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# Legal mechanisms impacting urban sprawl: A comparison of the United States and Germany

Lukas Plenk

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## ABSTRACT

*Urban sprawl, defined by low-density expansion of urban areas, adds to land consumption. Negative associated environmental impacts include loss of fertile soils and biodiversity. The binding force of legal measures has the potential to steer urban development in the direction of sustainable land consolidation and away from expansive development practices. This article explores the legal mechanisms helping and hindering land consolidation in the United States and Germany through a comparative law analysis. A comparative law system is derived based on a general conceptual framework by comparing the different nuances in how the two legal systems address urban sprawl and analyzing the underlying reasons. This work adds to the continued discussion on legal avenues to combat land consumption and focus on more sustainable urban consolidation practices.*

**Keywords:** *Urban sprawl, Comparative law, Zoning law, United States, Germany*

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## 1. Introduction

Global climate change and its effects are one of the greatest challenges facing human society. A multitude of factors contribute to a changing climate, many of which are linked to urbanization and its expansive quantitative and qualitative use of land. An essential element of urbanization is land consumption through urban sprawl, that is, low-density spatial expansion of urban areas accompanied by scattered settlements [1]. Urban population growth is continuing apace, intensifying the urgency of challenges faced given the finite nature of land as a resource. The environmental consequences of urban sprawl are manifold and have been identified as contributing to the bigger-picture mosaic of climate-changing factors: sealed surfaces lead to soils becoming inactive, followed by habitat fragmentation and loss. Urban sprawl also adds to greenhouse gas emissions due to increased energy consumption. Other environmental impacts are reduced runoff, increasing the risk of flooding, and further alterations to the water cycle with a higher intake of pollutants [2; 1].

Why analyze *legal* measures impacting urban sprawl?

While government policy, private initiatives, general behavioral change, and market mechanisms can be important components of mitigating and counte-

racting urban sprawl, these approaches lack the binding force of legal measures [3; 2]. Legal measures aimed at furthering urban consolidation are necessary for the continuity and reliability of related efforts. Such measures are not subject to the discretion and policy changes of decision makers. The measures require government action and may be challenged through judicial review, thus ensuring legal enforcement. These advantages are available only through legal mechanisms [4].

Why compare the United States and Germany?

The United States and Germany share similar social and economic conditions; especially after WWII, both experienced rapid population growth and urban expansion with accompanied sprawl [5]. The United States includes some of the world's largest metropolitan areas in terms of both spatial and population measurements. Germany is more densely populated, and its legal system developed from a much different starting point. A comparative legal analysis offers an appropriate context to "contrast and compare" [6, p. 45] solutions in the two systems and offers the potential for cross-pollination based on the lessons learned. The underlying function of the two legal frameworks is best described as implementing those legal mechanisms that address urban sprawl through measures directed at urban consolidation. The following research questions arise from this theme:

- How do the United States and German legal systems address urban sprawl and how do they differ?
- If their solutions differ, why is this the case, and what can be learned from these differences?

This comparative law analysis first juxtaposes the legal solutions developed in each country (in Sections 3 and 4), analyzes the reasons for their differences, and then builds a comparative law system based on these findings (in Section 5). These sections are followed by a summary and conclusion (in Section 6).

## 2. Methods

The legal research method employed here is the comparative law method following the functionality principle introduced by *Zweigert and Kötz*. The first step of this method is to lay out the functionally equivalent rules of each legal system. Legal comparison is only possible for laws fulfilling the same function. The initial reporting of the essentials of each legal system under a common function – here, the function of addressing urban sprawl through legal urban consolidation mechanisms – lays the groundwork for further analysis. This step is based on the general assumption that legal systems, regardless of how culturally or mechanically distinct they are, aim at solving commonly shared problems with potentially similar results albeit by different means. A comparative law analysis then explores the underlying legal cultural reasons for the identified legal differences in the measures addressing sprawl. This then allows the derivation of a comparative law system. The comparative law system incorporates diverse modes of fulfilling the common function as more general legal concepts [6]. When applying functionalism, it is crucial to reflect on possible biases due to one's own legal cultural experience, as these may interfere with an unbiased comparative law analysis [7].

## 3. Legal mechanisms impacting urban sprawl in the United States

Urban sprawl in the United States is impacted by different legal mechanisms in several areas of law, namely, zoning, taxation, and legal socioeconomic mechanisms

### 3.1 Impacts of US zoning laws on urban sprawl

In this section, the structure of US zoning laws and their impacts on sprawl are presented.

#### 3.1.1 The structure of zoning laws

A low-density population distribution and separation of land uses are typical of sprawling areas in the United States, with these characteristics attributed to zoning laws. Zoning laws regulate how development

projects are conducted and often follow a general comprehensive plan with broad categorizations of uses [8]. In 1922, the US Department of Commerce issued the Standard State Zoning Enabling Act (SZA), a model law that was quickly adopted by many states and that gave individual municipalities the power to introduce regulations concerning the location and use of buildings [9]. Today, states have generally delegated the power to regulate zoning to local municipal jurisdictions [10]. The US Supreme Court, in its 1926 *Euclid v. Amber Realty* decision [272 U.S. 365 (1926)], upheld the city of Euclid's zoning ordinance, which prohibited commercial and business development in residential areas. The decision paved the way for the introduction of similar zoning laws (called Euclidian zoning) and in the process shaped the sprawling, low-density suburbs characteristic of the United States [10].

Certain legal zoning mechanisms particularly amplify suburban sprawl – the first being single-use zoning. Single-use zoning is a legal mechanism by which residentially zoned areas and areas zoned in other categories or for other uses, such as commercial and business or public uses (e. g., as schools or post offices), are strictly separated. Local governments started to rely on single-use zoning particularly after World War II. As a consequence of the strict separation of land uses through zoning, city development becomes more spread out due to the nature of the spatial arrangement of the city's essential elements. Moreover, zoning laws impose minimum lot sizes, rendering further subdivisions of parcels of land illegal. Sprawl is further promoted with suburban ordinances that often require larger lots, houses being set back from streets, and specific yard sizes. Another restriction imposed on residentially zoned property developments adding to areal sprawl is the exclusion of multi-unit buildings in favor of single-family homes [10]. These combined mechanisms result in "housing [being separated] from every other human activity," as *Lewyn* pointed out [9, p. 329]. Noticeably, sprawl also occurs in cities without formal zoning ordinances, such as Houston – the largest city in the United States without such an ordinance, where instead a host of regulations creates a zoning-like framework [11].

One legal approach with much untapped potential to combat urban sprawl in the United States is zoning deregulation, which could encourage denser property development and allow for diverse, mixed-use developments instead of single-use zoning [10]. Additionally, requirements on lot and yard sizes and distance of houses from streets can be loosened to allow denser property development [12].

#### 3.1.2 Anti-sprawl legal mechanisms

Another, more direct legal approach to addressing urban sprawl is through anti-sprawl legal mechanisms. These mainly work directly through legisla-

tion regulating real property requiring to withstand a balancing test under the US Constitution's Takings Clause [14]. More comprehensive anti-sprawl legislation brought a focus on green belts (or urban growth boundaries) around cities, such as Oregon's successful introduction of such a strategy [15]. Several states, including Michigan and Oregon, recently opted to allow multi-unit development in residentially zoned areas formerly exclusively occupied by single-family houses [16]. These and associated measures are part of what is often referred to as "smart growth" instead of Euclidean zoning, focusing on planning over zoning [14, 17]. Another anti-sprawl measure is legally mandated regional cooperation between different municipalities of greater metropolitan areas. This enables decision makers to work collectively to forestall measures potentially furthering sprawl in neighboring communities [13; 10]. Finally, legally imposed priority development of inner-city brownfield areas through zoning or tax incentives can contribute to urban consolidation. Brownfield areas are redevelopment areas that have fallen into disrepair, often requiring clean-up of toxicants, with a need for repurposing or revitalizing the area [18]. For example, the city of New London allowed a large brownfield redevelopment project to enhance urban consolidation [545 U.S. 469 (2005)].

### 3.1.3 Transportation and parking

The general scope of transportation regulations often involves reserving publicly available space for cars. Many city ordinances require a substantial number of off-street parking lots to be included in property developments (e. g., at least one lot per bedroom in many areas). Legally mandated parking and car-accommodating street widths necessarily result in lower density of structures, promoting car use and contributing to sprawl. By requiring an ample supply of readily available free or low-cost parking, car use is further incentivized [9].

### 3.1.4 Environmental concerns and zoning

Land use must comply with environmental law. Development projects generally require at least some form of environmental review [19] and, when environmental concerns are salient, indirectly restrict sprawl. Federal environmental legislation is stronger with respect to air and water than land protection, which is regulated by the states. Additionally, federal legislation has been identified as being relatively ineffective in addressing non-point source pollution, which is associated with sprawl [13]. Local and state legislation increasingly focus on land use questions, but due to the decentralized nature of government, many efforts remain fragmented [20]. *Tarloch* notes that the US Supreme Court, when balancing zoning and the environment directly, tends to protect the latter under a broader ecosystem approach rather than through individually zoned parcels [21].

## 3.2 Taxation and legal socioeconomic mechanisms

Various areas of tax law promote urban sprawl indirectly by economically incentivizing certain behaviors. Real property taxation is based on the value of each parcel of land, creating an interest on the part of municipalities in maintaining property values [13]. A respective modification could support urban consolidation, but the municipal reliance on revenue from real property taxes leads to little local interest in change [10]. Transportation-related tax laws also contribute to sprawl, with tax cuts on employment-related parking, car sales tax, and home mortgages encouraging driving. Little legal reform is currently happening in these areas [22]. One way to facilitate denser development is through allocation of legally-mandated infrastructure funding and subsidies in legislative budget decisions [5]. Additionally, legislative funding for new highways connecting sprawling outer suburbs with city centers exacerbates urban sprawl [9]. Sprawl is also affected by legal socioeconomic mechanisms. These manifest themselves as higher-income residents move into suburbs while lower-income residents remain in urban areas [13]. This process (often referred to as "white flight") further entrenches racial inequalities and tensions, increases segregation and leads to the degradation of inner cities due to less available tax revenue [2]. In essence, certain socioeconomic factors promote suburban sprawl. Likewise, in a vicious cycle, urban sprawl adds to the manifestation and deepening of the socioeconomic disparities that contributed to the sprawl in the first place. As an example, the legal requirement of local residency to attend district schools worsens the flight of higher-income residents to suburbs, contributing to the problem stated above; this issue could also be taken on by reform [9].

## 4. Legal mechanisms impacting urban sprawl in Germany

Legal mechanisms impacting sprawl in Germany are found primarily in the country's zoning laws, tax laws, and other legal mechanisms incentivizing economic decision-making.

### 4.1 Impacts of German zoning laws on urban sprawl

Sprawl in Germany is impacted by zoning (defined broadly as *Bauplanungsrecht* and *Bauordnungsrecht*) and planning law. The structure of these areas of law is a result of interconnected federal, state, and municipal competencies. The first section examines land use and landscape planning (in Section 4.1.1), then planning and zoning in settlement areas (in Section 4.1.2), and, finally, environmental concerns and zoning (in Section 4.1.3).

#### 4.1.1 General land use planning and landscape planning legislation

Superior to locally oriented zoning law, federal legislation in land-use planning (*Raumordnungsrecht*) and landscape planning (*Landschaftsplanung*) sets out a general framework to which the German states (*Länder*) and municipalities must adhere. Federal landscape planning legislation provides a legal basis for nature conservation and landscape management, including “conserving and developing open spaces in settled and non-settled areas,” according to § 9 para. 3 g) of the Federal Nature Conservation Act. Amendments introduced to these principles in 2008 include sustainable development prioritizing urban over rural development [23]. Land use and landscape planning laws generally protect wider open spaces between settlements and, while not directly regulating settlements, have a general consolidation effect on existing settlements. Planning, including the implementation of green belts, is further specified through state and regional legislation [24].

#### 4.1.2 Planning and zoning in settlement areas

The power to legislate planning and zoning in settlement areas (*Bauplanungsrecht, Bauleitplanung*) is exclusively federal. This means that while every municipality makes its own planning decision, all decisions are based on the same federal legislation, which includes the Federal Building Code (*Baugesetzbuch*) and the Federal Land Use Regulation (*Baunutzungsverordnung*). The general zoning procedure includes the development of a preliminary land utilization plan (*Flächennutzungsplan*) by the municipality that is further refined into a legally binding zoning plan (*Bebauungsplan*) authorized under the federal legal framework. Moreover, federal lawmakers set rules for development in areas not (yet) zoned. Also, in outskirt areas (*Außenbereich*), land development is possible only under a limited set of criteria [25].

Dating back to 1987, the Federal Building Code was amended to indirectly prioritize development in central urban areas with the so-called land protection clause (*Bodenschutzklausel*), the scope of which was expanded in 1998 and 2004 [3]. In the last two decades, an increased focus on urban sprawl led to several amendments to federal zoning laws prioritizing urban development (so-called *Innenentwicklung*). The legislative intent was to prioritize different measures advancing this objective, including urban consolidation and brownfield development [26]. A 2007 amendment to the Federal Building Code focused on facilitating urban development by simplifying and fast-tracking the procedural requirements for introducing legally binding urban-area zoning [27]. Also, to support consolidation, developments with use purposes deviating from that of the zoned area were made possible under certain conditions [28].

A 2013 amendment to the Federal Building Code specified avoiding land use and prioritizing urban consolidation as explicit objectives. Municipalities have to prioritize this objective in related decision-making. Moreover, agricultural or forestland development in outskirt areas was made more difficult through the imposition of stricter requirements for municipal development decision-making [29]. The latest amendment to the Federal Land Use Regulation, in 2017, implemented a European law directive introducing more flexible legislation for zoning areas. The zoning of non-residentially zoned areas can now be changed more easily to residential use. Additionally, “urban areas” were introduced as a new zoning category, allowing for easier mixed-use redevelopment of areas adjacent to mainly commercially or industrially zoned areas [30].

While the abovementioned spatial component of zoning (referred to as *Bodenrecht* as a general term) falls under federal jurisdiction, the precise requirements that individual buildings need to comply with are regulated by the *Länder* as part of their competency for regulating risk prevention (*Bauordnungsrecht* as part of *Gefahrenabwehrrecht*). Here, requirements are set for minimum spacing between buildings, as well as maximum floor numbers, affecting thereby urban consolidation. Several *Länder* have introduced amendments focusing on land consolidation, such as a modernized spacing regulation in a 2018 amendment to Art. 6 BayBO, or added land consolidation measures in a 2019 amendment to the BauO NRW.

#### 4.1.3 Environmental concerns and zoning

Federal zoning legislation increasingly expressly requires environmental concerns to be considered in municipal discretionary decision-making. Sprawl is indirectly addressed by way of the protection given to areas designated under environmental law and by protected environmental media, such as water, air, or land, that limit sprawl into the outskirts of urban metropolitan regions [3]. Sprawl is more directly addressed through soil conservation laws requiring decision makers to introduce measures that do not seal surfaces and those that revert land to its unsealed state, e. g. in the case of brownfield redevelopment, in their discretionary decision-making process [31]. An environmental impact assessment requirement for relevant planning, zoning, and permit decisions, initially imposed by European Union law, specifies soil as a sprawl-related medium. A recent amendment to German law, also required by European Union legislation, introduced quantitative “land area” as a subject of protection [32]. Development projects negatively impacting the environment need to (functionally) compensate for their impact. An issue here is that equivalent measures often compensate for this negative impact through investments in projects that balance the impact qualitatively but fail to make up

for the quantitative loss in land area. The practice of functional equivalence compensation has been suggested to potentially even incentivize sprawl due to the relatively easy procedure for offsetting environmental impacts [33].

#### 4.2 Taxation and legal socioeconomic mechanisms

German tax law economically incentivizes sprawl in multiple ways, for example, by including legal mechanisms such as commuter tax relief (*Pendlerpauschale*), which subsidizes longer daily commutes to workplaces [34]. Real property tax in Germany is currently based on property value and on whether buildings are located on the property. The tax burden increases when a building is constructed on a property, disincentivizing urban consolidation. Tax reform could incentivize urban (re)development [3]. Other legal mechanisms related to economic incentives have been cut explicitly to reduce sprawl, among them the so-called *Eigenheimzulage*, a subsidy for new homeowners, since reintroduced only in Bavaria [34]. A potential legal economic incentive discussed by legal scholars [29, 35] to encourage municipalities to focus on urban consolidation practices is the introduction of a land area trading system. Under this system, municipalities receive a limited number of land area certificates for their outskirt areas that can be sold to or bought from other municipalities. In contrast, no certificates are required for development in inner urban areas [3]. A pilot model trading system was established between a set number of municipalities in 2013. The German Environment Agency sees this approach as an effective means of achieving land-use targets through restrictions on the overall number of certificates granted and channeling development to areas with actual demand. It is noted that such trading cannot mitigate excess development in high-demand areas, as the trading mechanism works only quantitatively, not qualitatively [36].

### 5. Comparative analysis

This section looks at the essential legal mechanisms in the United States and Germany from a functionalist comparative perspective.

#### 5.1 Differing legal solutions addressing sprawl in the United States and Germany

At first glance, the two legal systems, as juxtaposed in Sections 3 and 4, share common legal sources in addressing sprawl. A closer look reveals that the concrete legal solutions differ to varying degrees in substance, scope, and real-world results. Anti-sprawl legislation has been introduced relatively comprehensively into German zoning law [37]. In comparison, the associated US zoning law mechanisms are more fragmented and less far-reaching [38]. Tax law

and legal socioeconomic mechanisms also differ in their anti-sprawl reach and application.

#### 5.2 Reasons for differing legal solutions addressing sprawl in the United States and Germany

Urban sprawl is identified as a phenomenon entailing negative effects in both countries [5], but the introduction of legal mechanisms, their scope, and the comprehensiveness of their implementation differ. In this functionalist comparative analysis of the reasons for these differences, the legal cultural backgrounds of the two legal systems are the main focus [6].

##### 5.2.1 The institutional framework and federalism

Both Germany and the United States are organized in federal structures, but they differ significantly in how powers are distributed and consequently in their way of functioning in practice. German federalism can be best described as vertical federalism, with much power vested in the federal government and less power remaining with the *Länder*. US federalism, in contrast, can be characterized as horizontal federalism with a more level playing field between the individual states and the federal government, leaving state competencies intact to a greater extent [39].

The German vertical federalism, with its top-down structure, imposes a significant amount of federal and state legislation on local municipalities. The latter enjoy constitutionally guaranteed local self-governing authority (*kommunale Selbstverwaltung*) but are bound by state and federal laws. This system entails some involvement of all governmental levels in planning and zoning [40]. When the German federal state was constructed after WWII, a relatively strong federal structure with reasonably empowered *Länder* was chosen based on the long tradition of German federalism [41], with the objective of creating a federal legal structure strong enough to foster German unity [42]. A comprehensive and homogeneously applied legal framework granting significant power to the federal government, including key legislative competencies to regulate planning and zoning, came into effect, allowing locally tailored solutions through municipal self-governing exercise of discretion. An increasingly expansive body of anti-sprawl legislation has been introduced through amendments to existing laws. European law's influence on German law is noteworthy. With the European Union's relatively forward-thinking emphasis on the environment, many legislative initiatives positively impacting urban consolidation through planning, zoning, or environmental law are taken on the European level and then transposed into German law [43].

In comparison, under the United States' horizontal federalism and anti-sprawl legal mechanisms, key powers, including land use planning and zoning legis-

lation, remain with the individual states as part of the police power doctrine. Most states delegate much of their powers to individual municipalities, authorizing them to conduct planning and zoning independently [10; 13]. State zoning acts generally lay out a framework that municipalities must follow, with mostly procedural provisions and substantive law often provided through case law. On the local level, comprehensive plans are often used to structure a general categorization of uses. Local zoning ordinances consist of a zoning map and a zoning text, with the latter specifying land uses [13]. Here, citizen participation is more directly possible locally, while state and federal governments appear as more abstract concepts, with these levels of government setting the outer boundaries but not regulating beyond them. This structure is founded on a general underlying cultural tendency to emphasize individual freedom over government intervention [5, 2]. As a result, this can help to culturally explain the less far-reaching and relatively fragmented anti-sprawl legal mechanisms country-wide [38]. The same characteristic is further reflected in the decentralized nature of institutional structures in the United States. Municipalities' home rule and self-governing authority equip local decision makers with power. Unlike in Germany, comprehensive regional planning through municipal cooperation is rare, creating a more fragmented approach that emphasizes the independence and needs of individual municipalities [10; 2; 40]. The same is true for intermunicipal cooperation beyond individual jurisdictions [44]. A result is that state government intervention aimed at regional legal solutions, such as urban green boundaries, remains the exception [20, 13].

To summarize, the legal solutions for combating sprawl are associated with municipal authority and cross-governmental cooperation [43]. The solutions differ depending on the level of cooperation among local governments and zoning reform efforts. The US governmental structure with strong authority at the municipal level is, as Buzbee notes, "not a historical accident, but has largely arisen as a result of the relative institutional competence of each level of government in addressing particular social needs. The optimal mix of federal, state, and local regulatory roles, however, inevitably changes over time" [2, p. 94].

### 5.2.2 *The rationale behind zoning*

The rationale behind zoning varies along cultural lines in both legal systems, resulting in differences in the scope and effectiveness of anti-sprawl measures. In German zoning law, a prevalent principle is the default assumption that every zoned area, regardless of its primary use, has the potential for mixed use. Either an area is directly zoned for mixed use, or mixed uses are allowed regardless under certain conditions [38]. In US zoning law, the main objec-

tive has been, and to some extent still is today, the separation of land uses and accommodation of the associated wider street design and parking lot capacity [9]. The historical development of US zoning law shows that before zoning was formally implemented as a legal tool, de facto zoning decisions were made through an analogy to the common law of nuisance [45]. Two elements deriving from this trajectory that one sought to protect were single-family residential areas and quasi-protection of real estate values. These values continued to play a role when zoning was later formalized. Without more drastic changes to the default legal setting, these legacy elements will continue to implicitly hinder urban consolidation [17]. The rationale of zoning was to create more livable urban city centers by separating people from the widespread pollution in city centers, meaning that homes were spatially built distant from the polluting industry. Today, zoning laws also cover off-metropolitan areas, where industry emissions are not a threat, while emissions have also decreased in city centers [9]. Additionally, car dependency as a cultural factor steers zoning much more in the United States than in Germany, which has a relatively dense network of public mass transportation services [40]. *Light* aptly describes the general cultural difference in zoning philosophies when he elaborates that US land use, as a tendency, aims at "the safeguarding of private life," while its German counterpart aims at "the shaping of public space" [40, p. 25]. Another factor that contributed to sprawl was the migration after World War II of returning soldiers and their families in the United States to the suburbs, fleeing in part the negative associations of overcrowded inner cities, fueled by the industrial and government focus on shifting from war to consumer production [13].

### 5.2.3 *Cultural reasons for anti-sprawl tax law differences*

The differences in tax law and legal socioeconomic solutions to sprawl also have cultural drivers. The reluctance to introduce far-reaching real property tax law reforms in the United States can be associated with the significance of property taxes in creating income for municipalities. German revenues, on the other hand, generally rely more heavily on consumption taxes, thereby reducing the importance of real property taxes and more easily allowing for anti-sprawl amendments to tax codes due to the more diversified revenue sources. Transportation sector taxes in the United States are tailored to serve the current needs of mainly car-dependent citizens, while historically in Germany the mass public transportation sector developed into a relatively dense network, even though shortcomings are not absent here either [38]. Social status has been linked to sprawl to a much greater extent in the United States than in Ger-

many, where city centers in sprawling metropolitan areas have generally experienced less degradation. This can explain the lack of German law solutions taking social status factors as their starting point [5].

### 5.3 Building a comparative law system

The first component of a comparative law system of anti-sprawl mechanisms concerns the legal institutional framework. This relates to the finding that the development and implementation of effective planning and zoning legislation work better through a regional legal body with authority to conduct intermunicipal cooperation with cross-governmental competence. Such a legally implemented regional authority could take the form of a state government institution, multi-jurisdiction municipal bodies, or even private organizations through a transfer of authority. This regional framework could account for the culturally different approaches that have been put into practice in the two legal systems. The needs of the New York metropolitan area, for example, are served by its dedicated Regional Plan Association [13]. Therefore, some form of a *regional legal body with cross-government competence* at the cross-section of horizontal and vertical federalism is a component of the comparative law system. A second element of the comparative law system derives from the decisions made in the two legal systems concerning the partitioning of space. While both legal systems typically use zoning as a tool with varying main focuses, the connecting and overarching element in combating sprawl under the comparative law system is a *diversified use-centered partitioning of urban space*. This serves to incorporate the essence of the two legal systems in a neutral and generally applicable way.

### 6. Summary and conclusion

This analysis shows that while the areas of law addressing sprawl overlap between the United States and Germany, actual legal solutions differ. The effectiveness of the legal solutions is evaluated with reference to the countries' legal cultural contexts. Lessons learned from the analysis are that, on the one hand, for legal mechanisms combating sprawl, local action that reflects knowledge of concrete community challenges is necessary. On the other hand, larger-scale regional planning and comprehensive anti-sprawl zoning are more effective in introducing solutions; stated differently, the right balance should be struck between a top-down and a bottom-up approach. The mechanisms in both legal systems that are most successful in addressing urban sprawl work through an integrated cross-governmental decision-making process. The influence of culture on legal solutions to sprawl is closely connected to how federalism is structured, the rationale underlying zoning decisions, the established tax mechanisms, and other cultural dynamics.

In conclusion, urban sprawl should be seen as a multifaceted environmental issue that requires balancing various factors, many of which are only fully comprehensible with reflection on the respective cultural contexts. The analysis shows that legal solutions combating sprawl tailored to the cultural underpinnings of the legal systems of the United States and Germany are available, and cross-pollination is possible with a deepened focus on the issues at hand. The derived comparative law system can add to a more comprehensive body of proposals for anti-sprawl legal solutions and serve as a reference for confirmation or reevaluation in both legal systems. With urban sprawl challenges faced globally [46], this analysis can complement the general international discussion surrounding urban sprawl. Continued international comparative legal research beyond the two countries analyzed is recommended to fully grasp the global array of factors that require consideration. This would greatly facilitate efforts to understand and address environmental challenges associated with land use, such as urban sprawl.

### References

- [1] European Environmental Agency (2016). EEA Report 11/2016. Urban Sprawl in Europe.
- [2] Buzbee, W. W. (1999). Urban Sprawl, Federalism, and the Problem of Institutional Complexity. *Fordham Law Review*, 68, 57 – 136.
- [3] Schulz, A. (2017) (dissertation). Reduzierung des Flächenverbrauchs mit Hilfe der Bauleitplanung. Münster: LIT Verlag.
- [4] Junker, K. W. (2020). Why Compare? The Biological, Cognitive, and Social Functions of Comparison for the Human. In Junker, K. W. (Ed.), *Environmental Law Across Cultures: Comparisons for Practice* (1 – 14). New York: Routledge.
- [5] Lewyn, M. E. (2009). Sprawl in Europe and America. *San Diego Law Review*, 46, 85 – 112.
- [6] Zweigert, K., Kötz, H. (1998). *An Introduction to Comparative Law*. Oxford: Clarendon Press.
- [7] Junker, K. W. (2016). *Legal Culture in the United States: An Introduction*. New York: Routledge.
- [8] Kushner, J. A. (2003). The Comprehensive Planning Process. In Kushner (Ed.), *Comparative Urban Planning Law* (113). Durham: Carolina Academic Press.
- [9] Lewyn, M. E. (2000). Suburban Sprawl: Not Just An Environmental Issue. *Marquette Law Review*, 84, 301 – 382.

- [10] Batchis, W. (2010). Enabling urban sprawl: Revisiting the supreme court's seminal zoning decision *Euclid v. Ambler* in the 21st century. *Virginia Journal of Social Policy the Law*, 17(3), 373 – 403.
- [11] Lewyn, M. E. (2005). How Overregulation Creates Sprawl (Even in a City without Zoning). *Wayne Law Review*, 50, 1172 – 1207.
- [12] Liebmann, G. W. (1991). The Modernization of Zoning: Enabling Act Revision as a Means to Reform. *The Urban Lawyer*, 23(1), 1 – 24.
- [13] Platt, R. H. (2014). *Land Use and Society: Geography, Law, and Public Policy*. Washington, DC: Island Press.
- [14] Dowling, T. J. (2000). Reflections on Urban Sprawl Smart Growth and the Fifth Amendment, 148 *University of Pennsylvania Law Review*, 148, 873 – 887.
- [15] Attkisson, L. R. (2009). Putting a stop to sprawl: State intervention as a tool for growth management. *Vanderbilt Law Review*, 62(3), 979 – 1015.
- [16] Elmendorf, C. S., Shanske, D. (2020). Auctioning the Upzone. *Case Western Reserve Law Review*, 70, 513 – 572.
- [17] Tarlock, A. D. (2006). Three Challenges for Professor Nolon. *Pace Environmental Law Review*, 23(3), 697 – 704.
- [18] Kushner, J. A. (2006). Brownfield Redevelopment Strategies in the United States. *Georgia State University Law Review*, 22(4), 857 – 875.
- [19] Kushner, J. A. (2003). Environmental Protection and Land Use Planning. In Kushner (Ed.), *Comparative Urban Planning Law* (383). Durham: Carolina Academic Press.
- [20] Nolon, J. R. (2006). In Praise of Parochialism: The Advent of Local Environmental Law, *Pace Environmental Law Review*, 23(3), 705 – 755.
- [21] Tarlock, A. D. (2007). Land Use Regulation: The Weak Link in Environmental Protection. *Washington Law Review*, 82, 651 – 666.
- [22] Mann, R. F. (2005). On the Road Again: How Tax Policy Drives Transportation Choice, 24 *Virginia Tax Review*, 24, 587 – 665.
- [23] Söfker, W. (2009). Das Gesetz zur Neufassung des Raumordnungsgesetzes. *Umwelt- und Planungsrecht (UPR)*, 161 – 169.
- [24] Gröhn, K. (2014). Steuerung und Reduzierung des Flächenverbrauchs. *Natur und Recht (NuR)*, 38, 78 – 85.
- [25] Erbguth, W., Schubert, M. (2014). *Öffentliches Baurecht*. Berlin: Erich Schmidt Verlag.
- [26] Weigelt, T. (2015). *Die wachsende Stadt als Herausforderung für das Recht*. Tübingen: Mohr Siebeck.
- [27] Spannowsky, W. (2007). Einführung eines beschleunigten Verfahrens für Bebauungspläne. *Natur und Recht (NuR)*, 29, 521 – 526.
- [28] Krautzberger, M., Stürer, B. (2007). *BauGB 2007: Stärkung der Innenentwicklung*. Deutsches Verwaltungsblatt (DVBl.), 160 – 169.
- [29] Kment, M. (2018). Flächenverbrauchsobergrenzen, Flächenhandelssysteme und kommunale Planungshoheit. *Natur und Recht (NuR)*, 40, 217 – 228.
- [30] Scheidler, A. (2017). Der neue Baugebietstypus „Urbane Gebiete“. *Gewerbearchiv*, 321 – 325.
- [31] Tomerius, S. (2005). Flächenrecycling als Instrument nachhaltiger Stadtentwicklung. *Natur und Recht (NuR)*, 27, 14 – 20.
- [32] Karrenstein, F. (2019). Das neue Schutzgut Fläche in der Umweltverträglichkeitsprüfung. *Natur und Recht (NuR)*, 41, 98 – 104.
- [33] Wagner, S. (2007) (dissertation). *Ökokonten und Flächenpools*. Berlin: Duncker & Humblot.
- [34] Spannowsky, W. (2013). Stärkung der Innenentwicklung und Reduzierung der Flächeninanspruchnahme. *Umwelt- und Planungsrecht (UPR)*, 201 – 207.
- [35] Diroll, C., Greim-Diroll, J. (2019). Quantifizierte Vorgaben für die Flächeninanspruchnahme. *Natur und Recht (NuR)*, 41, 91 – 97.
- [36] German Environment Agency (2019). *Umweltbundesamt Texte 116/2019. Modellversuch Flächenzertifikatehandel*.
- [37] Herrmann, A. (2019). Die Reduzierung der Flächeninanspruchnahme durch das Bauplanungsrecht. *Juristische Geltung und Realisierung im sozialen System*. Baden-Baden: Nomos Verlagsgesellschaft.
- [38] Hirt, S. (2010). The Devil Is in the Definitions: Contrasting American and German Approaches to Zoning. *Journal of the American Planning Association*, 73(4), 436 – 450.



[39] Junker, K. W. (2018). US-Recht als ausländisches Recht. In Junker, K. W. (Ed.), *US-Rechtspraxis: Praxis Handbuch Zivil- und Öffentliches Recht* (1 – 53). Berlin: De Gruyter.

[40] Light, M. A. (2003). Different Ideas of the City: Origins of Metropolitan Land-Use Regimes in the United States, Germany, and Switzerland. In Kushner, J. A. (Ed.), *Comparative Urban Planning Law* (24 – 30). Durham: Carolina Academic Press.

[41] Grzeszick, B. (88. EL 2019). Art. 20 IV. In Maunz T., Dürig, G. (Eds.), *GG Kommentar*. München: C. H. Beck.

[42] Hopfauf, A. (2017). Präambel. In Schmidt-Bleibtreu, B., Hofmann, H., Henneke, H.-G. (Eds.), *GG Grundgesetz*. Köln: Carl Heymanns.

[43] Nolon, J. R. (2006). Comparative Land Use Law: Patterns of Sustainability. *Pace Environmental Law Review*, 23(3), 855 – 904.

[44] Fertner, C., Jørgensen, G., Sick Nielsen, T. A., and Bernhard Nilsson, K. S. (2016). Urban sprawl and growth management – drivers, impacts and responses in selected European and US cities. *Future Cities and Environment*, 2(9).

[45] Congressional Research Service, Library of Congress. (2017, August 26). S. Doc. 112-9 – Constitution of the United States of America: Analysis, and Interpretation – Centennial Edition – Interim. [Government]. U.S. Government Publishing Office.

[46] Liu, L., Meng, L. (2020). Patterns of urban sprawl from a global perspective. *Journal of Urban Planning and Development*, 146(2), 04020004.

Lukas Plenk is a Researcher at the Chair of US-American Law at the University of Cologne, Germany.