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## Article

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# Managing and controlling diffuse urbanisation in France: Spatial planning practices in cross-border city-regions

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## Abstract

Managing and controlling “land take” of agricultural and natural land for urbanisation is the target of European and national policies. Although this objective seems to be increasingly understood among the actors, the prioritisation of issues and the measures taken by governments to achieve it are very heterogeneous. The practices of local public and private actors do not necessarily follow the directions established at national level by the instruments. This paper examines the concrete forms, in France, of collective action in the field of spatial planning to limit land take, particularly in French cross-border areas that are experiencing strong urban growth. The survey is based on 60 semi-structured interviews with public actors involved in the spatial transformations of the cross-border regions around Geneva, Lille-Kortrijk-Tournai, Luxembourg and Strasbourg-Karlsruhe. The survey shows that collective action in spatial planning is very diverse in France, depending on the regions and municipalities concerned, even if the legal rules are the same. Local public actors play strategically with the rules and adapt them. Moreover, the organisation of collective action to limit land take is marked by interdependencies between regions, and in our case between neighbouring countries, which are often left unexamined in national planning policies and instruments.

**Keywords:** Spatial planning practices ■ territorial governance ■ land take ■ land use instrument ■ cross-border areas

## Management und Kontrolle der diffusen Urbanisierung in Frankreich: Raumplanungspraktiken in grenzüberschreitenden Stadtregionen

### Zusammenfassung

Die Reduktion der Inanspruchnahme landwirtschaftlicher und naturliebender Flächen für die Urbanisierung ist das Ziel europäischer und nationaler Politiken. Obwohl diese Zielvorgabe von den Akteuren anscheinend mehr und mehr verstanden wird, sind die Priorisierung der Themen und die von den Regierungen ergriffenen Maßnahmen zur Erreichung dieses Ziels sehr heterogen. Die Praktiken der lokalen öffentlichen und privaten Akteure folgen nicht unbedingt den auf nationaler Ebene durch die Instrumente vorgegebenen Richtungen. Dieser Beitrag untersucht die konkreten Formen kollektiven Handelns in Frankreich im Bereich der Raumplanung zur Begrenzung des Flächenverbrauchs, insbesondere in den französischen Grenzgebieten, die ein starkes städtisches Wachstum verzeichnen. Die Untersuchung basiert auf 60 halbstrukturierten Interviews mit öffentlichen Akteuren, die an den räumlichen Transformationen der grenzüberschreitenden Regionen um Genf, Lille-Kortrijk-Tournai, Luxemburg und Straßburg-Karlsruhe beteiligt sind. Die Untersuchung zeigt, dass das kollektive Handeln in der Raumplanung in Frankreich je nach Region und Gemeinde sehr unterschiedlich ist, auch wenn die gesetzlichen Vorschriften gleich sind. Die lokalen öffentlichen Akteure spielen strategisch mit den Regeln und passen sie an. Darüber hinaus ist die Organisation des kollektiven Handelns zur Begrenzung der Flächeninanspruchnahme durch Interdependenzen zwischen den Regionen und in unserem Fall zwischen den Nachbarländern gekennzeichnet, die in den

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nationalen Planungspolitiken und -instrumenten oft unberücksichtigt bleiben.

**Schlüsselwörter:** Raumplanungspraktiken ■ Territoriale Governance ■ Flächenverbrauch ■ Flächennutzungsinstrumente ■ Grenzüberschreitende Gebiete

## 1 Overview

This paper examines the implementation of no-net-land-take objectives in France, more particularly in French border areas subject to urban growth. Since 2011, managing the “land take” of agricultural and natural land for urban and other artificial land development has been the target of European and national policies (European Commission 2011; European Commission 2021). The conversion of natural or agricultural land for urbanisation purposes, such as urban infrastructure, construction, recreational facilities and soil compaction, is a concern for policymakers at European and national levels as it contributes to the weakening of ecosystems, climate change, deterioration of food production conditions and the flooding of inhabited areas. This phenomenon is commonly referred to as land take. The current urgency of reducing land take phenomena leads to the development of land policies and instruments designed to modify land rights and thereby to reduce the number of urban development areas or increase urban density. These ongoing national changes raise societal questions of regional relevance and local implementation. Although the principle seems to be a matter of consensus among actors, the priorities are defined differently depending on each country (Bovet/Marquard/Schröter-Schlaack 2019: 6–14; Cotella/Evers/Janin Rivolin et al. 2020: 36–55). Moreover, the resulting spatial planning activities take various forms, both in terms of definitions and calculations of land take and in terms of the instruments used and their implementation.

In some countries, targets have already been quantified, while in others they are still under debate or have yet to be defined at sub-national levels. For example, the German government defines the limit on land take for housing and transport infrastructures at 30 hectares per day in 2020, and at 30 hectares minus  $x$  per day in 2030<sup>1</sup> (Bundesregierung 2002: 99; Bundesregierung 2016: 38). However, the “Monitor of Settlement and Open Space Development” of the Leibniz Institute of Ecological Urban and Regional Development

shows that by 2020, land take amounted to 57.9 ha/day.<sup>2</sup> Concurrently, the Luxembourg government is drawing up its “Master Programme for Spatial Planning” (PDAT), which also discusses limitations on land take. The current limit stands at 1 hectare per day (Gouvernement du Grand-Duché de Luxembourg 2010: 35) and is planned to be reduced to 0.25 hectares per day by 2035, reaching the goal of no net land take in 2050 (Gouvernement du Grand-Duché de Luxembourg 2022: 45). In Switzerland, urban sprawl is all the more the subject of political debate because land is a very limited resource, with only a third of the land available for agriculture or urbanisation (Bovet/Marquard/Schröter-Schlaack 2019: 9). By contrast, the methods for limiting land take encourage urban densification. For the past twenty years, the Swiss Federal Council has limited the amount of artificial land to 400 m<sup>2</sup> per inhabitant (Swiss Federal Council 2002: 27). This threshold has not changed over time, but has been reinforced by other levers designed to increase the occupation of existing buildings and reduce the need for construction, such as the limit of 20% on the number of secondary residences per municipality<sup>3</sup> (Art. 75b BV<sup>4</sup>). In Belgium, the floods of July 2021 and their consequences have particularly contributed to the increase and acceleration of measures to limit land take. The Walloon government has reinforced the objectives defined (Gouvernement de Wallonie 2019: 70–72) by the circular on the constructability of flood zones<sup>5</sup> (2021). In 2019, Wallonia sets the limit for land take at 6 km<sup>2</sup> per year in 2030 (1.6 ha per day), dropping down to zero (in net value) in 2050. However, the text has not entered into force, the Government is currently defining local trajectories (Gouvernement de Wallonie 2022: 5). The Flemish government, on the other hand, appears more ambitious, setting a limit of 3 hectares of net land take per day in 2025 and advancing the European objective of no net land take to 2040 (Vlaamse Regering 2018; Vlaamse Regering 2022).

The French case, which is the subject of this paper, illus-

<sup>2</sup> <https://www.ioer-monitor.de/en/results/analysis-results/land-take/> (13.07.2023).

<sup>3</sup> Share calculated in relation to the number of dwellings and the gross floor area.

<sup>4</sup> Bundesverfassung der Schweizerischen Eidgenossenschaft vom 18. April 1999 (Stand am 13. Februar 2022); see also Bundesgesetz über Zweitwohnungen (Zweitwohnungsgesetz, ZWG) vom 20. März 2015 (Stand am 1. Januar 2016).

<sup>5</sup> “The issue is crucial in order not to reinforce the land take of plateaus and urban sprawl and to ensure, where possible, construction or reconstruction capable of coping with the risk of flooding while guaranteeing the safety of people.” (translated from the “Circulaire relative à la constructibilité en zone inondable”; Minister of Regional Planning, issued on 23 December 2021).

<sup>1</sup> Some German Länder have defined targets, such as Bavaria with 5 ha/day by 2030, or Baden-Württemberg with 3 ha/day by 2020.

trates these dynamics. The measures are popularised under the term “Zéro Artificialisation Nette” (ZAN). The intermediate objective ahead of 2050 is to halve the rate of land take between 2021 and 2031 compared to the rate observed between 2011 and 2021.<sup>6</sup> One of the particularities of France is that this objective is applied differently in each region (Nomenclature of Territorial Units for Statistics 2 in the European Union). Regions must formulate their trajectory by February 2023, through their “Regional Plan for Planning, Sustainable Development and Territorial Equality” (SRADDET).<sup>7</sup> Up until now, the role of French regions in spatial planning has been relatively weak. Acquiring the prerogative to define the trajectory of land consumption through the regional instrument represents a significant change that is currently under debate.

In several European countries, laws are being passed and instruments put in place to address this issue. However, their concrete effects on collective action in the field of land development and spatial planning are far from being mechanical and uniform. The practices of local actors in this field do not necessarily follow the general frameworks defined at national level. Indeed, spatial planning rules never operate in a mechanical way. They are constantly subject to interpretation and to changes in position on the part of the actors involved, while also representing a framework that sets constraints and provides resources for actors to steer urban development (Bourdin/Lefeuve/Melé 2006; Buitelaar/Sorel 2010: 986–988). In this sense, Faludi and Korthals Altes (1994: 407) invite us to consider spatial planning as a process designed to improve the justification of decisions rather than to ensure compliance between a document and

the actions that would result from it. Various research studies on planning practices in Europe and North America highlight the difficulties faced by public actors in controlling and steering urbanisation (see for example Pagliarin 2018: 3660–3661; Leffers/Wekerle 2020: 329). Other research also shows how public and private actors play around with instruments, combining, modifying, adapting or even bypassing them. For example, the timely and targeted acquisition of land plots, leasing or the annual revision of land-use plans are sometimes ways for local authorities to control the prices and uses of plots (Gerber/Nahrath/Hartmann 2017: 1695–1697) and to densify (Meijer/Jonkman 2020: 249), despite the lack of flexibility of property rights and the lack of public carrying capacity for operations.

In France, private urban developers often negotiate with elected officials of small municipalities to increase building areas or to accelerate the urban development schedule during the drafting phase of land-use plans (Le Bivic/Melot 2020: 10–13). Sometimes, farmers themselves claim and negotiate building rights in order to develop, diversify or simply maintain their activities (Madeline 2006: 47; Kerse-laers/Rogge/Vanempten et al. 2013: 200–201). In Belgium, the demands of the inhabitants and government measures in favour of a less densely built environment encourage urban sprawl, both in Flanders (Buitelaar/Leinfelder 2020: 51–54) and in Wallonia (Halleux 2012: 8–11). Regional and local public actors can also help drive land take, notably by pushing for a review of the distribution of urban development rights between municipalities (Jehling/Schorcht/Hartmann 2020: 234). These practices, which are often touted as improving the living environment, contribute to the urbanisation of agricultural land and natural land in the medium and long term. Finally, research in urban planning emphasises the importance of local actors’ strategies to steer urbanisation and in particular to limit land take, which invites a closer analysis (Evers/van Schie/van den Broek et al. 2020: 45–47).

This paper addresses the current French law “Climate and Resilience” and the debates, both societal and scientific, concerning the objectives of no net land take, also called “Zéro Artificialisation Nette” (ZAN). It seeks to examine how these objectives are actually implemented in collective action in spatial planning at the local level (municipal and intermunicipal). How do spatial planning actors play with the instruments set up to limit the urbanisation of agricultural and natural land? How are the practices of actors and collective action in spatial planning being transformed amid efforts to strengthen ZAN objectives and measures?

The paper is structured in three parts. First, I describe the qualitative methods and the study areas (Section 2). Next, I present two results, one on the heterogeneity of land-use practices in the French regions studied and the other on the

<sup>6</sup> Loi no. 2021-1104 du 22 août 2021 portant lutte contre le dérèglement climatique et renforcement de la résilience face à ses effets, Article 191.

<sup>7</sup> In France, the local plan is a major spatial planning instrument insofar as it is legally binding for the landowners and land developers. The local plan (Plan local d’urbanisme – PLU) is decided on by municipal or intermunicipal elected officials, depending on the level designated as competent by the municipal elected officials. There are two strategic urban plans: the intermunicipal plan (Schéma de cohérence territoriale – SCoT) provides the framework for defining sectoral policies, and the regional plan (Schéma régional d’aménagement, de développement durable et d’égalité des territoires – SRADDET) provides the framework for distributing land development rights within the region. Moreover, the Decentralised State Services in charge of spatial planning (Direction départementale des territoires – DDT) give an opinion on local and intermunicipal spatial planning documents. In case of an unfavourable opinion from Decentralised State Services, the document may be cancelled through an appeal by a third party. In this respect, French local spatial planning depends on discussions between the municipalities, intermunicipalities and Decentralised State Services.

dependence of collective action systems on border space practices (Section 3). Finally, I conclude by discussing three outputs (Section 4).

## 2 Methods

To explore these questions, we observed several border areas of France that are experiencing strong urban growth. We hypothesise that these areas are useful analysers of the practices and difficulties of limiting land take. First, metropolitan areas located near French borders are strongly affected by urban sprawl phenomena (Vizzari/Hilal/Sigura et al. 2018: 23–26). Together with metropolitan areas and coastal areas near large cities, they concentrate most of the country's real-estate activity in terms of new housing (Coulondre/Lefebvre 2018: 18–19). Secondly, while spatial planning policies and arrangements stop at the border, functional areas are cross-border (Nadin/Fernandez Maldonado/Zonneveld et al. 2018: 67). The European Commission indeed requires member countries to specify national objectives and steps to limit land take (European Commission 2021), but urbanisation processes take place on a cross-border scale. Although the European Union supports the strengthening of 'functional areas' and cross-border governance (European Commission 2021), the instruments (In-

terreg programmes, Euroregion structures or the legal and administrative support of the "b-solutions initiatives" platform) mainly focus on cooperation policies and spatial development strategies rather than operational urban planning issues (Hamez 2022).

This particular situation makes it possible to isolate and study the side effects on neighbouring areas (in the neighbouring countries) of the measures and instruments used to limit land take. In other words, the study of cross-border areas makes it possible to show the differences between instruments and actual practices, which are also present in non-border contexts but are less easily identified.

To carry out this work, I conducted a qualitative survey based on 60 semi-structured interviews (with an average of 15 interviews per area). The areas studied are located in the cross-border regions around Geneva, Lille-Kortrijk-Tournai, Luxembourg and Strasbourg-Karlsruhe (see Figure 1). The perimeters of the study areas around these cities were not defined in advance. The interviews allowed observation of urban growth management practices, linked to the border situation, beyond the functional urban areas and the catchment areas of foreign cities as defined by the French statistics institute.<sup>8</sup> As a result, French areas about 50 kilometres from the border, such as the intermunicipalities of Grand Chambéry and Val de Briey, were also studied.

I identified the public actors managing and steering local urbanisation (regional and local spatial planning officers, local elected officials, directors of public land institutions, etc.) as well as the public actors working on cross-border cooperation (Euroregions, Eurodistricts). The semi-structured interviews were conducted in three stages: identification of new urbanisation phenomena, clarification of the actors' practices in the face of these phenomena, and analysis of cross-border interdependencies related to spatial planning practices. The analysis of the interview transcripts was undertaken manually, with a systematic comparison of the comments of the various interviewees. The analysis of the interviews was supplemented by an analysis of the grey literature, such as reports, produced by these actors.

The aim of the semi-structured interviews was to identify the phenomena of diffuse urbanisation, their reasons and the way actors contributed to them or tried to influence them. Because my objective is to grasp how people intervene in the regulation of places of urbanisation, the method can be defined as "comprehensive" (Pinson/Sala Pala 2007: 583–595). Thus, the questions structuring the interview did not relate to the French objectives of no net land take, but to the concrete management of urbanisation in cross-border



Figure 1 Location of study areas

<sup>8</sup> <https://www.insee.fr/fr/information/4803954> (17.07.2023).



contexts.<sup>9</sup> The actors' accounts highlighted the connection between the evolution of urbanisation processes and practices and the rise of the topic since the 2010s and more recently, in anticipation of changes in the national action frameworks (measures, governance, instruments, agendas) that are still unclear.

In the following, I first show the heterogeneous effects of laws and decrees on collective action in spatial planning at the local level, depending on the configurations of collective action and on the way local actors play with ZAN rules. Secondly, I highlight the concrete systems of collective action and how they go beyond the geographical boundaries of the ZAN instruments. The instruments generate side effects within the cross-border city-regions that go beyond their areas of application. Moreover, the objectives of ZAN lead to new forms of original action on a cross-border scale, on the fringes of generic national and regional land development and spatial planning instruments. Finally, we conclude by looking back at the configurations of local collective action in spatial planning amid the development of no-net-land-take policies and instruments.

### 3 Results

#### 3.1 Managing land-take limitation: the heterogeneity of the effects of national laws on collective action in spatial planning

The laws and implementing decrees which follow from the objective of “Zéro Artificialisation Nette” (ZAN) apply to the whole of France, even if they take into account certain regional particularities. However, their concrete application varies from case to case, not only because local configurations of collective action are very heterogeneous, but also because of the way in which local actors interpret these rules, play with them and transform them.

##### 3.1.1 Diverse configurations of collective action behind a common national goal of ZAN

In France, depending on the territories and the problems they face, the national objective of ZAN is not perceived in the same way everywhere, and does not have the same effects on collective action in terms of spatial planning. This section shows that some local elected officials and administrators (municipal and intermunicipal levels) shift away

from the national objectives in their actions and practices, in order to carry out their territorial projects, while others comply with the objectives but for different reasons than those set out in the law.

The implementation of the “Climate and Resilience” law implies substantial changes in the way urbanisation is managed by regional and local (municipal and intermunicipal) spatial planning documents. More specifically, the French implementing decree n°2022-762<sup>10</sup> gives the regional planning document<sup>11</sup> (the “Schéma régional d'aménagement, de développement durable et d'égalité des territoires”; SRADDET), the capacity to break down the objectives into ten-year increments at the local level and to distribute the areas that can be consumed across the regional area.<sup>12</sup> However, the implementation of the law formalised by the implementing decree has sparked mixed reactions on the part of local elected representatives, as in some cases it runs counter to the interests they defend. In June 2022, the Association of French Mayors and Presidents of Inter-Municipalities (AMF) and the National Association of Coastal Elected Officials (ANEL) lodged an appeal against the decree before the Council of State. In March 2023, a draft law to facilitate the implementation of no-net-land-take objectives at the regional level was passed by the Senate. It provides for the right to urbanise 1 ha per municipality, thereby offering a more permissive urban development framework for small municipalities. The principle of subsidiarity and the flexibility given to municipalities on matters of urbanisation management are key concerns which the elected officials wish to defend. The objective of no net land take, which is framed in the same terms across the national territory, is sometimes seen by local elected officials as an injunction to limit development, or even as an attack on the living environment in less densely urbanised areas. Many local elected officials and administrators consider that simply maintaining the population necessarily requires the construction of housing in previously undeveloped areas, in order to take into account the splitting of households and to offer the inhabitants housing that meets their needs.

In fact, the practices of local representatives and administrators stand in stark contrast to the national objectives of

<sup>9</sup> This piece of research is part of the ANR (Agence Nationale de la Recherche) research project “Cross-border management and regulation of diffuse urbanisation – GeRTrUD”.

<sup>10</sup> Decree no. 2022-762 of 29 April 2022 relating to the objectives and general rules on the economical management of space and the fight against soil sealing set out by the regional plan for planning, sustainable development and territorial equality.

<sup>11</sup> In this paper, we mainly refer to three French spatial planning documents: the regional plan (SRADDET) and the intermunicipal plan (SCoT) are comprehensive plans, the municipal land-use plan (PLU) is a legally binding plan.

<sup>12</sup> Code général des collectivités territoriales, Article R 4251-8-1.



**Figure 2** A new neighbourhood, built on agricultural land, in a small French commune bordering Luxembourg

ZAN. One reason for this is that elected officials tend to prioritise the preservation of the living environment and/or urban services. For example, in an intermunicipal area bordering the Lille metropolitan area “Métropole Européenne de Lille”, where 70% of the working population works outside of the intermunicipal area, elected officials are absolutely determined to welcome new inhabitants in order to keep the local school open. The school is considered to be a key site of sociability and the driving force behind community networks. In Lorraine, the small size of Zoufftgen (a municipality with a population of 1,200; population doubled from 600 to 1,200 inhabitants between 2006 and 2016) has not stopped local elected officials from mobilising a range of land-control instruments. Elected officials wanted to attract young households at all costs. To this end, they bought land before it was declared buildable, carried out the servicing work themselves and welcomed people interested in buying a plot in order to select those who wanted

to put down roots in the municipality and invest locally. The mayor justified the irregularity of this last step by arguing that a small town faces a looming decline if its inhabitants do not use local services and facilities or do not invest in local associations. This new ten-hectare district eventually saw a twofold increase of its population (see Figure 2).

Urbanisation by development zones, on agricultural or natural land, generally appears easier to implement. The rehabilitation of old buildings requires both money and time spent on decontaminating, rebuilding or adapting the buildings to various needs (functional, sanitary and thermal). In small municipalities of 500 and 2,500 inhabitants<sup>13</sup>, the densification of rural or periurban town centres can greatly increase the population of the municipality and hence lead

<sup>13</sup> France features a large number of municipalities (about 35,000), over half of which number less than 1,000 inhabitants.

to construction work to resize the infrastructures (e.g. for the road system, the sewage networks or the water treatment plant). Moreover, unlike the densification of private plots in existing urban fabric, comprehensive development in urban extensions provides the municipality with guarantees concerning the capture of land value, within a better known and shorter timeframe, in order to develop the necessary facilities. Thus, from an economic point of view, it is often more interesting for a municipality to urbanise new development areas (Colsaet/Laurans/Levrel 2018: 345).

Nevertheless, some small municipalities make choices that seem to be aimed at reducing land take, for example by increasing the density of housing planned in their development zones. But the priority, for these actors, is often addressing the lack of affordable housing and the low solvency of households, rather than meeting national objectives of land preservation. In the Chambéry intermunicipality, a study on household solvency highlighted local housing difficulties and the need to offer smaller homes and building plots in the early 2010s. Elsewhere, municipalities have not waited for legislation to be passed to force real estate developers to build small dwellings to match the budgets of their residents. For example, municipalities to the east of Lille, in the Pévèle Carembault intermunicipality, use the legally binding tools set out by the local land-use plan (the “Orientations d’Aménagement et de Programmation”; OAP) to ensure that individual houses are built on smaller plots of land of 400m<sup>2</sup> and in terraced areas.

Urban growth can also pose problems for local authorities, particularly when municipalities lack the financial and human resources to develop their services and facilities accordingly, or when they struggle to respond to the demands of residents opposed to the urban densification of their neighbourhood. As a result, some municipalities that first experienced urban growth in the 2010s now clearly wish to reorient their development trajectories. In the Pays-de-Briey, for example, close to Luxembourg, several municipalities (e.g. Cosnes-et-Romain, Lexy) are lowering their urban development ambitions after experiencing large and uncontrolled urban growth a few years earlier, which had led to a significant and rapid increase in the municipal population. The actors are therefore very firmly in favour of measures aimed at limiting land take.

Finally, our case studies show that most local elected officials prefer to retain control over their spatial planning prerogatives, through the drafting of land-use plans and the approval of building permits. However, for some of them, the new frameworks encouraging the limitation of land take have provided a timely opportunity to transfer this responsibility to other actors. Indeed, reducing the amount of land available for urbanisation generally implies making changes to the allocation of landowners’ building rights by

reducing the areas that were to be developed. However, the loss of value (downzoning does not entail an obligation to compensation in France) can lead to situations of conflict that local elected officials prefer to avoid and pass on to others. In these situations, municipal elected officials are more inclined to transfer spatial planning competences to the intermunicipal level (which has been encouraged by the “ALUR” law since March 2014)<sup>14</sup>, or to blame regional governments for these unpopular measures (in the context of the new role of the regions in limiting land take as a result of the “Climate and Resilience” law in August 2021).

### 3.1.2 Local strategies with no-net-land-take rules

In their day-to-day work, local actors play with the ZAN’s mechanisms and rules. They interpret them, they use them in negotiations, and in so doing they adapt or transform them. What are the different ways actors manoeuvre the rules?

Actors can first use the frameworks provided by the law to negotiate the application of measures. Indeed, the law requires each French region to review its regional plan (SRADDET) within one year of the law’s enactment.<sup>15</sup> The aim is to set out their trajectories for reducing land take by drawing on the regional plan, expected to come into force by February 2023. Intermunicipal (SCoT, PLUi) and municipal land-use plans (PLU, carte communale) must be brought into compliance with regional plans by August 2026 and August 2027 respectively. To begin this process and thus organise the differentiated management of land take limitation at the level of each region, the law introduced a new mechanism, the “Conference of Intermunicipal Plans – ScoT”<sup>16</sup>, which was required to take place by February 2022. In the Grand Est region, several elected officials and technicians in charge of SCoTs are counting on the SCoT conference to submit proposals to the region on how to halve the amount of development zones. One official explained that if the SCoT groups fail to coordinate municipal positions, measures will be decided at the regional level, potentially to the detriment of intraregional specificities. Another stressed concerns about the law being applied too uniformly, and insisted that local actors should be able to organise with rep-

<sup>14</sup> Loi no. 2014-366 du 24 mars 2014 pour l’accès au logement et un urbanisme rénové (ALUR).

<sup>15</sup> Loi no. 2021-1104 du 22 août 2021 portant lutte contre le dérèglement climatique et renforcement de la résilience face à ses effets, Article 194.

<sup>16</sup> Loi no. 2021-1104 du 22 août 2021 portant lutte contre le dérèglement climatique et renforcement de la résilience face à ses effets, Article 194-V.



representatives of the state and the region in order to defend their positions.

Another strategy used by local elected and administrative officials to achieve their objectives consists of getting started on the development zones before the precise terms of the implementation of the law are defined, at both national and regional levels: in this case, they play with time. In an Alsatian intermunicipality, for example, the total area of development zones for housing will probably be reduced by two-thirds once the regional plan is established. But until then, urbanisation projects are maintained, as one of our interlocutors explained: “For the moment, we have to understand the law and the decrees, make assumptions, it is too early to really move forward. We clearly have the law in our sights. But for now, we are not stopping, we are pushing forward. We are moving along, obviously taking into account the new features of the law, but we are not stopping because otherwise we’ll never get there. [...] Today, the message that most elected officials are expressing is that we are not speeding up, we are not slowing down” (December 2021, translated from the French by the author). Some elected officials even anticipate future restrictions on consumption and develop areas initially set to be developed in a more distant future. These practices are sometimes facilitated by the dynamics of demographic growth and land pressure, which speed up the pace at which local elected officials and urban developers are able to market land and housing. Near the Luxembourg border, the mayor of a municipality with fewer than 1,500 inhabitants did not initially want the municipal population to increase, but nevertheless prefers to develop land today for fear that development possibilities will be too limited in ten to twenty years’ time.

However, local actors do not necessarily follow supra-local directives once they have been set out, and may even oppose them outright in order to carry out their projects. In particular, they play on the discrepancies between the rules of the various planning documents, discrepancies which are consubstantial with the very process of drafting the plans. These situations are best exemplified by cases featuring an incompatibility between the intermunicipal plans and the former, more permissive land-use plans. In an intermunicipality of the Bas-Rhin, a majority of land-use plans are still not compatible with the intermunicipal plan (SCoT) approved in 2013 because elected officials consider it too restrictive when it comes to increasing density and reducing development zones. Furthermore, the prefect ordered the revision of the intermunicipal plan in 2019 in order to integrate a new municipality within its perimeter. The revision has been passed by the elected officials, but no technician was yet working on the preparation of the plan at the time of the interview (2021). These discrepancies between local urban projects and state directives to limit ur-

ban sprawl often lead state representatives at sub-regional levels to lodge appeals against urban planning documents. However, the time taken by the administrative court to process such cases is relatively long (at least two years) and the cancellation or a declaration of illegality of the land-use plan renders the immediately preceding plan applicable, with the earlier plan often being more permissive on matters of urbanisation.<sup>17</sup>

When a document is more permissive than others on the subject of taking agricultural or natural land, it can constitute an important resource for actors who still wish to urbanise development zones. For example, an intermunicipal plan in Lorraine authorises the development of too many commercial activity zones according to the future objectives set out by ZAN. In the municipality of Lexy, a shopping centre was built on 20 hectares of former agricultural land, near an already heavily trafficked road and close to another commercial area in decline in Longwy, the neighbouring municipality. However, the fact that a commercial development project was included in the intermunicipal plan made it possible for the mayor and the urban developer to support the application to expand the commercial area. The validity of the development permit in relation to the SCoT was then an important argument in favour of the project when the prefect lodged an appeal.

The implementation of ZAN also depends on local political games. Deviations from the rule sometimes reflect conflicting views between local elected officials about which urbanisation trajectories should be followed; these conflicts prevent agreement on coercive instruments (e.g. adapted rules in local land-use plans) designed to limit land take. In a Lorraine intermunicipality, the elected officials of the peripheral municipalities supported urban development projects even though they exceeded the areas prescribed by the intermunicipal document (SCoT). They hence blocked the development of an intermunicipal land-use plan (the “Plan Local d’Urbanisme Intercommunal” – PLUi) to avoid the legally binding inclusion of SCoT<sup>18</sup> prescriptions. In other cases, changes in local representatives in the wake of elections can slow down the preparation of land-use plans and increase the time required to make the documents compatible. This is the case, for instance, in a municipality near Chambéry where the construction of detached houses has led to a sig-

<sup>17</sup> Code de l’Urbanisme, Article L600-12.

<sup>18</sup> In this case, elected officials are counting on the possibility of the transfer of spatial planning competence to the intermunicipal level not taking place if 25 % of the municipalities representing 20 % of the population oppose it (Loi no. 2014-366 du 24 mars 2014 pour l’accès au logement et un urbanisme rénové (ALUR), Article 136).

nificant amount of land being urbanised over a ten-year period, although the ScoT limited this type of urban development. On the one hand, the state services responsible for land development at the sub-regional level (“Direction départementale du territoire”; DDT) did not put in place any coercive means to ensure that the municipality updated its land-use plan. On the other hand, when the preparation of a new plan was finally undertaken, a change in the local elected officials called the spatial planning project into question and caused delays in the procedure. Local political disagreements can ultimately hinder the implementation of ZAN objectives, to the point that the Decentralised State Services (DDT) of Haute-Savoie Province take this parameter into account in applying state doctrine. One agency official explained that they operate by municipal mandate (estimating the possible reduction of development zone areas during the 2014–2020 mandate at around 2,500 hectares, out of a total of 5,000 hectares).

Local actors are not the only ones to play with the rules. Some state services agencies also seize on such options, in particular to encourage local elected officials to reduce their development zones. In Haute-Savoie, an agent from the Decentralised State Services (DDT) insisted on the advantage of using the public structure known as the “Departmental Commission for the Preservation of Natural, Agricultural and Forestry Spaces” (CDPENAF)<sup>19</sup> to guide elected officials to limit their urbanisation projects. At the invitation of state services, the commission provides its expertise and conducts hearings with elected officials asked to report on their spatial planning projects. The originality of this case lies in the fact that the commission is acting beyond its usual purview (i.e. when municipalities are not covered by an intermunicipal document). From the perspective of the DDT, the CDPENAF has a dissuasive effect: because local elected officials respect and even fear the CDPENAF, they ‘self-censor’ by reducing the development zones. This example demonstrates once again that the implementation of national directives by local public actors is not automatic.

The study thus shows that in France, the realisation of the objectives of land preservation by local actors is not homogeneous. The ZAN objectives modify practices and collective action in the field of spatial planning, not automatically but as a result of actors playing with the rules prescribed by the instruments. Moreover, although the regional plans (SRADDET) give the regions a new role in land development, local actors still play a major part in collective action in the field of spatial planning. For example, elected

officials of small municipalities can coordinate to oppose the prescriptions of intermunicipal or regional regulatory plans. These actors use the law as a resource to steer urban development: local administrators and elected officials readily make use of the leeway afforded by the deadlines for implementing laws or making spatial planning documents compatible.

### 3.2 When collective action systems in spatial planning cut across national borders

In cross-border regions, the systems of collective action that govern urbanisation processes cut across national borders, even though the frameworks for action and the instruments drawn up to limit land take are national (or regional in federal countries). Actors must contend with situations of strategic interdependencies that cut across borders: the possibilities for limiting the consumption of agricultural land on one side of the border depend largely on what is happening in the neighbouring country and what the actors do there. Our research shows that urbanisation processes in one country can sometimes be strongly influenced by the ‘side-effects’ of measures or instruments implemented in the neighbouring country or region, where rules may differ. On the other hand, collective action in terms of spatial planning in cross-border regions is being reshaped by no-net-land-take objectives, as they transform the practices of spatial planning actors and motivate the development of original forms of intervention, on the fringes of national, federal or regional instruments.

#### 3.2.1 Territorial interdependencies and side effects

The ‘side effects’ of national mechanisms and instruments for collective action in spatial planning are particularly visible in cross-border regions, where urbanisation processes play out beyond national borders. By ‘side effects’, I mean that public action instruments can have implications, often unintended and undesired, outside their geographical scope of application. In a cross-border situation, instruments and methods of controlling urbanisation which are implemented on one side of the border can have consequences for urbanisation processes on the other side of the border (Durand 2014: 117–121). What are the effects of the differences between the instruments used on each side of the border, which aim to limit land take and which are particularly easy to isolate due to the presence of the border?

In cross-border regions, legislative, fiscal and institutional differences, combined with the free movement of people between countries, have an impact on urbanisation processes. In concrete terms, people and companies seeking to settle in cross-border areas can choose between several countries depending on the benefits offered on each side

<sup>19</sup> Commission de préservation des espaces naturels, agricoles et forestiers, created by the loi n°2014-1170 du 13 octobre 2014 d’avenir pour l’agriculture, l’alimentation et la forêt (LAAF).

by the labour market, the fiscal framework and the accessibility of land, housing, infrastructure or services. These differences in national contexts have contributed to the transformation of the periurban and rural border areas studied over the last few decades, both in terms of the construction of housing and in terms of activities and facilities (Sohn 2014: 1706).

The Luxembourg and Geneva city-regions are marked by significant housing construction dynamics on the French side, and their functional areas largely extend beyond the national territories. The French border areas provide housing for the workforce: in both cases, approximately 100,000 cross-border workers live in France. In a situation where the economic dynamism of the two cities attracts workers who are unable to find housing in Luxembourg or Geneva, housing problems are partly solved by moving to the outskirts of cities located on the French side. These areas are a greater distance away from services and jobs, but they are also more affordable, and make it easier for developers to find accessible land where they can build the missing housing, amid a very buoyant market. Around Geneva, the displacement of housing construction to the French side is felt as far as the Savoie (a French province that does not border the Swiss canton), with implications for spatial planning activities in this area. Thus, the technical services of the Chambéry agglomeration routinely work alongside municipalities to handle building permit applications submitted by people working in Geneva. Similarly, in a French municipality of 1,700 inhabitants located in the north of the Lorraine region, two kilometres from the border, an urban development of 162 detached and semi-detached houses is described by the mayor as “100% built for cross-border workers”. At least one member of every household moving into the development works in Luxembourg.

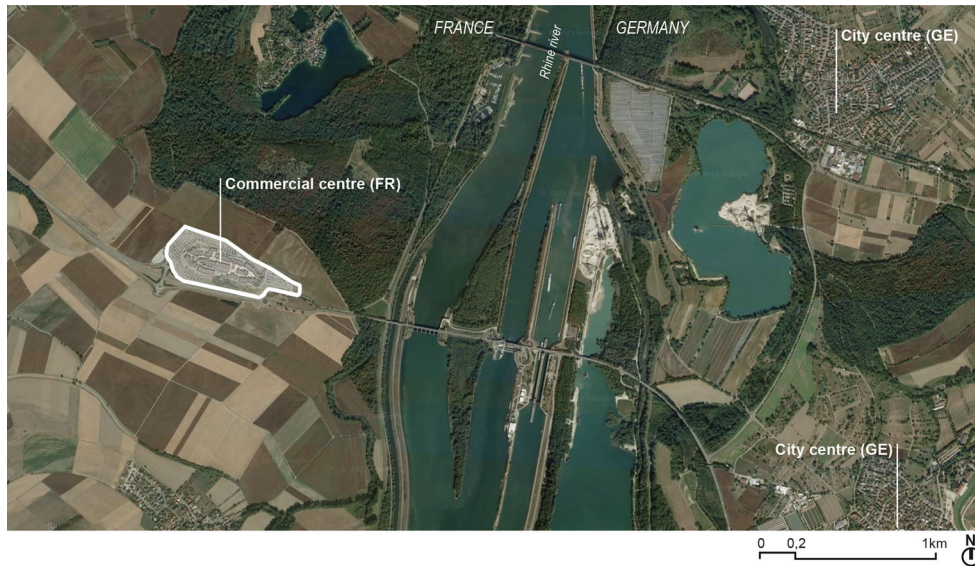
Yet these dynamics are reinforced not only by differences in land prices, but also by differences between countries in the possibilities of changing the use of agricultural land. For this reason, instruments relating to land take implemented on one side of the border can have consequences on urbanisation processes implemented on the other side of the border. In Geneva, for example, the “crop rotation areas” system (protected agricultural areas designed to guarantee Switzerland’s food autonomy and whose preservation is enshrined in the Federal Land-Use Planning Act<sup>20</sup>) helps to restrict urban development on agricultural land throughout

the canton of Geneva. The measures employed by Geneva to promote housing densification, especially in so-called villa zones (areas of low-density individual housing that make up nearly half of the canton’s urbanised areas), are also encountering fierce opposition through the system of local referendums. In this context, the Canton of Geneva is failing to meet the housing construction target (2,500 housing units per year, as set out in the cross-border housing master plan) that would be needed by people working in Geneva. As a result, urbanisation and housing construction are shifting to the French side of the border, where the capacity to preserve agricultural areas is weaker. For the last few years, Haute-Savoie has been one of the French provinces with the most housing built per year (7,500 housing units started per year on average between 2010 and 2019, 68% of which are collective housing).

The phenomenon is similar in Luxembourg. However, differences between the instruments aimed at limiting land take can also operate in the opposite direction, and are likely to somewhat mitigate the dynamism of construction (induced by the vitality of the Luxembourg economy) on the French side. Thus, within a thirty-kilometre strip around the border of the Grand Duchy, the price of Luxembourg agricultural land is about ten times higher than that of Lorraine agricultural land (around €150,000 per hectare compared with €15,000 per hectare), and the change of status from agricultural zones to development zones is easier in Luxembourg than in France. As a result, some Luxembourg farmers choose to buy and use agricultural land in France and to sell their land in Luxembourg to urban developers.

These displacements, induced by instruments for limiting land take in neighbouring countries, not only concern housing but also affect economic development as well. For example, the consumption of land dedicated to economic development is more heavily controlled in Flanders than in Wallonia (both regions in Belgium). In Flanders, targets for limiting land take are implemented relatively strictly at the local scale, as explained by a representative of the Flemish inter-municipal company Leiedal, a public company in charge of developing land for economic activities: “We know that by 2025, we have to achieve a 75% rate of reuse [of existing urban areas] and a rate of 100% by 2040. It’s clear that we are going to get there, the big problem is that industries still need large surface areas and that they are difficult to find here” (March 2021; translated from the French by the author). Several measures are particularly restrictive: agricultural or natural areas must not change function (with some exceptions, such as the ports of Antwerp or Zeebrugge) and land purchased by an operator in an economic development zone must be developed within a given timeframe or else it will have to be transferred to the public actors. Faced with these constraints in Flanders, investors are turning to

<sup>20</sup> In Switzerland, the preservation of agricultural land is based on the principle of food self-sufficiency, which has been promoted by the Confederation since the Second World War and is reflected in the Federal “Loi sur l’aménagement du territoire” (LAT, 1979) and the definition of “crop rotation areas” (surfaces d’assolement).



**Figure 3** A shopping centre built on the French side of the border on agricultural land (left of the picture) is now competing with the town centre shops of small German municipalities (right side) which had blocked any such facilities from setting up on the urban outskirts

Wallonia, where the constraints are less severe. Hence, in the cities of Mouscron or Estaimpuis, the vast majority of requests received for business parks come from Flemish companies. This phenomenon has multiple consequences, including the division now emerging between companies capable of paying the price to set up on the few remaining plots of land in Flanders and the others that set up in Wallonia. Other consequences include increased commuting flows and the need for additional transport infrastructures in a functional area that cuts across regional~borders.

Public policies whose main goal is not to limit urbanisation on agricultural land can also have cross-border effects that run counter to this objective in the neighbouring country (or region). For example, in Luxembourg, fiscal attractiveness, dense transport networks and quality intermodality encourage public actors to preferentially select and host economic activities with high added value, and thereby to reinforce the economic attractiveness of the country. But these activities also consume the least amount of space. The Ministry of the Economy controls the amount of surface area consumed by business projects and thus rules out large warehouses with surface areas of around 100,000 m<sup>2</sup>. Buildings of this size that require large areas of land, particularly for logistics activities, are therefore located in neighbouring regions, around Thionville or in the Belgian province of Luxembourg.<sup>21</sup>

Finally, spatial planning actors must contend with a situation of strategic interdependence between the two sides of the border in their efforts to limit land take: their actions depend on what their neighbours will do. As a result, collective action in spatial planning is marked by uncertainties concerning the strategies and decisions of neighbouring regions or countries. Cross-border cooperation in land development and spatial planning is not automatic: it is not a central issue for spatial planning actors and is difficult to organise. Differences between the respective national political and administrative systems further reduce the capacity to anticipate and guide urban development on each side of the border (Decoville/Durand 2017). In Luxembourg, spatial planning issues are managed by the state in cooperation with the municipalities, whereas in France, there are more levels of government competent in this area and local authorities generally retain control over the allocation of building rights and permits. In Germany, the location of economic activities is determined by the Regionalverband (German administrative division), whereas in France this is controlled at the intermunicipal level (covering a smaller area than the Regionalverband).

The case of commercial urban development in the north of the Alsace region in France and in the Karlsruhe region in Germany provides a good example of a situation where the possibilities of limiting land take depend largely on what

<sup>21</sup> In these French and Belgian areas still wrestling with the after-effects of deindustrialisation, the average salary is lower than the

national average and the economic dynamism of Luxembourg is perceived as a lever by many actors.



the neighbours do. In Karlsruhe, economic development and land preservation strategies prioritise development possibilities according to the size of each city. In small cities, land for urbanisation is reserved for the establishment of small and medium-sized industries and large commercial surfaces are prohibited. These urban development rules are included in the regional plan (Regionalplan) and involve little additional negotiation once they have been formulated. In France, the hierarchy of cities also limits the possibilities of economic development in small cities. However, there is greater room for subsequent negotiation: derogations can easily be accepted if local elected officials provide sufficient justification to the intermunicipality. These different ways of managing urban development explain why a vast commercial centre was built in Roppenheim (France) (see Figure 3), while some ten kilometres away, local actors in Rastatt (Germany) tried to prohibit large commercial centres in order to support existing shops in the city centre.

### 3.2.2 New forms of intervention in response to injunctions to limit land take

The objectives of limiting land take are transforming the practices of spatial planning actors. We observe that certain local public and semi-public structures are positioning themselves in relation to these objectives and developing new forms of spatial planning intervention in response to injunctions to limit land take. The case of the regional land-management authorities (“Établissement public foncier”; EPF) of Lorraine and Haute-Savoie gives us an example: their competences and missions are expanding to meet the objectives of limiting land take in border contexts. In Haute-Savoie (neighbouring province of the canton of Geneva), the objectives of limiting land take have led the regional land-management authority (EPF) to prioritise the development of wastelands and to reinforce its support of communities in their management of land. In 2019, the EPF also created a specific structure (Foncière 74) capable of purchasing land in economic development zones to optimise land use. This structure echoes the action of its Geneva counterpart, the “Fondation des terrains industrielles” (FTI), which can draw on various instruments for land control and management in order to steer economic development (e.g., 30-to-60-year leases, rules on plot constructability and building use, tools for managing shared spaces owned by several owners) and hence to optimise the economic areas it owns in the Canton of Geneva.

The objectives of land conservation have even led to some rapprochement between the sectors of economic development and spatial planning, despite the difficulties entailed by cross-sectoral cooperation (Wishlade/Michie/Moodie et al. 2019: 16). In the example above, “Foncière 74” in Haute-Savoie and “FTI” in the canton of Geneva,

in their capacities as landowners and managers, are active players in local economic development strategies. Conversely, some economic development actors can directly influence decisions on spatial planning, including those affecting the control of land take. In Alsace, the representative of the regional development agency (a structure that assists companies in setting up) explains that with the objective of ZAN, regional land supplies of more than ten hectares marked out for businesses have been exhausted, while those of five to ten hectares are running out and some inter-municipalities only have three to five years of stock. In this situation of shortage, the establishment of activities largely depends on the intermunicipalities: “If they don’t want to do it, nothing will happen anyway. You can anticipate every aspect you want in the spatial planning documents, but if, at the end of the day, no one does anything on the operational side, nothing is going to happen.” The regional development agency therefore draws up “internal land reception plans” in collaboration with the intermunicipalities in order to guide and refine strategies for the establishment of economic activities: “We have no choice but to give strong impetus. With the Climate and Resilience Law, and the ZAN, the paradigm of economic development is being entirely redefined, meaning that the communities of communes will have to work completely differently” (November 2021, translated from the French by the author). In this example, this economic development actor ends up playing a key role in the possibilities of operationalising the French doctrines defined by ZAN.

By limiting the possibilities of urbanisation in development zones, the objectives of limiting land take are aggravating land shortage, as can be seen in our study areas on a cross-border scale. The shortage of land resources, intensified by measures to limit land take, is thus leading some actors to consider these issues on a broader scale and to develop cross-border strategies for the management of low-density areas. In Luxembourg, recent measures such as the Masterplan for the Greater Region<sup>22</sup> (“Schéma du développement territorial de la Grande Région”) or “Luxembourg in transition”<sup>23</sup>, promoted by the Luxembourg Ministry of Energy and Spatial Planning, bear witness to this. Similarly, the Strasbourg urban planning agency is co-heading the German MORO project (Modellvorhaben der Raum-

<sup>22</sup> <https://www.sig-gr.eu/fr/cartes-thematiques/amenagement-territoire/schema-developpement-territorial-gr.html> (15.07.2023). The Greater Region comprises the Länder of Saarland and Rhineland-Palatinate in Germany, the Lorraine Region in France, the Walloon Region, the French and German communities in Belgium and the Grand Duchy of Luxembourg.

<sup>23</sup> <https://luxembourgtransition.lu/en/> (15.07.2023).

ordnung) in the Upper Rhine area, with the aim of developing a cross-border pool of economic activity by pooling land on each side of the Rhine.

This land shortage changes the situation and ultimately affords new leeway for public actors in the least attractive areas to carry out their spatial planning activities. In places where companies were previously reluctant to locate, public actors are now in a position to choose which companies they want to host. For example, growing injunctions to be sparing with land on both sides of the border places the Thionville intercommunal authority (France, near the border with Luxembourg) in a more favourable position to negotiate with companies about their establishment in the area. To a certain extent, it can choose the companies that bring added value to the area, especially those that create the most jobs. After more than fifteen years of unsuccessful prospecting, local authorities are now receiving projects from investors looking to establish job-creating logistics companies in the Europort business park in Illange (France). For the inter-municipality, this means new leeway in the management and regulation of urbanisation – a direct consequence of the context of land scarcity shaped by instruments aimed at limiting land take.

## 4 Conclusion

In this research, I explored the transformations of local collective action in spatial planning amid growing efforts to limit land take in Europe through changes in national land policies and instruments. The effects of “Zéro Artificialisation Nette” laws and instruments in France were found to be very heterogeneous at the local level, because local planning actors play with the rules in their implementation. Furthermore, the instruments used have side effects that extend beyond their area of implementation, placing spatial planning actors in a broader situation of interdependence with their neighbours in their attempts to limit land take. In view of these facts, actors are evolving their practices and sometimes developing new forms of intervention inflected by ZAN objectives. I highlighted the fact that these new land policies and instruments have limited capacities to integrate the spatial effects of economic development policies and to take into account the planning strategies of neighbouring countries, which raises questions for collective action in spatial planning in the studied areas. From a methodological point of view, I showed that the study of border areas can be a fruitful way to discuss common land challenges and different national approaches. I propose to look back at three results of this study.

Firstly, French instruments afford local elected officials a certain amount of flexibility in adapting and circumvent-

ing national directives. In a context where the rules are changing and where control over land take is being reinforced, some local elected officials and administrators are finding room to play with regulatory instruments in order to pursue the urbanisation of development zones. In response to future prospects for reducing the amount of land marked out for development, one elected official in Lorraine plans to anticipate the urbanisation of a development zone, initially planned for a more distant future. In Alsace, plans to update the intermunicipal plan, which was supposed to impose stronger limitations on urbanisation, have been delayed. Procedures for making planning documents compatible, as well as obligations or possibilities to subsequently amend land-use plans, allow for considerable leeway. In other words, the greatest political and institutional fragmentation allows for the greatest leeway. This is particularly true in France, where the number of municipalities and inter-municipalities is high.

Secondly, in France, changes in spatial planning laws are relatively frequent. ZAN-related laws and decrees thus lead to amendments in regional, intermunicipal and local spatial planning documents designed to bring the conditions for urbanisation and building rights up to date (e.g. reduction of areas marked out for urbanisation, densification). In addition, local actors can also negotiate and change the legal rules set out for urban development at the municipal and intermunicipal level. The study results do not allow comparison of the degree of negotiation between the border regions studied, but rather invite a comparison of various negotiation frameworks and of the different ways in which they give shape to, and are affected by, urban development morphologies. The highly flexible nature of the instruments can be a drawback for investors looking to set up a business but who have no guarantee that building rights will be maintained over time (van Dijk/van der Vlist 2015: 1910; Van den Hoek/Spit/Hartmann 2020: 3, 7). However, the frequent possibility of revising regulations allows municipalities to orient their urbanisation trajectories as they wish. Finally, in less urbanised areas, the flexibility of the instruments is probably a factor in land consumption, insofar as revision possibilities can serve as a lever for obtaining building rights (Soaita 2013: 2096–2097; Melot/Delattre/Napoléone 2018: 124).

Finally, in cross-border areas, the greater differences between fiscal, economic, legislative and institutional systems highlight two major difficulties faced by the instruments put in place to limit land take. Firstly, the survey shows that possibilities to limit land take on one side of the border are often highly dependent on decisions taken by the neighbouring country in other fields than spatial planning and development. The tax benefits afforded by Luxembourg or Geneva – to carry out professional activities, establish

a business or relocate operations – leave spatial planning actors in neighbouring countries powerless: actors are then more likely to act on the resulting effects than on driving factors. Secondly, the difficulty of controlling land take is due less to the specificities of the instruments put in place for this purpose than to the methods through which they are implemented. In the studied areas, actors on either side of the border often have a relatively similar range of instruments at their disposal to limit urbanisation in development zones (Jehling/Hecht 2022: 117–126), whether they involve public land control (preemption, expropriation), local and supralocal spatial planning, or the management of operations (mixed-use buildings, long-term leases). However, the public players on either side of the border do not always use these instruments, or do not use them in the same way (for reasons of cost, time, conflict or planning culture in particular), which also hampers attempts at cooperation in efforts to limit land take across the functional area.

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