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BASIC GLOBAL RESEARCH TRENDS ON CADASTRE: A BIBLIOMETRIC ANALYSIS (2014-2018)

Erkinova M.L
Assistant Professor, Karshi
State Technical University
Erkinova@uzdavyerloyiha.uz

Abstract

In this article, particularly the global research status of cadastre was evaluated by using bibliometric analysis. This article is based on the analysis of research topics, scientific production, collaboration among countries and authors. Furthermore, most cited papers on cadastre research which obtained from database of Scopus during the time period from 2012 to 2023. Land use changes, as a practical and advanced space exploration technology, offered a lot of valuable data about the earth surface for global analysis. This study is concentrated on the analysis of scientific outputs, research directions, source journals, author performance and their contribution, the distribution of research countries/territories as well as institutions and their collaboration and temporal trends in keywords usage.

Key words: Land cadastre change, bibliometric analysis, research trends, network analysis, global, research.

Introduction

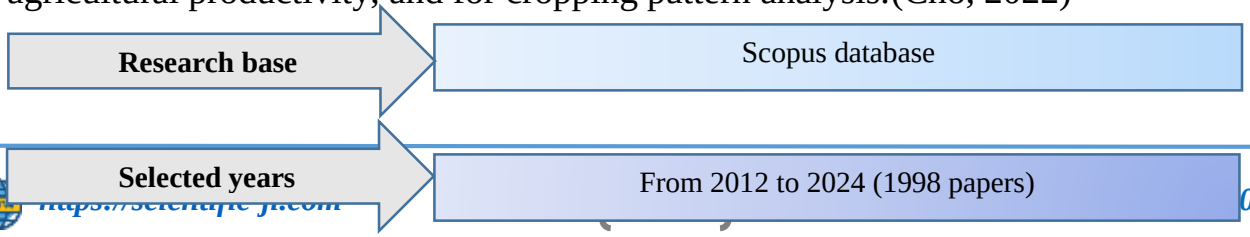
The key to understanding the development of modern cadastre is realizing the importance of cadastres in the relationship between humankind and land. With the advent of the digital age, the field of cadastral research has developed through innovations in land management and ownership based on land parcels (2D) and floor plans (3D).(1-5). Owning to information and communication technology (LCT) advancements, cadastral research has advanced through collaboration with other fields. (6-7).(Zhichkin et al., 2020a) Research shows that the development of cadastral research is strongly correlated with the adaptation of advancements in the information and communication industry in developing countries.(8).In particular, the scope of cadastral research has been enlarged from laws and systems to include geographical-spatial information using new technologies and services. With the help of technological developments, this has changed the previously government-friendly role.(Klimova et al., 2021a)

2.Methodology In this paper, bibliometric and literature analyses were adopted to explore land cadastre analysis at agriculture. More than four hundread Scopus

indexed documents were retrieved and analyzed using the Scopus database online tool. Many studies that used this database alone were found in the literature (Malanski et al., 2021; Neelam & Sood, 2020; Sun & Yuan, 2020; Karmaoui, 2022a and 2022b; and Karmaoui et al., 2021a). (Zhichkin et al., 2020b)This method allowed exploring the most pertinent and updated studies in land cadastre exploring the most influential authors, countries, affiliations, and funding agencies. Six key terms were used and are formulated as processed by the Scopus tool: "((Land AND land cadastre) AND (in register AND land accaunting AND analysis)) AND (for AND agriculture)".(Zhichkin et al., 2022) This research produced 400 document results (Fig. 1). To explore the most relevant publications, only the first 2000 papers of the period 2013–2022 were retrieved (2013 is the year with available publications in the field using the abovementioned keywords). The extracted data is exported in CSV excel (It can be also exported using text. file) including information, such as citation, abstract, keywords, authors and their countries, affiliations, year of publication, funding details, type of publication, and citation. This exported data was processed using specialized software, the VOSViewer, to calculate the occurrence, the links, and trends of key terms.(Zhichkin et al., 2020b)

Bibliometric analysis

In this step, the main types of analysis available in the software were carried-out, co-occurrence, co-authorship, and citations. For each sort, the three existing categories of visualization were processed: network visualization, density, and trends. Classification of the key terms following their meanings (Klimova et al., 2021b)This classification aims to highlight more details and identify more aspect not provided by VOSviewer. This software allows classification of the key-terms in not named clusters but only linked statistically while the proposed classification is based on the organization of these words using their meanings. For example, all the key terms that comp For example, all the key terms that comprise "cadastre" will be gathered and classified based on their occurrence and link. (Bičík et al., 2015)This allows to include the key terms: land cadastre,water cadastre, forest cadastre, environmental cadastre, cadastre handling, cadstre data acquisition, data fusion, database, metadata, open data, data visualization, and cadastre data integration in one single category. (Kijowska-Strugała et al., 2018)This categorization method was used, cadastre vocabulary, cadastre register approaches, used tools, agricultural components, management aspect, space vocabulary, resources, geographic information aspect, methods, and Mathematics and computer science. Further analysis was performed to highlight and discuss examples of studies using Cadastre particularly for agricultural suitability, agricultural productivity, and for cropping pattern analysis.(Cho, 2022)



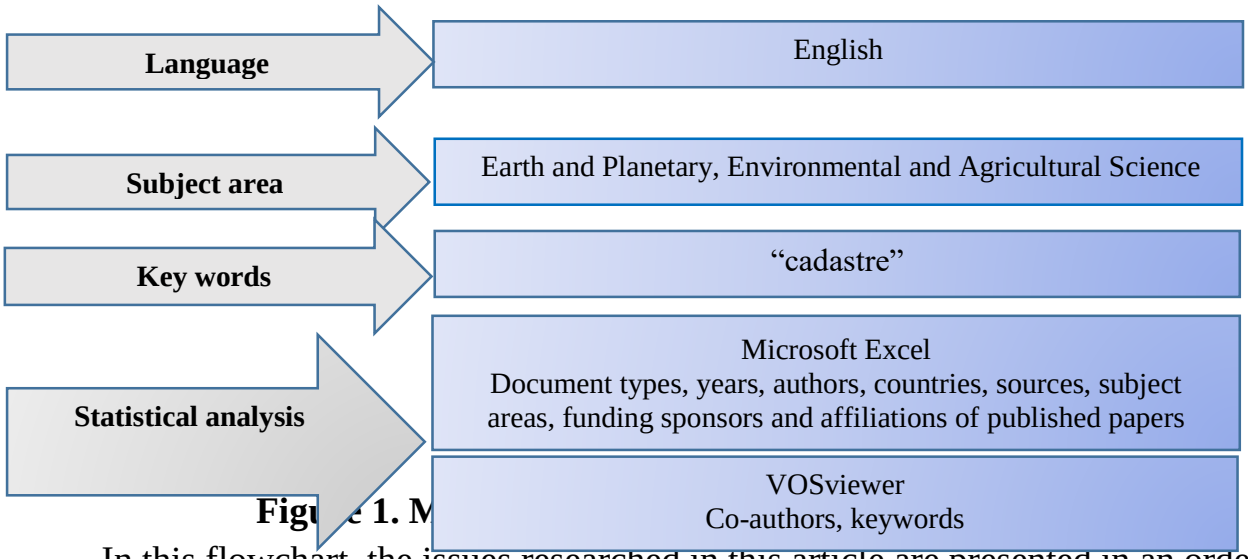


Figure 1. M

In this flowchart, the issues researched in this article are presented in an orderly and systematic way according to the following 6 directions. These are research base, selected years, language, subject area, key words, statistical analysis.

Results and Discussion. Temporal Evolution of Annual Publications After the first publication in SCI-E database in 2012, the annual output of research on cadastre in Russian increased exponentially (Figure 2) with an average annual growth rate of 9.45%. Specifically, we divided the annual output into three rising periods: 1) ready-to-grow period: steady with slight rising from 2012 to 2024 with 58 publications totally; 2) steady growth period: publications were risen to 563 during 2001–2010, with an average annual growth rate of 87%; 3) explosive growth period: there were 1,957 publications from 2012 to 2020, with nearly 200 papers published per year.(Khadanga and Jain, 2020) The remarkable growth occurred after 2012, during which time 71.8% of the total outputs were published.

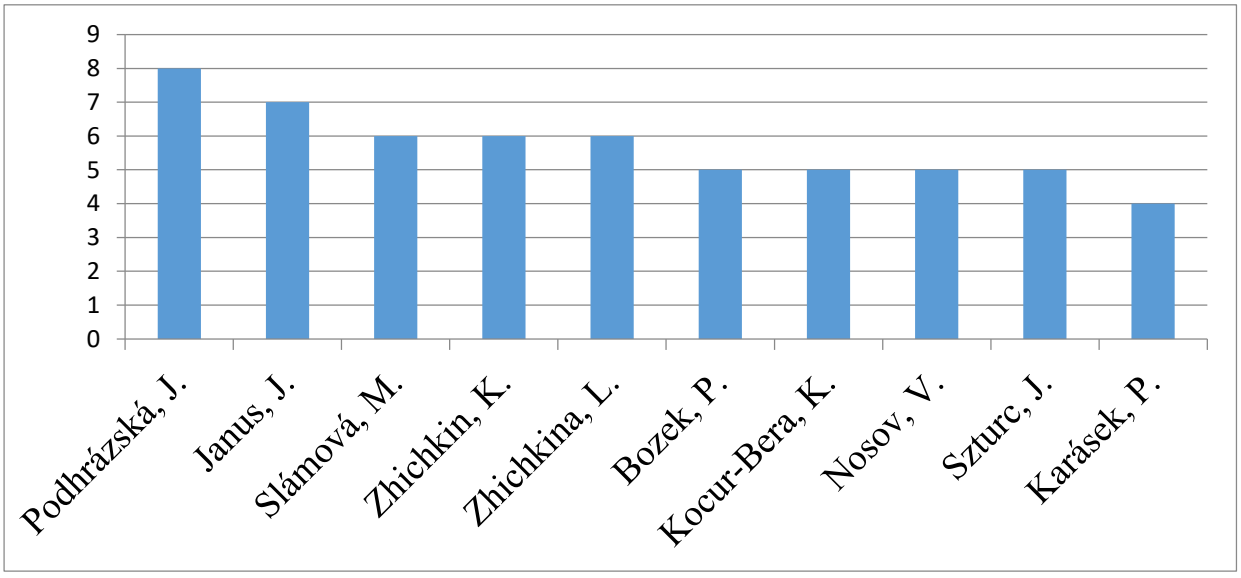


Figure 2. In this figure 2, the scientists who have conducted the most research in the filed of cadastre in the world are cited in the range of increase and decrease. These

are the following scholars: Podhrazska J, Janus J, Slamova M, Zahichkina L, Bozek P, Kour-Bera K, Nosov V, szturc J, Kavasek P.

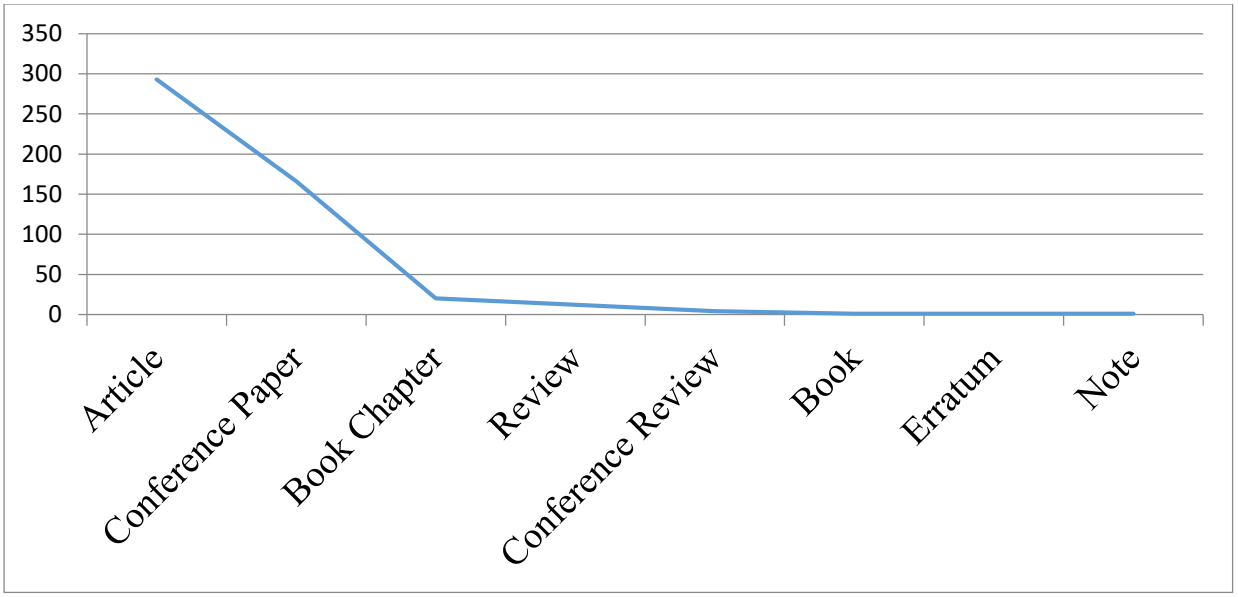
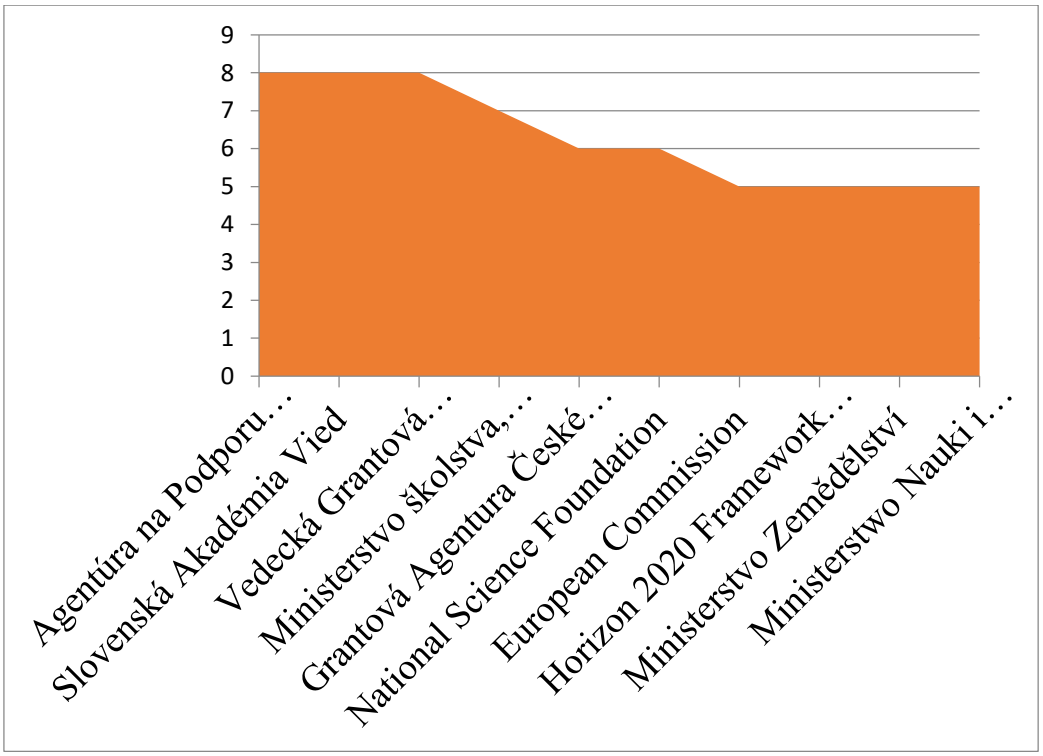


Figure 4. In this figure 4 show about cadastre researching types, for example: article, Conference paper, book chapter, review, conference rewiew, book, erratum, note. Among them, the article holds the highest index.

This might be explained that researchers started to pay more attention to scientific research on deserts in this period, leading to a synchronous growth between outputs and citations under the circumstance that a relative small number of publications exists. (Mekush et al., 2021)The remarkable decrease in citations occurred after 2004, whereas annual production of publications increased rapidly during this period.



The output numbers are listed in parentheses. Frontiers in Earth Science | www.frontiersin.org 4 November 2021 | Volume 9 | Article 777626 Shi et al. Bibliometrics of Russian's cadastre their influence as they are replaced by more recent publications (Cimprič et al., 2013)Therefore, what should be noted is that our analysis showed only the current citations of newly published papers and could not show their peak number of citations. Altogether, because of the continuing growth of outputs in cadastre research in Russian, it's not surprising that the average number of citations per output decreased graduall.

Conclusion. Using a bibliometric method, our study was the first to analyze the publications of the research done on deserts in Russian over the past 12 years. It provided a qualitive and quantitative overview of the past work in this field, and highlighted the future prospects. (Ilyushina et al., 2018)The results showed that the three agricultural lands cadastre that were the most studied. About Land. The number of publications produced annually increased exponentially, especially after 2012. This growth coincided with the general trend in science across the world and in Russian In addition, we predict that the number of annual publications will continuous to increase in the next several years.

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