

Review of Urban Land Management Based on Bibliometrics

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Abstract: As the carrier of global urbanization, urban land is the basic means of productivity and life of urban residents. Urban land management is of great significance to global climate change mitigation, improving ecological quality, promoting economic development, and ensuring sustainable urban development. At present, although studies on urban land management have accumulated at the global level, the differences in research methods, objectives, and perspectives have led to the fragmentation and confusion of research conclusions. Therefore, it is necessary to review the literature of urban land management, clarify the research contexts, grasp the research progress, and predict the research trends. Bibliometrics, as a quantitative analysis method of literature review analysis, is more comprehensive and objective than relying only on a literature review. It is of great value to grasp the topics and trends of the research field from an overall perspective. In this paper, the Bibliometrix R software package was used to conduct an econometric literature analysis on urban land management from 1979 to 2021, using the Web of Science database. The results showed that: (1) the annual scientific research output and citation frequency in the field of urban land management has generally increased. Combined with the annual change trend of scientific research output, urban land management research can be divided into three stages: the budding period, from 1979 to 1989, the development period, from 1990 to 2008, and the high-yield period, from 2009 to 2021. (2) The 129 countries/regions reviewed differed in their research output, and developed countries showed strong research. The United States, China, and Australia were the top three countries in terms of solo publications and cooperation publications. In addition, among the 16,270 authors, the top three authors were Pradhan, Zhao, and Li. (3) The top three keywords in the field of urban land management were “Management”, “City/Cities” and “Land Use”. The research topics can be divided into three stages. The first stage covers studies with topics of “Management”, “Urbanization” and “GIS”, from 1979 to 2013. From 2014 to 2018, the research topics were gradually enriched by “Urbanization”, “Impact”, “System”, “GIS”, “Management”, “Policy”, “Conservation” and “land”, with a trend towards multidisciplinary and multi-perspective comprehensive analyses. From 2019 to 2021, “Management” and “Climate Change” were the main topics.

Keywords: literature review; urban land management; Web of Science; Bibliometrix R



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1. Introduction

With the advance of global urbanization, urban land has spread and expanded accordingly, and urban land management has become an important issue, gradually becoming of wide concern to various experts, scholars and governments [1]. Urban land is the most important spatial carrier of urbanization [2]. At a global scale, cities account for 3% of the global land area, but carry 55% of the population [3]. In the future, global urban areas are expected to further expand, and, by 2030, more than 60% of the world's population is expected to live in urban areas [4]. By 2050, this proportion is expected to reach 68% [5]. The growth of urban population will inevitably bring about the expansion of urban land, and the speed of urban expansion is significantly higher than the population growth rate,

indicating that the urban land area will exceed the area needed to maintain population growth [6]. At the same time, the rapid expansion of urban land has resulted on the one hand, in large areas that are not adequately used [7–9], whereas, on the other hand, it has also caused prominent social and ecological problems, such as global warming, urban water pollution, an extensive food crisis, a decline in biodiversity and the need for extensive residential land use efficiency, [10–16]. In the future, global urbanization is expected to advance further, with massive challenges for urban land management. On the one hand, urban land management is highly dependent on the political and economic levels as well as on the degree of scientific and technological development and the methods of urban land management differ largely among different countries [17]. On the other hand, different countries differ in climate, hydrology, geology, topography, and other natural environmental conditions, resulting in differences in national policies on urban land management [18,19].

In urban land management, the monitoring, systematic evaluation, and standardized management of urban land are important issues of urban planning, geography, and land resource management [20–22], with practical significance in restraining the unreasonable expansion of urban land and realizing sustainable land use [23]. In the field of urban planning, urban land management should strengthen government supervision, formulate strong policy systems, improve institutions and market operation tools, support effective land market operation, and form a top–down governance system. At the same time, it should give full play to the enthusiasm of citizens to participate in public programs, promote openness and transparency of policies, systems, and projects, and form a bottom–up supervision system [24]. The formation of top–down and bottom–up joint efforts should be used to achieve the efficient and intensive use of urban land [25]. Quantitative analysis of data and models commonly used in the field of geography, as well as the simulation, analysis, and prediction of urban land use, can provide references for decision makers to achieve sustainable land use and the science-based management of urban land [26,27]. Studies on land resource management emphasize the rational allocation of urban land resources from the perspective of management. Through public intervention in urban land management (land ownership, land use, land marketing, and land taxation), as well as tripartite control of legal, fiscal, and governmental aspects, the efficiency and fairness of urban land use allocation could be improved [28,29]. In this context, urban land can be regarded as the carrier of economic, social, and cultural activities as well as ecological civilization, and it is difficult to solve all issues in the field of urban land management by relying on a single discipline and specific technical means. This makes it important to solve the problems in the field of urban land management of the future via the integration of multiple disciplines, the complementarity of multiple technologies, and the intersection of multiple information sources, with the aim of obtaining a comprehensive understanding of the progress of urban land management.

Reviews collect, analyze, and summarize literature to gain a deeper understanding of a certain research field, and conducting a review is an important method to comprehensively grasp past research. There are numerous reviews in the field of urban land and land management. For example, in terms of urban land, scholars such as Youjung Kim reviewed the literature on LCM (Land Change Modeling) in urban land and identified drivers, scenarios, and themes, enabling planners to model future land changes through scenarios to provide more certain conditions [30]. Wagner compared the results obtained by using cellular automata (CA), artificial intelligence (AI), and operations research (OR) to solve urban planning and urban land management issues through review and analysis [31]. Regarding land management, Biratu proposed the importance of managing resources and improving ecosystems in agricultural landscapes to enhance environmental sustainability from the perspective of land management [32], whereas Hanaček studied the impact of land management changes on culture, agro-ecosystem services, and environmental conflicts [33]. Although these studies contributed to an understanding of urban land and land management, the studies were limited to specific countries/regions and specific

disciplines, lacking a global perspective and a comprehensive perspective of all disciplines, and a review of urban land management using bibliometrics was not involved. Therefore, it is of great significance to comprehensively analyze global urban land management by using bibliometric analysis methods, with the aim of developing a deeper understanding of the progress and future trends of urban land management at the global scale.

Scientific research platform databases can be used to obtain high-quality scientific results. Databases such as Web of Science, Scopus, Emerald, and CNKI are widely used all over the world, with the advantages of fast literature retrieval and effective tracking of academic frontiers [34]. Of these, Scopus is a new navigation tool, focusing on prospective scientific, technological, and medical literature worldwide [35]. Emerald was founded in 1967 by scholars from Bradford University Management Center, one of the world's top 100 business schools, publishing journals in management, library science, engineering, and other professional fields [36], whereas CNKI focuses on industry, agriculture, medicine and health, economy, and education, mainly targeting Chinese users [37]. Web of Science is an internationally recognized large-scale comprehensive, multidisciplinary, and core journal citation index database. It enjoys a good reputation in the scientific, technological, and educational circles around the world, with citation index databases, such as SCIE and SSCI, JCR Journal Citation Reports, and ESI Basic Scientific Indicators [38]. The Web of Science core collection database contains more than 8700 global authoritative and high-impact academic journals, covering natural sciences, engineering technology, biomedicine, social sciences, arts and humanities, and other fields [39]. Its powerful analysis function can help researchers better grasp relevant topics and seek research breakthroughs and innovations because it offers quick identification of high-impact papers, and facilitates the discovery of the research directions being considered by domestic and foreign peer authorities, revealing the development trend of the topic, and it selects appropriate journals for submission. An innovative research platform of “retrieval—analysis—management—writing” has been established for researchers [40]. The Web of Science database, therefore, has more advantages than Scopus, Emerald, CNKI, and other databases, due to its wide collection range and complete data sources.

Bibliometrics is a quantitative analysis method that measures the interrelationships and impacts [41] of publications in specific research fields through mathematical and statistical tools. It enables researchers to map out complex knowledge maps, represent knowledge structures in the research field, and study its properties [42–44] through statistical and mathematical methods. Serving as a powerful tool to analyze the field of knowledge and reveal its knowledge structure [45], it provides a macro-overview of academic research and reliably identifies influential authors, journals, organizations, and nations [46]. Among the software packages for measuring and analyzing scientific literature data, CiteSpace, VOSviewer, and Bibexcel have been widely used in the field of global information science due to their scientific and effective advantages in practical applications [47–49]. Regarding the application of such software in literature reviews, CiteSpace has the advantages of rich drawings and of visualizing the key development of a certain field. The VOSviewer software is mainly based on literature co-citation, and, especially when there is a large number of literature keyword co-occurrence, its analysis ability is strong. The BibExcel software specializes in analyzing data that does not include visualization in the results. However, the operation of these software packages in bibliometric analysis is complex, and the function of specific modules is prominent, which cannot assist researchers in building a complete workflow for literature analysis [50]. The Bibliometrix and Biblioshiny software packages compensate for this drawback. Of these, the Bibliometrix R software package provides a set of tools for sociometric quantitative research. Benefiting from the strongest qualities of the R language, compared to other languages in scientific computing, it has the advantages of statistical calculation and quick visualization in bibliometric analysis [51], making it more flexible than other bibliometric tools [52]. Moreover, the software integrates the network analysis and visualization functions of various bibliometric tools, enabling an entire scientific literature analysis and data flow. This not only prevents researchers

from performing tedious multi-step operations but also improves work efficiency and reduces the probability of error. The software is better suited to handle high-volume, highly repetitive, and multi-step computing tasks, and the one-stop handling of problems does not require cross-platform development. Due to these advantages, the Bibliometrix and Biblioshiny software packages have been widely used in different fields [53–55].

Several scholars have reviewed studies on urban land and land management [30–33] and performed bibliometric analyses of land use, land consolidation, land cover, and other related research by using large-scale data sets and bibliometric methods [56–58], with valuable results. However, so far, relevant studies on urban land management are scarce, and most studies in the field of land management have focused on rural land, specific countries or regions, or a single disciplinary perspective [59–61]. Therefore, based on the Web of Science database, and using the Bibliometrix and Biblioshiny packages in R tools, we systematically combed 6318 urban land management studies from 1979 to 2021 and determined the annual numbers of urban land management publications, the major countries/regions, and the main authors and topics, with the aim of providing a reference for future global urban land management research. Specifically, the research objectives of this paper were as follows: (1) to reveal the main research areas and keywords of urban land management in the past 42 years; (2) to assess the research status of the urban land management field; (3) to explore the focus and research direction of future urban land management.

2. Data Sources and Methods

2.1. Research Data

Web of Science is one of the largest and most disciplinary comprehensive academic information resource databases in the world [62], including more than 8700 core academic journals [57] in the fields of natural sciences, engineering, biomedicine, social sciences, arts, and humanities. This paper is based on the Web of Science database, using its core collection as the data source. The search scope was selected as “topic”, and the search term entered was “urban land management (Urban land management, land management in urban, Management of Urban Land, urban land administration, city land management, land management of city, land management in the city, management of city land, land administration in the city, administration of city land, metropolitan land management, management of the metropolitan land, land management in metropolitan, land administration of metropolitan, land administration in metropolitan, metropolitan land administration, land management of the metropolis, metropolis land management, land management in the metropolis)”. To ensure accuracy, the study limited the literature types to “articles”, “conference articles”, “conference papers”, “review papers”, “online publications”, “data papers” and “brief reports”. The search language was set to all languages, with a retrieval period of 1970–2021 (1970 was the first year obtained after the retrieval by subject). After preprocessing, such as deduplication and removal of irrelevant data, 6318 papers in the field of urban land management were obtained, and the time period was finalized as 1979–2021. The downloaded data were saved in plain text format.

2.2. Research Methods

Bibliometrics provides a more objective and reliable literature analysis [63]. Through quantitative analysis, it offers a comprehensive overview, analysis, and presentation of a large number of scattered research papers and objectively identifies past and present research topics and future research trends [64]. Literature review using bibliometrics can not only synthesize past research results, but also plays a key role in effectively using the existing knowledge base, advancing the research direction, and maintaining professional judgment and evidence-based insights regarding professional knowledge practice.

The Bibliometrix R package provides a set of tools for quantitative studies [65]. It was written in the R language, and the mode of operation is composed of code commands [56]. The R language is an open-source environmental analysis tool with functions for efficient

statistical analysis and visualization of large amounts of data. The advantages of statistical computing and rapid visualization of graphics may be the strongest qualities of the R language over other languages in scientific computing [46]. Biblioshiny is a secondary development of Bibliometrix in R by Massimo Aria, who encapsulated the coding of Bibliometrix and created a Web-based online data analysis framework. Users can conduct the relevant scientific measurements and visual analyses using the interactive Web interface, reducing the user's use threshold and information input strength [66].

A literature review using the Bibliometrix and Biblioshiny installation packages in the R tool can be divided into the following two steps. The first step includes selecting topics for the review, sorting and combining different definitions of keywords, searching in the Web of Science, primary selection and detailed screening of data, and downloading and compressing the filtered data. It should be pointed out that “or” is used between different search terms of the same interpretation. The preliminary screening limited the time period as up to 2021, with the earliest research as the initial time, and the search scope was “subject”. Detailed screening included the type of literature and the category of the journal. The second step was the use of the metrology software for bibliometric analysis, including data set import, data visualization analysis, and plotting. The specific procedures and methods are shown in Figure 1.

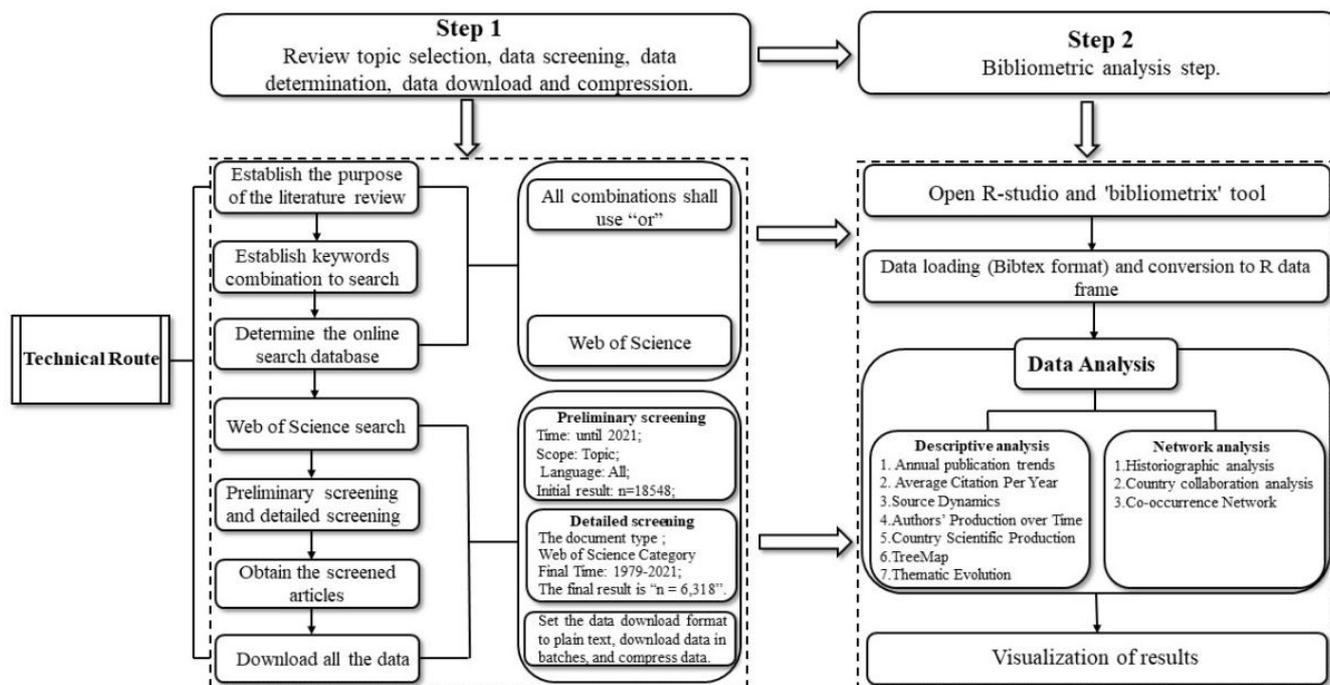


Figure 1. Technical Route of the Urban Land Management Review.

3. Results

3.1. Literature Time Sequence Analysis

3.1.1. Analysis of the Annual Publication Volume

The distribution of publications from the time series analysis can reflect the study trend [67]. From 1979 to 2021, the number of published research reports in urban land management areas generally increased (Figure 2). Combined with the changing trend, urban land management research was divided into three stages: 1979–1989, 1990–2008, and 2009–2021. The period from 1979 to 1989 was the embryonic period of urban land management research, with a very low number of annual publications, and, in some years, no relevant studies were published. The period from 1990 to 2008 was the development period, in which the number of published papers increased steadily, indicating that urban land management had gradually attracted the attention of the academic community. For

example, the Second United Nations Conference on Human Settlement (HABITAT II), focusing on “Adequate Shelter for All” and “Building Viable Human Settlements and Achieving Full Urbanization in a Changing world”, was held in Istanbul, Turkey, in 1996. During the meeting, it was pointed out that in the face of rapid urban population growth and the gathering of large numbers of people in cities, employment, housing, infrastructure, and environmental security issues would become challenges for cities. In this context, how to scientifically and effectively carry out urban planning and urban land management was one of the key elements to achieve sustainable socio-economic development, especially in developing countries [68,69]. The period from 2009–2021 was a high-yield period, with a significant growth in the number of relevant studies.

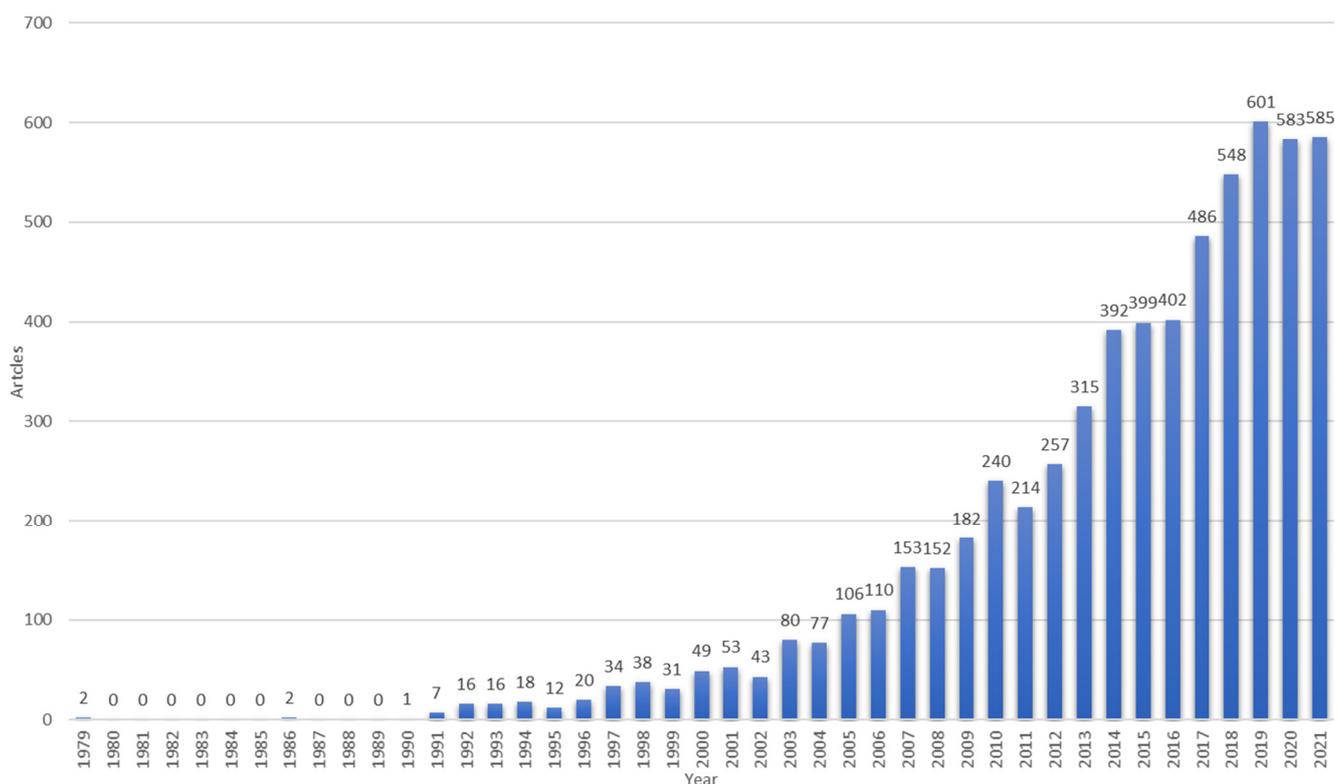


Figure 2. Annual output of urban land management studies in Web of Science from 1979 to 2021.

The 2016 United Nations Conference on Housing and Sustainable Urban Development (Habitat III), held in Quito, Ecuador, noted that the continuous growth of the urban population is accompanied by the unplanned expansion of cities, and the problem of slums in developing countries is difficult to solve, with increasing poverty and a greater vulnerable population. How to solve urban social problems, restrain urban sprawl, coordinate the relationship between humans and the land, and make cities places with diversity, inclusiveness, and innovation were important topics [70–72]. The conference also formally adopted a landmark outcome document, the New Urban Agenda, which was part of the United Nations’ 2030 Sustainable Development Goals and set global standards for sustainable urban development in the future, which helped in rethinking how we should build and manage urban land and live in cities [73–76].

3.1.2. Analysis of Annual Average References

The number of studies can reflect the communication and interaction characterizing academia, and a high number mirrors the high popularity and influence of a specific research field. According to the average citation distribution of the annual papers (Figure 3), the citation rates were very low from 1979 to 1989. In 1979, the reference frequency was only 0.3, indicating that the research relevance was low. The average citation rates from 1990 to

2008 and 2009 to 2021 were 1.81 and 2.98, respectively, showing that the field was constantly developing and that its influence was constantly increasing. In 2005, 2012, and 2020, the citation rates were 3.4, 3.2, and 3.9, respectively. To some extent, the citation frequency was closely related to the development stage of the research field itself. However, 106 papers were published in 2005, 257 in 2012, and 583 in 2020 (Figure 2). From 2009 to 2021 (high-yield period), the number of papers increased, but the quality decreased. Overall, the citation frequency of papers from 1979 to 2021 increased, with some fluctuations, indicating that the overall influence of urban land management-related research increased.

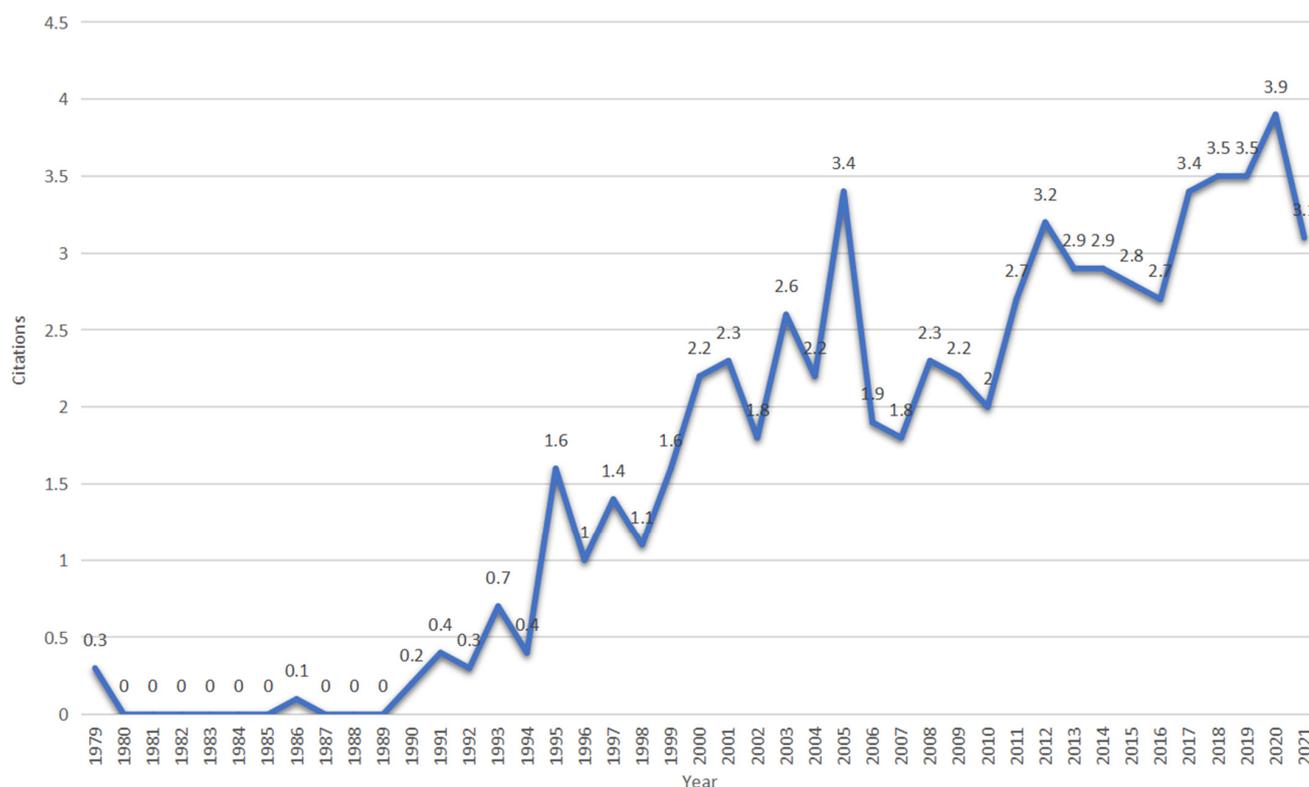


Figure 3. Annual citations of papers published by Web of Science from 1979 to 2021.

From 2009 to 2021, the average citation volume fluctuated and increased. During this period, scholars not only focused on the impacts of macro-factors, such as policies and management mechanisms, on urban land management, but also considered the impacts of other single factors on urban land management. For example, in 2015, Michael Eduful et al. studied and analyzed the situation of water body degradation during urban land management in Kumasi, Ghana [77]. The authors pointed out that previous studies tended to focus on policies and regulations as well as the causes, processes, and challenges of urban transformation, calling attention to the impact of urban land use change on water bodies in the field of urban land management, as well as increasing public participation.

3.1.3. Analysis of the Dynamic Change of the Published Journals

From 1979 to 2021, 6318 selected articles were published in 1434 different journals and books. An analysis of the scientific output of each journal indicated that annual publications increased for all journals (Figure 4). The top five journals published in Web of Science publications were *Landscape and Urban Planning*, *Remote Sensing*, *Journal of Hydrology*, *Habitat International*, and *Urban Forestry & Urban Greening*. Among these, the number of papers in *Landscape and Urban Planning* and *Remote Sensing* increased significantly. The number of articles in *Landscape and Urban Planning* increased from 1 in 1991 to 360 in 2021, followed by *Remote Sensing*, which grew from 3 articles in 2011 to 211 in 2021.

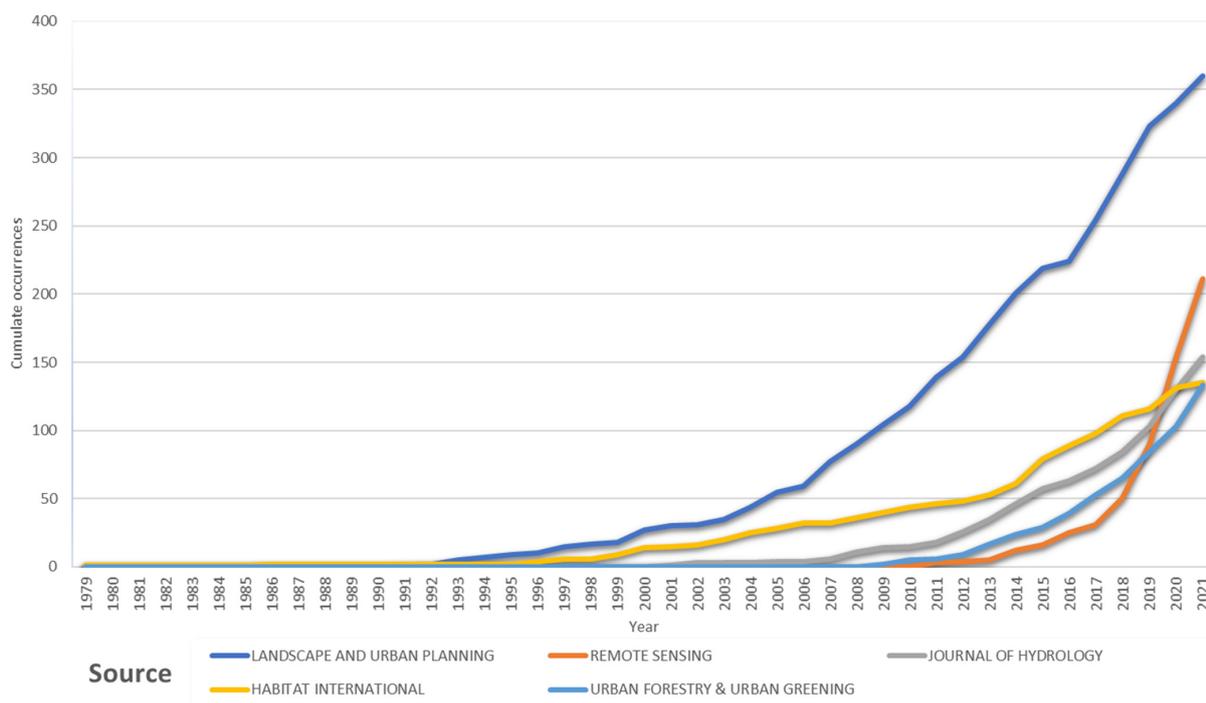


Figure 4. Trends in annual publications of different journals in Web of Science from 1979 to 2021 (Top Five).

Based on the main information of the five journals (Table 1), Landscape and Urban Planning started publishing studies on urban land management in 1991 and is still the most influential journal today. Among all journals, the h-index was 70, the g-index was 112, the m-index was 2.118, and the total citations (hereinafter referred to as “TC”) were 17,080.

Table 1. Journals with the highest numbers of published papers in the field of urban land management in Web of Science (Top Five).

Journal	h-Index	g-Index	m-Index	TC	NP	PY-Start
Landscape and Urban Planning	70	112	2.118	17,080	356	1991
Remote Sensing	27	40	2.250	2947	211	2011
Journal of Hydrology	35	64	1.591	5052	154	2001
Habitat International	33	58	0.750	4269	136	1979
Remote Sensing of Environment	33	51	1.269	5705	51	1997

Note: h-Index represents the importance and the influence of the accumulated research; the g-Index represents the derivative index of the h-Index; m-Index = h/n; n represents the age when the author published in the field; TC stands for total citations; NP represents the number of publications; PY-Start represents the start of the publication year.

3.2. Analysis of Major Countries/Regions and Researchers

3.2.1. Analysis of Major Countries/Regions

The papers published in different countries partly reflect the importance and influence of a given country in the field of urban land management. From 1979 to 2021, a total of 129 countries or regions published papers on urban land management. Among the top 10 countries, there were two Asian countries (China, India), two North American countries (USA, Canada), one South American country (Brazil), four European countries (Britain, Italy, Germany, Spain), and one Oceanian country (Australia) (Figure 5). The top three countries with the largest numbers of publications, excepting China, were developed countries, mainly in Europe, indicating that developed countries were strong in urban land management research. Theoretically, this was related to the high level of urbanization,

the early development of urban planning work, and the relatively mature urban land management modes in developed countries.

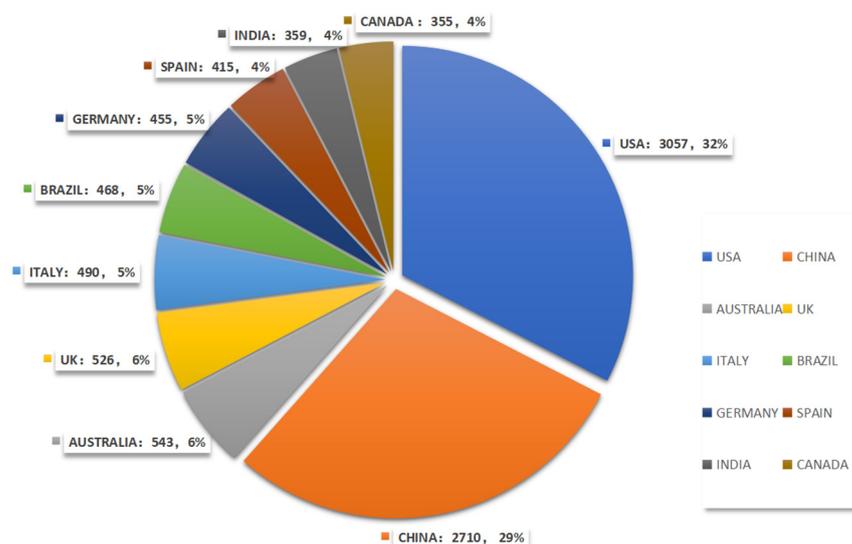


Figure 5. Research output by country in the field of urban land management in Web of Science from 1979 to 2021.

3.2.2. Cooperation Analysis of Major Countries

Regarding the cooperation among major countries around the world (Figure 6), each country had different degrees of cooperation, forming two core-edge clusters. In the field of urban land management, cooperation and exchanges among scholars from the United States, China, and Australia deepened. For example, the American scholars, Wolch and Newell, in collaboration with Australian scholar, Byrne, published “Urban Green Space, Public Health, and Environmental Justice: The Challenge of Making Cities ‘Just Green Enough’” in *Landscape and Urban Planning* in 2014. The article “Just Green Enough” reviews UK and US research on the role of urban green space in shaping public health and environmental justice and compared the efforts of China and the United States in urban greening, concluding that improving the spatial distribution of urban green space can help achieve environmental and spatial justice, as well as class equality [78]. Articles by the American scholars, Wolch and Newell, and the Australian scholar, Jason Byrne, demonstrated that access to urban park resources varied by class and racial dimensions and required intervention [78]. In addition, the authors proposed a “Just Green Enough” urban green space strategy, calling on urban planners, designers, and ecologists to protect social, ecological, and land use sustainability and to strengthen urban land management [78].

The number of publications and citations of scientific papers is an important indicator to measure a country’s scientific research strength. From 1979 to 2021, the statistical results of national collaborative papers in Web of Science, by nationality of the corresponding authors, showed that the number of papers published by corresponding authors and the total citations placed the United States, China, and Australia in the top three (Table 2), indicating the strong academic influence of these three countries. Among the developed countries, the United States had 1244 corresponding authors and 39,715 citations, ranking first in the world, indicating the highest academic level in the field of urban land management. Among them, the single-country publications (SCPs) were 1085, and the multiple-country publications (MCPs) were 159. In developing countries, 1091 articles on urban land management were published in China, which became one of the most important countries in the field. However, the average article citations of Chinese papers were relatively low, with only 18.22, indicating that the quality of Chinese papers needed to be further improved. In China, the number of SCPs was 835, and that of MCPs was 256, suggesting that Chinese scholars paid more attention to international collaborations.

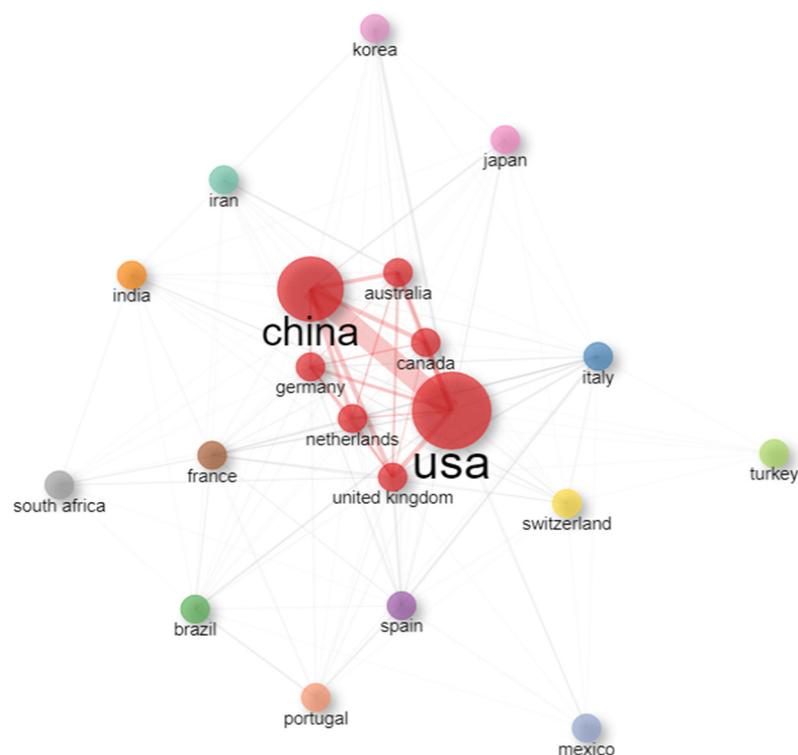


Figure 6. Top 20 national collaborative networks in the field of urban land management in Web of Science in terms of scientific research output from 1979 to 2021. Note: The 20 circles generated represent cooperative maps of 20 countries. The size of the circle represents the scientific research output. The connection lines among countries indicate the state of cooperation among these countries, and the thickness of the lines indicates the cooperation strength.

Table 2. Statistics of national cooperative papers in Web of Science from 1979 to 2021 by nationality of the corresponding authors (Top Ten).

Country	Articles	SCP	MCP	Total Citations	Average Article Citations
USA	1244	1085	159	39,715	31.93
China	1091	835	256	19,878	18.22
Australia	274	207	67	7428	27.11
Italy	244	193	51	4212	17.26
United Kingdom	234	166	68	6464	27.62
Spain	208	169	39	2958	14.22
Brazil	205	177	28	763	3.72
India	183	162	21	2640	14.43
Germany	180	117	63	4200	23.33
Canada	167	131	36	3093	18.52

Note: SCP, single-country publications; MCP, multiple-country publications.

Further analysis showed that countries at different development levels faced different urban land management issues and differed in their concerns regarding urban land management. For example, developed countries proposed the concept of “Smart Growth”, managing urban land by demarcating urban growth boundaries, encouraging mixed land use, and protecting farmland and open space, with widespread impacts [79]. Many of the states in the United States, including Florida, Maryland, and New Jersey, managed urban land [80] through legislation to support the compact development of urban centers. Many European countries (such as the United Kingdom, the Netherlands, Germany, Norway, Poland, Spain, and Italy) started from increasing density, improving land use efficiency, and reusing vacant land to curb cities and manage urban sprawl [81], whereas developing countries were mostly interested in unmanaged urban land expansion and unplanned and

decentralized urban redevelopment models [82]. Moreover, the existence and potential impact of vacant land in developing countries were largely ignored [83], and some developing countries were in the transition period from sprawling development to the quantitative management of urban land using technological means [84].

3.2.3. Analysis of the Main Authors

Highly cited scholars represent the guidance of researchers in this field, reflecting the commanding heights of national or regional knowledge innovation. Highly cited papers mean that the authors' research results were, at least for some time, widely recognized, inherited, and further developed by other researchers. In view of this, this paper selected high-citation authors and studied their published high-citation papers to understand their research scope. A total of 16,270 authors contributed to the field of urban land management during the studied period, with Pradhan, Pengjun, and Xiang being the first three authors, publishing 20, 14, and 19 papers, respectively (Table 3). The h-index was commonly used to measure the importance of authors and the influence of cumulative research contributions [57,85]. To prevent the uncertainty caused by the comparison of the h-index, and to compare the influence of the authors in the field during different periods, both the g-index and the m-index were introduced in the software, using the following equation: $m=h/n$.

Table 3. The 10 most influential authors in the field of urban land management in Web of Science from 1979 to 2021.

Author	h-Index	g-Index	m-Index	TC	NP	PY-Start
PRADHAN B	13	20	1.300	758	20	2013
ZHAO PJ	13	14	0.929	728	14	2009
LI X	11	19	0.440	900	19	1998
LIU YX	11	12	1.100	516	12	2013
SALVATI L	11	17	1.000	713	17	2012
ZHOU WQ	11	17	1.000	1209	17	2012
JIM CY	10	16	0.385	345	16	1997
WANG J	10	23	0.667	566	25	2008
YANG J	10	15	0.714	566	15	2009
FLETCHER TD	9	9	0.900	499	9	2013

Note: h-Index represents the importance and the influence of the accumulated research; the g-Index represents the derivative index of the h-index; m-Index = h/n ; n represents the age when the author published in the field; TC stands for total citations; NP represents the number of publications; PY-Start represents the start of the publication year.

Where n represents the age of the author when publishing in the field [86], and the g-index is the derivative index of the h-index, mainly to compensate for the defect that the h-index does not respond well to reflect highly cited papers. In this field, Pradhan published the largest number of papers, with an h-index of 13, a g-index of 20, and a total citation number of 758, indicating that the papers of this author were of high quality and highly influential.

Further analysis revealed that Pradhan's most frequently cited paper appeared in 2019 (the darkest color in Figure 7), being cited 60 times. This was because in 2019, Pradhan's "Urban Flood Risk Mapping Using the GARP and QUEST Models: A Comparative Study of Machine Learning Techniques", published in the "Journal of Hydrology", proposed using the genetic algorithm rule-set production (GARP) model to draw urban flood risk maps, with the aim of strengthening urban flood risk management and improving urban land use efficiency, thereby better serving urban planning and urban land management [87].

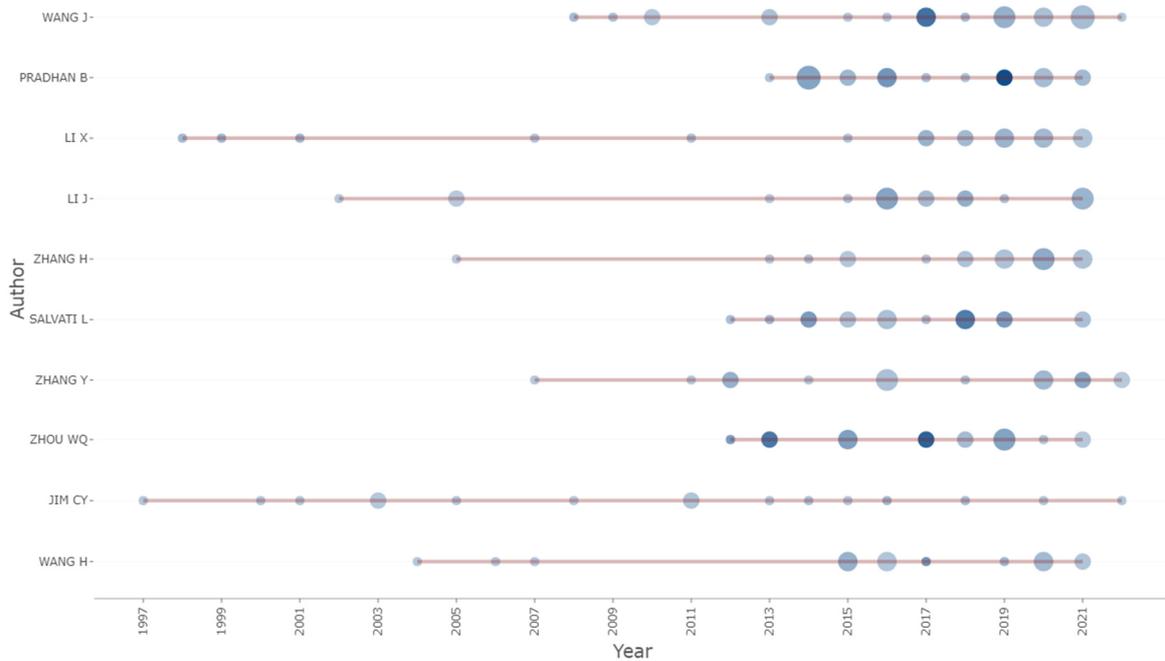


Figure 7. Long-term outcomes of highly cited authors in Web of Science in urban land management.

3.2.4. Historical Citation Analysis of the Main Authors

This paper used the local citation store (LCS) and global citation store (GCS) indicators, as well as historical citation visualization, to analyze the research methods and the contents of classical publications. The LCS refers to reference citations in the downloaded dissertation dataset, whereas GSC refers to reference citations in the Web of Science core collection database. The historical reference visualization selected the top 24 cited nodes, with the node content set to the author and the year of publication, revealing pioneering work and some classical research in the field (Figure 8). Among the first 24 cited papers in urban land management, the earliest node was an article published in *Landscape and Urban Planning* by Nowak in 1996 (Figure 8), titled “Measuring and analyzing urban tree cover” [88]. The paper pointed out that by revealing the characteristics of the entire urban vegetation, measuring urban tree cover can facilitate urban vegetation planning, management, and research.

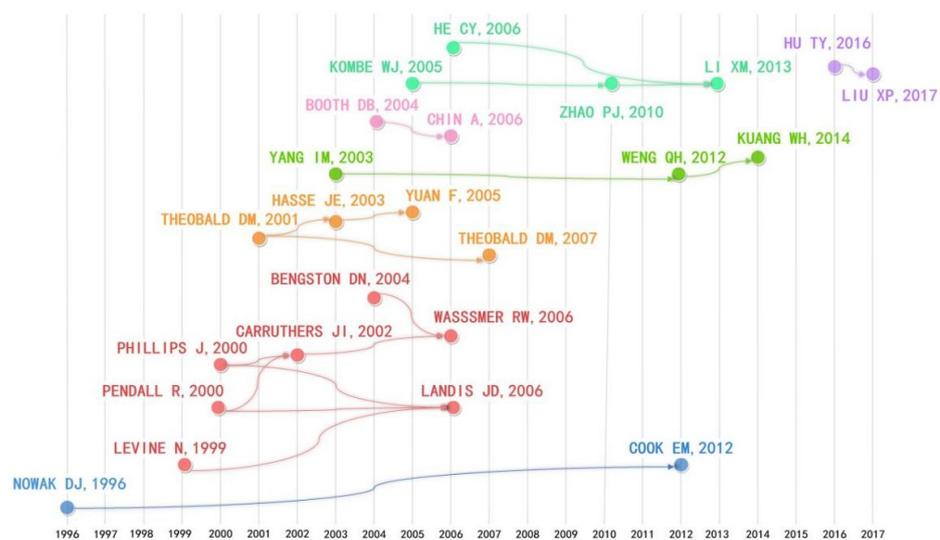


Figure 8. Historical direct citation network of authors of the top 24 most cited papers in urban land management from 1979 to 2021.

Several classical articles appeared between 1996 and 2017, clearly showing the historical citation relationships among the top 10 authors in the field of urban land management (Figure 8). For example, in 2000, Phillips published an article in *Contemporary Economic Policy*, titled “Growth management and housing prices: the case of Portland, Oregon”, with two different reference chains (Figure 8), with an LCS of 31 (Table 4) and a joint fifth place in the LCS in that time interval (1979–2021). Taking Portland, Oregon, as an example, this article used econometric analysis to conclude that the urban growth boundary (UGB) had less impact on land and housing prices. It pointed out that the UGB was a compact form of zoning, aiming to control urban sprawl and facilitating urban land management [89].

Table 4. Top 10 LCS publications in urban land management from 1979 to 2021.

Publications	DOI	Year	LCS	GCS
WENG QH, 2012, REMOTE SENS ENVIRON	10.1016/j.rse.2011.02.030	2012	55	660
YUAN F, 2005, REMOTE SENS ENVIRON	10.1016/j.rse.2005.08.006	2005	50	628
BENGSTON DN, 2004, LANDSCAPE URBAN PLAN	10.1016/j.landurbplan.2003.08.007	2004	38	341
HU TY, 2016, REMOTE SENS-BASEL	10.3390/rs8020151	2016	34	224
COOK EM, 2012, URBAN ECOSYST	10.1007/s11252-011-0197-0	2012	31	253
PHILLIPS J, 2000, CONTEMP ECON POLICY	10.1093/cep/18.3.334	2000	31	105
HASSE JE, 2003, APPL GEOGR	10.1016/j.apgeog.2003.08.002	2003	30	283
CARRUTHERS JL, 2002, URBAN STUD	10.1080/0042098022000011317	2002	30	101
PENDALL R, 2000, J AM PLANN ASSOC	10.1080/01944360008976094	2000	29	210
NOWAK DJ, 1996, LANDSCAPE URBAN PLAN	10.1016/S0169-2046(96)00324-6	1996	27	225

Note: LCS (local citation score) refers to the citations in the downloaded paper dataset, and GCS (global citation score) refers to the citations in the Web of Science core collection database.

Similarly, the article published by Theobald in 2001 also developed two citation chains (Figure 8), and two articles in one of the citation chains ranked in the top 10 in LCS and GCS (Tables 4 and 5), indicating that these two publications are classical papers in the field of urban land management, with strong relations to other disciplines. These two publications are “Land resource impact indicators of urban sprawl”, published by Hasse in “*Applied Geography*” in 2003, and “Land cover classification and change analysis of the twin cities (Minnesota) metropolitan area by multitemporal Landsat remote sensing”, published by Yuan in “*Remote Sensing of Environment*” in 2005 [90,91]. Hasse quantified changes in land resources using land cover/land use change datasets compiled by the State of New Jersey, as well as the U.S. Census and other environmental data, allowing policymakers and researchers to better understand current issues and scientifically manage urban land [90]. Yuan’s article cited the above, both of which pointed out that using data to map, monitor, and analyze changes in land cover over time in the face of rapidly growing metropolitan areas can provide an accurate and effective reference for urban land management and policy decisions [90,91].

Table 5. Top 10 GCS-ranked publications in the field of urban land management from 1979 to 2021.

Publications	DOI	Year	LCS	GCS
WENG QH, 2012, REMOTE SENS ENVIRON	10.1016/j.rse.2011.02.030	2012	55	660
YUAN F, 2005, REMOTE SENS ENVIRON	10.1016/j.rse.2005.08.006	2005	50	628
BENGSTON DN, 2004, LANDSCAPE URBAN PLAN	10.1016/j.landurbplan.2003.08.007	2004	38	341
YANG LM, 2003, CAN J REMOTE SENS	10.5589/m02-098	2003	18	337
HASSE JE, 2003, APPL GEOGR	10.1016/j.apgeog.2003.08.002	2003	30	283
THEOBALD DM, 2007, LANDSCAPE URBAN PLAN	10.1016/j.landurbplan.2007.06.002	2007	23	278
THEOBALD DM, 2001, GEOGR REV	10.2307/3594740	2001	23	257
COOK EM, 2012, URBAN ECOSYST	10.1007/s11252-011-0197-0	2012	31	253
CHIN A, 2006, GEOMORPHOLOGY	10.1016/j.geomorph.2006.06.033	2006	21	248
ZHAO PJ, 2010, HABITAT INT	10.1016/j.habitatint.2009.09.008	2010	18	239

Note: LCS (global citation score) refers to the citations in the downloaded paper dataset, and GCS (global citation score) refers to the citations in the Web of Science core collection database.

Qihao published “Remote sensing of impervious surfaces in the urban areas: Requirements, methods, and trends” in *Remote Sensing of Environment* in 2012 [92]. The GCS of this paper was as high as 660, with an LCS of 55 (Tables 4 and 5). There was only one citation chain (Figure 8), indicating that this paper focused on urban land management. Digital remote sensing was used to extract and study the impervious surface in urban areas, which is also of great significance to urban planning, as well as environmental, land, and resource management.

3.3. Keywords Analysis

3.3.1. High-Frequency Keywords Analysis

The top 10 keywords in the field of urban land management were Management, City/Cities, Land Use, Impact/Impacts, Urbanization, Model, Climate Change, Urban, Classification, and Dynamics (Figure 9). Thus, Management, Urbanization, Classification, and Model were the research hotspots in the field of urban land management. By using model quantitative analysis, we can accurately analyze, predict, and guide the changes in urban land use and manage urban land based on scientific rationales. For example, the article “Quantitative decision making in land banking: A Monte Carlo simulation for China’s real estate developers”, published in the “*International Journal of Strategic Property Management*” in 2012, by Bao et al., was concerned with facing the shortage of urban development land in China and other developing countries, and developing a land reserve decision model for real estate development companies to strengthen the management of urban land. It also supported real estate enterprises in making rational and dynamic decisions [93] in the current dynamic real estate market. Back then, urban planning was a complex, systematic, and dynamic work field, and it was a new trend to use novel technologies to extract, identify, and classify land during urbanization. For example, Li et al. adopted a clustering method in the article “Understanding the diversity of urban-rural fringe development in a fast urbanizing region of China” in “*Remote Sensing*” in 2021. Multi-dimensional urbanization indicators were included to understand the temporal and spatial changes in the development of urban and rural fringes (areas between urban and rural areas) in China’s Yangtze River Delta urban agglomeration [94]. By analyzing the diversity of rural–urban margins in rapidly urbanizing regions, the authors of this paper filled a gap in previous research and provided insights for reorienting rural–urban interfaces and land use management.

Keywords such as Land-cover, Climate, and Ecology did not rank at the top of the statistical table of high-frequency keywords (Table 6). In the paper, “Effects of land use and land cover change on carbon sequestration and adaptive management in Shanghai, China”, in *Physics and Chemistry of the Earth*, Zhang et al. analyzed the mechanism between carbon sequestration and land use and land cover change in Shanghai. It was pointed out that strengthening urban land management work and enhancing the carbon fixation capacity of urban ecosystems can help alleviate climate change in the process of urbanization and achieve the goal of sustainable development [95]. Topics closely related to “Climate” and “Urban land management” are “Climate Change Adaptation”. In our database, there were 119 papers related to “Climate Change Adaptation” (compared to 6318 in the database), but “Climate Change Adaptation” did not appear in the high-frequency keyword statistics table because the software could not count the combined vocabulary (Table 6), but “Climate Change Adaptation” is the research hotspot in the field of urban land management. Governments around the world have felt the huge negative impact of natural disasters caused by extreme climate change on production and livelihoods, such as extreme heat and urban waterlogging. Related to urban land management, climate change requires urban land management departments and urban planners to allocate urban construction land more rationally, to improve the efficiency of urban carbon sinks, to reduce carbon dioxide emissions, to mitigate extreme natural disasters caused by climate change, and to reduce property losses. For example, in order to cope with climate change in Germany, the planning and management department incorporated climate change into spatial planning

research, converted abandoned land in cities into green and open spaces, and improved the carbon sink efficiency of urban land. At the same time, more emphasis was placed on public participation, providing citizens with measures to perceive and evaluate the urban climate environment, and, thereby, improving the efficiency of urban land management [96].

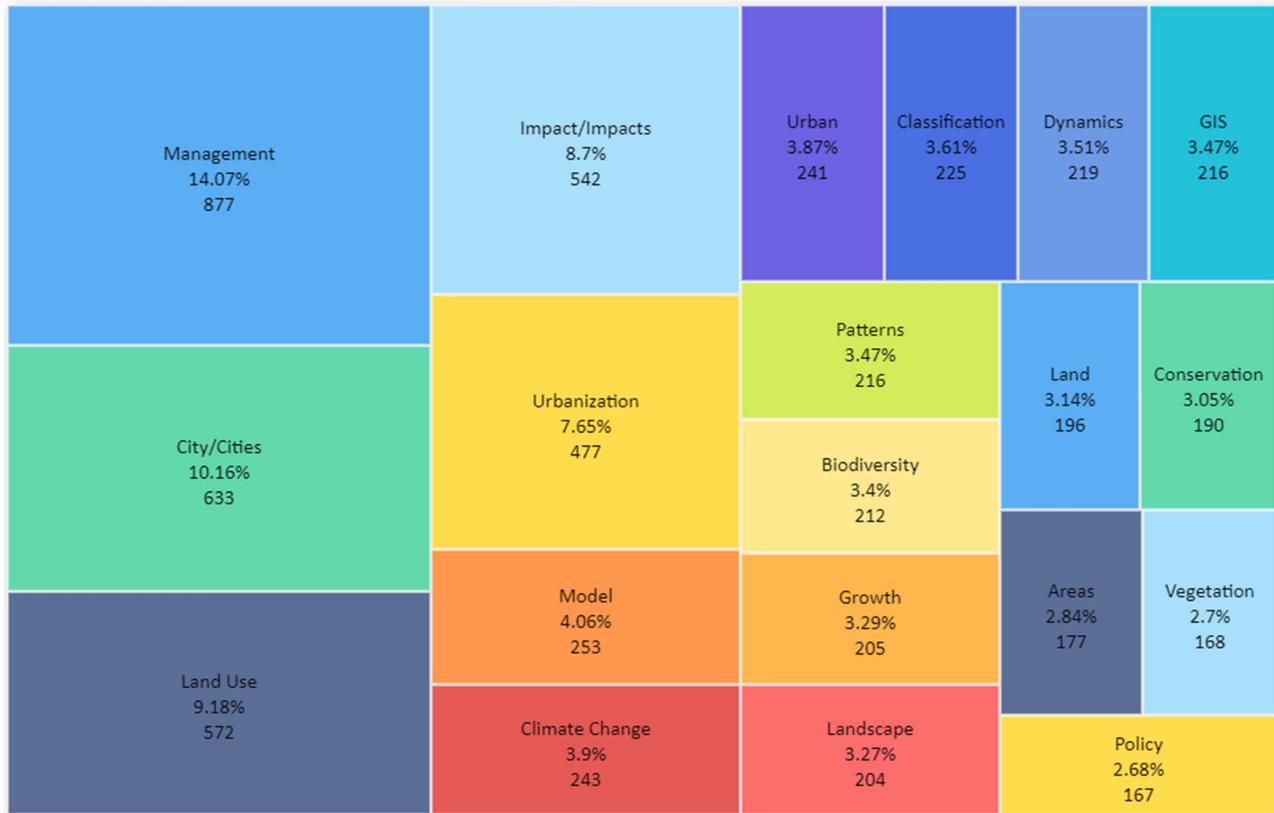


Figure 9. Tree map of high-frequency keywords in the field of urban land management in Web of Science from 1979 to 2021 (Top 20).

Table 6. High-frequency keywords and frequency of occurrence in the field of urban land management (Top 40).

Keywords	Frequency	Keywords	Frequency
Management	877	Area	160
City/Cities	633	Ecosystem Services	160
Land Use	572	China	157
Impact/Impacts	542	Land Use Change	140
Urbanization	477	Sprawl	140
Model	253	Cover	128
Climate Change	243	Water	123
Urban	241	Quality	118
Classification	225	Framework	116
Dynamics	219	Governance	113
GIS	216	Climate	111
Patterns	216	Forest	109
Biodiversity	212	Expansion	108
Growth	205	United States	107
Landscape	204	Land Cover	105
Land	196	Ecology	104
Conservation	190	Region	101
Areas	177	Scale	99
Vegetation	168	Systems	98
Policy	167	Runoff	96

3.3.2. Co-Occurrence Network Analysis of High-Frequency Keywords

The purpose of co-word analysis is to identify word co-occurrence, create networks, and cluster keywords from selected articles. Keyword co-occurrence is studied using normalized association methods, pointing out a general conceptual framework of the research field. Co-word analysis is the only analysis that uses the true nature of an article and that can be applied to the full text, abstract, and keywords [46,97]. Limiting the number of keywords to 30 generated a network of keyword co-occurrences (Figure 10). The keyword co-occurrence network in this study described two clusters. When two keywords occurred simultaneously in one or more articles, they were likely to be grouped in one cluster. The size of the simultaneous circle indicated the number of file appearances. Collaborative strength was demonstrated by the distance between circles in individual pairs, the density of lines between circles, and the width of the lines. The earlier the keyword appeared, the lighter the ring color was.

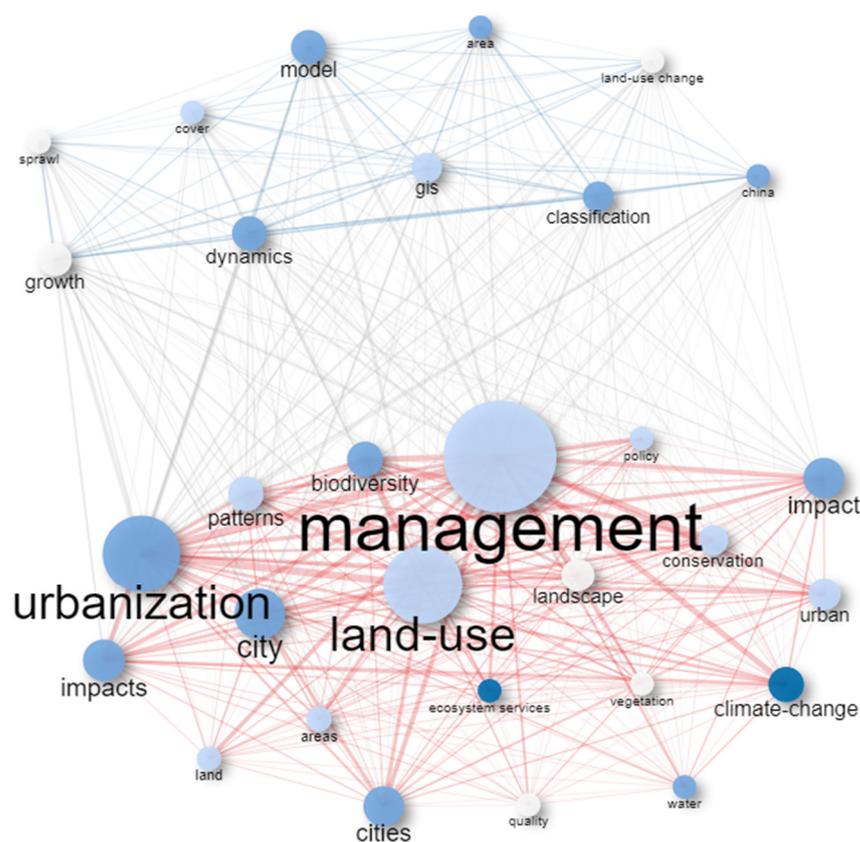


Figure 10. Keyword Co-occurrence Network Analysis (Top 30).

Further analysis showed that “Management”, “Urbanization”, “Land Use”, and “Climate Change” were closely linked (Figure 10). For example, Kazak published “The use of a decision support system for sustainable urbanization and thermal comfort in adaptation to climate change actions—the case of the Wrocław larger urban zone (Poland)” in Sustainability. The paper proposed that, to better adapt to the potential impacts of future climate change, land use modeling could realize the rational use and management of urban land in the future, and, by creating a more sustainable urban structure, it could better adapt to climate change and environmental extremes [98].

3.3.3. Analysis of the Thematic Evolution

The Sankey diagram is highly important for studying the topic and topic evolution in a certain field [99]. This diagram, also known as the Sankey energy shunt diagram, mainly describes the flow of different nodes in the network and is frequently used to analyze

the flow of energy or matter. The arrows or direction lines of the Sankey plot are used to represent these flows, and the thickness of the arrow or direction is proportional to the flow size. These charts are commonly used in industrial ecology to describe product lifecycle assessments and to rapidly visualize energy efficiency [100] in engineering. Sankey diagrams, which emphasize the magnitude and direction of traffic within a system, have also been used in geography, urban planning, and environmental science because of their widespread utility [41,101,102].

Based on the Sankey diagram, this paper intuitively presents the changes of urban land management topics over time, indicating that the research topics related to urban land management change over time (Figure 11). Among them, in the first stage (1979–2013), urban land management research was in the embryonic stage, and scholars began to explore this topic from the perspectives of “Management”, “Urbanization”, and “GIS”. The second stage (2014–2018) showed a gradually enriched research content of urban land management, mainly related to “Urbanization”, “Impact”, “System”, “GIS”, “Management”, “Policy”, “Conservation”, and “Land Subsidence”, with a multidisciplinary and multi-perspective comprehensive development. The third phase (2019–2022) mainly focused on two aspects, namely “Management” and “Climate Change”. In this phase, the research in the field of urban land management was deeper, with more diversified perspectives, more mature technologies, and more attention to human needs and environmental friendliness. In general, from 1979 to 2021, in the field of urban land management, “Management” was always one of the core themes in the field of urban land management, and the overall research themes were first diversified and then focused.

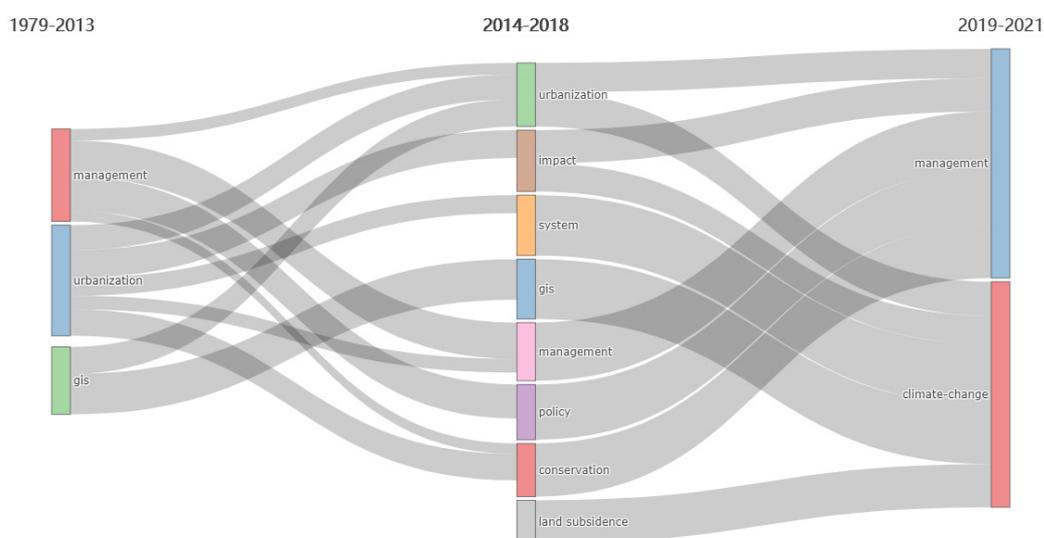


Figure 11. Thematic evolution in the field of urban land management (1979–2021).

4. Discussion

4.1. Analysis of the Research Trend of Urban Land Management

Research work on urban land management and development policy provides the guidance and guarantee of urban land management. “Management”, as one of the main themes in the field of urban land, has been subject to laws and policies to protect the sustainable use of urban land. Urban land management is affected by time and space, and the research focus, direction, and contents of different countries/regions in different periods are also different. Therefore, studying the development of different countries is conducive to the formulation of relevant policies and urban land management. For example, in the temporal dimension, China changed from aggressive development in the period of the reform and opening up to delineating the boundaries of urban development in the context of today’s land and space to activate the stock, leave a margin, and grow shrewdly [103]. Israel was strongly influenced by top-down land use policies, with planning principles and policies

developed at the national level and issued as laws and directives for implementation at the local level. The period from the 1950s to the 1970s was marked by an urgent need to establish and protect borders, due to agricultural land conservation and land use policies. Therefore, the creation of small agricultural communities and new towns on the geographical edge of the country limited the urban spread and the growth of urban land to some extent. In the 1980s, when restrictions on urban development were loosened, the policy still focused on protecting farmland. The 1990s and 2000s fall into the era of planning shocks and urban growth management, and the policy of urban growth management was established in Israel's land use planning. The policies established over the past few years encourage higher-density development and slow the loss of open space, setting targets for benign urban growth management [104]. In terms of space, the urbanization work in developed countries, such as those in Europe and the United States, was carried out earlier and urbanization occurred earlier, while the current urbanization rate tends to be stable, and urban planning and urban land management work have gradually reached a policy-oriented management stage. The US public sector developed a broad range of policy tools (public land acquisitions, regulatory approaches, and incentive-based approaches) to manage urban growth and protect open space, with the aim of stemming the tide of urban sprawl in the US. The US managed urban land, protected open space, and limited urban growth through the transmission and implementation of government departments at all levels [105]. South Korea proposed national policies and strategies for low-carbon and green growth. Transportation-oriented compact development was implemented in urban structure and land use, providing standards and guidelines for integrated urban planning and land management [106]. However, urban land in developing countries was still in an incremental stage, and urban land management was in an immature stage of development [107]. As can be seen, issues related to urban land or urban land management vary from politics to governments, and, therefore, localized research examples tend to be more effective than broad policy recommendations, which can provide broad guidance, but little depth. To ensure urban land management based on scientific rationale, we must seek the commonality from the individuality, and on the basis of absorbing extensive experience, we must adopt measures according to the local conditions and the time.

The study of urban land management in urbanization is an important basis for grasping the mechanism of urban land evolution and all stages of urban land management. "Urbanization" and "Urban Land Management" are two inseparable topics. Cities are the main places for social, economic, and political activities, and urban land is the carrier of urbanization. The policies, as well as the economic, social, and ecological environments of different countries, have different impacts on urban land, which can be reflected in urban land changes. For example, urban expansion is one of the main pressures affecting the Mediterranean coastal region. Faced with the problems arising with urbanization in the Mediterranean coastal areas, France has formulated coastal management policies to assist in spatial planning, to study urbanization and to determine the characteristics of the evolution of coastal built-up areas, to monitor urban land changes, and to effectively manage urban land [108]. As a factor in land management, the land-atmosphere interaction maintains air quality and improves ecosystem functions. Therefore, it is necessary to monitor, analyze, and evaluate land use change in a temporal and spatial context and to quantify the impact of land use change on the global and even regional climate models so as to formulate scientific and effective land management measures [109].

The emergence of spatial analysis tools, such as GIS and ENVI, has expanded the research in the field of urban land management. In particular, the integration of GIS and urban land management has promoted the production of research results and publications in the field of urban land management. The trend chart of the annual publication volume (Figure 4) and the topic evolution chart in the field of urban land management (Figure 11) support this view. In the first stage (1979–2013), the research on urban land management was in its infancy (Figure 11), with a small number of publications published on Remote Sensing (Figure 4). In the second stage (2014–2018), the research topics of urban land

management were gradually enriched, showing a trend of comprehensive development from multiple disciplines and perspectives (Figure 11). The number of publications on Remote Sensing increased rapidly (Figure 4). With the development and maturity of GIS, the application of GIS in urban land management has become a scientific supplement to the research of urban land management under the guidance of policies. The ability of “GIS” to collect, manage, analyze, and output urban spatial information has provided strong support to urban land management. As it is necessary for urban planners and governments to consider the land use status, timely and adequate urban land use information undoubtedly promotes the sustainable development of urban areas. At this time, the application of geographic information technology and big data can accurately and effectively draw the urban land use map, facilitating the scientific, quantitative, and dynamic management of urban land. For example, Luxembourg managed urban land by using data from typical municipalities and its implementation in GIS to plan, monitor, or forecast land consumption [110]. By integrating remote sensing and social media data, we point out that urban land use information has played an important role in urban management, government decision making, and population activity monitoring [111].

4.2. Analysis of Urban Land Management Practice

Urban land management ensures the orderly zoning of urban functions. Rapid urbanization not only leads to sprawl and disorderly development of urban land, but also causes chaotic conditions in areas such as public services, commerce, housing, and greening. Therefore, reasonable urban land management contributes to the balance of public service facilities among regions, the agglomeration of economic development scale, the enhancement of the livability level of residential areas, the improvement of urban greening quality, and the realization of spatial justice. For example, Japan proposed the Integrated Station-City Development (ISCD) strategy on the basis of drawing lessons from the TOD theory of Europe and America. The ISCD is a highly complex mode of urban development, community construction, use, and agglomeration, centered on railway hubs. This model makes the railway hub area become an urban comprehensive center with highly intensive land use, highly compound urban functions, orderly functional zoning, and a good landscape environment. The planning and design of the railway hub section should be incorporated into the overall urban planning to make it highly integrated with urban functions, facilities, land use, and landscape [112]. It is worth noting that realization of the intensive and efficient use of urban land by means of planning and design is not only the responsibility of the planning industry but often requires the participation of multiple parties. It is more convenient for the implementation of urban land management to change the top-down government-led urban planning policy, implement urban planning work combining top-down and bottom-up, improve the intensity of public participation, and form a multi-governance pattern of “government-market-citizen” participation. Promoting the coordination of all departments horizontally can achieve the requirements of data unification, base map unification, and goal unification. To promote the formation of urban functionally clear zoning, a healthy and orderly development of spatial patterns is necessary.

With the advancement of urbanization, various countries have encountered social and economic problems, such as lack of vitality in the inner city, decline of the central area, and substantial differences in the quality of residential areas, which aggravate the fragmentation and inefficiency of urban land use. To cope with these issues, different countries have combined the existing problems of urban land management from different aspects of exploration. For example, the United States takes the revitalization of the inner city as an economic strategy, aiming to give full play to the potential advantages of the location of the inner city, to build on the basis of existing companies, to establish viable enterprises, to provide employment opportunities, and to create a favorable environment for business to enhance the vitality of the inner city and re-empower the land in the inner city [113]. Heinrich took Weissenfels and Bernburg, in Germany, as examples and pointed

out that urban renewal should be used to control the decline of urban central areas. The author proposed specific frameworks, governance models, and optimization strategies to maximize the economic and social benefits of urban land [114]. Zhang et al. point out that megacities in China urgently need to be developed to realize the current situation of intensive use of urban land, the need to build a concrete knowledge framework for megacities reconstruction, and, at the same time, place more emphasis on local background and policy dynamics, as well as the importance of public participation [115]. Campbell advocated the concept of green urban planning to guide urban land management, proposed the concept of “Planner’s Triangle”, and pointed out three key elements to coordinate urban land efficiency, in terms of environmental protection, economic development, and social equity, with the aim of achieving the goal of building a green city and realizing the coordination of the urban man–land relationship, spatial justice, and sustainable development of urban land management [116]. Durand-Lasserve and Royston looked at land in poor urban areas and used cities with different social, legal, and economic constraints as case studies to study how urban stakeholders can find solutions to secure urban land ownership and to meet the needs of most residents in shanty towns and informal settlements, and to provide experience for urban land management in developing countries, such as those in Africa, Asia, and Latin America [117]. Similarly, Mulherin, from the perspective of sociology and economics, pointed out that the supply of affordable housing could not only alleviate poverty in urban areas and promote social harmony but could also effectively save urban land and avoid the pressure brought by the massive development and construction of residential areas [118].

4.3. Comparative Analysis of Related Studies

Comparing the work of different scholars in the same field can help to find differences, make up for shortcomings, and enrich research results. This paper studied the urban land management publications of various countries and regions in the world. Based on the results, this research field is gaining increased attention. From 2019 onward, “Management” and “Climate Change” dominated the research. Scholz conducted a review on the theme of sustainable multifunctional land and urban management in Europe, emphasizing the importance of integrating environmental policies into other policy sectors. The focus was on large-scale European projects that have had a major impact due to policy changes, thereby making significant contributions to new policy developments [119]. This work has certain practical implications and can be used as a case supplement to this review. Wagner reviewed the “Decision Support Methods for Urban Development and Land Management”, horizontally discussing the differences in the monitoring and simulation results of urban land by different technologies. Finally, the results obtained by using technical means could provide certain policy suggestions for governments and urban planners to manage urban land and formulate laws and regulations related to urban land management [31]. Through comparison, it was found that although scholars such as Wagner did not use metrology software to analyze and review the results in this field, the keywords and opinions in the paper all appeared in Chapter 3.3 of this paper, namely the “keyword analysis” column, which also showed the reliability of the research results.

4.4. Limitations of the Study and Future Research Directions

This paper used the core collection in the Web of Science database as the data source. To ensure the coherence of the research, the starting point was the year 1979, when the first studies on urban land management appeared. To exclude the interference of the nonwhole year to the study results, studies published until 31 December 2021, were included in this review. To ensure the integrity of the study, different definitions of “urban land management” were searched in the scope of “subject”. To ensure the accuracy of the study, experts in the field were invited to screen literature types and journal categories, as well as other processes, such as manual deduplication and deleting irrelevant data. To prevent data omission, the data exported from the Web of Science were saved in batches in plain text

format and imported into the Bibliometrix as a compressed package. However, there were still some errors and omissions in the study. First, only the Web of Science database was used, neglecting Scopus, American Periodicals, British Periodicals, and CNKI databases. Second, because of the manual data selection and screening, the data sources still had a certain subjectivity. Finally, we only analyzed the impacts of policies on urban land management in Section 4. However, in practice, urban land management is affected by economic, policy, social, and other factors. However, in this study, economic and social factors were not specifically analyzed. In addition, in the field of urban land management, localized research examples are often more targeted than global reviews. However, we only analyzed typical cases of individual countries/regions. In the future, we will seek a set of universal urban land management systems based on the current discussion content.

5. Conclusions

From 1979 to 2021, based on relevant research on urban land management, the number of publications and the average annual number of citations increased, along with the number of major journals publishing these papers. Overall, 129 countries/regions around the world contributed to the field of urban land management. Among them, China published the most outstanding research results in Asia, the United States in North America, Brazil in South America, Australia in Oceania, and Italy in Europe. In terms of national cooperation, the United States, China, and Australia were the three countries most in cooperation with other countries.

From 1979 to 2021, the research topics in the field of urban land management were divided into three stages. The number of research topics first increased and then decreased. Management was the main topic throughout the entire period. Urban land management evolved into “Management” and “Climate Change”, which shows that land management and tackling climate change are at the core of urban land management work. Land is the most precious resource in all countries, and urban land is particularly important. However, urban land management should not only consider the land itself but must also take into account the combined influence of multiple factors. Since urban land management is composed of social, economic, ecological, policy, and transportation elements, future research should focus on “how to develop appropriate policies from the dual dimension of time and space”, “how to improve the laws and regulations”, and “how to consider multiple elements”, with the overall aim of achieving social, land, economic, ecological, policy, and transportation element coordination and to ensure the sustainable use of urban land.

Author Contributions: S.S.: Methodology, Software, Data curation, Writing—original draft; W.S.: Conceptualization, funding acquisition; S.S. and W.S. Writing—review & editing; H.L. and L.N.: investigation, validation; S.S., W.S., H.L. and L.N.: proofreading. All authors have read and agreed to the published version of the manuscript.

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