


Article

Political Agroecology in Senegal: Historicity and Repertoires of Collective Actions of an Emerging Social Movement

Patrick Bottazzi^{1,2,*} and Sébastien Boillat¹ 

¹ Institute of Geography, University of Bern, Hallerstrasse 12, 3012 Bern, Switzerland; sebastien.boillat@giub.unibe.ch

² Centre for Development and Environment, University of Bern 2, Mittelstrasse 43, 3012 Bern, Switzerland

* Correspondence: patrick.bottazzi@giub.unibe.ch; Tel.: +41-316318857

Abstract: Agroecology has become an ideological foundation for social and environmental transformation in sub-Saharan Africa. In Senegal, agroecological advocacy coalitions, made up of farmers' organizations, scientists, NGOs, and IOs, are using agroecology as an umbrella concept for proposing policy changes at multiple scales. We describe the history of the agroecological movement in Senegal in the context of the constitution of a national advocacy coalition. We then examine the "repertoires of collective action" mobilized by the coalition. Four repertoires are identified: technical support and knowledge co-production, territorial governance, alternative food networks, and national policy dialogue. Our analysis highlights the potential that these multi-level approaches have to sustainably transform the current food systems in sub-Saharan Africa. However, our research also reveals the limited agency of farmer organizations and the limitations of a movement that is strongly dependent on NGOs and international donors, leading to a "projectorate" situation in which contradictory policy actions can overlap. We further argue that, although the central government has formally welcomed some of the principles of agroecology into their policy discourse, financial and political interests in pursuing a Green Revolution and co-opting agroecology are pending. This leads to a lack of political and financial autonomy for grassroots farmers' organizations, limiting the development of counter-hegemonic agroecology. We discuss the conditions under which territorial approaches, and the three other repertoires of collective action, can have significant potential to transform Sub-Saharan Africa in the coming years.

Keywords: just transition; organic farming; social movement; repertoires of collective action; political agroecology; Senegal; Africa



Citation: Bottazzi, P.; Boillat, S. Political Agroecology in Senegal: Historicity and Repertoires of Collective Actions of an Emerging Social Movement. *Sustainability* **2021**, *13*, 6352. <https://doi.org/10.3390/su13116352>

Academic Editor: Mark Tilzey

Received: 3 May 2021

Accepted: 30 May 2021

Published: 3 June 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

1.1. Agroecology, a Driver of Food System Transformation in Africa?

Most of the undernourished population of the world lives in rural areas of sub-Saharan Africa [1]. These regions face dramatic food insecurity, high unemployment rates, and massive rural to urban migration, as well as the consequences of climate change, characterized by severe drought and soil degradation. These adverse conditions are being exacerbated by neo-liberal agrarian policies and the expansion of large-scale agricultural investments, also called land-grabbing [2–4]. Agroecology is increasingly being presented as a promising solution for reconciling food sovereignty with adaptation to climate change in the region [5,6]. It is also often associated with small-scale farmers' empowerment, including autonomy from external inputs and economic pressures, better working conditions, and self-determination from top-down decisions [7].

Latin-American peasant organizations and engaged scientists were the first to mobilize agroecology in the name of food sovereignty, environmental protection, and grassroots empowerment in the 1990s [7]. Peasants, researchers, and civil society organizations promoting agroecology engaged in counter-hegemonic work by combining both discourse and actions [8]. On the one hand, these organizations build on modern agronomic science through

holistic approaches, based on the valuation and development of agroecological-specific knowledge, the reskilling of farmers, and the development of alternative technologies and market systems [9]. On the other hand, the movement also seeks to defend and enhance the rights of small-scale farmers and has led to the creation of multiple regional, national, and international organizations working to advocate for and assist peasant resistance actions. These movements eventually contributed to the creation of La Via Campesina, now one of the largest transnational social movements in the world, in 1993 [10].

More recently, farmers' organizations in sub-Saharan Africa (SSA) have adopted agroecology as an umbrella concept to defend multiple social and environmental aspects of food production, including food sovereignty, adaptation to climate change, and decent incomes. Following approaches to public policy analysis [11], the Agroecological Advocacy Coalition (AAC) refers to a set of various organizations (NGOs, farmers, international organizations, etc.) mobilizing common resources, discourses and strategies to modify the public policy agenda at various international, national and local levels in view of a greater inclusion of agroecological aspects in food system governance. Research on the agronomic potential of sub-Saharan Africa is flourishing [6,12], but little is known about the socio-political aspects of existing agroecological movements in the region, their potential for transformation, or their limits. Based on extensive fieldwork carried out in 2019 and completed in 2021, we examine the historicity of the agroecological movement in Senegal, its main initiators, and their repertoire of collective action. More specifically, our research aims to understand the extent to which agroecological social movements contribute to the transformation of the Senegalese food system, and the potential that similar movements have in sub-Saharan Africa. We successively describe and analyze the historicity of the agroecological movement in Senegal, its main actors, their repertoires, and levels of collective action, highlighting both their perspectives and limits.

1.2. Agroecology as a Counter-Hegemonic Force for Rural Social Movements

Agroecology originally meant the application of ecological science in agriculture, but the concept has expanded substantially in the last 30 years [13]. Agroecology now involves three main dimensions: a set of ecologically sound agricultural practices (e.g., reducing external or chemical inputs, preserving soil and water, diversifying crops, trees, and livestock production), a scientific approach that integrates complex ecological processes with agronomy, and a social movement [13]. Agroecology has been used by researchers, policymakers, and activists to associate socio-economic equity principles with ecologically sustainable farming practices. Its main narrative helps position the discourse on agricultural development in favor of the most vulnerable producers and consumers as well as the environment. Concepts such as democratic governance, market access and autonomy, environmental equity, and social equity are commonly associated with agroecology [14].

In this context, rural social movements have increasingly adapted to and adopted the concept and its principles to support small-scale farmers and advocate for their rights [7]. Embracing agroecology is thought to bring social and environmental benefits to small farmers and rural communities, particularly by reducing their dependency on external inputs such as pesticides, fertilizers, seeds, and fossil fuels. The resulting collective actions have been oriented toward improving the capabilities of farmers through the recognition of local knowledge systems, the co-production of agroecological-specific knowledge through horizontal, also called farmer-to-farmer, knowledge exchange, and the development of alternative technologies and market systems [9]. More recently, territorial approaches to agroecology have built on the concept of landscape ecology, emphasizing the importance of connections between ecological zones and helping groups of farmers to gain legitimacy and territorial rights at sub-regional levels [15–18]. All these strategies underline the importance of agroecology as part of a broader political project linked to a holistic vision of social-ecological systems. This view is connected to the “re-peasantization” perspective, which seeks to transform contested rural spaces into peasant territories [18,19] and works within increasingly contested rural areas affected by the proliferation of large-

scale land acquisitions and development projects, extractive industries, and monocultural plantations [18].

However, despite many positive results around the world, sometimes described as “islands of success” [20], the emancipatory and counter-hegemonic potential of agroecology on larger scales remains contested. Empirical research has shown a more complex and controversial picture of farmers’ emancipation through the application of agroecological principles. Agroecological practices often require more work, and farmers must accept lower margins of benefits, lower yields, and sometimes additional psychological stress in order to respond to local demand [21,22]. Another risk is the attempt to reduce agroecology to a simple substitution of chemical inputs through standardized certification processes and political instrumentalization [23]. As for ‘agriculture modernization’, the input-substitution narrative tends to reduce both the complexity and the sociopolitical aspects of agroecosystems. While aspects of agroecology are becoming increasingly institutionalized with the support of governments [24] or international organizations such as the Food and Agriculture Organization (FAO), it risks being co-opted by political parties, governments, traditional elites, and the lobbies of organic product commercialization to serve new marketing interests [25]. The risk is further exacerbated by poor linkages between progressive NGOs and more traditional agrarian movements, due to the scope of contemporaneous agroecological narratives [26].

1.3. Political Agroecology and the Tensions between Reformist, Progressist, and Radicalist Prospects

The controversial ability of the agroecological movement to support family farmers’ emancipation from broader neoliberal factors requires analytical and critical approaches that look at institutions of collective action not as given or static, but as outcomes of historic processes, their practical and discursive strategies, and their contradictions and inherent power relations [27]. In doing so, Gonzalez de Molina [20] proposes “political agroecology” as a “science of collective action”, applying the scope of political ecology to the field of agroecology. From his perspective, the transformation of agroecosystems is politically constructed according to particular views, strategies, and interests emerging from the relationships between actors and their power structures. All this leads to question who controls and uses natural resources, how agroecosystems are shaped by the relationships between politics and power, and also what makes the establishment of institutions and social movements favorable to sustainability pathways [20].

Focusing on the contradictions between these different trends, Giraldo and Rosset [25] conceptualize agroecology as a “territory in dispute”, in which related actors struggle in both the material (access to resources, land, water, inputs) and immaterial (discourses, narratives, ideologies) arenas. Some authors have criticized the technical domination of solution-driven approaches, and have observed a lack of political engagement in research and action regarding agroecological programs [20]. Governments play a key role in these processes, especially when the prevalence of a “state-capital nexus” encourages co-optation [28]. To cope with the risk of cooptation some trends suggest never institutionalizing agroecology by keeping it permanently in kind of opposition from the dominant structures of the state [17]. Power-based relationships also have significant effects on social equity-related outcomes of agroecological transitions [29]. Examining them can give insights into whether a given transition to agroecology is a just transition [30], meaning the inclusion of ecological principles in agricultural production that do not simultaneously harm those who are most vulnerable.

In recent years, several conceptual frameworks have tried to show the plurality of the political appropriation of agroecology by state and non-state actors. For example, Holt-Gimenez and Shattuck (2011) distinguish between a neoliberal “reformist” trend, and “progressive” or “radical” agroecological movements in terms of political engagement [26]. The “reformist” trend builds on an agricultural modernization narrative that pretends to be improving the current corporate food regime while maintaining asymmetrical capitalist structures and the dominant narrative of food security [26]. The “progressive”

trend includes the food justice movement, mainly made up of NGOs; they advocate for organic food production, farmer's markets, direct rural-urban linkages, and small food businesses, but have weak ties to agrarian movements that seek direct resistance to capitalist dispossessions [25]. The "radical" trend is better represented by the food sovereignty movement, such as La Via Campesina, and advocates for a complete transformation of society based on farmers' entitlement to land and resources, seeking land redistribution and anti-capitalist measures. Boundaries between the trends are not impermeable, and actors mainly belonging to one trend can move to another through specific aspects of their discourse. The strategies can blend into one another and become confused when, for example, dominant actors of the neoliberal reformist trend uses progressive concepts and instruments to simulate more progressive change. In recent years, reformists have tried to co-opt agroecology while maintaining a Green Revolution program [31]. The same reformist/progressive/radical stratification is visible in studies that discuss agroecology as a technical innovation [23,24]. In this case, innovations are categorized as either "conforming", referring to those innovations that become competitive in unchanged economic and political environments, or "transforming", which aim to change their environment [32]. The role of scientists in supporting either conforming or transforming trends has also been highlighted [33].

1.4. The Rise of Agroecology in Sub-Saharan Africa and Senegal

Understanding the theoretical opposition between reformist, progressive, and radical approaches to agrarian change is essential for understanding the various positions of multi-level policy perspectives in the African context. For example, the reformists are well-represented by the Comprehensive Africa Agriculture Development Program (CAADP), which was adopted by the African Union and coordinated by the New Partnership for Africa's Development (NEPAD) in 2003. Signatories commit to investing a minimum of 10% of public funds in developing their agriculture, particularly through mechanization, input industry, and monoculture. More recent initiatives along the same lines incentivize large-scale agricultural investment, such as the Alliance for a Green Revolution in Africa (AGRA), the Grow Africa platform, and the G8 New Alliance for Food Security and Nutrition (NASAN). These programs emphasize the modernization of the agricultural sector to supposedly render it more efficient and create more food security and financial interests.

In recent years, large programs that favor a transition to agroecology in sub-Saharan Africa and emphasize a more progressive view have also emerged at the regional level. ECOWAS budgeted 8 million euros for the Agroecological Transition Support Project in West Africa (PATAE in French) in Ivory Coast, Burkina Faso, Mali, Togo, and Senegal, mainly supported by French cooperation agencies (such as Veterinarians Without Borders) in April 2018. Since the adoption of its 10 agroecology principles (including responsible governance), FAO has participated in several similar programs in SSA, mainly by setting up knowledge exchange platforms. Most of these initiatives can be characterized as progressive approaches to agroecology, as they lack the ability to directly contest asymmetrical power structures.

The more radical trends can be represented by the International Forum for Agroecology, held in Nyéléni, Mali, in February 2015. The event, which was set up to regroup and recreate a large number of organizations, was co-organized by the Coordination Nationale des Organisations Paysannes du Mali (CNOP Mali), La Via Campesina (LVC), Movimiento Agroecológico de América Latina y el Caribe (MAELA), and the Réseau des Organisations Paysannes et de Producteurs de l'Afrique de l'Ouest (ROPPA). The forum led to the formulation of a strong position in defense of peasant agriculture and responsible policies in multiple domains, such as a territorial and holistic approach to social, ecological, and democratized planning processes in conjunction with local and national governments, and the protection of "common pool resources" based on customary rights.

The Sub-Saharan African (SSA) context appears particularly instructive in terms of critically appreciating the tensions between these three policy approaches. Most agricul-

tural policies in SSA still strive to achieve the Green Revolution and implement neo-liberal measures in favor of industry and export [34,35]. In this context, the competition between Green Revolution techniques and innovative agroecological practices places small-scale farmers in a difficult position [36]. The former's supporters push governments to adopt Green Revolution policies and reformist narratives that offer very few benefits to family farmers. Reformist narratives push internationally cooperative organizations and transnational companies to the forefront, reproducing traditional dependence on project-based development and leaving grassroots movement behind [29,37]. The domination of international projects over democratic choices has been called the "projectorate", and can lead to the development of contradictory policies, overlap, and conflict in long-term perspectives [38]. The institutionalization of agroecology thus faces a scaling-up versus scaling-out dilemma [39], in which the question of vertical or horizontal inclusiveness remains in a sort of tension. NGOs and IOs must, on principle, avoid interfering with recipient countries' politics, and therefore struggle to work in the context of societal changes requested by a politicization of the agroecological movement. As a case study in Uganda [40] shows, NGOs are the object of clear national pressures and try to remain neutral in regards to issues of social justice, to avoid being perceived as too political or confrontational. They fear consequences such as deregistration, harassment, or arrest. In this context, NGOs tend to avoid political debates and remain 'smallholder-centric' by promoting agricultural systems at the plot level, thus limiting the emancipation power of agroecology.

More radical trends in SSA are therefore expected by grassroots organizations with political engagement at several levels. While Mali and Burkina Faso have pioneered the agroecological movement in the last few decades, the recent mobilization in Senegal has become emblematic of the current situation in the sub-region. The country has been designated by the FAO as a pilot country for agroecological transition in West Africa [5]. It also has a large number of initiatives promoting agroecology and a high diversity of actors therein, including farmers' organizations, NGOs, research organizations, and international donors. Our case study shows the high level of dynamism in the Senegalese agroecological advocacy coalition, its current repertoire of collective action, and also the limits of the movement given the previously discussed dilemmas.

1.5. Political Agroecology and the Repertoires of Collective Action

In this study, we rely on the political agroecology perspective, and more specifically on the concept of the repertoire of collective action, to capture the set of tools, actions, routines, materials, and discursive strategies that underpin actors' positions regarding agrarian transformation at multiple levels of the agroecological system. We also give a particular focus on concrete levers of change and their limits [8]. Our approach relies on two complementary perspectives. The first one is inspired by Charles Tilly's framing of "repertoires of contentions" [41], which are claim-making routines that build on the specific performances of claimant actors toward the targeted objects of claims. Tilly's approach and its subsequent development strongly emphasize the dynamic character of these repertoires, which evolve according to social and political contexts. It also focuses on the conditions that enable or disable collective action [42]. The second perspective comes from the importance of differentiating the levels of transformative scale from the narrow (farm efficiency) to the broad (radical food system and institutional change) that enable a systemic transformation [20], as first proposed by Gliessman [43].

In our approach, four repertoires of collective action are defined at several levels (or scales): (1), practical and technical support, in which action is taken at the productive system level, considered as a group of technical practices focusing on the primary production and transformation of agricultural products; (2) territorial governance, in which action is taken at the agroecosystem level, which is conceptualized here as a space of interaction between productive areas and broader social-ecological systems from a larger territorial perspective; (3) alternative food networks, in which action is taken at the food system level, which is considered inclusive of a complex network of actors and practices connecting

food producers and consumers; and (4) policy dialogue and advocacy, in which action is taken at the national and sub-national levels, including the full range of norms, beliefs, and institutions that shape the agri-food regime, actors' behaviors, and their political positions. The proposed repertoires of collective action are the means to support a transition from productive efficiency or input substitution to a broader transformation of the global food system. These repertoires are not separated but are instead combined through multiple action processes. Figure 1 summarizes these four repertoires in the context of examples of action, documented in our case study in Senegal.

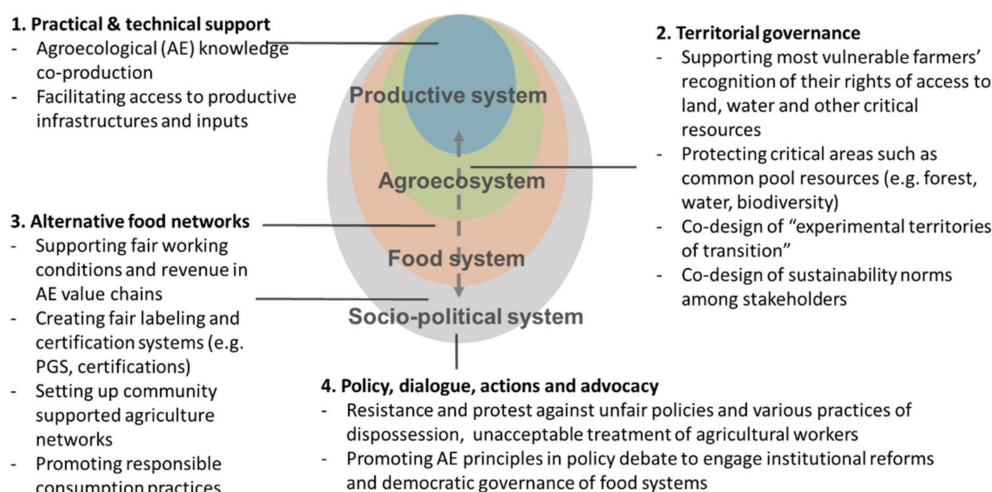


Figure 1. Four repertoires of collective action and transformation levels, mobilized by agroecological social movements in our case study.

2. Materials and Methods

This article builds on empirical material collected during fieldwork in Senegal in 2019 and completed in 2021 (after the COVID-19 lockdown) through various observations. Our methodology relied on qualitative data collection, including semi-directed interviews, focus group discussions, field visits, and the revision of internal documents and websites. Preliminary interviews took place in the first fieldwork stage in February 2019, and the main data collection process took place over two months from October to November 2019. More recently, in 2021, a few additional interviews and observations were carried out to complement and actualize the data.

Interviews with the leaders or persons responsible for 15 organizations, including governmental agencies, non-governmental organizations, international organizations, and local and national farmers' organizations (2), were conducted. We also participated in several national and regional platforms about agroecology. In order to examine both expert views and local processes, we conducted research at the local level including interviews, participatory observation, and focus group discussions with farmers and their organizations. To do this, we focused on the Federation of Diender Agropastoralists (Fédération des Agropasteurs de Diender, FAPD for the French acronym), a local farmers' organization based in the horticultural production region of the Niayes (northern Dakar). In-depth interviews were carried out with the leaders of this organization (president, technical staff). The organization has promoted organic agriculture and, more recently, agroecology for more than 30 years, and is significantly involved in a wide scope of actions aimed at improving the conditions of small-scale family farmers, in collaboration with NGOs, research organizations and other civil society organizations. The fieldwork included visits to 12 farms and four focus group discussions in four sub-areas of the Niayes; there were a total of 36 participants (23 M, 13 F). The FGD consisted of identifying key processes, challenges, and collective actions taken in relation to the agroecosystem and defined in collaboration with the FAPD directory. We used systematic annotation methods

and coded the resulting notes from interviews, FGD interventions, and reports using free coding in a data analysis software. We used descriptors that identify types of actions (e.g., “irrigation development”, “composting training”, “protest”, “advocacy”), the actors involved or targeted (e.g., “municipality”, “agribusinesses”, “NGOs”), and the challenges faced (e.g., “land degradation”, “lack of information access”, “pressures”). We then merged the codes into collections, which were re-assembled into concepts.

3. Results

The following sections present the main phases and characteristics of the agrarian regime in Senegal. We then focus on the constitution of agrarian social movements and on the more recent creation of a national Agroecological Advocacy Coalition (AAC). Finally, we address the four specific levels of collective action mobilized by the AAC and their achievements and limitations.

3.1. *The Senegalese Agrarian Regime and the Emergence of Environmental Awareness*

In former French West-African colonies, agricultural development was driven by the colonial and post-colonial state for over a century, until the 1980s and 1990s. Agriculture was dominated by small family farms related to one another through complex kinship systems [44]. Cash crops for export, such as peanuts in Senegal or cocoa in the Ivory Coast, were collected by colonial and post-colonial companies directly from family farms that had been reassembled into cooperatives. The latter were supervised by state agencies with the support of traditional elites, leading to continuous political co-optation and corruption [45]. This configuration allowed for the commoditization of land and labor among farming households [44,46], while politically containing any potential resistance [47].

The Senegalese case illustrates how colonial and post-colonial structures have hindered the emergence and emancipation of farmers’ organizations. Just before the country obtained independence, almost a million hectares were cultivated, on average, during the rainy season in Senegal. Migrant workers (called navetane in Wolof) were attracted from the surrounding countries [38,48]. From the late 1970s onward, severe droughts, declining soil fertility, lack of inputs, the collapse of the peanut export sector, and the state’s disengagement, initiated by neo-liberal policies, led to the current critical situation. Until 1984, the Senegalese government helped farmers by providing inputs (improved seeds, fertilizer, pesticides) and supported commercialization through the National Office of Cooperation and Development Assistance (ONCAD), created in 1966, which purchased and subsidized most of the farmers’ production. The 1984 New Agricultural Policy, issued within the structural adjustment program, led to the complete disengagement of the state and the liberalization of the food sector, which then became primarily dominated by rice importation [39]. This facilitated the creation of a small and middle-scale “peasant capitalism” [49], based on traditional forms of land and labor control. These forms of rural capitalism [50] were built on pre-colonial social hierarchies that served as the ideological basis for rural ruling classes to mobilize local cheap labor and gain access to land and resources.

Since 2000, President Abdoulaye Wade’s government has implemented a policy of “special programs”, such as the Back to Agriculture plan (Retour Vers l’Agriculture, REVA) and the Great Agricultural Offensive for Food and Abundance (Grande Offensive pour la Nourriture et l’Abondance, GOANA) plan. These programs focused on increasing the national production of commercial crops, with little understanding of the social and ecological issues present in the rural sector [51]. These programs also led to the emergence of an agro-industrial sector based on the support of local elites and foreign capital, leading to increased control of the labor of poor rural dwellers [52].

Land tenure insecurity reinforced these powerful actors. Most rural land formally belongs to the state as per the National Domain Law of 1964. Local authorities are in charge of its management, combining customary rules and modern law. Although rural land cannot formally become private property, an informal market has been established in which people make informal arrangements to transfer access rights without transferring

the full property [53]. In this context, the central government representing the state is a big player, as it is the only actor with formal ownership and can easily use national priority statutes for expropriation. Since the 1990s, several cases of large-scale land acquisitions, mainly in the Senegal River valley, have given rise to community upsurge and serious conflicts with large companies [34,35]. At least 700,000 hectares were leased to foreign investors from 2000 to 2011 [54]. In 2017, the Moroccan company Afri Partners Sénégal attempted to negotiate the sale of 10,000 hectares in the river valley to produce rice. Thanks to a massive citizen mobilization, the Supreme Court overruled the local government's decision in favor of the company and returned the land to the inhabitants.

However, despite the rise of land-grabbing and the inefficiency of the agrarian regime in supporting small-scale farmers, very little mobilization has emerged from rural areas to support a transition to more equitable and sustainable agriculture. Since the country's independence, only a few nationally recognized peasant organizations have been created to defend smallholder farmers. The most influent one is the National Consultation Committee of Rural People of Senegal (Comité National de Concertation des Ruraux du Sénégal (CNCR)). Created in 1993, it has since become the main representative entity of peasants and smallholder farmers' organizations. The CNCR has played an important role in ten years of negotiations with the state that resulted in the ratification of the "agro-sylvo-pastoral" law in 2004. CNCR is one of the founders of the Network of Peasant Organizations of West Africa (Réseau des Organisations Paysannes et des Producteurs Agricoles de l'Afrique de l'Ouest (ROPPA)) and is also affiliated with La Via Campesina [55]. CNCR has succeeded in gaining political space at national and international levels, partially due to pressure exerted by international NGOs and donors that encouraged the state to recognize the movement [56]. Unfortunately, the organization, like many other peasant organizations, remains strongly dependent on external aid. During President Wade's second term from 2007 to 2012, the CNCR weakened considerably due to state coercion and political co-optation [56].

In his first term, which started in 2012, the new President Macky Sall followed a similar "productivist" (or reformist) line as his predecessor by subsidizing chemical inputs, mechanization, and facilitating land and water access for large-scale investors. From 2005 to 2013, fertilizer subsidies increased from 4.6 to 18.1 billion CFA (West African Currency) and were distributed in an inequitable manner according to patronage and political strategies [57]. In its first phase (2014–2017), the Senegalese Program of Agriculture Acceleration (Programme d'Accélération de la Cadence de l'Agriculture Sénégalaise (PRACAS)), mainly funded by foreign cooperation, focuses on increasing the production of cereals and groundnuts, the development of fruit and counter-season vegetables, the support of crop exports, and the creation of employment in the rural sector. The program is also part of the Senegal Emerging Plan (Plan Sénégal Émergent (PSE)), the general strategy that Sall's government is implementing to reach "emerging country" status by 2035. The objective of the PRACAS is to "closely monitor farming techniques, fertilization techniques, and the use of pesticides" through the assistance of technical agencies led by the state [58].

When his second term began in 2019, Sall's government kept the same policy direction, except that he announced his willingness to better integrate environmental concerns into what is called the "green PSE" ("PSE Vert") program. The program mainly involves the creation of a national reforestation agency as well as the execution of a few other projects. Former minister and emblematic environmentalist Haïdar El Ali has been appointed program coordinator, and the charismatic mayor of the Ndiop municipality has been appointed chairman of the reforestation agency's board of directors. So far, the program has been limited to reforestation plans that lack any concrete implementation in the field. Green PSE also includes a land restoration program that has been funded by the World Bank since 2014. The Senegalese government is also involved in ECOWAS' agroecological transition program (PATAE) cited above, co-funded by French development cooperation, and has been implementing it in a few regions of the country for two to three years. The PATAE program is, however, limited to the technical support of a few farmers' organizations and

has had very little concrete success in the field since 2018 (interview with ministry staff, December 2020). Finally, due to the need to fulfill ECOWAS regulations that limit the import and usage of chemical pesticides, the ministry of agriculture has also started a program to subsidize organic inputs produced by private transnational companies.

The current initiatives of the government show a narrowed vision of agroecology, mainly limited to state-led reforestation programs, sustainable intensification, industrialized input substitution, and soil restoration. The CNCR, the largest farmers' organization in the country, has given full support to this narrow and strategic interpretation of agroecology showing a lack of counter-hegemonic perspectives.

3.2. Agroecology in Senegal: From a Pioneering Social Movement to Partial Formalization

The emergence of the agroecological movement in Senegal can be divided into three main phases, a pioneering phase, which lasted until 2000, a phase of proliferation from 2000 to 2015, and a phase of partial formalization that began after 2015.

The first organization to address environmental issues in agriculture in Senegal was Environment Development Action in the Third World (ENDA Tiers Monde), an international NGO created in 1972 by a French anti-colonial militant and a group of local intellectuals. Its environmental division (ENDA-PRONAT) was created in 1982 to promote ecological agriculture, after supporting a study that showed the risks of pesticide use in the context of the lack of education and poverty in Senegal [59]. Part of the research supporting this study was carried out in the Niayes area, the most productive horticultural area, near the capital city of Dakar, which is characterized by land- and water-grabbing, chemical contamination from industry, and urban sprawl [60].

Since then, ENDA-PRONAT has become the leader in addressing environmental issues related to rural development in Senegal. In 1986, they started to focus on the research and development of agroecological alternatives. The organization successively trained farmers in seed stewardship, conservation, revolving funds, organic certification, short value chain development (also called alternative food networks (AFN)), local governance of land and natural resources, and organizational skills and empowerment. ENDA-PRONAT is an international NGO based in Dakar and is primarily funded by international IOs and NGOs based in Europe, such as the German World Peace Service, Misereor, the Aid Organization of the Swiss Protestant Churches, and Swiss Development Cooperation. Therefore, ENDA-PRONAT was also instrumental in creating and supporting several local farmers' organizations, among them the Federation of Agropastoralists of Diender (FAPD), one of the first farmers' organizations in the country and the first to promote agroecology. Since its foundation in 1996, the FAPD has served as a local partner to implement the programs of multiple NGOs in the area. Its leaders have also become influential at the national level in terms of the creation of national farmers' organizations, such as the National Federation of Organic Agriculture (Fédération Nationale pour l'Agriculture Biologique, FENAB).

The pioneering phase of Senegalese agroecology also saw the first attempts to encourage the commercialization of organically certified agricultural products. In 1987, ENDA-PRONAT supported the creation of the BIOSAIN label, and its managing body, the ASPAB (Senegalese Association to Promote Organic and Biodynamic Agriculture). The focus on certified organic agriculture increased with the foundation of Agrecol Afrique, a branch of the Germany-based NGO launched in 1996. Agrecol Afrique supports the production, certification, and commercialization of organic products; it was first hosted by ENDA and became a national NGO in 2002.

After 2000, the agroecological movement in Senegal went into a phase of proliferation with the emergence of multiple and uncoordinated initiative from a variety of actors (NGO, farmer, research, IO). Many international NGOs with headquarters in Europe, who were already promoting agroecology in different parts of the world, started activities in Senegal (e.g., AgriSud in 2009). Research organizations already present in the country, such as the French Agricultural Research and International Cooperation Organization (CIRAD), started

agroecological programs, and the first private experimentation farms were established, such as Kaydara in the Fatick region in 2003. A few local NGOs and organizations who were mainly working on local development or environmental conservation also started to promote agroecology during this time.

During this phase, farmer-based organizations that promote agroecology also began to appear at the national level. This included the Association of Peasant Seeds Producers (ASPSP), created in 2003, which focuses on issues such as resisting to genetically modified seeds and supporting farmer seed banks. Another example is the FENAB, which was created in 2008 through a partnership involving farmers' organizations, ENDA-PRONAT, AGRECOL Africa, the existing ASPAB, and three other NGOs with primarily Swiss and German funding. FENAB currently federates 44 organizations, mostly from farmers' unions and civil society, and its current president is the former president of the FAPD. FENAB intervenes in the realms of capacity building, commercialization, and land rights advocacy, but its strongest focus has been the establishment of organic certification schemes and advocacy for a nationally recognized organic label, BioSenegal.

From 2015 onward, starting with the organization of an international symposium on agroecology in Dakar by the FAO, the Senegalese agroecology movement went into a partial process of formalization where most of its defender decided to joint effort into what have called Agroecological Advocacy Coalitions (AAC). Internationally recognized organizations, such as the FAO, joined the coalitions which led to the increased promotion of agroecology in the country. After the symposium, Senegal was declared a pilot and leading country for agroecological transition in the West African region. Many NGOs and other actors have also started to build collaboration networks to diffuse and promote agroecology throughout AAC platforms. These include the TAF AE (Task Force Agroécologie), an initiative begun by the French Institute for Research for Development (IRD) in 2015 and currently hosted by the Federation of European NGOs (PFONGUE). The Cheikh Anta Diop University of Dakar (UCAD) also launched an MSC program in agroecology.

3.3. Collective Actions of Agroecological Advocacy Coalitions in Senegal

3.3.1. Practical and Technical Support at the Farm Level

The practice of agroecology in Senegal mainly consists of NGOs giving technical support to small-scale farmers through their local farmers' organizations as well as field animators (Table 1). Technical support is a practical dimension of agroecology aimed at transforming the local production system. Hundreds of such pilot initiatives, carried out by 27 organizations, have flourished in Senegal in the last five years [61]. For example, since the early 1990s, the FAPD in Northern Senegal, supported by national and international NGOs, has played an intermediary role in providing technical, logistical, and economic support to thousands of small-scale farmers. They provided technical advice and materials such as seeds, irrigation material, revolving funds, preferential credits, and organic substitutes for chemical pesticides and fertilizers. FAPD is the intermediary, organizing training and farmer-to-farmer knowledge exchange events focusing on agroecological techniques such as compost-making, biopesticide production, crop associations, tree nurseries, and organic seed production, following a similar model that has been tested in Latin America [18]. In the early years of such activities, many farmers enrolled in FAPD programs, but only 40 of the currently 1200 active producers are recognized by the FENAB as truly organic. Of those, only 24 have organic certification. Though the FAPD claims that about 600 farmers are in transition, many have been discouraged by the domination of conventional farming and the unfavorable socio-economic conditions. One major issue is the lack of a preferential market for agroecological products; this results in a low financial return for farmers despite an increased work effort. Revenues are so low that wages from agribusiness are more attractive to the people of the area, and small producers struggle to recruit workers for their farms, even from their own families. This situation has led to what can be called systemic labor-grabbing, weakening small-scale agroecological producers and leading to the progressive erosion of solidarity among family members and neighbors (commonly

called *santaane* in Wolof). Most farmers in the operational area of FAPD that are resistant to this trend are directly supported by NGOs through their program, to keep them as ‘demonstrators’ of its potential success, although the model is not sustainable in the current food system.

Table 1. Summary of the main characteristics of the repertoires of collective action, mobilized by agroecological social movements in Senegal.

Repertoires of Collective Action	Actors	Progress and Achievements in Senegal	Main Limitations and Challenges
1. Practical and technical support	NGOs, research organizations, farmers’ organizations	Co-production and sharing of agroecological (AE) knowledge and techniques Promotion of agroecology by proving its practical efficacy Provision of inputs and infrastructure	Low rate of AE adoption and high rate of abandonment Lack of financial return on AE products Technical innovation limited to the plot and over-technicization of agroecology High work effort for farmers and “labor grabbing” by agribusiness Farmers becoming demonstrators of good farming practices rather than actors of sociopolitical change Contradictory policies, such as chemical inputs subsidies
2. Territorial governance	NGOs, municipalities, research organizations, international cooperation, farmers’ organizations	Stakeholder dialogue to set up territorial governance mechanisms Municipality engagement in three pilot areas “experimental AE transition territories” Ecological restoration activities Land security program Participatory mapping, technical (GIS), and legal training of local animators among farmers	High cost of collective action processes Resistance of agribusiness and other industries Lack of clarity of tenure regime and governance institutions Limited administrative capacities at the municipal level Property-based governance regime Elite capture and lack of transparency Precariousness of landless workers, women, and migrants
3. Alternative food networks	NGOs, consumer association, farmers’ organizations	Multiple cases of community-supported agriculture led by NGOs and private partners (Sell Sellal, Agrecol, Toubab Dialaw, Yoonu Suf) Set up participatory guarantee systems (ASD, BioSenegal, NatBi) Promotion of AE products in classical marketplaces (Dakar farmer’s market)	Too small of a niche market reserved for an elite consumer Lack of popular recognition for AE products Lack of consensus and conflict among labeling actors Poor monitoring instruments Domination of third-party cert. in the export industry Corporate interest in organic input industry
4. Policy dialogue, actions, and advocacy	NGOs, national farmers’ organizations, municipalities, public actors, research organizations, IOs	Participation in national advocacy meetings and actions Setting up and connecting (inter)national platforms and networks (Dytaes, Tafae, 3AO, ROPPA) Proposing concrete action plans for AE transition Demonstration and protest against human rights abuse, dispossession Media diffusion (video clips, documentaries, short announcements, TV shows)	Domination of international actors and NGOs Weak participation of farmer organizations Political instrumentalization of agroecological discourse by the government Agroecology presented as a reforestation program (“PSE-Vert”) and sustainable intensification Subsidies to industrial organic fertilizers (input substitution industry) and conventionalization “Projectorate”: agrarian regime under the influence of externally funded programs (PATAE, FAO, etc.)

3.3.2. Territorial Governance at the Landscape Level

Senegalese AAC recently engaged in territory-based approaches to upscale transformations at a broader level (Table 1). In the last decade, NGOs have started to support

small-scale farmers in their attempts to secure access to land and natural resources. They have begun to provide legal and technical support to the most vulnerable farmers, to facilitate the formal recognition of their land rights and protest against unfair dispossession by private operators and the central government. This trend followed several cases of farmer dispossession and political protest [54]. NGOs work together with local farmers' organizations, such as FAPD, whose staff and local assessors are trained in GIS to map individual plots of land and submit registration demands at the municipal level. Although private titling to individuals is not possible under the current Senegalese law, small-scale farmers can obtain formal recognition of use and access rights, called a deliberation, from municipal and traditional authorities (village chiefs). Lack of financial means and of information regarding their rights has left the majority of farmers without formal land rights, making them vulnerable to expropriation. Many farmers are also forced to sell their land due to excessive debt, lack of the means of production (especially irrigation technologies), and urban pressures. Furthermore, such programs generally benefit small landholders but do not improve the situations of more vulnerable populations, such as landless people, migrants, young people, or women.

Securing farmers' sustainable access to land and natural resources requires an upscaling of governance mechanisms from the farm level to the landscape or territorial level, through collective action and the progressive installation of decentralized governance mechanisms [29]. Senegalese agroecological coalitions have recently begun redirecting their efforts toward developing such territorial approaches through their newly created platform, *Dynamique pour une Transition Agro-Ecologique au Sénégal*, (DyTAES). In addition to securing farmers' rights, territorial approaches seek to engage private and public territorial actors to create collective management strategies for the agroecosystem to help protect important, fragile ecosystems. Such a perspective goes along with the revalorization of common-pool resources that require adapted and robust multi-level governing institutions, such as water sources, pastoral areas, or forests [62]. The French research organization CIRAD, ENDA-PRONAT, and other actors have started consulting on how to practically concretize this process at the national level. The coalition is proposing the creation of so-called "local Dytaes", or local platforms where territorial stakeholders can meet and make the decision to co-create a transition to agroecology at the territorial level. The idea is to co-create "experimental territories in transition" where agroecological innovations are proposed from below and discussed among a variety of public and private stakeholders. This would include, for example, support for territorial planning, critical ecosystem management, enforcement of sustainability norms, logistical support for agroecological producers, and the re-localization of food systems. A few municipal councils are already engaged in this collaboration, in partnership with the members of Dytaes, and have already begun some of these experimental measures. In a closely monitored area, a watershed management committee has been created with the purpose of defining sustainable rules of water extraction to be adopted by all water users with the support of both European cooperation agencies and farmers' organizations. The process is, however, at an early stage and is facing resistance from both local industries and some farmers which have benefited from open access to water for decades and fear the risk of having to pay for the water they use.

3.3.3. Alternative Food Networks at the National and Sub-National Levels

Facing producers' issues to sell their products, several NGOs, such as ENDA-PRONAT, *Agrecol*, and *Agrisud*, have attempted to set up alternative food networks to establish fairer prices through greater proximity between producers and consumers. In 2013, ENDA-PRONAT, in collaboration with five farmers' federations, FAPD among them, created the *Sell Sellal* cooperative, which purchases products directly from organic farmers and distributes them to three special marketplaces in Dakar. Consumers at these marketplaces are mostly expatriates and wealthy national clients. The cooperative purchases about 30% of the total production of 50 family farms (in the entire country), with a price premium of

20–40% as compared to conventional products. However, this niche market has remained too small to be an alternative source of revenue for farmers. In this context, the continuation of agroecological practices is uncertain, due to high levels of competition with conventional imported and national products. This is particularly the case in the Niayes region, where local agribusinesses often flood local markets with second-choice products that were rejected by exporters. The government of Senegal has intended to protect local producers by prohibiting the import of onions and potatoes during the national producing seasons, but this measure has encouraged monocultures and primarily benefited conventional farmers. FAPD has played a key role in supporting alternative food networks by convincing organic producers to participate, proposing storage space, and offering other logistical support. Despite this, their actions remain insufficient, considering the consumer's lack of attraction to organic production. Large information campaigns, with the support of public media, the public education structure, and the government should be implemented to progressively change this situation.

Another key instrument of support for alternative value chains involves proposing fair certification mechanisms for agroecological products. Participatory guarantee systems (PGS) are citizen-driven mechanisms of valuation and certification of quality criteria, encountering a certain success in developing countries. Their objective is to offer consumers a quality guarantee for the product they purchase and create a premium price for agroecological producers while reducing the cost of certification. Unlike many organic certifications, which are restricted to input substitution, PGS often include fair working conditions and respect for environmental criteria [63]. At the moment, three types of labels coexist in Senegal; all of them are based on the principle of PGS that tries to reduce the cost of third-party certification by including local stakeholders (consumer associations, farmers' organizations, and NGOs) in the certification process. ENDA-PRONAT has launched the "sustainable and healthy agriculture" label (Agriculture Saine et Durable (ASD)), which is currently limited to producers working with the Sell Sellal cooperative. NatBi (meaning nature-organic) was launched 10 years ago by the NGO Agrecol. The label is registered at the Senegal National Institute of Normalization (Institut Sénégalais de Normalisation) and is used to certify the producers working with Agrecol in the cities of Thies, Dakar, and Mbour. BioSenegal is probably the most ambitious project and was developed by the national farmers' organization, FENAB. It offers an alternative to the French third-party certification mechanism Ecocert, which is usually too costly for small-scale farmers and therefore offers a limited ability to improve their income and working conditions [53]. BioSenegal stems from a collaboration between the International Federation of Organic Agriculture Movements (IFOAM), which has promoted PGS since 2004, and FENAB, and includes a standard protocol, the "cahier des charges", which defines the requirements for PGS certification. Based on the IFOAM regulation, BioSenegal explicitly includes a section on social justice, namely the recognition of workers' union rights and the prohibition of child labor according to ILO regulations (FENAB, 2016). In recent years, however, FENAB has concentrated on third-party certifications in an attempt to make the organic sector more economically viable.

Although the FAPD has participated in creating the standards, we observed that, in practice, only a few farmers had made it through all the certification steps due to a number of barriers. Among these is the ban on sharecropping (baye seddo in Wolof) on organic farms, a popular practice in the area that is helpful to small-scale owners getting external support on productive land [29]. This practice was considered by the labelling committees as potentially reducing the capacity to monitor organic practices. Our informants also mentioned the high level of confusion regarding the different labels, the lack of national recognition, the delays in becoming certified, the difficulty in monitoring proper implementation, and the domination of the third-party certification scheme, which is still required to export some products. As PGSs are quite recent initiatives in Senegal, further efforts will have to be made for their proper implementation in the future.

3.3.4. Policy Dialogue and Advocacy

An important innovation in the field of agroecology in Senegal is the establishment of a national dialogue among all the stakeholders through the creation of public dialogue platforms, actions, and advocacy. These platforms aim to co-produce policy innovation, support peasant agriculture, and advance the agroecological transition. The Thinking and Action Framework on Land Governance in Senegal (Cadre de Réflexion et d'Action sur le Foncier au Sénégal (CRAFS)) emerged in 2010 to counter the proliferation of large-scale land acquisitions in the country after the painful events of 2008. The CRAFS brought together ENDA-PRONAT and the CNCR, both of which played a key role in its constitution. The committee spearheaded a national consultation process involving farmers' organizations and NGOs and issued land policy recommendations to the national government. Though their proposal was not adopted, land-grabbing cases slowed after their mobilization. The CRAFS position document [50] reflects the views of the CNCR and their technical branch, ASPRODEB (Association Sénégalaise pour la Promotion du Développement de Base), whose main focus is family and small-scale farming support, with little or no mention of agroecology.

Another interesting platform that explicitly promotes agroecology comes from TAFABE. The network originally had the dual objective of promoting technical knowledge exchange in agroecology and advocating for the adoption of agroecological practices and favorable policies at the national level. However, only the first objective was pursued, with the organization of farm visits and knowledge exchange events. According to our informant, the main reason given for not pursuing advocacy action is limited political legitimacy, due to the dominance of foreign NGOs in terms of supporting and running the platform (discussion at TAFABE workshop, 20 November 2019).

Important progress was made in 2019, when a new network, the Dynamic for an Agroecological Transition in Senegal (Dynamique pour une Transition Agroécologique au Sénégal, DyTAES), was established with the specific objective of advancing advocacy for agroecology at the national level. The network formed around the pioneering NGO ENDA-PRONAT and has 25 organizations in its steering committee, primarily NGOs and research/education organizations, with a minority of farmers' organizations and unions. In May 2019, the DyTAES launched a nationwide consultation process in six regions of the country, with the main objective of specifically defining concrete ways to scale agroecology up to the national level. Their proposal includes four domains of action that are purposively aligned on the axes of the Government's Agricultural Investment Program for Food Security and Nutrition (PNIASAN). These axes include the improvement and securitization of land and natural resources, the sustainable increase of production, the promotion of agroecological products in value chains, and the improvement of governance and funding options [64]. Although the document is quite critical of conventional practices and productivist policies, it avoids direct criticisms of governmental policies due to the continued goal of maintaining political dialogue with the authorities. While the central government is open to debate in public places, most of its current policies and investment programs remain fully oriented toward developing agribusiness and conventional agriculture principles.

4. Discussion and Conclusions

4.1. Progress and Primary Limits of the Agroecological Social Movements in Senegal

Our overview demonstrates that the current strengths of the agroecological social movement in Senegal are its ability to combine several levels of collective action at productive, territorial, food system, and higher institutional levels to lever systemic transformations. Though this strategy has led to increase a general awareness on the need to sustainably transform the Senegalese food system, its main limitation is the lack of policy–action coherence among governmental and civil society actors. As a consequence, multiple challenges are persisting, such as technical and financial inequalities of access to inputs (land, water, biomass), unfavorable labor exchanges, price policies that support

exogenous market exchanges, chemical input subsidies, land- and resource-grabbing, and the recent introduction of the imported organic input substitution shortcoming with the support of the government. Overcoming these limitations would require more integration of grassroots organizations and their radical perspectives in the national political debate. These perspectives continue to be undermined by a number of political issues at the international, national, and sub-national levels. Among them is the high dependence of the AAC on international cooperation funding and the constant risk of conforming to the dominant agrarian regime. These dependencies are experienced by both governmental and civil society organizations through a complex interplay of alliances and strategies. This interplay, recall the propensity of agroecology to remain a permanent “immaterial territory in dispute”, combining contradictory views to foster societal change [17,25]. However, our case highlights that the main actors representing the state, NGOs, and farmers are not in a symmetrical opposition, instead, there is encroachment and sometimes overlapping of distinct positions. This is partially due to the “projectorate” situation described in the following paragraph.

4.2. The Senegalese “Projectorate”: An Agrarian Regime under Foreign Dependency

In Senegal, reformist, progressist, and radical views co-exist while engaging in quite competitive scenarios of policy transformations. Each of these tendencies is usually represented by governmental agencies, NGOs, research organizations and farmers’ organizations, respectively [26]. The Senegalese case shows that these tendencies are not hermetic to one another. Rather, multiple exchanges and collaborations exist due to the strong engagement of platforms and advocacy coalitions, such as DyTAES and TAF AE, and of the media in policy dialogue actions and advocacy. In recent years, the Senegalese government has shown openness to these AAC and started to try to develop a common strategy of policy reform. However, this openness builds on a reductive conception of agroecology, mainly limited to environmental management and input substitution, which shows internal contradictions and risks co-opting agroecology [8]. In reality, the current government plays an ambiguous role in relation to current mobilization, as most of its policies are oriented toward monoculture, agribusiness, and productivity rather than sustainable food systems, following a path dating back to colonial times [50,51,65]. The ambiguity of positions within the current government, represented by the confusing diversity of programs and projects, provides evidence “that regimes are not homogeneous and/or monolithic” entities [66] (p. 20) but are, in fact, complex networks of actors with specific strategies and alliances.

This ambiguity or polyvalence has been ironically called the logic of the “projectorate” [38] that is typical of so-called developing countries, in which the diversity of policy action is strongly influenced by the diversity of the transnational funding agencies suggesting changes to the central government. In our case, most of these programs are still linked to the food security discourse promoted by international lobbyists [67]. The food security discourse is usually supportive of agro-industrial development and food imports, contrary to the paradigms of food sovereignty [68] and sustainability [69]. The apparent and recent openness of the Senegalese government to agroecological initiatives, as shown by their participation in the DyTAES forums, should thus be viewed with caution. Given the high dependence of agricultural policies and programs on foreign aid, state actors might accept heterogeneous types of projects from different and uncoordinated sources, as far as these options can maintain their administrative and technical staff apparatus. In this context, agroecology can become a simple pretext for “greening” current agro-industrial policies and attracting foreign funds. The government can then create its own discourse of agroecology that can co-opt farmers’ organizations (e.g. CNCR) who are dependent on its support, and relegate NGO-led agroecology to small projects that remain in the technical realm, with restrictions on discourse and social mobilization [40]. In this case, the existing, “state-capital nexus”, [28] does not necessarily work through the direct co-optation of the government by capital but through a series of bilateral and multilateral cooperation

agreements. This ambiguity leads to questioning both the coherence of policy actions and the sovereignty of the agroecological movement.

4.3. An NGO-Led Movement

These contradictions are also visible within AAC and in their relationships with social movements at the national and regional levels; the dominance of national and international NGOs and research and cooperation agencies is evident. One striking observation is the apparent disconnection between the advocacy platforms, such as TAFAB and DyTAES, which are mainly steered by NGOs, and the Senegalese farmers' movement, as represented by the CNCR, FENAB, and FAPD and their members. Though the CNCR acknowledges agroecology and includes FENAB as its organic arm, it is not its primary focus and the organization remains largely supportive of conventional farming. The farmers' organizations that they represent are historically dependent on patronage from the central government through input subsidies and other political privileges [45,57]. Alliances around common interests, such as land issues or technical knowledge co-production, through advocacy platforms (i.e., CRAFS, TAFAB, etc.) are active, but the peasant and agroecology communities remain separate in Senegal in terms of their political action and ideologies. For these reasons, the cohesion of a potentially emerging radical movement is still lacking.

As a consequence of this configuration, and despite a discourse that emphasizes the empowerment of peasant organizations, NGOs and international donors remain the primary controllers of the discourse and practice of agroecology. In the same manner in which pesticides were introduced by French agronomists in colonial and post-colonial regimes [51,70], agroecology is introduced by NGOs and IOs with the support of foreign research organizations. Therefore, it is not surprising that the notion and some of the principles of agroecology remain foreign to Senegalese farmers, despite a discourse on the hybridization of knowledge of traditional practices and scientific innovations [57,71]. While farmer organizations (such as the FAPD) plays a broker role, family farms are kept as a sort of demonstration experimental field [29]. In our view, a larger adoption by farmers depends on multiple factors, such as their ability to implement changes, the social and economic opportunities, and the legitimacy of these practices at different socio-political levels [58,72]. This is a condition for out-scaling agroecology, rather than just up-scaling it to larger organizations, which remains challenging. Therefore, the more recent and holistic actions of the Senegalese AE coalitions are promising, as they combine the four fundamental levels of practice and collective action to create a systemic transformation that should take place in the long run.

4.4. Territorial Governance Repertoires: A Core Challenge for AE Transformations in SSA

Within these four levels, territorial governance has been recently given a central place by AE platforms, such as DyTAES. In our view, "material territories of agroecology" [17,25] are the most important catalysts of transformation, as they allow for collective action by multiple actors, such as NGOs, farmers' organizations, and decentralized state entities (municipalities and other territorial organizations) to resist land- and resource-grabbing from the state-capital-nexus apparatus and built innovative institutions [28]. Since the 1970s, successive reforms have led to the increased power of the state as a central entity with regard to land governance. Although municipal governments are formally empowered to distribute access rights, political factionalism and corruption lead to elite capture and land concentration. In our view, a core challenge for the Senegalese AAC is to create a new framework of territorial governance that can help farmers' organizations to keep control of their land and natural resources. Territorial approaches to agroecology transitions are based on the principle of finding the appropriate scale of recognition and empowerment of peasant societies, and the relocalization of several aspects of the food system, reducing external input by providing appropriate biomass from forest production areas, managing water resources, and protecting local markets, among others.

In particular, we see a possible pathway to increase the social appropriation of agroecology through the revitalization of spaces of collective management, or commons, which are the traditional model of access and management of natural resources among the largest ethnic groups in Senegal [73]. This argument is now at the forefront of platforms such as CRAFS and DyTAES, which are now requesting legal recognition of the customary rules and local management of common spaces [50,74]. At the local level, more bargaining power for subaltern workers, women, and young people would be needed to build effective institutions for commons management. More recent attempts to extend agroecology at the territorial level through an alliance between municipalities, traditional authorities, and farmers' organizations appear promising but also challenging. These territorial reforms can increase local stakeholders' sovereignty over natural resources and extend the principles of agroecology, but their social justice outcomes will depend on how the deeper agrarian structures of Senegalese society are addressed [50].

5. Conclusions

Critical perspectives on agroecological transitions have strongly emphasized the importance of adopting a socio-political approach to agroecology and understanding the implications behind the technical challenges [20]. Our research highlights the possible benefits of the better characterization of Agroecological Advocacy Coalitions and social movements in sub-Saharan Africa by detailing their repertoires of collective action tools at the productive, territorial, food system, and broader institutional scales.

It also relativizes Manichean views opposing the central state, with farmers' organizations showing a more complex picture of contradictory strategies and interests, where some national farmers' organizations are the first to embrace the paradigm of "input substitution", while some state programs support more progressive views. These experiences highlight the high dependency of SSA countries on a network of transnational interests that results in the shaping of contradictory national policies, also called the "projectorate".

In our view, more radical initiatives headed by farmers' organizations are needed in Senegal and other SSA countries. Territorial approaches also offer a fascinating dimension and scale to initiate them, and raise awareness and interest of farmers' organizations on the potential of agroecology in its broader sense, including practice, co-production of knowledge, and social movements. This should help empower peasant communities in terms of agro-ecosystem governance, and the democratic construction of a responsible, sustainable, and equitable food system.

Author Contributions: Both authors contributed equally and have read and agreed to the published version of the manuscript.

Funding: This research was funded by the Swiss National Science Foundation (SNSF), grant number 176736, "AgroWork".

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

Acknowledgments: The authors would like to thank Dimitris Stevis, David Uzzell, and Nora Räthzel for their helpful comments on an earlier version of the manuscript.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study, in the collection, analyses, or interpretation of data, in the writing of the manuscript, or in the decision to publish the results.

Abbreviations

AAC	Agroecological Advocacy Coalition
AE	Agroecology
AFN	Alternative Food Networks
AGRA	Alliance for a Green Revolution in Africa
AGRECOL	An international NGO supporting agroecological programs
Agrisud	An international NGO supporting agroecological program
ASD	Agriculture Saine et Durable
ASPAB	Senegalese Association to Promote Organic and Biodynamic Agriculture
ASPRODEB	Association Sénégalaise pour la Promotion du Développement de Base
ASPP	Association of Peasant Seeds Producers
CAADP	Comprehensive Africa Agriculture Development Program
CIRAD	French Agricultural Research and International Cooperation Organization
CNCR (Comité national de concertation des ruraux du Sénégal)	National Consultation Committee of Rural people of Senegal
CNOP	Coordination Nationale des Organisations Paysannes du Mali
CRAFS (Cadre de Réflexion et d'Action sur le Foncier au Sénégal)	Think tank and action framework for land tenure in Senegal
DyTAES (Dynamique pour une Transition Agro-Ecologique au Sénégal)	Dynamic for agroecological transition in Senegal
ECOWAS	Economic Community of West African States
ENDA Tiers Monde (Environment Development Action in the Third World)	An international NGO
ENDA-PRONAT	The most influent NGO leading the agroecological movement in Senegal (originally the environmental division of ENDA Tiers Monde)
FAPD	Federation of Diender Agropastoralists (Fédération des Agropasteurs de Diender)
FENAB (Fédération Nationale pour l'Agriculture Biologique)	National Federation of Organic Agriculture
GOANA (Grande Offensive pour la Nourriture et l'Abondance)	Great Agricultural Offensive for Food and Abundance
IFOAM	International Federation of Organic Agriculture Movements
ILO	International Labor Organization
IRD	French Institute for Research for Development
LVC	La Via Campesina
MAELA	Movimiento Agroecológico de América Latina y el Caribe
NASAN	New Alliance for Food Security and Nutrition
NEPAD	New Partnership for Africa's Development
ONCAD	National Office of Cooperation and Development Assistance
PATAE	Agroecological Transition Support Project in West Africa
PFONGUE	Federation of European NGOs
PGS	Participatory Guarantee Systems
PNIASAN	Agricultural Investment Program for Food Security and Nutrition
PSE (Plan Sénégal Émergent)	Senegal Emerging Plan
REVA (Retour Vers l'Agriculture)	Back to Agriculture plan
ROPPA	Réseau des organisations paysannes et de producteurs de l'Afrique de l'Ouest
ROPPA	Réseau des Organisations Paysannes et des Producteurs Agricoles de l'Afrique de l'Ouest, Network of Peasant Organizations of West Africa
SSA	Sub-Saharan Africa
TAFAE	Task Force Agroécologie
UCAD	Cheikh Anta Diop University of Dakar

References

1. FAO. *The State of Food Insecurity in the World*; FAO: Rome, Italy, 2015.
2. Anseeuw, W.; Alden Wily, L.; Cotula, L.; Taylor, M. *Land Rights and the Rush for Land. Findings of the Global Commercial Pressures on Land Research Project*; ILC: Rome, Italy, 2012.
3. Edelman, M.; Oya, C.; Borras, S.M., Jr. Global land grabs: Historical processes, theoretical and methodological implications and current trajectories. *Third World Q.* **2013**, *34*, 1517–1531. [[CrossRef](#)]
4. Borras, S.M.; Franco, J.C., Jr. Global land grabbing and trajectories of agrarian change: A preliminary analysis. *J. Agrar. Chang.* **2012**, *12*, 34–59. [[CrossRef](#)]
5. FAO. *Final Report of the Regional Meeting on Agroecology in Sub-Saharan Africa*; FAO: Dakar, Senegal, 2016.
6. Tittonell, P.; Scopel, E.; Andrieu, N.; Posthumus, H.; Mapfumo, P.; Corbeels, M.; van Halsema, G.E.; Lahmar, R.; Lugandu, S.; Rakotoarisoa, J.; et al. Agroecology-based aggradation-conservation agriculture (abaco): Targeting innovations to combat soil degradation and food insecurity in semi-arid africa. *Field Crop. Res.* **2012**, *132*, 168–174. [[CrossRef](#)]
7. Altieri, M.A.; Toledo, V.M. The agroecological revolution in latin america: Rescuing nature, ensuring food sovereignty and empowering peasants. *J. Peasant Stud.* **2011**, *38*, 587–612. [[CrossRef](#)]

8. Figueroa-Helland, L.; Thomas, C.; Aguilera, A.P. Decolonizing food systems: Food sovereignty, indigenous revitalization, and agroecology as counter-hegemonic movements. *Perspect. Glob. Dev. Technol.* **2018**, *17*, 173–201. [[CrossRef](#)]
9. Coolsaet, B. Towards an agroecology of knowledges: Recognition, cognitive justice and farmers' autonomy in france. *J. Rural Stud.* **2016**, *47*, 165–171. [[CrossRef](#)]
10. Martínez-Torres, M.E.; Rosset, P.M. La vía campesina: The birth and evolution of a transnational social movement. *J. Peasant Stud.* **2010**, *37*, 149–175. [[CrossRef](#)]
11. Sabatier, P. An advocacy coalition framework of policy change and the role of policy-oriented learning therein. In *Public theories Models and Concepts. Ananthology*; Cool, D.C.M., Ed.; Prentice Hall: Hoboken, NJ, USA, 1995; pp. 339–370.
12. Giller, K.E.; Witter, E.; Corbeels, M.; Tittonell, P. Conservation agriculture and smallholder farming in africa: The heretics' view. *Field Crop. Res.* **2009**, *114*, 23–34. [[CrossRef](#)]
13. Wezel, A.; Bellon, S.; Dioré, T.; Francis, C.; Vallod, D.; David, C. Agroecology as a science, a movement and a practice. A review. *Agron. Sustain. Dev.* **2009**, *29*, 503–515. [[CrossRef](#)]
14. Dumont, A.M.; Vanloqueren, G.; Stassart, P.M.; Baret, P.V. Clarifying the socioeconomic dimensions of agroecology: Between principles and practices. *Agroecol. Sustain. Food Syst.* **2016**, *40*, 24–47. [[CrossRef](#)]
15. McCune, N.; Rosset, P.M.; Salazar, T.C.; Moreno, A.S.; Morales, H. Mediated territoriality: Rural workers and the efforts to scale out agroecology in nicaragua. *J. Peasant Stud.* **2017**, *44*, 354–376. [[CrossRef](#)]
16. McCune, N. Pedagogical mediators and the territorialization of agroecology. *Rev. Pract. Educ.* **2017**, *13*, 252–280.
17. Giraldo, O.F.; McCune, N. Can the state take agroecology to scale? Public policy experiences in agroecological territorialization from latin america. *Agroecol. Sustain. Food Syst.* **2019**, *43*, 785–809. [[CrossRef](#)]
18. Rosset, P.M.; Martínez-Torres, M.E. Rural social movements and agroecology: Context, theory, and process. *Ecol. Soc.* **2012**, *17*, 17. [[CrossRef](#)]
19. Van der Ploeg, J.D. The peasantries of the twenty-first century: The commoditisation debate revisited. *J. Peasant Stud.* **2010**, *37*, 1–30. [[CrossRef](#)]
20. Gonzalez de Molina, M. Agroecology and politics. How to get sustainability? About the necessity for a political agroecology. *Agroecol. Sustain. Food Syst.* **2013**, *37*, 45–59.
21. Dupre, L.; Lamine, C.; Navarrete, M. Short food supply chains, long working days: Active work and the construction of professional satisfaction in french diversified organic market gardening. *Sociol. Rural.* **2017**, *57*, 396–414. [[CrossRef](#)]
22. Dahlin, A.S.; Rusinamhodzi, L. Yield and labor relations of sustainable intensification options for smallholder farmers in sub-saharan africa. A meta-analysis. *Agron. Sustain. Dev.* **2019**, *39*, 1–18. [[CrossRef](#)]
23. Rosset, P.M.; Altieri, M.A. Agroecology versus input substitution: A fundamental contradiction of sustainable agriculture. *Soc. Nat. Resour.* **1997**, *10*, 283–295. [[CrossRef](#)]
24. Bellon, S.; Ollivier, G. Institutionalizing agroecology in france: Social circulation changes the meaning of an idea. *Sustainability* **2018**, *10*, 1380. [[CrossRef](#)]
25. Giraldo, O.F.; Rosset, P.M. Agroecology as a territory in dispute: Between institutionality and social movements. *J. Peasant Stud.* **2018**, *45*, 545–564. [[CrossRef](#)]
26. Holt Giménez, E.; Shattuck, A. Food crises, food regimes and food movements: Rumbblings of reform or tides of transformation? *J. Peasant Stud.* **2011**, *38*, 109–144. [[CrossRef](#)] [[PubMed](#)]
27. Clement, F. For critical social-ecological system studies: Integrating power and discourses to move beyond the right institutional fit. *Environ. Conserv.* **2013**, *40*, 1–4. [[CrossRef](#)]
28. Tilzey, M. Food regimes, capital, state, and class: Friedmann and mc michael revisited. *Sociol. Rural.* **2019**, *59*, 230–254. [[CrossRef](#)]
29. Bottazzi, P.; Boillat, S.; Marfurt, F.; Seck, S.M. Channels of labour control in organic farming: Toward a just agroecological transition for sub-saharan africa. *Land* **2020**, *9*, 205. [[CrossRef](#)]
30. Newell, P.; Mulvaney, D. The political economy of the 'just transition'. *Geogr. J.* **2013**, *179*, 132–140. [[CrossRef](#)]
31. Holt-Giménez, E.; Altieri, M.A. Agroecology, food sovereignty, and the new green revolution. *Agroecol. Sustain. Food Syst.* **2013**, *37*, 90–102.
32. Smith, A.; Raven, R. What is protective space? Reconsidering niches in transitions to sustainability. *Res. Policy* **2012**, *41*, 1025–1036. [[CrossRef](#)]
33. Levidow, L.; Pimbert, M.; Vanloqueren, G. Agroecological research: Conforming—Or transforming the dominant agro-food regime? *Agroecol. Sustain. Food Syst.* **2014**, *38*, 1127–1155. [[CrossRef](#)]
34. Martín, V.O.M.; Darias, L.M.J.; Fernández, C.S.M. Agrarian reforms in africa 1980–2016: Solution or evolution of the agrarian question? *Africa* **2019**, *89*, 586–607. [[CrossRef](#)]
35. Koopman, J. Land grabs, government, peasant and civil society activism in the senegal river valley. *Rev. Afr. Political Econ.* **2012**, *39*, 655–664. [[CrossRef](#)]
36. Dawson, N.; Martin, A.; Sikor, T. Green revolution in sub-saharan africa: Implications of imposed innovation for the wellbeing of rural smallholders. *World Dev.* **2016**, *78*, 204–218. [[CrossRef](#)]
37. Boillat, S.; Bottazzi, P. Agroecology as a pathway to resilience justice: Peasant movements and collective action in the niayes coastal region of senegal. *Int. J. Sustain. Dev. World Ecol.* **2020**, *27*, 1–16. [[CrossRef](#)]
38. Carmona, A.R. *El Proyeccionado: Bolivia Tras 20 Años De Ayuda Externa*; Intermón Oxfam Editorial: Madrid, Spain, 2008; Volume 16.

39. Hermans, F.; Stuver, M.; Beers, P.; Kok, K. The distribution of roles and functions for upscaling and outscaling innovations in agricultural innovation systems. *Agric. Syst.* **2013**, *115*, 117–128. [CrossRef]
40. Isgren, E.; Ness, B. Agroecology to promote just sustainability transitions: Analysis of a civil society network in the rwenzori region, western uganda. *Sustainability* **2017**, *9*, 1357. [CrossRef]
41. Tilly, C. *Regimes and Repertoires*; University of Chicago Press: Chicago, IL, US, 2010.
42. Johnson, V. Changing repertoires of collective action: American general strikes 1877–1946. *Res. Political Sociol.* **2008**, *17*, 101–134.
43. Gliessman, S. Transforming food systems with agroecology. *Agroecol. Sustain. Food Syst.* **2016**, *40*, 187–189. [CrossRef]
44. Meillassoux, C. *Femmes, Greniers Et Capitaux*; Maspero: Paris, France, 1982; p. 218.
45. Ela, J.-M. *Quand L'etat Pénètre En Brousse—: Les Ripostes Paysannes À La Crise*; KARTHALA Editions: Paris, France, 1990.
46. Bernstein, H. Notes on capital and peasantry. *Rev. Afr. Political Econ.* **1977**, *4*, 60–73. [CrossRef]
47. Jacob, J.-P. La décentralisation comme distance. Réflexions sur la mise en place des collectivités territoriales en milieu rural ouest-africain. *Polit. Afr.* **1998**, *71*, 133–147.
48. Diop, A.M. *Sénégal: Dynamiques Paysannes Et Souveraineté Alimentaire-Le Procès De Production, La Tenue Foncière Et La Naissance D'un Mouvement Paysan*; Harmattan: Dakar, Senegal, 2016.
49. Bernstein, H.; Byres, T.J. From peasant studies to agrarian change. *J. Agrar. Chang.* **2001**, *1*, 1–56. [CrossRef]
50. Oya, C. Stories of rural accumulation in africa: Trajectories and transitions among rural capitalists in senegal. *J. Agrar. Chang.* **2007**, *7*, 453–493. [CrossRef]
51. Oya, C.; Ba, C.O. *Les Politiques Agricoles 2000–2012: Entre Volontarisme Et Incohérence*; unpublished work; 2013.
52. Baglioni, E. Labour control and the labour question in global production networks: Exploitation and disciplining in senegalese export horticulture. *J. Econ. Geogr.* **2017**, *18*, 111–137. [CrossRef]
53. Rochegude, A. Foncier et décentralisation: Réconcilier la légalité et la légitimité des pouvoirs domaniaux et fonciers. In *Retour Au Foncier*; Le Roy, E., Ed.; Bulletin De Liaison: Paris, France, 2001; Volume 26, pp. 13–34.
54. Brun, L. *L'accaparement Des Terres, Une Menace Pour Lamise À L'échelle De L'agroécologie Au Sénégal*; Numero Spécial Farming Matters: Agripade, India, 2018; pp. 26–31.
55. Pesche, D. Construction du mouvement paysan et élaboration des politiques agricoles en afrique subsaharienne. Le cas du sénégal. *Polit. Afr.* **2009**, *114*, 139–155.
56. Hrabanski, M. Internal dynamics, the state, and recourse to external aid: Towards a historical sociology of the peasant movement in senegal since the 1960s. *Rev. Afr. Political Econ.* **2010**, *37*, 281–297. [CrossRef]
57. IPAR. *Subventions Des Intrants Agricoles Au Sénégal: Controverses Et Réalités*; Initiative Prospective Agricole: Dakar, Senegal, 2015.
58. MAER. *Programme D'accélération De La Cadence De L'agriculture Sénégalaise (Pracas)*; Ministère de l'Agriculture et du Développement Rural, MAER: Dakar, Senegal, 2014.
59. German, P.; Thiam, A. *Les Pesticides Au Senegal: Une Menace?* ENDA: Dakar, Senegal, 1993.
60. Fare, Y.; Dufumier, M.; Loloum, M.; Miss, F.; Pouye, A.; Khastalani, A.; Fall, A. Analysis and diagnosis of the agrarian system in the niayes region, northwest senegal (west africa). *Agriculture* **2017**, *7*, 59. [CrossRef]
61. Grimaud, L. *L'agroécologie Au Sénégal: Entre Diversité D'acteurs Et D'initiatives*; Université de Bordeaux: Bordeaux, France, 2020.
62. Ostrom, E. *Governing The Commons: The Evolution of Institutions for Collective Action*; Cambridge University Press: Cambridge, UK, 1990; p. 281.
63. Fonseca, M.F.; Wilkinson, J.; Egelyng, H.; Mascarenhas, G. The Institutionalization of Participatory Guarantee Systems (pgs) in Brazil: Organic and Fair Trade Initiatives. In Proceedings of the Second Scientific Conference of the International Society of Organic Agriculture Research (ISO FAR), Modena, Italy, 18–20 June 2008.
64. Dytaes. *Contribution Aux Politiques Nationales Pour Une Transition Agroécologique Au Sénégal*; Dytaes: Dakar, Senegal, 2020.
65. Oya, C. Large-and middle-scale farmers in the groundnut sector in senegal in the context of liberalization and structural adjustment. *J. Agrar. Chang.* **2001**, *1*, 124–163. [CrossRef]
66. Darnhofer, I. Socio-technical transitions in farming: Key concepts. In *Transition Pathways Towards Sustainability in Agriculture. Case Studies from Europe*; Wilson, G.A., Zagata, L., Darnhofer, I., Sutherland, L.-A., Eds.; University of Plymouth: Plymouth, UK, 2015; pp. 17–31.
67. IPES-Food. *Mettre En Lumière Des Alternatives Agroécologiques En Afrique De L'ouest*; IPES: Dakar, Senegal, 2018.
68. De Schutter, O. Agroecology and the Right to Food. Available online: <https://leisaindia.org/wp-content/uploads/2014/07/LEISA-India-June-2014-Page-18-19.pdf> (accessed on 29 May 2021).
69. Lang, T.; Barling, D. Food security and food sustainability: Reformulating the debate. *Geogr. J.* **2012**, *178*, 313–326. [CrossRef]
70. Hardin, S. Charging responsibility for the repercussions of pesticide usage in post-war francophone africa. *Environ. Hist.* **2021**, *27*, 37–63. [CrossRef]
71. Kremen, C.; Iles, A.; Bacon, C. Diversified farming systems: An agroecological, systems-based alternative to modern industrial agriculture. *Ecol. Soc.* **2012**, *17*, 1–19. [CrossRef]
72. Schoonhoven, Y.; Runhaar, H. Conditions for the adoption of agro-ecological farming practices: A holistic framework illustrated with the case of almond farming in andalusia. *Int. J. Agric. Sustain.* **2018**, *16*, 442–454. [CrossRef]
73. Pélissier, P. *Les Paysans Du Sénégal*; Imprimerie Fabrègue: Saint Yrieux, France, 1966.
74. CRAFS. *Document De Position Du Cadre De Réflexion Et D'action Sur Le Foncier Sur La Réforme Foncière Au Sénégal*; CRAFS: Dakar, Senegal, 2016.