

The strategic use of time-limited property rights in land-use planning: Evidence from Switzerland

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Abstract

While land-use plans are regularly revised, property rights are extremely stable over time. Yet, the stability of property rights resulting from the current conception of exclusive ownership makes the implementation of land-use plans increasingly complicated, difficult and long. Planners recognized the need for more flexibility in many urban contexts to effectively steer spatial development in the already built environment. Relying on a detailed case study carried out in the municipality of Bienne, Switzerland, this paper examines how a strategic use of long-term ground leases granted on municipal land can allow for increased flexibility in planning. Ground leases are a policy instrument leading to a time-limited division of the bundle of rights between a public landowner and the ground lease holder, who becomes the owner of the facilities on the land for up to one hundred years. The strategic role of ground leases in urban planning remains largely unexplored. This article shows that ground leases are an empirical and practical response of planning authorities to the inflexibility of property rights in given situations where more flexibility would be needed. Public actors can use ground leases to implement an active land policy leading to a better allocation of land to specific projects and to a more precise control of building activity. By analyzing the role of ground leases at the interface between planning and property, this article aims to contribute to a better understanding of the complex relationship between land-use planning and property rights.

Keywords

Time-limited property rights, ground leases, spatial development strategies, policy instrument, land policy

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Introduction

For decades, many European cities have been fighting against sprawl by trying to limit their spatial expansion (Thiel, 2008). As a result, land-use planning has been increasingly focusing on brownfield development, urban regeneration, mixed-use development, and urban land reconversion or densification, while struggling with the redevelopment of pre-used plots (Adams et al., 2001; Nelson and Moore, 1993). In most democratic countries, the real challenge is not so much plan making, but rather plan implementation. Planning frequently fails to cope with complex property-right arrangements, as most instruments were crafted to deal with the simpler property-rights situations related to former agricultural land. One of the central challenges of sustainable land thrift is that land-use planning needs to deal with the complex property-rights situations in the already-built environment, such as intermixed parcels of different sizes, co-ownership constellations, rights to object granted to neighbors, rights of way, mosaic of easements, etc. Effectively steering spatial development in such conditions requires a keen understanding of the close interactions between land-use planning and property rights (Blomquist, 2012).

This article explores the relationship between land-use planning and property rights by analyzing the strategies implemented by public actors to deal with these complex issues. More specifically, this article investigates how a strategic time-limitation of property rights through long-term ground leases can efficiently contribute to improve the coherence between planning and property rights in the urban setting.

While land-use plans and corresponding development rights are regularly revised and updated, property rights are extremely stable over time (Savini et al., 2015). The former result from the implementation of land-use planning policies, which are regularly amended by political actors; the latter's definition is enshrined in civil code articles which barely change, in particular because of the role played by ownership guarantee in capitalist economies (Steiger, 2006), as well as of the political power of landowners to resist incremental revision. Consequently, the two main sources of formal regulation have different timescales. Property rights protect private interests, while public policies protect the general interest (Doremus, 2003). Without heavy state intervention such as expropriation, new planning regulations (e.g. new zoning) only get implemented when titleholders agree to undertake new developments, sell their land or transfer their development rights.

Both planning theorists and practitioners have recognized the need for more flexibility in urban contexts to respond to challenges with redevelopment and to give an impetus to new city developments (Bertolini, 2010; Roo, 2010). Often, participative planning (Innes and Booher, 2000), communicative planning (Huxley, 2000) or collaborative planning (Healey, 2003) is discussed in planning theory. These approaches are not always effective and efficient in achieving the desired planning goals in front of powerful interests rooted in property rights (Hartmann and Needham, 2012). An alternative response can be found in different legal strategies that allow limiting the scope and duration of property rights (Gerber and Rissman, 2012; Stoms et al., 2009). Time-limited property rights strategically granted on public land can allow for increased flexibility since they reduce the discrepancy between the timescales of property rights and public policy, and facilitate the unbundling of the "bundle of rights" (Commons, 1893: 92).

This contribution focuses on the strategic use of a specific form of time-limited property rights – long-term ground leases¹ (GLs) – in urban planning. In Switzerland, the way land leasing is regulated is defined in the Civil Code, which derives from Roman Law. The general principles are shared with other legal systems based on civil law. Under this system the landowner (in Anglo-Saxon terms, the owner of a freehold interest, or fee simple,

in land) may, while retaining legal ownership, transfer to a third party the right to use his/her land under the conditions defined in the initial contract (Needham, 2003). There are various sorts of rights the owner of the freehold interest may transfer to a third party. A common example of such rights is farm-land leases. In this article, we focus on the right that makes it legally and economically possible to erect, use and sell a permanent building on the land. In civil law countries, the only sort of right that is suitable for this is long-term GLs. Leasing contracts delineate the property right relationship between the freehold owners and the leaseholders. GLs are granted for up to one hundred years. Like farm-land leases, GLs are material rights, or rights *in rem*, which means that they exist independently of who the leaseholder is. Therefore, a GL is a right that can be traded and has a monetary value.

The use of GLs as an instrument to steer spatial development implies a close collaboration between landowners and planners; this condition is most easily met when GLs are granted on municipal land.² Allocating time-limited private-property rights on municipal land though GLs can be considered a form of “planning by contract”. This reflection on the strategic importance of public ownership in cities is particularly timely under present austerity policies that are strongly incentivizing public actors to sell their land.

The first aim of this article is to elucidate the contribution of GLs to the land policy of municipalities. How do public actors in charge of land-use planning strategically use GLs to reinforce the implementation of long-term spatial planning goals in the urban environment? We will examine how municipalities play on both levels – ownership and planning – to support the implementation of municipal development goals in the long term. This question opens up a broader discussion on fundamental aspects of the relationship between planning and property rights, covered in the second aim of the article. We address the different timescales of planning vs. property rights and the role of public actors in this context. This connects with land value issues: while planners are typically interested in the *use value* of land, profit-oriented landowners might focus on its *exchange value* (including speculation).

We proceed in three main steps. First, we discuss the conflicting interactions between property rights and planning. Then we present time-limited property rights in Switzerland, a country characterized by both very strong property rights and an intense pressure for better planning. This serves as an introduction to the empirical case study carried out in the municipality of Bienne, Switzerland. Finally, we discuss the broader significance of the case study and ask whether property rights might have become too stable and inflexible in the context of complex property-rights constellations to make sound planning possible.

The difficult interaction between land-use planning and property rights

Dealing with two different sources of legal constraints

The concept of property as we know it today emerged during the 17th-century in the wake of liberal philosophy (Blomquist, 2012). Classical liberalism accords individuals a set of basic rights. Among them, the right to property aims to protect individuals against possible interferences – from other individuals or the government – in the private sphere. Its function is to protect their autonomy and freedom as citizens. There is a very close link between liberal democracy and landownership (Constant, 1988).

The exclusive conception of landownership is based on the idea of “private dominium” handed down from Roman law, revived by the Napoleonic code after the French Revolution, and subsequently spread within Europe and throughout the world, particularly through colonization (Aubin and Nahrath, 2015; Christman, 1994). Individuals exercise dominion over the things they own. Moreover, following the principle of accession, they are also the

owners of immovable objects, such as buildings that are attached to the land. By tightening the bundle of rights in favor of the landowner, the accession principle plays a fundamental role in making property more exclusive and rigid. During the last century, an increased number of laws have limited the scope and regulated virtually all aspects of property rights. However, our concept of property has hardly evolved in people's minds or in positive law (Rémond-Gouilloud, 1989). Absolute, exclusive ownership is an integral part of the common ethos of western societies that make it an inviolable, sacred right, or at least a very strong one, that can only be infringed upon in very particular circumstances and is subject to "fair compensation" (Meyer, 2009). This principle is clearly affirmed in the great constitutional declarations at the end of the 18th-century such as the *Bill of Rights* in the United States (5th and 14th amendments) or the *Declaration of the Rights of Man and the Citizen* in 1789 in France. It is also found in more contemporary texts such as article 17 of the *Universal Declaration of Human Rights* in 1948.

This strong Lockean definition of property is questioned by those who point out that titleholders also have a social responsibility and that one of the missions of private property is to promote societal goals (Jacobs, 1998; Sax, 1992). In practice, property rights are tempered by public policies; the latter follow from a different logic than property titles. They are crafted by democratically elected bodies to solve a politically defined public problem in the interest of the (voting) majority (Knoepfel et al., 2007), which is commonly referred to as the "public interest". Policies with a spatial impact often conflict with landowners' freedom. Among these policies, land-use planning is the most obvious, because its *raison d'être* is precisely to control how landowners use their land in the interest of the public (or at least not against it). However, property rights are so inflexible that land-use planning seems to experience difficulty in imposing democratically accepted development plans on titleholders.

Land-use planning is about constraining land users

Land-use planning is the "process by which public agencies, mostly local governments, determine the intensity and geographical arrangements of various land uses in a community" (Fulton, 1999: 7). Land-use planning is a public policy (Gerber, 2016). As such, it aims to solve a public problem (e.g. the uncoordinated use of land). It draws its legitimacy from a legal basis (e.g. a constitutional article or the land-use planning law), defines the public actors in charge of implementation (e.g. planning agency), and provides them with a budget, other resources, and so on. Through different policy instruments, a public policy aims "at modifying the behavior of social groups presumed to be at the root of, or able to solve, the collective problem to be resolved (target groups) in the interest of the social groups who suffer the negative effects of the problem in question (final beneficiaries)" (Knoepfel et al., 2007: 24). As a public policy, land-use planning has developed a series of hierarchical plans (policy instruments) to control the actions of those actors whose effective behavior leads to uncoordinated growth, namely the behavior of the landowners. Landowners are the *target groups* of the land-use planning policy (Knoepfel and Nahrath, 2007). However, due to their strong position as titleholders, they are well equipped to resist. Here lies the conundrum of plan implementation: how can comparatively weak politico-administrative actors impose land-use restrictions (plans) onto strongly protected target groups?

Because property titles give additional power to their holders to shape spatial development, public actors too can use them to reinforce their position. In hypothesis 1 (below), we explore how a combination of public ownership and GLs can help municipalities to more effectively implement land use plans.

Much has been written about whether landowners benefit from land-use planning or are victims of it (Babcock, 1966; Nelson, 1977). Clearly, land-use planning makes people poorer or richer (Needham, 2006). While some argue that zoning, the main instrument of land-use planning, is fundamentally unjust because it leads to discriminations among landowners, others refer to the unnecessary transaction costs of zoning, which lead to costly approval procedures. The advocates of land-use planning put forward economic arguments such as investment-value protection (Moore, 1978), legal certainty, and predictability or equal treatment (within the same zone) (Needham, 2006). In any case, zoning protects the landowner from the negative externalities caused by new, and possibly non-compliant, developments (Ruegg, 2000).

Planners at the interface between public policy and property rights

Because it takes place at the interface between two major sources of legal constraint – property rights and public policy, land-use planning operates the translation of one logic of intervention into the other, and vice versa, mainly through delivering individual building permits (Gerber et al., 2011). In this sense, property rights are necessary, even desirable (Hartmann and Needham, 2012), because they delimit the precise plots, where planning decisions become concrete. They play an important role in protecting the way planning decisions have been materialized, and make planning decisions robust (Davy, 2012). Planning would lack legal durability if it took place in a context where property rights were not clearly defined (Soto, 2000). Such constellations would hamper investments in, and betterment of, the land.

Finding a socially and politically acceptable balance between the defense of private and public interests is a permanent challenge (Booth, 2002). Strong property rights encourage and protect long-term investments in property (Davy, 2012: 1–2; Steiger, 2006). However, contemporary planning theory often criticizes property rights as being too inflexible to cope well with: uncertainties, deadlock situations that hamper changes (Hartmann and Needham, 2012), changes in economic conditions (e.g. brownfield redevelopment), and evolution of political objectives (e.g. discussions about densification). “In every planning system there is a tension between legal certainty and flexibility” (Buitelaar and Sorel, 2010: 988). Of course, in the same way that the State can create, define and shape property rights, the State can also terminate them under specific circumstances (e.g. construction of roads, railways). However, because of the constitutional guarantee of private property, termination enables the dispossessed titleholder to file claim for just compensation (Cooter and Ulen, 2004; Hartmann and Needham, 2012).

For municipalities, expropriation procedures are always long and expensive. They might also lead to political upheaval or court cases if the motives of the public actors deviate from the straightforward reasons provided for by the law (typically infrastructure provision). This raises contested issues, such as whether expropriation is legitimate to implement land-use plans or to encourage the construction of affordable housing. Politicians are also aware that the political acceptance of expropriation measures is often low. The unfavorable public and political reaction raised by the use of expropriation to promote economic development is best illustrated by *Kelo v. City of New London*, 545 U.S. 469 (2005), where the Supreme Court of the United States upheld the use of expropriation to transfer land from one private owner to another for local economic development purposes.

To avoid expropriation, at least in those countries where it is included in the toolbox of land-use planning, public actors can rely on land readjustment – a procedure through which the plot boundaries within a chosen area are renegotiated, but the landowners still keep their

share of the land. It is often described as an efficient alternative to make land available for foreseen planning purposes (Alterman, 2007; Davy, 2007). It is an alternative to expropriation, but land readjustment is also time-consuming and complex (Dieterich, 1996; Hartmann and Spit, 2015).

To gain time and flexibility, municipalities – or semipublic entities such as land banks – can go one step further and acquire land on the land market for specific developments or for when the opportunity arises. In active land policy, “planning agencies make things happen, rather than wait passively until someone comes along who wants to implement their plan” (Needham, 2006). Landowning municipalities benefit from the power granted by property rights, but this active land policy strategy can also be the source of a number of problems. First, a municipality needs to be able to finance an acquisition strategy, which is a challenge with high land prices and austerity imposed on public actors (Buitelaar, 2010). Second, it needs to convince the municipal population that it is the mission of a public authority to manage real assets. While it is widely accepted that the implementation of specific public tasks rely on property (infrastructure, schools, green areas, and so on), in a liberal context promoting a slimmer state, the idea of a public body managing real assets can be questioned by a large part of the political spectrum. Third, land deals might be financially risky and the question arises whether municipalities should take on the risk (Hartmann and Spit, 2015). Although active land policy works well under some conditions, and many countries have positive experiences with it (notably in the Netherlands), it is ultimately a strategy that comes with financial risks for the public sector, as shown during the recent Dutch economic crisis in 2007/2008 (Buitelaar, 2010; Krabben, 2011). Fourth, public acquisitions can impact democratic decision-making procedures: because land deals require the executive to be able to react quickly on the land market, a reinforcement of its discretionary power is necessary (Gerber, 2016). As hypothesis 2 (below) postulates in connection with GLs, a more managerial approach linked with additional power given to the executive to shape development through property rights may lead to more ruthless practices, increased tensions and uncertainty.

Since expropriation, land readjustment and active land policy are all challenging from different perspectives, other solutions might be considered to reinforce the position of land-use planning authorities to implement sustainable land use. In this context, this paper explores a middle ground between pure public or private ownership; it focuses on the potential of time-limited property rights granted on public land to strengthen the position of planners in the planning process.

There is a rich international literature on leasing out public land (e.g. Bourassa and Hong, 2003). This is particularly true for national settings where the central state is a major landowner, such as in western United States, China or many countries of the Global South. Land management of rural areas is faced with other challenges than urban areas (Raymond, 2003). Urban public ownership is a characteristic of global cities such as Hong Kong or Singapore (Haila, 2000; Hong, 1998), where the state is in a position to subsidize specific land uses (such as housing and industry), to capture the increasing value of land and prevent speculation. In Israel, following gradual adaptations of the leasehold system, the private property rights of the lessee became very similar to the property rights under the freehold system (Benchetrit and Czamanski, 2004). In Canberra or Hong Kong too, the leasehold system is under pressure (Bourassa et al., 1997; Lai, 1998). While an important economic literature focuses on issues of leases and real estate prices, lease allocation, value capture through leases or taxation, the connection between land-use planning and long-term leases has received less attention (but see Bourassa et al., 1996; Lai, 1998; Needham, 2003), especially when it comes to analyze their strategic role as instruments of land policy.

Time-limited property rights to support planning

Planning in Switzerland

In Switzerland, the Federal Land-use Planning Law of 1979 orchestrated the evolution of a hierarchical structure of plans regulating land uses (Knoepfel and Nahrath, 2007). Plans are the response of public authorities to the problem of uncoordinated territorial development that might result from unrestrained property-title holders (Adams et al., 2001; Jacobs and Paulsen, 2009; Zimmerli, 1990). In Switzerland,³ local zoning plans, which must comply with cantonal structure plans, are binding on landowners (Bühlmann et al., 2011; Muggli, n.d.). As in many other countries, building permits are granted to landowners by municipalities, provided that permit applications conform to zoning designations.

The implementation of land-use plans is mostly reactive, as municipalities await private development proposals-expressed in applications for building permits – and respond to them (Fulton, 1999). Indeed, the designation of land in a land-use plan does not automatically lead to the realization of the foreseen land uses, because owners of the plots of land cannot (with few exceptions) be forced to implement the plan. So there can be a gap between the real supply of developable parcels (depending on the willingness of landowners to sell or to develop) and the potential supply (depending on land-use plans) (Davy, 2007). Municipalities develop strategies to address this gap. These strategies are deliberate and goal-oriented applications of certain instruments such as expropriation, land readjustment, amicable purchase, and so on.

The strategic use of GLs is part of an active land policy. This strategy may allow a more effective implementation of land-use plans than traditional instruments alone, such as zoning or land readjustment, without bearing the financial risk involved in directly participating in land development. A strategy based on GLs is conditional on the existence of a municipal real estate portfolio.

Long-term ground leases

Essentially, a GL is a time-limited property title whereby the landowner, whether public or private, transfers the development rights of a parcel to the owner of the building for a given period of time (up to one hundred years) in exchange for annual rent payments. In this sense, a GL creates a time-limited exception to the accession principle. At the end of the lease period, all improvements made to the land by the owner of the building revert back to the landowner, according to the terms of agreement stipulated in the initial contract (Table 1).

The strategic use of GLs in land-use planning. Time-limited property rights granted by municipalities on public land lead to a division of the bundle of rights between the municipality and a private GL holder. Development rights are private, but limited in time. They are also more restricted than those resulting from pure private property, because they can only be used in a way that is compatible with the goals defined in the initial contract. GLs are traditionally used by public actors to support affordable housing cooperatives or other nonprofits (housing or social policy dimension). They can also be used to provide affordable land to private companies (economic development dimension) and to benefit from a stable source of income over time through lease revenue (financial dimension) (Haila, 2000; VLP/ASPAN, 2011).

The role of time-limited property rights in urban planning has largely remained unexplored. From a land-use planning perspective, we expect them to modify the balance

Table 1. Overview of the GL instrument in Switzerland (VLP/ASPAN, 2011).

Division of rights	The GL (Articles 675 and 779 of the Swiss Civil Code, CC) is an easement that allows the holder of the GL to erect buildings and facilities on land that does not belong to him/her. The GL holder owns the building and has the legal means any owner enjoys, including the ability to borrow on mortgage or to demolish and rebuild the facilities.
Creation and awarding	Swiss law governs the content of the GLs in a very general way (Art. 779 CC). Details must be agreed in the GL contract. Parties have considerable latitude in this regard.
Annuity	The GL holder pays an annuity to the landowner, which allows the latter to cash a share of the land rent of his/her parcel.
Duration	As distinct and permanent rights, GLs can be registered as property in the land registry. GLs have a duration of at least 30 years and 100 years maximum depending on the initial contractual agreement between landowner and GL holder. An earlier termination of a GL amounts to an expropriation.
Reversion	The law specifies that the landowner must pay the holder of the expired right adequate compensation for the buildings which have reverted to his/her ownership. Additional clauses are usually stipulated in the initial contract. Conflictual situations can result from the ambiguous formulation of the contractual stipulations concerning reversion.
Content	In the GL contract, the parties may specify additional clauses, such as the destination and the architectural treatment of buildings, the allocation of undeveloped land, or the prohibition of activities or provisions relating to green spaces.
Non-compliance	The violation of the obligation to maintain the buildings, and setting rent significantly higher than those prescribed, can lead to a premature reversion of the building right.
Transferability	It is possible to add a clause to the contract stipulating that any transfer of the GL requires the consent of the landowner.
Extension	The GL may at any time – even before the expiry date initially planned – be extended for a period of up to one hundred years.
Return Policy	On expiry of the GL, buildings and facilities on the encumbered land revert to the landowner and become part of the real estate. The landowner is required to pay compensation for the buildings.

GL: ground lease.

between the actors involved in the planning process. To capture this shift, we formulate two complementary hypotheses. The first one deals with the relationship between political-administrative actors in charge of land-use planning and the target group of the policy – the titleholders –, while the second one focuses on potential “side effects” of the increased power given to the public real estate managers at the expense of more time-consuming democratic decision-making procedures.

H1: Time-limited property rights granted by municipalities strengthen public actors in the planning process because of three characteristics. First, by splitting the bundle of rights, GLs allow a more flexible approach to property rights, reducing the inflexibility that hinders the implementation of land-use plans. Second, because of their expiration date, they temporarily reduce time discrepancies between planning and property rights. Third, by preventing unwanted uses, such as speculation, they allow a better focus on the use value of property. As such, they provide for a more effective implementation of land-use plans.

Property rights reinforce the position of their holders. Within municipalities, the executive is in charge of real estate portfolios, because decisions on the land market need to be taken rapidly. If a public administration starts to defend its economic interests as a landowner, it might jeopardize its involvement for the general interest. The lure of financial benefits from public property may generate tensions in spatial development:

H2: In a municipality, the strategic use of time-limited property rights in land-use planning reinforces the role of the executive, i.e. the public real estate managers. It promotes a more managerial, real estate-oriented approach to planning at the expense of more open – but time-consuming – democratic decision-making procedures taking place in the legislative body (municipal parliament) and the civil society. As such, GLs can lead to situations where the executive or the administration in charge can potentially abuse the increased power, leading to uncertainty and conflicts in the implementation of land-use plans.

Methods

The present research is based on a Swiss case study. Switzerland is a liberal country with strongly protected property rights. Consequently, landowners are particularly well equipped to influence land-use planning processes due to their strong position.

To select the case study, we relied on the empirical basis of a paper recently published by Gerber (2016), which provides a broad picture of the development strategies of 19 Swiss municipalities' strategies. These municipalities were selected because they are on the front line of growth management in urban areas (Gerber, 2016). Their practices provide a good overview of the possible responses that a public actor can formulate when pressed to address spatial development issues. Rather than selecting an "average" case, we chose an extreme situation to ensure that the mechanisms at play would be easily identifiable (Yin, 2009). The municipality of Bienne (Biel in German), the tenth largest city of Switzerland, satisfies our criteria because it has a very long experience with GLs and uses them extensively. The city of Bienne is not just managing self-sustained economic growth (like other larger cities in Switzerland); it is fighting to improve its attractiveness and to boost an unsteady local economy. Spatial development strategies play a major role.

We employed multiple methods to understand the mechanisms at play and to investigate our working hypotheses. We obtained expert interviews (3 in 2007 and 3 in 2014) with key local informants – executives, planners and real estate managers. We also gathered official information provided by the municipality, newspaper articles, and grey literature. Additionally, a GIS analysis was used to superimpose property titles, cadaster and land-use plans. (In Switzerland, land registers are not publically accessible, which makes data analysis more difficult.) Focusing on municipal ownership, we analyzed the municipal spatial development strategy, investigating how property titles, GLs and zoning interact.

Case study: Bienne's spatial development strategy

History and geography

In the second half of the 19th-century, the watchmaking industry transformed the municipality of Bienne into a flourishing industrial city. In 1800, the city was home to 2000 inhabitants; in 1920, it boasted about 12 times that population. After World War II, the mayor, Guido Muller, initiated a strategic policy of land acquisition (Gaffino and Lindegger, 2013). In 1964, the population reached 65,000 inhabitants. However, the watchmaking crisis of the 1970s hit the city (Steiner, 2015). The population diminished

significantly; it has stabilized today at around 50,000 inhabitants (almost 89,000 in the entire agglomeration). The watchmaking industry eventually rallied and the strongest brands created new jobs. Today, the manufacture of Rolex and the headquarters of Omega SA and Swatch SA are all among the largest employers.

The city could recover from crisis because of the large portion of land that belongs to the city (Loderer, 2010). The municipality is able to rapidly provide land to job-creating industries. It also supports housing cooperatives that provide affordable housing and controls the quality of urban development, to make it more attractive. In all three domains, GLs play a central role (Figure 1).

Strategic use of municipal real estate and long-term ground leases

The city of Bienne has formulated a differentiated strategy for the different types of real assets and clearly follows the goal to make the most out of its strong position, despite public finances that often limit it. The strategy explicitly implies the use of municipal landownership, including GLs, to shape spatial development (and vice versa) (Schwab, 1996).

The municipality of Bienne spreads over 2123 ha, about a quarter of which are in the hands of the city. About 420 ha are posted to the financial assets (2014), meaning that they do not serve the implementation of a public task required by law (such as schools). Among them, 126 ha are granted to third parties through GLs that generate an income of 6.5 million Swiss francs per year to the city (2014). At the core of the Bienne city development strategy is a portfolio of parcels of strategic importance that is actively managed by the city.

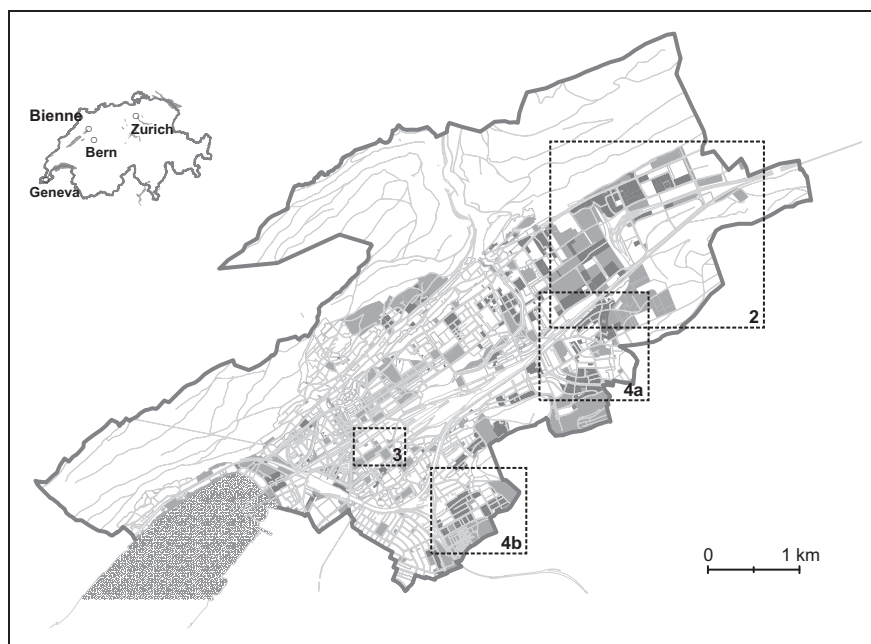


Figure 1. City of Bienne. The land belonging to the city is depicted in gray. The darker shade of gray represents municipal land burdened with long-term ground leases.

Source: Cadaster and land register information.

The city continuously tries to acquire land when an opportunity arises. The basic principles of this strategy are always the same: land is bought where the interest of the market is low, then the city enhances the value of it over years or even decades. The city does not develop its own land; GLs are used to secure private (but time-limited) development on it. To increase the value of its own parcels, the city does not hesitate to change zoning. Consequently, it is able to capture the betterment value resulting from planning. Today, the city always connects the development of its parcels with a legal action (e.g. changes in zoning) that increases the value of its investments (Kuonen, interview 12.05.2011). This money is mainly reinvested in the development of public facilities and in the acquisition of land. Contrary to private investors, the city has the time to wait; the city is not under pressure to make a (short-term) profit. In short: the city is a clever speculator (Loderer, 2010).

Being active on the land market implies a certain amount of secrecy in the preparation of land deals because comparative advantages are lost when land-deal negotiations become public. The executive benefits from the ability to rapidly complete land deals. The executive can make decisions on its own, up to a million Swiss francs, but then the legislative has to consent to it. Above a limit of 5 million Swiss francs, the municipal electorate is consulted (City of Bienne, 1996). Between 1991 and 2014, all 37 consultations implying land deals were accepted by the electorate, showing a broad support of the population.

GLs are an important tool for the long-term management of the municipal real asset portfolio. Relying on pragmatic arguments, the executive might be more willing to sell land, but the legislative, who puts forward arguments of principle, strongly opposes any sale (Klopfenstein, interview 19.05.2011).⁴

The city is not the only one to use the instruments of GLs. However, it is the dominant actor in this area, since 84% of all GLs are granted by the city. Among the actors who take out GLs, 17% are private companies, 35% are private individuals and 37% are housing cooperatives. Out of 406 GLs (2014) granted by the city of Bienne, 13% are located in the industrial/commercial zone and 60% in the mixed residential and commercial zone (Bienne has almost no purely residential zones). The parcels located in the industrial/commercial zone are on average larger than the others because they represent 30% of the total surface of GLs.

In the management of its real assets and GLs, the city follows a differentiated strategy depending on situation.

Promoting economic development. Bienne is historically a major landowner within industrial and commercial Champs-de-Boujean (Figure 2). This zone is east of the city on an airfield land that Bienne had planned by the 1920s (Loderer, 2010). The end of this project marked the beginning of the industrialization in this area. Without this readily available and publicly owned reserve of land, the development of the industrial/commercial zone could never have been so fast. In this situation, GLs are a powerful tool to attract new small and medium-sized enterprises. GLs are granted without specific conditions concerning building quality or environmental standards in order to not diminish competitiveness, but the number of jobs created is an important factor.

Shaping development through the landowner's right to object. When granting GLs on municipal land, the city remains landowner of the parcel. As a landowner, the municipality can then influence the spatial development of private parcels through its right to object as a direct neighbor. Neighbors are invited to comment on applications for planning permission, but they can also appeal against them. Thanks to its tight network of parcels, the city of Bienne is involved as a landowner in about half of the major development projects, which gives

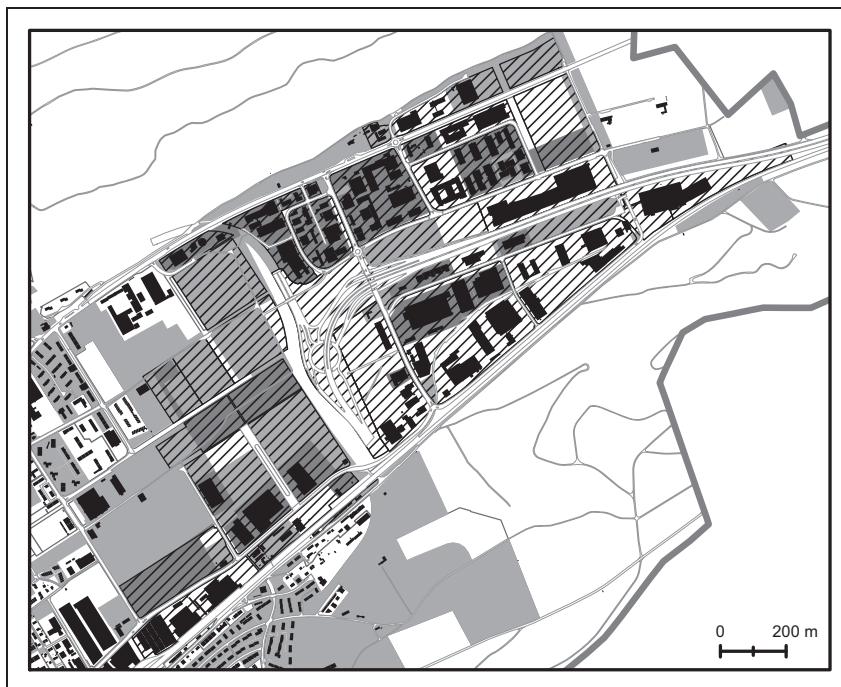


Figure 2. Industrial and commercial area of Champs-de-Boujean (hatched area). Land belonging to the city is depicted in gray. The darker shade of gray represents municipal land burdened with long-term ground leases.

it a considerable influence (Kuonen, interview 14.05.2007). Thus, the city controls private development in two ways: through zoning and through the right to object as a neighbor (Figure 3).

Promoting affordable housing. Public-utility housing cooperatives manage a stock of affordable housing whose rent is calculated in such a way that earnings cover effective costs (cost-rent principle) (Lawson, 2009).⁵ GLs are an acknowledged instrument to support noncommercial actors, such as housing cooperatives or foundations. Bienne does not build affordable housing on its own, but grants GLs to housing cooperatives for that purpose (Figure 4). In addition, the municipality also benefits from the lease revenue (Blumer, 2015).

Shift in the balance between planning and property rights

Effects of time-limited property rights on planning. Empirical evidence shows five main features of time-limited property rights in connection with land-use planning.

- (1) *Long-term management of a stock of public real assets.* In Bienne, GLs are an alternative to the outright sale of land. The planning literature shows that public ownership has many well-known advantages for a municipality. It makes it possible for a city to increase the coherence between planning and property rights through land exchanges. This is an active way to fight against hoarding or to prevent speculative strategies (van



Figure 3. The “Suze-Park” is a former brownfield located in the center of the city of Bienne (dashed line in the middle). It belongs to a large private investor (Espace Real Estate AG). Because of its strategic importance, the development in several phases of this area is done in close collaboration with the municipality. The city aims to promote new development principles: high architectural quality, densification, mixed-use (including sheltered accommodation for older people), as well as renaturation of the river. Development is controlled by the city’s strong planning position and by its role as direct neighbor with a right to object. Municipal ownership is depicted in gray; the river Suze belongs to cantonal authorities (dark gray).



Figure 4. Examples of settlements built by housing cooperatives on GLs granted by the municipality of Bienne (dark shade of gray). Land belonging to the city is depicted in gray. Hatched gray represents GL granted to private individuals.

GL: ground lease.

Straalen, 2014). Land exchanges lead to better projects than those that landowners could develop on their own within the limits of their own plot of land (Alterman, 2007). Public ownership also makes it possible to capture the betterment value resulting from planning (Kang and Korthals Altes, 2015). As an economic actor taking part in the land market, a landowning city defends its position as a neighbor that might be negatively affected by a next-door private development. This direct interest as an affected party is strongly protected by law (e.g. Article 684 of the Swiss Civil code). In the case of Bienne, the municipality clearly intervenes both as the planning authority and as a neighbor. However, despite its advantages, public ownership is politically and financially risky (Buitelaar, 2010). The case study shows that GLs play a central role in this context: they are the instrument that allows public actors to manage a large stock of land over the long term, by bringing part of it temporarily back into the land market. GLs make it possible for public authorities to become or remain landowners without becoming developers.

- (2) *Including urban planning objectives in the definition of land titles.* Contrary to municipalities that have sold their land, Bienne is not willing to abandon its economic power for a mere regulatory power. As a landowner granting GLs, Bienne can grant lease contracts in such a way that it closely adheres to planning goals (e.g. to support specific companies or housing cooperatives). GLs go even further than zoning, because they specify – in the definition of the GL – the rights and duties of individual target actors in connection with urban planning goals.⁶
- (3) *Opportunity to reallocate parcels at the end of the time-limited property right.* Once a company does not need its real estate anymore – due to moving abroad, reorienting its strategy, merging with another company, and so on – it is often used in a suboptimal way, from a planning perspective. GLs allow the city to reshuffle the cards and avoid potential lock-in situations. Land can then be used for other development priorities. Presently many GLs granted to housing cooperatives are coming to an end. Much to the discontent of cooperatives, Bienne delayed the renewal of these GLs (Blumer, 2015). Finally, a solution could be found and, in 2016, Bienne passed a new bylaw encouraging affordable housing construction.
- (4) *Better control of land prices.* In the 20th-century, one of the main rationales for cities to acquire land was to keep speculation under control. In other words, they were expecting to prevent the price of land (exchange value) from being disconnected from its use value. Wherever the municipality is the landowner, it can decide to whom it grants a GL. Through contract terms and lease rates, it can influence the rent price in the dwellings built on its parcels. This argument played a central role in Bienne's GLs strategy (Schwab, 1996).
- (5) *Continuous source of income (lease revenue).* Land reformers such as Henry George, Adolf Damaschke or Hans Bernoulli supported the idea that land rent should be a source of revenue for the public. According to this argument, since the value of the location depends on the results of land-use planning, it is normal that this money be used to finance spatial development. With GLs, the municipality of Bienne is able to capture part of the economic rent of land through lease revenue.

Reinforcement of public actors in the planning process (hypothesis 1). The first research hypothesis (H1) is mostly confirmed. The GL strategy of the municipality of Bienne does not only have a housing policy, economic development or financial dimension; it also clearly has a planning significance. There is a strong connection between the use of time-limited

property rights and a better implementation of the land-use plans. Through time-limited property rights, landownership can be public while development rights remain private. GLs create more flexibility in the accession principle. The municipality is able to manage a larger portfolio of real assets and benefit from the advantages of public ownership to shape urban development (effect 1 above). Even more important, they go even further than zoning, because they allow the inclusion of urban planning objectives in the definition of property rights by choosing the identity of the GL holder (effect 2). Time-limited property rights reduce the discrepancy in timescales between land-use plans and property rights, because the lease needs to be periodically renewed (effect 3). Finally, they allow a better focus on the use value of property since they prevent speculation strategies (effects 4 and 5).

Reinforcement of managerial approaches in the planning process (hypothesis 2). The second hypothesis (H2) is partially confirmed as well. Time-limited property rights clearly reinforce the position of the executive and the municipal administration in charge of public real assets. According to H2, one could expect that such a constellation would bring municipalities, led by their executive, to take advantage of their additional power to make choices that might lead to more conflicting spatial development. The case study shows that the municipality does not hesitate to use its economic power as a landowner.

Municipal landownership – and corresponding capacity to unilaterally allocate use rights through GLs – can be seen as a way to maximize efficiency against more time-consuming democratic procedures. Indeed, in Bienne, GLs are clearly seen as a source of revenue for the city and are managed accordingly. To safeguard its management freedom, the executive does not communicate the benefit of individual objects within a real asset portfolio (this makes for instance cross-financing easier). Acquisitions and sales are prepared confidentially by the executive in order to avoid effects on the land market; the same is true with “secret” long-term acquisition plans. The terms of GL contracts are also directly negotiated by the administration in charge (even if standard reference contracts exist). Therefore, the legitimacy of public actors tends to rely more on the appreciation of outputs (secondary legitimacy), rather than democratic legitimacy (primary legitimacy).⁷ However, such a strategy involves direct dangers: democracy deficit, lack of transparency, conflicts of interest, and abuse of a dominant position toward private GLs-holders and landowners. In negotiating land deals with other higher-tier public actors (e.g. sale of land for road construction), cases have been documented where the city of Bienne behaved like a speculator (Csikos, 2009). Similarly, housing cooperatives have complained that Bienne delayed the renewal of GLs guaranteeing affordable housing (see above). The risks of an entrepreneurial form of planning are well documented elsewhere in connection with public private partnerships (Fainstein, 2008; Swyngedouw et al., 2002), active land policy (Hartmann and Spit, 2015; Krabben and Jacobs, 2013), or new public management (Gerber, 2016). Managerial strategies might easily lead the municipality to behave as any other private company in the land market and use public privileges as an asset it can take advantage of.

The municipal parliament of Bienne plays a central role in keeping the administration under control and preventing opportunistic sale of real assets (e.g. to fill the municipal coffers). Public scrutiny, especially in the democratic debates taking place before municipal votes on land-use plan revisions, also plays an important role in this matter. In Bienne, the population supports the strategy of the city, as the results of local votes show. Today, however, the executive complains that rental prices are too low in Bienne, as compared to other cities, and attract bad taxpayers. The future will show whether the municipality will use its dominant position to promote the development of more expensive dwellings.

Discussion: The relationship between planning and property rights

In light of the present spatial planning challenges linked to the end of green field development, three aspects of property rights appear to be very challenging to land-use planning: timescales, use vs. financial values, and flexibility. Time-limited property rights on municipal land provide a targeted response to these challenges.

Through GLs, planners operate at a longer time scale. While land-use planning law is regularly amended, and while zoning is revised every 15 years, property rights are stable⁸ over decades or more. Public landownership and GLs provide a response to this discrepancy. Our case study shows that municipal landownership is associated with different costs: land is expensive to acquire; a land portfolio requires decades to develop; it calls for specialized competences and coordinated action within municipalities; landownership partially transforms the municipality into an economic actor active in the land market and can pose democratic challenges. By bringing land partially back into the land market, GLs attenuate the disadvantages of municipal landownership while maintaining its key advantages for planning. Indeed playing simultaneously on the regulatory and property-rights levels has become a condition to implement spatial planning objectives in contexts characterized by complex property-right constellations. Matching the different time scales between planning and property rights does not only call for reducing the temporal scope of property rights (e.g. through GLs), but also for increasing the temporal scope of planning. According to the fundamental principles of representative democracy, a municipality is not just another private service provider active on the land market. As a public actor, the municipality has a long-term responsibility, a reality that can easily be forgotten by an executive who is involved in daily management and obsessed with new performance standards imposed upon public administrations (Dibben and Higgins, 2004; Osborne and Gaebler, 1992).

Through GLs, planners support the use value of land against its exchange value. Public actors in charge of plan implementation are more interested in the *use value* of land than in its financial value (Harvey, 2008). Landowners have a general tendency to consider their real asset as an investment, which is one of the main reasons explaining implementation gaps, so the municipality appears quite powerless. However, as the case study shows, landowning municipalities can rely on time-limited property rights. They are often granted at a price below market value and prevent any form of speculation (Schwab, 1996). They can be granted to noncommercial housing cooperatives leading to a partial decommodification of land (Brenner et al., 2010; Gerber and Gerber, 2017). In short, when property rights are used to protect the use value of land, as is the case with GLs, property becomes more open to planning initiatives than when they are mainly used because of the investment security they guarantee.

Through GLs, planners reduce the inflexibility of property rights. Land-use planning takes place at the interface between property rights and public policy, the two major sources of legal constraints. The plan-implementation process translates one logic of intervention into the other and vice versa, mainly through the deliverance of individual building permits. However, as the numerous lock-in situations demonstrate (e.g. hoarding), the translation process can easily seize up. Landowners have a de facto veto-right. In many situations, especially in complex property-right constellations, the inertia of landownership might be

too strong. This is where a strategy relying on municipal ownership and time-limited property rights has the greatest potential: such a strategy reinforces the translation process between publically defined development goals and the property-right order because the expiration-date put on property rights allows planners to reshuffle the cards and because the terms of the contract can include planning-relevant clauses.

However, even if some cities such as Bienne use time-limited property rights to their advantages, they only provide a partial solution to the incoherence between the inflexibility of property rights and the necessity to implement plans in sensitive contexts such as city centers or economic development areas. Challenges of brownfield development, urban redevelopment, mixed-use development, and urban land reconversion or densification call for a reexamination of the interconnections between planning and property rights, such as it took place at the time of the introduction of land-use planning laws. Today, in a constantly changing society, property rights might have become too resistant, inflexible, and stable to implement plans in urban environments with complex land layout. The definition of the public interest, legitimizing public action against landowners, has evolved. Concretely, this means that the field of possible interventions against landowners without compensation might need to be reevaluated. Possible lines of arguments are that every right is intrinsically associated with a social obligation for the landowner (Alexander, 2009; Commons, 1893; Freyfogle, 2006; Jacobs, 1998; Sax, 1992). In connection with new planning challenges, the myth of unlimited property should constantly be revisited.

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Notes

1. “Erbbaurecht” in Germany, “droit de superficie” in Switzerland, “bail emphytéotique” or “bail réel” in France, “opstalrecht” in the Netherlands.
2. Technically GLs can also be granted by private or semi-public landowners. In urban environments, these actors rarely strategically follow goals linked with spatial planning. They are therefore not studied further in this article.
3. The Swiss Confederation is a federal republic consisting of 26 states called “cantons”.
4. Only in specific cases (e.g. Rolex, Swatch or different foundations), an agreement between the two could be found to sell land.

5. On average, members of a Swiss cooperative pay a rent that is 15% cheaper than other tenants (SFSO, 2014).
6. Bienne negotiates the rights and duties of future GL holders (e.g. building quality standards such as Minergie), but does not include such criteria in the lease contract (Kaletsch, interview 09.05.2011). Therefore, in Bienne, rights and duties are defined through the legal identity of the GL holder (e.g. nonprofit), but not in the definition of the GL. In theory, GL could include much more detailed specifications concerning the role and duty of the GL holder, as Swiss legislation defined GL only in a very general way (Table 1). However, the level of constraints has an impact on lease revenue. Moreover, too strict conditions may scare off investors.
7. Even if minimal democratic standards are guaranteed.
8. Both the legal definition of the institution of property and the (socially unequal) distribution of ownership titles are stable over time.

References

- Adams D, Disberry A, Hutchison N, et al. (2001) Ownership constraints to brownfield redevelopment. *Environment and Planning A* 33: 453–477.
- Alexander GS (2009) The social-obligation norm in American Property Law. *Cornell Law Review* 94: 745–819.
- Alterman R (2007) More than land assembly: Land readjustment for the supply of urban public services. In: Hong Y and Needham B (eds) *Analyzing Land Readjustment*. Cambridge, MA: Lincoln Institute of Land Policy, pp. 57–88.
- Aubin D and Nahrath S (2015) De la plura dominia à la propriété privative. In: Travési C and Ponsonnet M (eds) *Les conceptions de la propriété foncière à l'épreuve des revendications autochtones*. Marseille: Pacific-Credo Publications, pp. 51–78.
- Babcock RF (1966) *The Zoning Game*. Madison, WI: University of Wisconsin Press.
- Benchetrit G and Czamanski D (2004) The gradual abolition of the public leasehold system in Israel and Canberra: What lessons can be learned? *Land Use Policy* 21(1): 45–57.
- Bertolini L (2010) Complex systems, evolutionary planning? In: de Roo G and Silva EA (eds) *A Planner's Encounter with Complexity*. Farnham, Surrey: Ashgate, pp. 81–98.
- Blomquist W (2012) A political analysis of property rights. In: Cole DH and Ostrom E (eds) *Property in Land and Other Resources*. Cambridge, MA: Lincoln Institute, pp. 369–384.
- Blumer D (2015) *Bevölkerung und Wohnraumangebot in der Stadt Biel und bei den Wohnbaugenossenschaften*. Study commissioned by the city of Bienne and IG Wohnbaugenossenschaften Biel.
- Booth P (2002) From property rights to public control. *Town Planning Review* 73(2): 153–170.
- Bourassa SC and Hong Y (eds) (2003) *Leasing Public Land: Policy Debates and International Experiences*. Cambridge, MA: Lincoln Institute.
- Bourassa SC, Neutze M and Strong AL (1996) Managing publicly owned land in Canberra. *Land Use Policy* 13(4): 273–288.
- Bourassa SC, Neutze M and Strong AL (1997) Assessing betterment under a public premium leasehold system: Principles and practice in Canberra. *Journal of Property Research* 14: 49–68.
- Brenner N, Peck J and Theodore N (2010) After neoliberalization? *Globalizations* 7(3): 327–345.
- Bühlmann L, Haag H, Jud B, et al. (2011) *Einführung in die Raumplanung*. Bern: VLP.
- Buitelaar E (2010) Cracks in the myth: Challenges to land policy in the Netherlands. *Tijdschrift voor Economische en Sociale Geografie* 101(3): 349–356.
- Buitelaar E and Sorel N (2010) Between the rule of law and the quest for control. *Land Use Policy* 27(3): 983–989.
- Christman J (1994) *The Myth of Property*. Oxford: Oxford University Press, USA.
- City of Bienne (1996) *Règlement de la Ville de Bienne du 9 juin 1996* (RDCo 101.1).
- Commons JR (1893) *The Distribution of Wealth*. New York: Macmillan.
- Constant B (1988) *Political Writings*. Cambridge: Cambridge University Press.
- Cooter R and Ulen T (2004) *Law and Economics*. Boston: Addison-Wesley.

- Csikos P (2009) *Les stratégies foncières des grands propriétaires fonciers: Etude de cas du 'Centre Boujean' à Bienne*. Working paper IDHEAP. Lausanne: University of Lausanne.
- Davy B (2007) Mandatory happiness? Land readjustment and property in Germany. In: Hong Y and Needham B (eds) *Analyzing Land Readjustment*. Cambridge, MA: Lincoln Institute, pp. 37–55.
- Davy B (2012) *Land Policy: A German Perspective on Planning and Property*. Farnham, Surrey: Ashgate.
- de Roo G (2010) Planning and complexity. In: de Roo G and Silva EA (eds) *A Planner's Encounter with Complexity*. Farnham: Ashgate, pp. 1–18.
- de Soto H (2000) *The Mystery of Capital*. London: Bantam Press.
- Dibben P and Higgins P (2004) New public management. In: Dibben P, Wood G and Roper I (eds) *Contesting Public Sector Reforms*. Houndmills: Palgrave-Macmillan.
- Dieterich H (1996) *Baulandumlegung*. München: Beck.
- Doremus H (2003) A policy portfolio approach to biodiversity protection on private lands. *Environmental Science and Policy* 6: 217–232.
- Fainstein SS (2008) Mega-projects in New York, London and Amsterdam. *International Journal of Urban and Regional Research* 32(4): 768–785.
- Freyfogle ET (2006) Goodbye to the private-public divide. *Environmental Law* 36: 7–24.
- Fulton W (1999) *Guide to California Planning*. Point Arena, CA: Solano Press.
- Gaffino D and Lindegger R (2013) *Histoire de Bienne*. Baden: hier+jetzt.
- Gerber JD (2016) The managerial turn of municipal spatial planning in Switzerland. *Planning Theory & Practice* 17(2): 192–209.
- Gerber JD and Gerber JF (2017) Decommodification as a foundation for ecological economics. *Ecological Economics* 131: 551–556. DOI: 10.1016/j.ecolecon.2016.08.030.
- Gerber JD, Nahrath S, Csikos P, et al. (2011) The role of Swiss civic corporations in land-use planning. *Environment and Planning A* 43: 185–204.
- Gerber JD and Rissman AR (2012) Land-conservation strategies: The dynamic relationship between acquisition and land-use planning. *Environment and Planning A* 44: 1836–1855.
- Haila A (2000) Real estate in global cities: Singapore and Hong Kong as property states. *Urban Studies* 37(12): 2241–2256.
- Hartmann T and Needham B (2012) *Planning by Law and Property Rights Reconsidered*. Farnham: Ashgate.
- Hartmann T and Spit T (2015) Dilemmas of involvement in land management. *Land Use Policy* 42(1): 729–737.
- Harvey D (2008) The right to the city. *New Left Review* 53: 23–40.
- Healey P (2003) Collaborative planning in perspective. *Planning Theory* 2(2): 101–123.
- Hong Y-H (1998) Transaction costs of allocating increased land value under public leasehold systems: Hong Kong. *Urban Studies* 35(9): 1577–1595.
- Huxley M (2000) The limits to communicative planning. *Journal of Planning Education and Research* 19: 369–377.
- Innes JE and Booher DE (2000) Public participation in planning: New strategies for the 21st century. Available at: <http://escholarship.org/uc/item/3r34r38h>.
- Jacobs HM (1998) *Who Owns America?* Madison: University of Wisconsin Press.
- Jacobs HM and Paulsen K (2009) Property rights: The neglected theme of 20th-century American planning. *Journal of the American Planning Association* 75(2): 134–143.
- Kang V and Korthals Altes WK (2015) Flexibility and public accountability in public land development projects in progress. *European Planning Studies* 23(8): 1609–1626.
- Knoepfel P, Larrue C, Varone F, et al. (2007) *Public Policy Analysis*. Bristol: Policy Press.
- Knoepfel P and Nahrath S (2007) Environmental and spatial development policy. In: Klöti U, Knoepfel P, Kriesi H, et al. (eds) *Handbook of Swiss Politics*. Zürich: NZZ Verlag, pp. 705–733.
- Lai LWC (1998) The leasehold system as a means of planning by contract: The case of Hong Kong. *Town Planning Review* 69(3): 249–275.

- Lawson J (2009) The transformation of social housing provision in Switzerland mediated by federalism, direct democracy and the urban/rural divide. *European Journal of Housing Policy* 9(1): 45–67.
- Loderer B (2010) *L'essor d'une ville. Comment Bienne s'est sortie seule de la crise*. Supplement to: Hochparterre n°3/2010.
- Meyer JM (2009) The concept of private property and the limits of the environmental imagination. *Political Theory* 37: 99–127.
- Moore T (1978) Why allow planners to do what they do? *Journal of the American Planning Association (JAPA)* 44(4): 387–398.
- Muggli R (n.d.) *Spatial Planning in Switzerland*. Bern: VLP-ASPAN. Available at: www.vlp-aspan.ch/sites/default/files/at_en.pdf.
- Needham B (2003) One hundred years of public land – Leasing in the Netherlands. In: Bourassa SC and Hong Y (eds) *Leasing Public Land: Policy Debates and International Experiences*. Cambridge, MA: Lincoln Institute, pp. 61–82.
- Needham B (2006) *Planning, Law, and Economics*. Abingdon, Oxon: Routledge.
- Nelson RH (1977) *Zoning and Property Rights*. Cambridge, MA: MIT Press.
- Nelson AC and Moore T (1993) Assessing urban growth management. *Land Use Policy* 10(4): 293–302.
- Osborne D and Gaebler T (1992) *Reinventing Government*. New York: Plume.
- Raymond LS (2003) *Private Rights in Public Resources*. Washington, DC: Resources for the Future.
- Rémond-Gouilloud M (1989) *Du droit de détruire*. Paris: PUF.
- Ruegg J (2000) *Zonage et propriété foncière*. Paris: ADEF.
- Savini F, Major S and Salet W (2015) Dilemmas of planning: Intervention, regulation, and investment. *Planning Theory* 14(3): 296–315.
- Sax JL (1992) The constitutional dimensions of property. *Loyola Los Angeles Law Rev* 26: 23–37.
- Schwab HP (1996) *Politique foncière communale: Ville de Bienne 1947–1996*. Bienne: Administration des immeubles de la Ville de Bienne.
- Steiger O (2006) Property economics versus new institutional economics. *Journal of Economic Issues* XL(1): 183–208.
- Steiner J (2015) Bienne, histoire d'un développement urbain par et pour l'industrie (1850–2015). Intervalles, N° 102.
- Stoms DM, Jantz PA, Davis FW, et al. (2009) Strategic targeting of agricultural conservation easements as a growth management tool. *Land Use Policy* 26: 1149–1161.
- Swiss Federal Statistical Office (SFSO) (2014) Buildings and dwellings statistics. Available at: www.pxweb.bfs.admin.ch.
- Swyngedouw E, Moulaert F and Rodriguez A (2002) Neoliberal urbanization in Europe. *Antipode* 34(3): 542–577.
- Thiel F (2008) *Strategisches Landmanagement: Baulandentwicklung durch Recht, Ökonomie, Gemeinschaft und Information*. Norderstedt: Books on Demand.
- van der Krabben E (2011) Gebiedsontwikkeling in zorgelijke tijden: kan de Nederlandse ruimtelijke ordening zichzelf nog wel bedruipen? Inaugural lecture. Available at: <http://repository.ubn.ru.nl/handle/2066/87179>.
- van der Krabben E and Jacobs H (2013) Public land development as a strategic tool for redevelopment. *Land Use Policy* 30(1): 774–783.
- van Straalen FM (2014) *Private Property in Public Processes*. WU thesis 5769. Wageningen: Wageningen University.
- VLP/ASPAN (2011) Le droit de superficie. *Territoire & Environnement* 06/2011.
- Yin RK (2009) *Case Study Research. Design and Methods*. Los Angeles: Sage.
- Zimmerli U (1990) Zum Stand der Bodenpolitik und des Bodenrechts. In: Knapp B (ed.) *Perspektiven des Raumplanungs- und des Bodenrechts*. Basel: Helbing & Lichtenhahn, pp. 161–189.