Alianza por la Agroecología” coordinated by Brasil (AS-PTA y ActionAid) and followed by the following countries: Paraguay (Red Rural), Bolivia (CIPCA), Ecuador (CEA), Colombia (IMCA/RECAB), Guatemala (Fundebase), Nicaragua (UNAG/PCaC and SIMAS) [10].

Stephan Gliessman [11], one of the scientific pioneer of the Agroecology all over the world, also had supported the Agroecology in Latin America through CAN (Communitarian Agroecology Network) have promoted training and organized a fair trade to the agricultural product from Latin America. In addition, CAN have cooperated to establish research projects directly with farmer's cooperatives of coffee (PRODECOOP) in the northern region of Nicaragua together with the Universities of Santa Clara, California and the UNA, Nicaragua [12].

Nowadays, as a result of those efforts, it has been generated several networks such as the Red Iberoamericana for the rescue of local seeds that is mainly integrated by universities of eight countries (Argentina, Brasil, Colombia, España, Mexico, Perú, Uruguay and Venezuela), and the SEAE [13]. The proposal of this network was to facilitate the cooperation between the groups working on the rescue of local seeds and genetic erosion faced by the agriculture.

### 3. Challenges for the Agroecology in Some Countries of Latin America

**Table 1** Challenges of the agroecology in some countries of Latin American.

Country	Pioneer actors	Challenges	Source
Mexico	Indigenous systems of production and scientist from the Agronomy field at the academic of University.	The preservation of the indigenous and local farming systems. Rescue of the native and local seeds. Apply the agroecological principles to the food systems.	Astier et al. (2015) [14]
Nicaragua	Started from the farmers experiences (farmer to farmer program) and international NGOs, and the academic, the meaning of Agroecology developed from sustainable agriculture to organic farming and finally to Agroecology.	To keep the meaning of Agroecology putting as central point the famers but also the research is key factor to consolidate the Agroecology. The lack of recognition of the environmental and health benefits from the Agroecology	Gonzalvez et al. (2015) [2]
Panamá	Indigenous communities Family Agriculture National Extension Services	Increase the integration of the efforts at the national level to reinforce the Agroecology and to make incidence to the policy makers.	Santamaria and Gonzalez (2015) [15]
Colombia	Start from the academic sector, NGOs, peasant farmers, environmental activists, enterprises and producers	There is need for a support from the policy makers to include the Agroecology as a way to achieve the sustainability and the peace.	Tomás Leon-Sicard et al., (2025) [16]
Venezuela	Indigenous cultures, and African and European influences during the colonial period. The end of the century, urban environmentalist movements and academic sectors in synergy with conscious rural groups promoted the sustainable agriculture approach. The 1999 Constitution propitiated new institutions conceived to elaborate agricultural policies dispose to incorporate the agroecological wisdom. Currently, agroecology has powerful academic and institutional structures and is widely accepted by urban and rural social movements	Tensions with the oil dependency phantom and mechanistic-based scientific progress notions are notorious in the public policies of the national Agroalimentary model, representing a real challenge for those groups fighting for sustainable agricultural option.	Domené-Painenao et al. (2015) [17]
Brazil	Starting with the early debates on the impacts generated by agricultural production systems at the height of the Green Revolution. social organizations, leading to the creation of NGOs and other environmental organizations pushing for alternative forms of agriculture.	The paradox of having an Agribusiness based on Transgenic and monoculture of Soybean, but at the same time having Federal Government public policies product of the pressure of social movements and that were oriented towards promotion of agroecological principles.	Baptista da Costa et al. (2015) [18]
Uruguay	promoted by students, university teachers, farmers, NGOs and consumers. It raises the need to protect nature, strengthen ecological processes in agricultural system	Different actors are promoting the construction of a National Plan of Agroecology, realizing a long history of criticism, resistance, research, construction of alternatives. They are trying to maintain a multidimensional commitment: political, social, cultural, ecological-productive, technical and ethical in this construction of sustainability in the agrifood systems. Also proposing to start agroecological transition processes, offering sustainable development options arising from the agrarian but that transcend it because they move in and emerge from society.	Gazzano and Gomez (2015) [19]
Argentina	It appears in different institutions and organizations, as a reaction to the increasingly obvious consequences of environmentally unsustainable and socially exclusive production model derived from the philosophy of the Green Revolution. Among the institutions may be mentioned non-governmental organizations, state institutions and universities and	Challenges to the different sector of the Agroecology in Argentina. The important role of the Universities to produce professional in the field of Agroecology. Also the rescue and multiplication of native an local seeds together the promotion of local market and productive practices.	Sarandon and Marasas (2015) [20]

	other agricultural education institutions as well as farmers organizations.		
Bolivia	founds its origin on the ancestral practices used in the high and lowland indigenous farming areas, which applied the principles of ecological interactions in harmony with the communal socio-cultural dynamics	The effective implementation of regulations and policies at the national level and the coherence between the general policy of the agrarian and the agroecological proposal from the government.	Catagora-Vargas et al (2015) [21]
Peru	The development of the peruvian agro-ecological movement has been heavily influenced by the activity of civil society organizations, the experience of organized organic farmers, market opportunities, the approach of academia and key political advocacy actions	The agro-ecological movement has grown in learning, organization and social impact, facing new challenges to resolve in its. The empowerment of the farmers and the development of policies in favor to the Agroecology are the next tasks for the Peruvian Agroecological movement.	Alvarado et al (2015) [22]

**Table 2 Analysis of policies in favor of the agroecology in Latin American. Based on Sabourin et al. (2017).**

Country	Analysis of policies that favor the Agroecology in some Latin American countries	Original source
Argentina	In despite of the certain policies in favor to Agroecology, there is a dual effect. On one hand, this a support to some agroecological initiatives, but on the other, there is a strong support to use of GMO and agrochemical to the monoculture. The case of INTA is one of the entity where Agroecology is promoted.	Patrouilleau et al. (2017) [23]
Brazil	The policies have had a multi-actors approach from the Social Civil organizations which created the PNAPO (La Política Nacional de Agroecología y Producción Orgánica), CIAPO (Camara Interministerial de Agroecología y Producción Orgánica) y CNAPO (Comisión Nacional de Agroecología y producción Orgánica). The promotion of Agroecology was fostered by policies related to the Family Agriculture sector, which is the opposite to the Agribusiness sector. The national purchase and the Participatory Guarantee System are of the most successful policies in favor the family farming and the Agroecology. So, there is a clear public support to the Agroecology.	Schmitt et al. (2017) [24]
Chile	There is a slight set of policies that promote the Agroecology indirectly such as those related to increase the soil organic matter and Sustainable Agriculture. Meaning that are not clearly directed to favor the Agroecology. However, there is an increasing interest from the society to promote the Agroecology prospective.	Martínez et al (2017) [25]
Costa Rica	In despite of the environmental advances, the policies to favor the Agroecology are not clear cut. The law 8591 is for Organic farming to exportation. Moreover, the language used is familiar agriculture.	Sáenz-Segura et al. (2017) [26]
Cuba	There is an incongruity in relation to the policies that favor the Agroecology, due the policies that favor the conventional agriculture. The policies are directed to the sustainable or urban agriculture, but not Agroecology explicitly. However, the country is one of the emblematic cases where Agroecology had have significant advances.	Vázquez et al. (2017) [27]
El Salvador	There are not policies in favor of the Agroecology, but there are proposals from the society and farmer organizations.	Wilfredo Moran [28]
México	In fact, there are no policies to favor the Agroecology. The policies are based on the conservation of natural environment, food security and rural territories. These policies are strong in its conception, but weak in its application. As the most Latin American countries.	Pulido et al. (2017) [29]
Nicaragua	There is body of laws in favor of the Agroecology, but are not applied due the lack of budget. So far, there is an effort, supported by the FAO, from the government and farmer's organization to accomplish a national policy strictly in favor of the Agroecology. This small country, together with Brazil and Cuba, area leading the policies unambiguously in favor to the Agroecology in Latin America.	Sandrine Fréguin-Gresh (2017) [3]

#### 4. Finals Remarks

Early in the 80s, the ideas related to Agroecology were disperse and came from other approaches such as sustainable and organic agriculture in most of the Latin

American countries. The pioneers of Agroecology, inspired by the indigenous and farmer knowledge, supported to the local actors through intensive campaigns of training, e.g., seminars, conferences, workshops, research and PhD programs in different

countries of Latin America. There is a positive impact of the PhD programs on Agroecology promoted by SOCLA because are students from many countries of Latin America generating and disseminating knowledge.

The challenges of the Agroecology shows that are in a diverse state of development in the region. In some countries the focuses are the agricultural practices, while in others, the more integral approach is applied. Brazil, Cuba, Uruguay and Nicaragua show the more advance institutionalization of Agroecology in term of public policies encourage an agenda beyond the agricultural sector and more related to the food system.

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