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Beyond land grabbing narratives, acknowledging patterns and regimes of land control in Senegal

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Highlights

- Despite a growing awareness, mechanisms of commodification and land control in Senegal are still subject to blind spots
- This study provides a first comprehensive assessment on large-scale land acquisitions in Senegal's agricultural sector
- We identify three different archetypes of investment with specificities in terms of stakeholders, crops, and markets.
- This identification can be of use to the process of defining public policies and reforms to accompany or regulate such investments in the future.

Abstract:

Land is central to addressing global development challenges, and land governance is at the heart of paradigms of democracy, justice, sustainability, and resilience. Despite the thoroughly recognized

importance of land as a basis for all human-nature relations, the land sector is challenged by mechanisms of commodification and land control. The widely recognized global land rush of the late 2000s increased the pressure on land, spotlighting in particular the rising demand for arable lands. But despite a growing awareness, the patterns and regimes of dispossession are still subject to blind spots, due in part to a recurring focus on foreign land grabbers, a lack of transparent data on land investments, and several methodological limitations. In Sub-Saharan Africa, one of the world's most targeted areas in terms of land investments, Senegal offers an interesting case study because published data on land control has been limited to foreign land investments. In this study, conducted in partnership with the technical committee of the Senegalese Land Governance Observatory, we propose another way to look at land control in agriculture by encompassing all types of investors at a national scale and focusing on the full ensemble of control processes. In our results, we describe the dynamics of land investments through time and space and identify three different types (or clusters) of investment patterns with specificities in terms of investing stakeholders, crops, and markets. While we highlight the inequality in land distribution and control, we also stress the environmental impacts of large agricultural investments that encroach on common lands and the social consequences of restricting access and use of resources, which further exacerbates the exclusion of local communities.

1 **Keywords:** Land control; Large-scale land investments; Agriculture; Land Observatory; Senegal

2 **1. Introduction**

3 Land is increasingly acknowledged as key to addressing global development challenges (Cotula,
4 2021). At the heart of “democracy, justice, sustainability and resilience” (Anseeuw and Baldinelli,
5 2020), land governance and management processes can shape responses to current and future
6 crises. For instance, the latest report from the Intergovernmental Panel on Climate Change (IPCC),
7 entitled *Climate Change 2022: Impacts, Adaptation and Vulnerability*, underlines that “secure tenure
8 arrangements are often critical for delivering successful ecosystem-based adaptation” (Pörtner et al.,
9 2022:835). As recently described by Cotula (2021:92), international frameworks such as the
10 Voluntary Guidelines on the Responsible Governance of Tenure (VGGT), endorsed in 2012 by the
11 United Nations Committee on World Food Security, and the United Nations Declaration on the Rights
12 of Peasants and Other People Working in Rural Areas (UNDROP adopted in 2018), explicitly relate
13 “control over land to the collective right to self-determination.”

14 Despite the fully recognized importance of land as a basis for all human-nature relations, the land
15 sector and related human rights are challenged by mechanisms of commodification and the
16 subsequent control of land by certain elites. Historically, unequal land distribution “is tied to legacies
17 of colonialism, conquest, and division, and in many parts of the world it is a politically charged issue”
18 (Anseeuw and Baldinelli, 2020:8). The trend in land commodification has been driven by capitalistic
19 and market-oriented policies embodied in the global South by structural adjustment programs. These
20 reform strategies have constrained state regulation of the agricultural sector, leading to a
21 “reconfiguration of international trade in agriculture under terms that favour agribusiness interests”
22 (Cotula, 2021:93).

23 The pressure on land was magnified by the widely recognized, global land rush of the late 2000s. This
24 phenomenon was shaped by the increase in demand for arable lands caused by the period's food and
25 energy crises, and it was structurally supported by international investment frameworks (Cotula,

26 2020). These types of processes have led some to rethink the Anthropocene as an era structured by
27 the accumulation of capital, one that could be aptly called the Capitalocene (Moore, 2017).

28 The land rush attracted important attention from academics, but this was followed by criticisms
29 about the quality of their methods for describing land investments (Edelman, 2013). In 2013, at the
30 apex of academic buzz, Oya (2013) castigated both micro-studies drawing global pictures and global
31 databases biased by design. For Oya, research should focus on unravelling processes and impacts
32 rather than quantifying land investments. Current studies seem to have followed Oya's
33 recommendations. Current work reporting on land investments from case studies, or more globally
34 through land observatories such as the Land Matrix (Lay et al., 2021)) is primarily dedicated to
35 highlighting changes in land sovereignty from local communities to foreign agribusinesses (d'Odorico
36 et al., 2017) and the subsequent impacts of such enclosures on livelihoods, food security, and the
37 environment (Oberlack et al., 2021).

38 However, patterns and regimes of dispossession (Levien, 2013) still come with blind spots, in part
39 due to several methodological limitations and the recurring focus on foreign land grabbers. The
40 global lack of transparency in land investments, and in the investors themselves, further exacerbates
41 the difficulties of assessing on-going dynamics (Anseeuw et al., 2022; Burnod, forthcoming). Lavigne
42 Delville (2010) rightfully pointed out that a biased focus on a few large "visible" investments often
43 hides the many smaller land investments. Within Sub-Saharan Africa, the world's most targeted area
44 for land investments (Interdonato et al., 2020), we chose Senegal to exemplify such limitations.
45 Knowledge on land control is either acquired through the lens of foreign, large-scale land acquisitions
46 (Bourgoin et al., 2019) or by focusing on the rise of middle-scale farmers and following the line of
47 work that has been done on elite capture in other African countries (Jayne et al., 2014; 2016).

48 While we agree with Oya's comments on the syndrome of false precision, we argue that constructing
49 national databases to monitor the dynamic of land control also matters. Our aim is specifically to go
50 beyond "killer facts" and sketchy methodologies, with a unified and open approach. We do not aim

51 to instrumentalize concepts of transparency and accountability (Cornwall, 2007), nor to take
52 advantage of the land rush buzz. We wish to go beyond narratives and facilitate a concrete
53 monitoring process, in the current context of “information poverty” (Marcella and Chowdhury 2020)
54 and rapidly changing processes (d'Odorico et al., 2017).

55 In this study, we propose another way to look at land control in agriculture that includes all types of
56 investors at national scale and focuses on the full ensemble of land control processes. We
57 hypothesize that this approach will allow us to paint a more accurate picture of the agrarian
58 structure in the country (Burja et al., 2020), to better acknowledge the landscape of landlords, and
59 nuance the relative importance of different types of stakeholders involved in agrarian
60 transformations (Peluso and Lund, 2011). In order to identify old and new forms of land control, we
61 have designed a national-wide data campaign in collaboration with the technical committee of the
62 Senegalese National Land Governance Observatory.

63 **2. Methods**

64 ***2.1. Senegal land context***

65 In Senegal, agriculture (including forestry, livestock, and fisheries) is the main employment sector,
66 representing nearly 70% of the active population. However, its contribution to GDP is still low, even
67 though it has risen from 994.8 billion CFAF in 2012 (or 13.7%) to 1378.9 billion CFAF in 2016 (or
68 15.8%). Most farms are small family farms (1.5 to 2.4 hectares), and about 60% of them are located
69 in the groundnut basin area, **historically situated south-east of Dakar (Ba et al. 2017)**. Over the past
70 10 years, the surface areas of the main crops have varied on average from 709,000 ha to 1,150,000
71 ha for groundnuts, 716,000 ha to 1,033,160 ha for millet, 104,550 ha to 283,500 ha for rice, 109,520
72 to 219,450 ha for maize, and 98,470 ha to 220,810 ha for sorghum (ANSD, 2014). Overall, the surface
73 area devoted to **traditional** cash crops is decreasing, while that reserved for horticultural products
74 and cereal crops is increasing. The production of different goods is territorialized in relation to agro-
75 ecological characteristics presented in Figure 1.

76 Senegal is far from achieving its food self-sufficiency goals. Food production covers barely 30% of
77 consumption needs. In addition, agriculture remains extremely vulnerable to climatic variations and
78 to fluctuations in the international markets for the main agricultural exports.

79 Successive Senegalese governments, as well as international donors, have emphasized the urgent
80 need to modernize agriculture through intensified practices in the hope of reviving the agricultural
81 sector. This has gradually led to market liberalization. Under the presidency of A. Wade (2000-2012),
82 the Senegalese government embraced the turn towards liberal public policies, reinforcing the
83 dynamics of agricultural intensification through the promotion of private agricultural
84 entrepreneurship and the attraction of investors for the development of agribusiness.

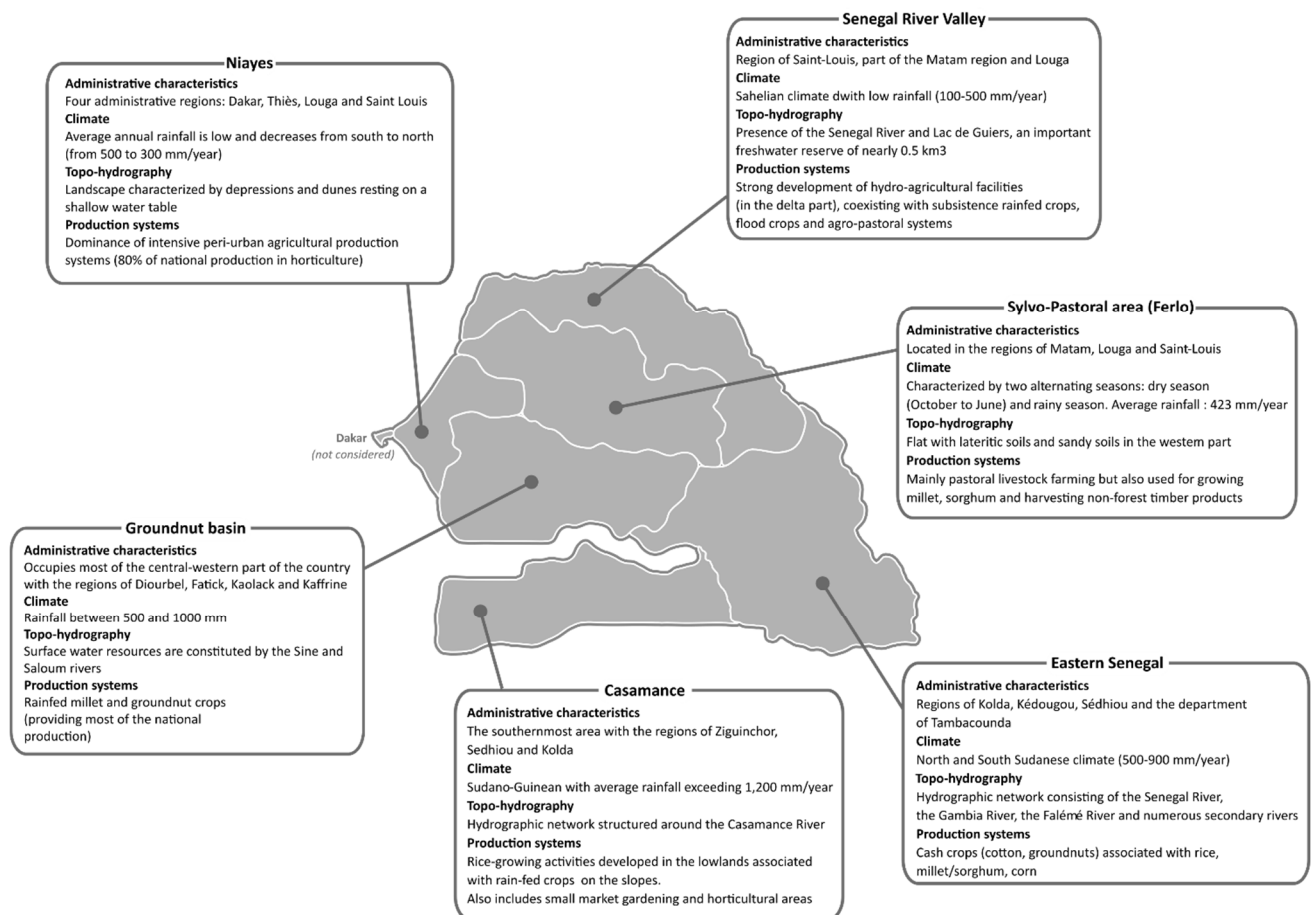
85 This policy has been implemented through several legislations and programs, opening the primary
86 sector to foreign investors: NEPAD (New Partnership for Africa's Development, 2002), Loi
87 d'orientation agro-sylvo-pastoral (LOASP) in 2004, REVA Plan—Back to Agriculture launched in 2006
88 and Plan Sénégal Emergent in 2012 (DPEE, 2013; Rulli et al., 2013; Lavigne Delville et al., 2021). The
89 economic opening of the Senegalese market occurred in parallel with the global rise in agricultural
90 commodity prices, which stimulated the interest of financial institutions, agribusinesses, and
91 sovereign wealth funds (Cotula et al., 2013; Deininger & Byerlee, 2010).

92 Foreign investors' growing interest in the agricultural land of developing countries has led to the
93 development of agribusinesses in Senegal (Sy et al., 2013). The government has established the
94 priority of three objectives: (i) the development of food self-sufficiency, (ii) the development of food
95 exports and income generation for farmers, and (iii) the improvement of basic infrastructure in
96 landlocked and less productive rural areas to help them advance economically.

97 Land management in Senegal is officially governed by Law No. 64-46 of June 17, 1964, which applies
98 to land in the national domain (LDN). Decrees 64-573 of July 30, 1964, and 72-1288 of October 27,
99 1972 (related to the conditions of allocation and dispossession of LDN land located in rural
100 communities) specify the terms of management of the national domain. The establishment of the

101 national domain system follows the original Senegalese land tenure system in the sense that it
102 consists of land that does not belong to the State, local authorities, or users. Representing nearly
103 95% of the country's land at the time of its creation, land in the national domain is inalienable, non-
104 transferable, and cannot be the subject of a direct land transaction. The originality of this law lies in
105 the fact that the State is only the manager of these lands, which are owned by the "nation." In Mali
106 and Cameroon, the notion of national domain exists, but in both cases, it refers to a different legal
107 regime than in Senegal. In Mali in particular, it is the whole of the soil and subsoil of the country that
108 is called national domain (Bourgoin et al., 2020; CNRF, 2016).

109 Land governance in Senegal is characterized by an important gap between these legal/political
110 frameworks and local practices. In most rural areas, customary managers of land and natural
111 resources remain authoritative figures, providing an important social legitimacy to collective
112 ownership (e.g. families, lineage). The result is a tangle of norms that fuels the vagueness of land
113 policies and maintains the disconnect between the legal framework and people's practices, either
114 ignored or tolerated by the State (Merlet et al., 2017).



115

116 **Figure 1.** General characteristics of the agro-ecological zones considered in this study

117 Although attempts at Senegalese land reform have introduced many advances, particularly in terms
 118 of equity in access, the legislative efforts have encountered social resistance and several obstacles
 119 that have slowed their implementation. In view of the requirements of economic and social
 120 development, as well as the evolution of the context in which the 1964 law was drafted, many
 121 anachronisms and inadequacies have been noted in the legal framework. The restrictive nature of
 122 the criterion defining national domain land as belonging to the nation has not been compatible with
 123 the need to attract and secure investments. Furthermore, the restrictive perspective on
 124 development reduced it to the productive capacity of families, which does not promote the
 125 intensification of agricultural production in general. And the inability to transfer rights promotes
 126 neither land mobility nor sustainable family investment. These issues all represent inadequacies with
 127 regard to current development requirements (CNRF, 2016).

128 The foundations of the LDN appear to be out of step with local land practices, with the orientations
129 of the country's economic policy, and with the liberal New Agricultural Policy (NAP) initiated in 1984.
130 Between 1996 and 2012, three attempts at reform were made by the government, none of which
131 actually came to fruition (Land Action Plan in 1996; Agricultural Orientation Law in 2003; National
132 Commission for the Reform of Land Law in 2005). Shortly after coming to power in 2012, President
133 Macky Sall initiated a new attempt at land reform by setting up a National Commission on Land
134 Reform (CNRF) to propose a land policy text. The CNRF had three specific missions: (i) to "analyze
135 existing legislative and regulatory texts," (ii) to "identify institutional constraints to optimal land
136 management," and (iii) to "propose appropriate adaptation measures that take into account modern
137 economic realities" (Lavigne Delville et al., 2021).

138 The CNRF went through two periods, the first of which was between 2012 and 2013. President
139 Macky Sall, who had direct authority over the commission, appointed Mr. Doudou Ndoye to head its
140 management as president. Despite his mandate, as president of the CNRF, to assemble "all the skills
141 necessary for the execution of its missions," Doudou Ndoye did not solicit the skills of independent
142 lawyers or scientists specializing in land issues, rural sociology, or agronomy. Apart from the
143 Association des juristes Sénégalaises (AJS), no civil society organization was a member of the
144 Commission. The debate on land reform was considered to be the domain of administrators and land
145 professionals. In September 2013, citing political interference and a lack of financial means, Mr.
146 Doudou Ndoye resigned from his position as President of the CNRF.

147 The second period occurred between 2014 and 2017. In January of 2014, following Ndoye's
148 resignation, Macky Sall appointed a new president to head the Commission, law professor Moustafa
149 Sourang, who displayed his willingness to lead a "participatory and inclusive" reform. With this goal
150 in mind, the new president reorganized the CNRF, expanding the plenary assembly to include more
151 organizations. As a result, civil society organizations were officially included in the process, including

152 CRAFS (Cadre de Réflexion et d'Action sur le Foncier au Sénégal), an informal umbrella harboring
153 institutions working jointly on land-related issues since 2011 (Richebourg, 2019).

154 Based on a participatory and inclusive process, the Commission conducted workshops at
155 intercommunal and departmental levels (Seck and Lavigne Delville, 2018). All fourteen regions of
156 Senegal were involved between May 15 and June 18, 2015 (Vaumourin and Benkhala, 2015). Among
157 these activities, the CNRF drafted a strategic orientation note, developed a master plan that was
158 validated in plenary during a workshop in Dakar, and produced five specific studies that were
159 discussed within the Commission and contributed to the land reform proposals. This multi-
160 stakeholder process resulted in a new land policy document (DPF) that was submitted to the highest
161 authorities in April 2017 (CNRF, 2016). About ten days after the official submission of the report,
162 President Macky Sall surprisingly dissolved the CNRF thus ending the fourth attempt at land reform in
163 Senegal (Grislain, 2022a).

164 ***2.2. Senegal Land Observatory***

165 In the early 2010s, successive struggles against land grabbing generated a dynamic of collective
166 action within Senegalese civil society organizations. This dynamic was strengthened by the support of
167 victimized communities and the need to influence public policies, particularly within the framework
168 of the land reform process. These forces materialized in the umbrella organization, CRAFS.

169 Created in 2011 by Senegalese peasant and civil society organizations to be a space for reflection and
170 action on land issues in Senegal, CRAFS initially engaged in the fight against land grabbing (Lavigne
171 Delville et al., 2021). It regroups a number of civil society organizations, advocacy and consumer
172 groups, and think tanks, forming a network that employs a repertoire of actions that range from
173 international media campaigns to memorandums, event organization, and the production and
174 dissemination of analyses (Hopsort, 2014a, 2014b). Together, the member organizations in this
175 informal, multifaceted, and multi-scale structure endogenously developed a system for monitoring
176 and defending the land rights of local communities. It relies on a strong mobilization among the staff

177 of CRAFS member organizations and a particularly developed network of correspondents within rural
178 communities (Basserie and Ka, 2018). These are people in local communities (e.g., land animators,
179 paralegals) that receive training about land issues by various CRAFS members. They are mobilized to
180 monitor and gather information on land governance in general and on cases of land grabbing in
181 particular, at the grassroots level. During the 2014 to 2017 period, CRAFS became heavily involved in
182 the work of the CNRF, making crucial contributions (Richebourg, 2019).

183 Beset with numerous informational challenges (e.g., overabundance and/or retention of information,
184 fragmented and poorly updated database, multiple knowledge producers on land tenure), the CRAFS
185 organizations expressed the need to have reliable field data and regularly updated information to
186 strengthen their advocacy. By choosing advocacy as a form of mobilization, Senegalese civil society
187 organizations acknowledged the need to base land policy debates on solid diagnoses supported by
188 research results (Lavigne Delville and Le Meur, forthcoming). In this sense they are in line with
189 international debates on "evidence-based advocacy" (Hajeebhoy et al., 2013; Hunsmann, 2016).

190 In response to the lack of transparent information on investments, CRAFS launched a multi-
191 stakeholder platform in 2015 called the National Land Governance Observatory (ONGF). The ONGF's
192 initial objectives were to monitor and raise awareness about land allocation and dispossession issues
193 at the local level (Grislain, 2022a). However, until very recently, the production of knowledge, the
194 definition of research methodologies and indicators, and the sharing and debate of analyses have not
195 been consistent with the announced objectives of ONGF. In 2019, the technical committee of ONGF
196 received funding from the Land Matrix global observatory to develop a national data campaign to
197 record land-related investments at national scale.

198 ***2.3. Methodology for a national data campaign***

199 The problem of insufficient research on land grabbing was described by Liao et al. in 2016. Like Oya
200 (2013), the authors stressed the need for reliable datasets that are nationally grounded and able to
201 describe national dynamics of land control, including geographical particularities. Our intent here is

202 to adopt an inductive posture rooted in Grounded Theory (Charmaz, 2017) to develop a baseline at
203 national scale. This should not be seen as a single and final research product but rather a foundation
204 to stimulate new questions based on empirical evidence about the nature and impacts of agricultural
205 land investments.

206 Bourgoin et al. (2019) showed the discrepancies among existing records from different sources and
207 methods when using them to classify large agricultural investments in Senegal. By employing
208 participatory mapping methods to collate datasets, the study revealed the remaining gaps in those
209 records. In following this initial work, our intent was to find new entry points that would be salient
210 and knowledgeable on the topic, accessible at a national scale while taking into account the
211 subsequent human and financial costs. In partnership with the technical committee of ONGF, we
212 chose the Local Development Support Centers (CADLs) as our main entry points for these surveys. As
213 deconcentrated state services, CADLs are located in every district of the country. They provide local
214 communities with technical support on land allocation and administrative authorities with support
215 on legal matters. They are also responsible for accompanying the land commissions during
216 prospecting operations, mapping of land applications, and the demarcation/installation operations of
217 land allocators at the commune level. This technical service is also in charge of recording the
218 proceedings when there are land conflicts or other types of conflicts related to the management and
219 exploitation of natural resources. When land investments were identified through the CADL entry
220 point, administrative authorities, local communities, and village chiefs were also interviewed.
221 Administrative authorities include mayors, municipal secretaries, and the presidents of the land
222 commissions. Being the first step of a progressive monitoring process of land investments at the
223 national level, we focused on a few key variables that related to core questions regarding land
224 investments: the types of investors who control the land, the types and sub-sectors of agricultural
225 investments (including information on markets), the land's current and prior tenure status (regarding
226 the investments), and the potential changes in land use/land cover. Because understanding
227 mechanisms of large agricultural investments is a key vantage point, the ONGF's technical committee

228 chose the threshold of 50 ha. This threshold is a practical compromise between coverage and cost: it
229 is below the Land-Matrix observatory's threshold (200 ha), thus offering the advantage of covering
230 more cases and being closer to the Senegalese context in which large farms are defined by national
231 statistical agencies as beginning at 20 ha (Bourgoin et al., 2019) while remaining cost efficient.

232 The technical committee of the ONGF consulted its members and developed a monitoring tool
233 aggregating members' experiences on data collection. The resulting questionnaire contains more
234 than 350 variables that offer different dimensions for analyzing and monitoring the dynamics of
235 investments: such as the development status of the investments listed, the investment sector
236 (typology), the profile of the investors, the date of installation, the previous use of the land, the
237 process of land acquisition, the land tenure status, the location, and the areas (requested, obtained,
238 or used). The questionnaire was encoded in KoBoCollect (<https://www.kobotoolbox.org/>) because
239 the surveys were conducted with digital tablets. The tablets have the advantage of allowing for
240 regular monitoring of the surveys, rapid feedback on the information collected, and instant quality
241 control as well as the geolocation of the surveys. Training for this free and easy-to-use tool was
242 provided to ONGF relays at the local level and to 52 professional interviewers that were deployed in
243 two successive waves, covering all of Senegal's departments (excluding Dakar).

244 ***2.4. Data analysis***

245 We conducted the data processing by first correcting the errors, then completing missing
246 information, and finally, validating the database. To better characterize the investment data, we
247 conducted an analysis based on agglomerative hierarchical clustering...

248 The attributes were preprocessed to be more discriminating during the clustering process. We call
249 our different variables "attributes" (e.g., area, sector, conflicts). The attributes take different values
250 depending on the Large Agricultural Investment (LAI) case. A limited number of representative
251 attributes were selected from the set of available attributes. We removed attributes that had no
252 value for more than half of the total number of entries. When there were very few missing values for

253 a specific attribute, the missing values were either assigned zeros (if the assumption was consistent
254 with the nature of the attribute, e.g., the majority of values of the other entries in the database were
255 zero) or the corresponding case was deleted. Next, the different attribute values were grouped by
256 class, limiting the maximum to 8 classes per attribute in order to simplify the eventual understanding
257 of the results. For example, the attribute "crops" which detailed the different crops of each LAI case
258 was grouped into 8 classes: rice, horticulture, livestock, cereals, legumes, biofuels, fish, and forage.
259 As another preliminary step, we applied a factor analysis of mixed data (MFA) on the resulting
260 database. This statistical technique is used to analyze the similarity of different cases, depending on
261 the value of their attributes. More specifically, it makes it possible to reduce the original
262 dimensionality of a dataset, taking into account both numerical and categorical data (as opposed to
263 **Principal Component Analysis** which only takes into account numerical characteristics, or **Multiple**
264 **Correspondence Analysis** which only works on categorical characteristics). The clustering results were
265 then obtained using standard agglomerative hierarchical clustering on the LAI results.

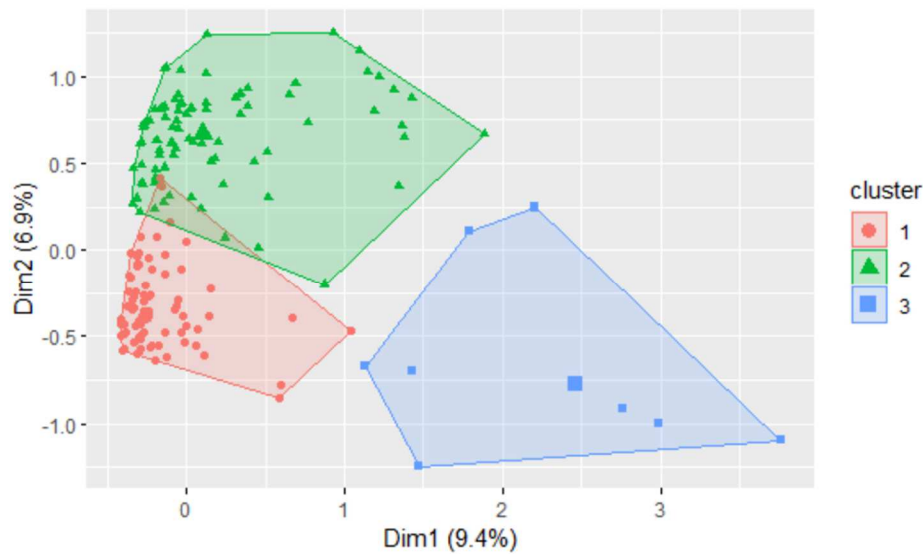
266 We also tested an alternative procedure which yielded similar results to those obtained with the
267 procedure just described. After the attribute selection step, a one-hot encoding process was applied
268 to the original data in order to obtain a homogeneous set of numerical attributes. This divided the
269 categorical attributes into several binary attributes (one per category). A standard k-means clustering
270 algorithm was then applied to obtain the clusters.

271 **3. Results**

272 ***3.1. Clustering and main land control metrics***

273 The survey process identified an initial group of 392 cases. The subsequent cleaning of the database
274 (e.g., removing duplicates and non-eligible cases) led to identifying 283 agricultural land investments
275 under cultivation throughout the country. The clustering process detailed in the previous section
276 established three distinct clusters of LAI cases (Figure 2). In this first sub-section, we highlight the
277 main features of land control unveiled by the clusters: how much land is considered, who owns what,

278 under which tenure, and for which agricultural purpose. The main metrics are summarized in Table 1
279 and territorialized for each agro-ecological zone in Figure 3.

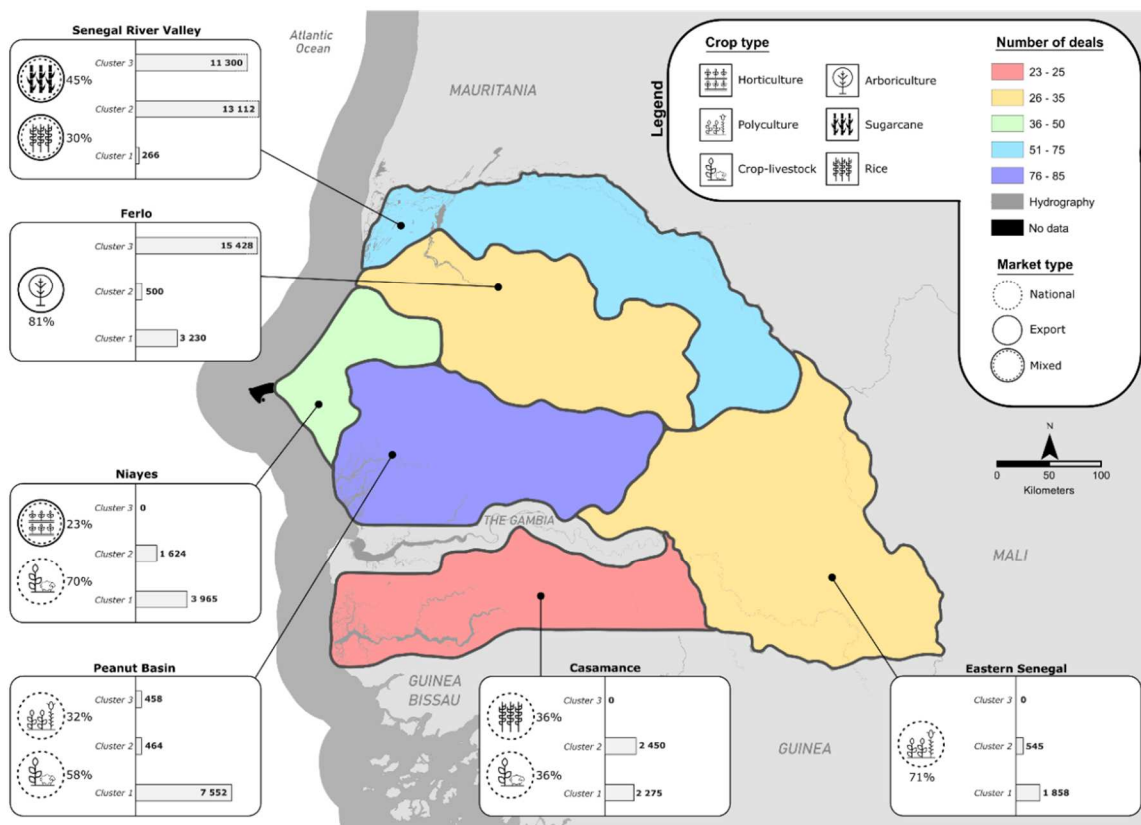


280

281 **Figure 2.** Three clusters identified through agglomerative hierarchical clustering

282 Cluster 1 is the largest in number of cases identified (57.6%) and essentially consists of Senegalese
283 investors from the agricultural sector. Among the three clusters, it has the smallest farms and
284 encompasses 18% of the total land area of all LAI cases included in the study. The largest
285 concentration of cases in this cluster are found in the Peanut Basin. The density diminishes in
286 Western Senegal, the Niayes area and the Ferlo. The farms in this cluster mainly engage in rainfed
287 polyculture mixed with livestock farming, most often using family labor and temporary or seasonal
288 employees in production destined for local or national markets. Often, a portion of the crops are
289 grown for self-consumption. The prospective farmers in this sector, who are sometimes farming
290 families themselves, develop moderate investments to ensure profitability while reducing the hazard
291 risks such as those resulting from climatic change. Only a limited number of these actors have access
292 to conventional banking services that can increase their investment capacity to make improvements
293 and to secure and increase productive activities. **For 47% of all cases interviewed and classified under**
294 **this cluster, land is associated with customary practices.**

295 The second LAI cluster represents 37.8% of the cases and encompasses 19% of all land in the LAI
 296 cases. The average LAI in this cluster cultivates about 175 ha and cases are mainly located in the
 297 Senegal River Valley and to a lesser extent in the Niayes and Casamance areas. These regions offer
 298 important hydro-agricultural potential that allows for the development of intensive irrigated
 299 agriculture or the practice of a mixed system of irrigated and rainfed agriculture. The land is mainly
 300 used for rice and horticulture farming for both national markets and export. The strong land pressure
 301 reported in these areas takes the form of land registered to the municipalities (for 91% of the cases),
 302 which provides formal security for the investment, even if it is only a right of use. Cluster 2 harbors
 303 Senegalese investors with more diverse profiles (e.g., religious leaders, diaspora, public sector), but
 304 also foreign investors, principally from Europe and South Asia. It also integrates some state-based
 305 development projects and public institutions working in the agricultural sector.



306

307 **Figure 3.** Distribution and nature of clusters (in hectares) in the different agro-ecological zones

308 Representing 4.6% of all cases, the profile of the third LAI cluster is almost exclusively land
 309 investments involving foreign stakeholders (99.6% of the land in this cluster) that come from the
 310 Middle East and Europe. The few Senegalese investors are from the diaspora. Compared to the first
 311 two clusters which were very diversified (see Table 1), land investment in this cluster are highly
 312 specialized in nature and location: they are found in the Senegal River Valley, favorable to the
 313 development of hydro-agricultural activities and water intensive crops like sugarcane (mixed-
 314 market), and in the Ferlo area for arboriculture (export). Although these investments represent only
 315 5% of all the LAI cases, they account for 63% of all LAI land in the three clusters, with an average of
 316 2,266 hectares per case. A large majority (85%) of the cases in this 3rd cluster have formal land titles
 317 or leases.

		Cluster 1	Cluster 2	Cluster 3
Number of cases		163	107	13
Investment size	Intended <i>ha (average)</i>	23 675 (272)	29 923 (293)	87 582 (2 614)
	Obtained <i>ha (average)</i>	23 389 (205)	25 739 (245)	83 139 (2 616)
	Under cultivation operation <i>ha (average)</i>	19 146 (117)	18 695 (175)	65 027 (2 266)
Land tenure	Customary occupation prior to investment %cases	86	77	38
	Current allocation by municipalities %cases	42	91	8
	Current customary occupation %cases	47	3	0
	Property title-lease %cases	3	6	85
	Other tenure %cases	7	1	8
Land use	Biofuels <i>ha</i>	0	0	358
	Sugar cane <i>ha</i>	0	0	11 000
	Other cereals <i>ha</i>	292	0	0
	Livestock <i>ha</i>	0	50	0
	Horticulture <i>ha</i>	0	4 450	0
	Legumes <i>ha</i>	190	0	0
	Rice <i>ha</i>	1 687	7 426	0
	Agriculture-Livestock <i>ha</i>	7 109	2 203	300

	Arboriculture <i>ha</i>	330	50	15 428	
	Polyculture <i>ha</i>	9 538	4 516	100	
Origin and nature of investor	International cooperation <i>ha</i>	145	51	0	
	State <i>ha</i>	165	3 780	0	
	Foreign investor (Country of origin)	Total <i>ha</i>	220	7 603	27 086
		Europe <i>ha</i>	0	5 673	11 658
		Middle East <i>ha</i>	0	80	15 428
		South Asia <i>ha</i>	0	1 500	0
		No information <i>ha</i>	220	350	0
	Senegalese investor	Total <i>ha</i>	18 616	7 261	100
		Retailer <i>ha</i>	330	60	0
		Former farm worker <i>ha</i>	7 660	210	0
		Religious leader <i>ha</i>	0	743	0
		Village chief <i>ha</i>	200	0	0
		Diaspora <i>ha</i>	50	635	100
		Local elected official <i>ha</i>	70	87	0
		Agricultural employee <i>ha</i>	655	665	0
		Non-ag. entrepreneur <i>ha</i>	50	50	0
Public sector <i>ha</i>		1 101	842	0	
Agricultural sector <i>ha</i>		6 230	1 423	0	
Private sector <i>ha</i>	100	220	0		
No information <i>ha</i>	2 170	2 326	0		

318 **Table 1.** Main metrics of the three clusters identified.

319 **3.2. Investment dynamics and impacts**

320 The total area of LAIs has grown steadily over time, with periods of acceleration due to different
321 factors depending on the different profiles identified (Figure 4). Analysis of the evolution curve for
322 Cluster 1 shows an initial peak in the early 1960s, which is probably due to the increase in the area
323 exploited after independence. This trend was followed by a relatively sharp increase in the early
324 1980s due to the State's policy of disengagement in the agricultural sector after years of drought and

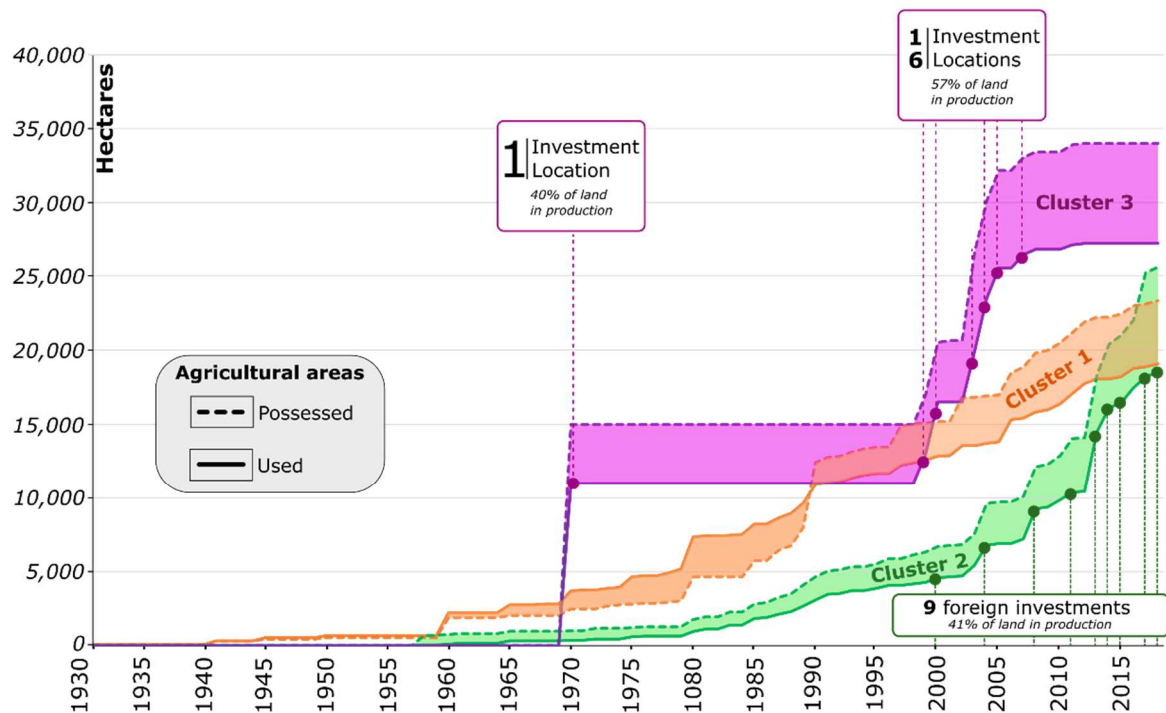
325 in the aftermath of the structural adjustment programme enforced by the Bretton Woods
326 institutions. The growth in this cluster has continued to the present, along with the fragmentation of
327 families. In addition, diverse profiles of Senegalese investors have taken advantage of a favorable
328 political context to invest in agriculture (Bourgoin et al., 2019). Although the evolution of Cluster 1
329 has been very important in the number of cases, the land areas involved are slightly less important
330 than in the other categories.

331 The total land area of LAIs in Cluster 2 underwent a major evolution starting in the 1980s, reaching a
332 temporary peak at the end of the decade. This period saw the facilitation of access to arable land
333 propelled by the disengagement of the State, the creation of the Agricultural Bank, and the ability
334 given to local authorities to allocate land in irrigated areas (especially in the Senegal River Valley
335 where most of this category of agricultural exploitation is found). This context encouraged
336 Senegalese investors, sometimes from family farms or workers from the agricultural sector, to invest
337 in agriculture. It is the case of religious authorities. The setting up Koranic schools by religious
338 authorities, followed by the settlement of maraboutic families and their following involved in the
339 agricultural sector have extended the agricultural front of the Peanut Basin moving towards the
340 Ferlo area, Western Senegal and even towards Casamance. But since the year 2000, 41% of the
341 trajectory has been driven by 9 foreign investments, as seen in Figure 4. This rise may correspond to
342 the enactment of liberal policies as previously mentioned.

343 The dynamic of Cluster 3 is particular because 97.2% of its trajectory has been determined by 2
344 investors, with different land deals. The first investment in the 1970s corresponds to 40.5% of all of
345 the cultivated land in this cluster. The second accounts for 56.7% of this cluster's land in production,
346 and the investment transpired over the course of eight years, from 1999 to 2007, at 6 different deals
347 with different locations. Since then, the trajectory of Cluster 3 seems to have plateaued.

348 Figure 4 also displays the difference between land possessed and land exploited. The gap between
349 the two values is more important for Cluster 3 and, more recently for Cluster 2. There can be many

350 reasons for this gap, such as land being reserved for further planned development or for speculation,
 351 or an investor lacking financial and/or human capacity for full exploitation. Whatever the motive, this
 352 gap is raises questions and further fuels the debate on land grabbing.



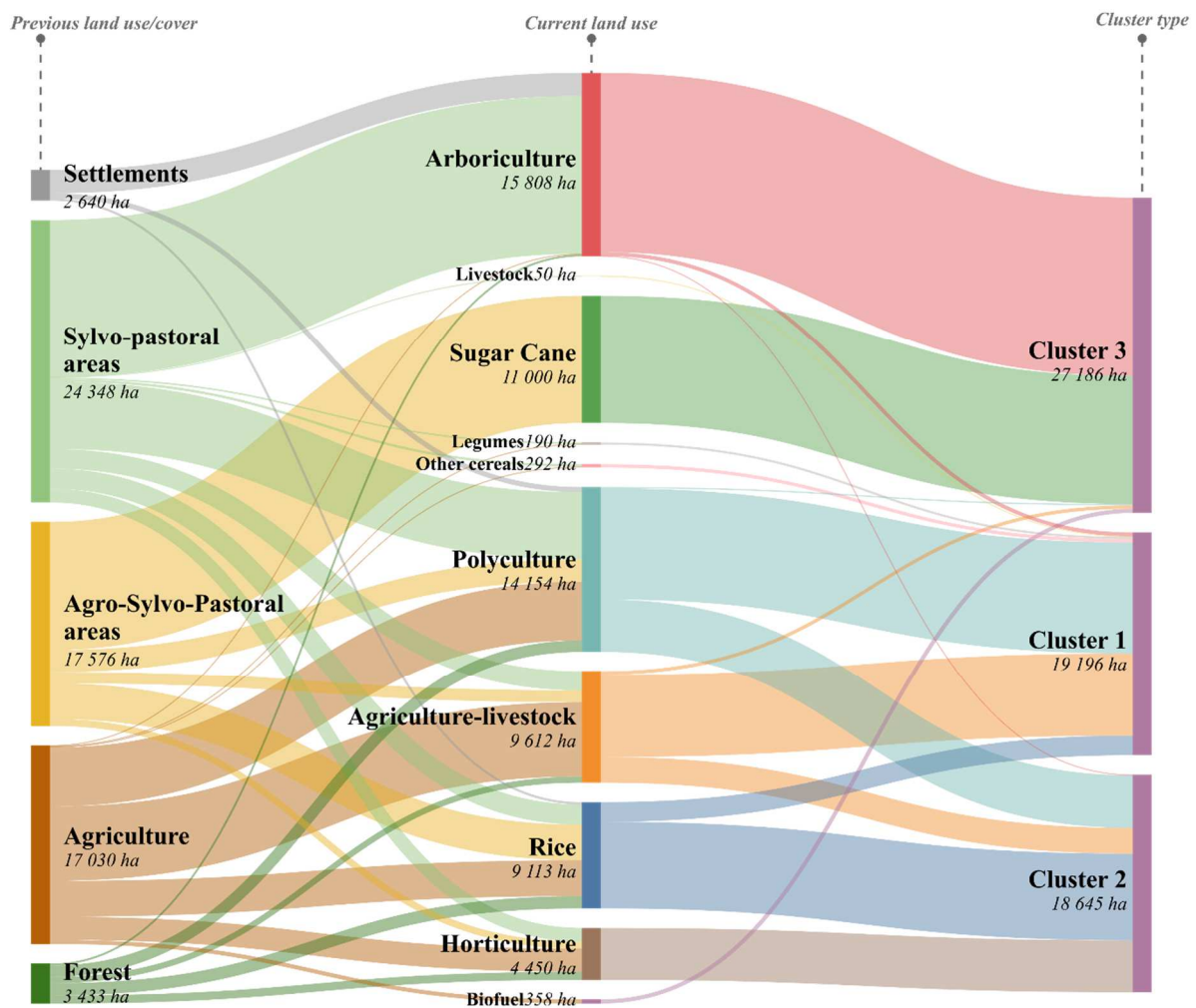
353

354 **Figure 4.** Evolution of each cluster's cumulative area possessed and exploited

355 The trajectory outlined in Figure 4 shows patterns and profiles of land accumulation. Figure 5
 356 suggests that the increase in LAIs in the three clusters came at the expense of other practices and to
 357 the detriment of other landscapes. A majority (69.8%) of the current agricultural land in all three LAI
 358 clusters was originally composed of natural areas, communal grazing lands and traditional rain-fed
 359 agriculture. In particular, it includes former sylvo-pastoral areas (37.4%) and forests (5.3%), as well as
 360 agro-sylvo-pastoral areas (27%). Figure 5 illustrates that the LAIs in Cluster 3, mainly involved in
 361 arboriculture and sugar cane, are almost exclusively exploiting land that, previously, was not strictly
 362 dedicated to agriculture. Although the Cluster 3 LAIs lead this trend, it seems that almost all LAIs are
 363 encroaching to some extent on the traditional land use/cover of agro-sylvo-pastoral areas. On 53.3%
 364 of the land in Clusters 1 and 2, farmers have developed activities on past agro-sylvo-pastoral areas.

365 Clusters 1 and 2 also demonstrate the consolidation of agricultural areas, developing 45% of their
 366 crops on past agricultural areas. While Cluster 1 is pursuing traditional rain-fed agriculture associated
 367 with livestock farming, Cluster 2 is converting such practices into more specialized irrigated cash
 368 crops. This strong dynamic of land accumulation and conversion highlights changes in land users as
 369 well as the continuous expansion of an agricultural front at the expense of pastoral areas and forests.

370



371

372 **Figure 5.** Land conversion resulting from LAI, delineated by the different clusters

373 **4. Discussion**

374 **4.1. Updating land control narratives in Senegal**

375 The results of this data campaign on LAIs in Senegal help sharpen the picture of land investment in
376 Senegal. Land control narratives can be more specific instead of simply following global discourses
377 (Svarstad 2002) and normative buzzwords (Cornwall, 2007). In this sense, the investment context in
378 Senegal does not appear to be subject to the same gentrification dynamic from national stakeholders
379 as has been reported in Zambia, Ghana, Tanzania, Kenya, or Malawi (Sitko and Jayne 2014; Jayne et
380 al., 2016). And our results portray a more nuanced footprint of foreign investments, compared to the
381 dynamics foreseen 10 years ago at the apex of the "global land rush" (GRAIN, 2012).

382 The analysis of our data campaign shows different processes of dispossession and accumulation. LAIs
383 can be deconstructed into three clusters, archetypes of land investments. The first cluster reflects
384 the entrenched forms of land control, mixing customary tenure with the recognition of land use by
385 municipalities that have jurisdiction over land access. Land investors are quasi exclusively national
386 investors and very largely originating from the agricultural sector (75% of the hectares in this cluster),
387 with limited involvement from public sector (6%). Cluster 1 is located primarily in the old Peanut
388 Basin and its fringes, where the land is typically used for a traditional mix of agriculture and livestock
389 farming. The first cluster is in line with the observations of Bourgoin et al. (2020) analyzing land
390 practices and territorial specificities of Senegalese medium and large-scale farms in the country. **In**
391 **cluster 1, land is accumulated by rural families, in majority involved in the agricultural sector under**
392 **customary practices.**

393 However, agricultural territories and public policies are constantly evolving, particularly under the
394 influence of liberal inspiration, which since the 2000s have reinforced the dynamics of agricultural
395 intensification through the promotion of private agricultural entrepreneurship and the enlistment of
396 investors for the development of agribusiness. This political pull has translated into the emergence of
397 other patterns of land accumulation and dispossession processes that are seen in clusters 2 and 3.

398 Cluster 2, composed of a growing number of foreign-owned agribusinesses, is typical of this situation
399 made possible by political stability along with successive incentive policies (e.g., taxation, support

400 from a dedicated state agency, tax exemptions). This is exemplified by the “Programme de Relance et
401 d'Accélération de la Cadence de l'Agriculture au Sénégal,” PRACAS (2014), in which the Senegalese
402 government promoted agricultural modernization and productivity through positive interactions
403 between agribusiness actors and family farms (Meunier, 2020). In cluster 2, more than half of
404 exploited land is controlled by foreign investors, mainly from Europe. The remaining Senegalese
405 investments from Cluster 2 were less transparent (32% of hectares show no information), and
406 although most of the investments seem to originate from the agricultural sector, in terms of areas
407 controlled, we note the relative importance of land controlled by religious leaders and diaspora.
408 These stakeholders are rarely accounted for with precision in terms of land control, despite being
409 politically and economically influential. Religious imprint is associated with traditional agricultural
410 colonization patterns from the Mouride Islamic brotherhood referenced by Pires (2012). Similarly, we
411 see investments from the diaspora, which play an important but often overlooked role in rural
412 development through land investments (Mercandalli et al., 2019). **Important in numbers, the**
413 **Senegalese diaspora will be an important factor to take into account while considering the future of**
414 **land investments (Ba et al. 2017).**

415 Cluster 3 exemplifies land inequality narratives (Anseeuw and Baldinelli, 2020) with the largest
416 enclosures (63% of all LAI land in our study) possessed by less than 5% of the investors. As presented
417 in the results section, 97% of the cluster's accumulated land trajectory concerns two “mega”
418 investments. The first investment was a historical post-independence investment in the 1970s that
419 corresponds to 40.5% of the cluster's total land in production. The land is located in the irrigated area
420 of the Delta of the Senegal River, with sugarcane production that extends towards the pastoral areas
421 of the Ferlo. The second major investment was in arboriculture and accounts for 56.7% of the
422 cluster's total land placed in production in the Ferlo area between 1999 and 2007. The investment
423 encompassed 6 different locations placed in production over the time period. Here we see a different
424 implementation strategy with investments scattered through space and time. Since then, the
425 trajectory of Cluster 3 seems to have plateaued with smaller investments. The limited number of

426 mega projects has several reasons, notably the difficulty of finalizing and implementing projects in
427 Senegal, as reported by Bourgoin et al. (2019). In addition, we should acknowledge the important
428 contribution of civil society, advocating for land rights in national policy arenas and in direct support
429 of local communities and municipalities.

430 ***4.2. Land dispossession: patterns, impacts and forms of resistance***

431 In 2008, the international debate on the allocation of peasant land to private actors echoed on the
432 Senegalese national scene, where civil and rural actors were demanding sober management of
433 natural resources (d'Aquino et al., 2017). This context encouraged social movements, led by
434 peasants, which took action to make their voices heard in an effort to improve and protect the land
435 rights of family farms and to fight against the threats of what they saw as land grabs (Hopsort, 2012).
436 In 2010, an initial study conducted by a network of NGOs mobilized on food security denounced that
437 80,000 ha had been allocated under questionable conditions to a foreign developer for a tourism
438 project (Sambacké, 2010). Mobilized organizations concerned about tenure in Senegal became aware
439 that the absence of national regulations does not translate into a status quo of governmental actions
440 on land tenure. On the contrary, this type of ambiguity gives government free rein to promote the
441 allocation of peasant land to the private sector (Sy et al., 2013). This awareness motivated these
442 organizations to seek studies that would give them a more precise understanding of the
443 phenomenon and help their position in public debates (Grislain, 2022b). Within this context, in April
444 2011, Senegalese civil society organizations mobilized to create the informal national structure,
445 CRAFS. CRAFS has been actively dedicated to i) putting an end to the dynamics of private land
446 allocation, ii) creating a balance of power that encourages public actors to share information about
447 large-scale land investments, and iii) disseminating information about land grabs to open up a broad
448 debate involving communities at the grassroots level (Hopsort, 2014a). Throughout the years, CRAFS
449 has supported local communities in tense negotiation processes, leading many investment cases to
450 be abandoned (Gagné and Fent, 2021). More than 10 years after the creation of CRAFS, the peak of

451 concern about land grabbing has passed, but our current assessment of investment patterns
452 encourages further examination of the discourses on land dispossession through quantification. Our
453 results clearly demonstrate the important imprint that this dispossession has on common lands
454 marked by a combination of agro, sylvo and pastoral activities. Overall, our results show clear
455 patterns of land conversion from LAI, which are aggravating conversion trends already propelled by
456 population growth and the subsequent fragmentation of families. As portrayed in the recent meta-
457 analysis from the Land Matrix (Lay et al., 2021), we acknowledge the important impact of large-scale
458 investments on forested areas (sylvo-pastoral, agro-sylvo-pastoral, and forest area in land/cover
459 classes), accounting for thousands of hectares converted into agricultural land. This loss of forest
460 cover has dire impacts on biodiversity and ecosystem services, specifically for local communities
461 directly affected by the loss of access to forest resources (Haller et al., 2019). Forest loss through land
462 conversion should also alert state authorities to its relationship with their pledges for carbon
463 sequestration, besides the staging of national commitments in the framework of the COP.

464 We also underline the progressive regression of pastoral spaces and resources in favor of intensive
465 agricultural activities, notably in the northern parts of the country where pastoralism has and have
466 had an important imprint on the territory (Bourgoin et al. 2022). This point is not only limited to our
467 case study, but largely acknowledged throughout West Africa (Touré and Benkahla, 2014). This
468 dynamic is likely to cause problems in the long term (Gonin, forthcoming): With combined pressures
469 from population growth and decreasing arable lands due to climatic extremes, conflicts of use are
470 increasing, and the encroachment on common lands adds another aggravating factor (d’Odorico et
471 al., 2017). Although pastoralism has long been described as being able to adapt to climatic
472 uncertainty (Herrero et al., 2016), current pastoralists are often forced to move in search of
473 resources (i.e., water and fodder) to feed their herds, while at the same time, these areas are
474 increasingly annexed, encroaching on livestock corridors. Certain cases of LAI reported in this study
475 can be seen as directly responsible for altering “social, cultural, and spiritual values many local actors
476 attach to their surrounding environment” (Cotula, 2020:439). Our results add to the advocacy

477 narratives against land grabbing that have been wielded by civil society for the last decade. By
478 clarifying patterns of dispossession (Levien, 2013), we also underline missing pieces of national
479 planning policies and the poor relationships with certain sectors. The government of Senegal is
480 committed to the implementation of Act III of decentralization, a vision of the country composed of
481 viable and competitive territories to further the well-being of the population. We show that efforts
482 are needed to securing pastoral mobility, pastoral spaces, and common resources. Recognizing and
483 protect common/customary rights are necessary conditions for the proper cohabitation of activities
484 and the assured multifunctionality of territories (Anseeuw and Baldinelli, 2020).

485 ***4.3. Beyond the illusion of quantification***

486 The fact that land grabbing is no longer a hot topic at the national level in Senegal is partly due to the
487 decline in political momentum embraced by CRAFS. This has evolved with a combination of factors
488 that include the burial of the land reform process in 2017, organizational changes within CRAFS, and
489 the emergence of new hot topics in the development community (e.g., agro-ecology, climate and
490 water, and digital agriculture). Land grabbing has also lost its place as high media coverage as a result
491 of the success of these civil society organizations as a whistleblower, supporting social struggles,
492 thwarting processes, and ultimately strengthening the capacities for local protest.

493 Nevertheless, the continuous observation of LAIs through a land observatory has great potential.
494 First, it could provide information for a future (potential) iteration of land reform that could emerge
495 to advocate for the development of an inclusive land policy that considers the current issues and
496 challenges related to the governance of land resources. Second, it could play an important part in the
497 development of accountability processes. Most of the existing frameworks' proponents of good
498 practices on land investments, such as the Responsible Agricultural Investments (Committee on
499 World food Security, 2014)) and the Voluntary Guidelines on the Responsible Governance of Tenure
500 of Land, Fisheries and Forests in the Context of National Food Security (FAO, 2012)), are not legally

501 binding and are further weakened by the fact that they are not supported by effective monitoring
502 tools (Anseeuw et al., 2022; Burnod, forthcoming).

503 Since 2015, the ONGF has developed its activities that monitor land investments at close proximity to
504 local communities and advocate for land rights in national arenas close to decision makers. Global
505 data assessments have never been the ONGF's primary goal. In 2019, the land observatory's
506 technical committee started a partnership with the Land Matrix Initiative, bringing financial and
507 technical support for data collection at the national level. The ONGF is at a crossroads. As acutely
508 showed by Grislain (2022b), a major caveat lies in the trend of "quantophrenia," which refers to
509 theoretical reflections in the sociology of quantification (Desrosières, 2008) and stresses the growing
510 propensity of our societies to quantify both social and natural phenomena (Noucher and Hirt, 2019).
511 The question now turns to the usage of data. Will the data be used as a basis to further explore
512 investment processes and impacts to build new advocacy strategies? Will the data be the foundation
513 for renewed interest in land issues for donors and decision makers? Or will the data be the output of
514 a one-off event to address a situation of information poverty (Britz, 2004) and then be regarded as
515 too distant from effective advocacy practices? Beyond information production, efforts and
516 challenges lie in effectively linking knowledge to action. Indeed, transformative change can only be
517 envisaged with "mechanisms that facilitate communication, translation and mediation across
518 boundaries" (Cash et al., 2003:8086) with clear strategies for empowerment through improving
519 access to data and facilitating its usage (Gurstein, 2011). We advocate for projects to dedicate funds
520 and time to define conditions of appropriation of information, beyond unrealistic thinking that
521 mechanically associates open data with empowerment (Goëta and Mabi, 2004).

522 **5. Conclusion**

523 With this study, we intended to extend current accessible knowledge on large-scale land acquisitions
524 in Senegal's agricultural sector. This thematic received extensive media attention less than a decade
525 ago, but the media's spotlight only shined on highly visible investments. In collaboration with the

526 technical committee of the Land Governance Observatory in Senegal, our aim was to further explore
527 and analyze the patterns of land concentration and the possibility of entrenched processes of land
528 dispossession. Leaving the frenzied attention to land grabbing of the late 2000s behind us, we
529 developed an innovative approach to identify and analyze land investments at the national scale. This
530 objective meant we could only incorporate a baseline with a limited number of variables for those
531 investments. Nevertheless, we believe that this new perspective shows potential for new and more
532 precise iterations developed from the framework provided by a land observatory. The new
533 information available also allowed us to acknowledge the dynamics of land investments through time
534 and space and to identify three different types (or clusters) of investment with specificities in terms
535 of stakeholders, crops, and markets. **Distinguishing different types of clusters allows for a more
536 transparent picture of the processes behind the generic term “land grabbing”. Improved
537 transparency is an important step towards accountability and we hope this results will** be of use to
538 the process of defining public policies and reforms to accompany or regulate such investments in the
539 future.

540 **Declaration of Competing Interest**

541 Authors declare no conflict of interest. All authors have read and agreed to the published version of
542 the manuscript.

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