Bibliometric Analysis of Rural Environmental Governance Research (1957-2020)

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Abstract. Rural environmental governance is a problem that all countries in the world will face in the process of development. The research on the related literature of Rural environmental governance is helpful to provide reference for practical work. This study uses the Aminer big data analysis platform to analyse relevant research literature on the theme of "Rural environmental governance" from 1957 to 2020. The three research perspectives are: research trends, distribution of academic achievements, and scientific research cooperation networks. The analysis results provide an overall description and judgment of the international Rural environmental governance research.

1 Research methods and research data

1.1 Research methods

Most of the existing literature uses CiteSpace, VOSviewer, gephi and other software for bibliometric analysis[1-6]. There is few literature using a Aminer big data platform for research. This is also the main part that distinguishes this article from other bibliometric studies. This article adopts bibliometric research methods[7] to analyze domestic and foreign research literature on the subject of "Rural environmental governance" in three dimensions.

1.2 Research data

The research data in this article comes from the Aminer big data analysis platform, the website is https://www.aminer.cn/. The specific steps are to enter the "Technical Insights" on the website, then click on the "Technical Analysis Self-Service Platform" and enter the keywords "rural management". Thus, we obtained research data. The technical analysis platform is based on Aminer's hundreds of millions of papers and scholar data, and uses massive data to achieve precise search and analysis.

2 Research trend analysis
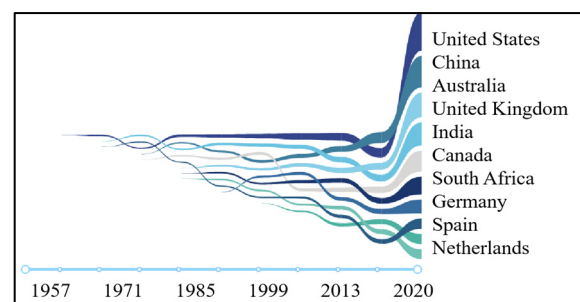
2.1 Research trends by country

Fig. 1. Top 10 research country

Figure 1 shows that the main research countries related to Rural environmental governance are the United States, China, Australia, the United Kingdom, India, Canada, South Africa, Germany, Spain, and the Netherlands. Among them, related research in the United States was the earliest.
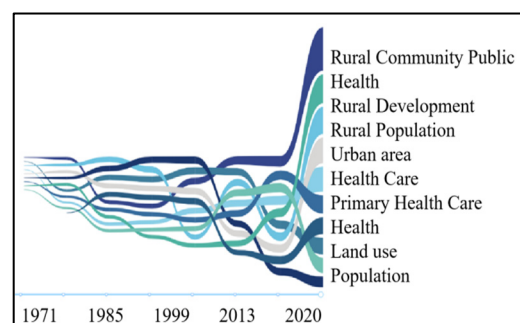
2.2 Research trends by research hotspots

Fig. 2. Top 10 research hotpots

As shown in Figure 2, some research hotspots in this field are: Rural Community, Health, Rural Development, Urban Area, Rural Population, Population, Health Care.

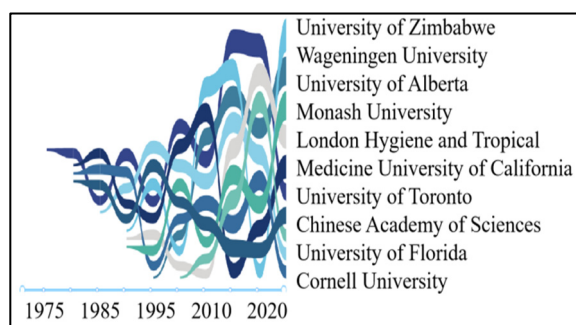### 2.3 Research trends by research institutes

Fig. 3. Top 10 Research institutes

As can be seen in Figure 3, the representative institutions in this field are as follows: University of California, Wageningen University, University of Zimbabwe,.

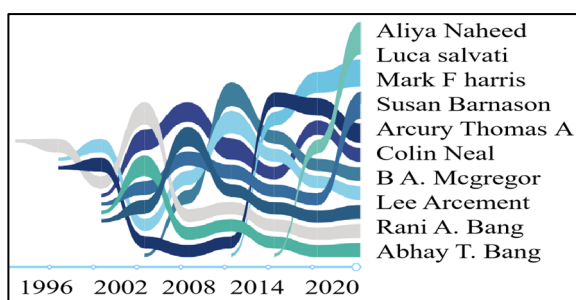### 2.4 Research trends by research scholars

Fig. 4. Top 10 Research scholars

Figure 4 shows that the top 10 scholars in the field of Rural environmental governance research are: Aliya Naheed, Luca Salvati, Mark F Harris, Susan Barnason, Arcury Thomas, A Colin Neal, B A. Mcgregor, Lee Arcement, Rani A. Bang and Abhay T. bang.

3 Distribution of related scholars and institutions

3.1 H index distribution of related scholars

Table 1. H index distribution of related scholars.

H index range	Number of scholars
10 or less	20683706
10-20	493055
20-30	116282
30-40	38791
40-50	15017
50-60	6710
Above 60	9044

The H index is a method proposed by the American physicist Jorge E. Hirsch in 2005 to evaluate the academic achievements of scholars. A mixed quantitative method is used to evaluate the academic output quantity and academic output level of scholars at the same time. It can be found from Table 1 that the H index of most scholars is below 10.

3.2 Distribution of leading institutions in various countries

As shown in Table 2, China's leading institutions in this field are the Chinese Academy of Sciences, Zhejiang University, Sichuan University, and Huazhong University of Science and Technology; the United States' leading institutions in this field are the University of Washington, the University of Minnesota, the University of Michigan, and the University of Florida; Japan's The leading institutions in the field are Kyoto University and Osaka University.

Table 2. Distribution of leading institutions.

Institution	Country	Number of scholars
Chinese Academy of Sciences	China	51425
Zhejiang University	China	29097
Sichuan University	China	26100
Huazhong University of Science and Technology	China	21799
Washington University	United States	16870
University of Minnesota	United States	16792
University of Michigan	United States	15742
University of Florida	United States	14196
Kyoto University	Japan	14066
Osaka University	Japan	11946

3.3 Institutional academic level distribution

Table 3. Distribution of leading academic level.

Institution	Number of papers	Number of scholars	Average citations
University of California	45	61	43.84
Wageningen University	33	60	30.09
University of Zimbabwe	30	43	17.17
University of Florida	28	38	24.64
Monash University	26	37	25.4

Table 3 shows the number of articles published by major research institutions, the number of scholars, and the average number of citations. Among them, the number of papers and scholars of London School of Hygiene and Tropical Medicine is not the most, but the average citation number of its papers is the highest, reaching 78.04.

4 Cooperation network analysis

4.1 Global country cooperation analysis

Table 4. Global country cooperation.

Country 1	Country 2	Number of papers	Average number of citations	Number of citations
China	United States	199	41.74	8306
United Kingdom	United States	48	39.57	1899
China	Australia	38	29.76	1131
China	Canada	34	41.88	1424
Canada	United States	32	26.09	835
Australia	United States	31	26.3	815
India	United States	26	43.38	1128
China	Japan	23	18.14	417
Australia	United Kingdom	20	30.25	605
Brazil	United States	19	36.32	690

The situation of international cooperation can be reflected in Table 4. Country 1 is the nationality of the first author of the article, and Country 2 is the nationality of the second author and other authors. The research on Rural environmental governance in China and the United States belongs to the two countries with the most international cooperation. In second place is the cooperation between the United Kingdom and the United States. Other specific cooperation conditions can be obtained from Table 4.

4.2 Research institute cooperation statistics

Table 5. Research institute cooperation statistics.

Institute 1	Institute 2	Number of papers	Average number of citations	Number of citations
Western Cape University	University of Zimbabwe	4	20.25	81
School of Land Resources and Environment	Jiangxi Agricultural University	3	18.67	56
University of New South Wales	University of Sydney	3	21	63
Asian Institute of Technology	University of Stirling	3	43	129

Table 5 demonstrates Western Cape University and University of Zimbabwe collaborated with the largest number of papers, but from the perspective of citations, Asian Institute of Technology and University of Stirling have the highest number of citations.

4.3 Statistics of International Scholar Flow

Table 6. Statistics of International Scholar Flow.

Country	inflow	outflow	net inflow
United States	596719	583923	12796
China	178752	187354	-8602
United Kingdom	126269	119202	7067
Germany	100356	93383	6973
Canada	96516	93355	3161
France	89009	88336	673
Japan	67439	65049	2390
Italy	49719	46616	3103
India	48137	42923	5214
Australia	37880	43813	-5933

5 conclusions

This article has studied the bibliometric issues of Rural environmental governance.

(1) The results of research trends show that: the United States first started relevant research; research hotspots include topics such as rural communities and public health; research institutions include the University of Zimbabwe, the University of Washington and so on; main research scholars include Aliya Naheed, Luca Salvati and so on..

(2) The results of distribution of research results show that: the H index of most scholars is less than 10; the main research institutions are concentrated in China, the United States and Japan; the research level is uneven.

(3) The results of the research cooperation network analysis show that there is more cooperation between China and the United States, Britain and the United States; Western Cape University and the University of Zimbabwe have more cooperation; the flow of scholars shows that the United States is a net inflow country.

Acknowledgement

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