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50 years of *Resources Policy*: A bibliometric analysis

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ABSTRACT

Resources Policy is a leading international journal in the field of economics and policy issues related to mineral and fossil fuel extraction, production, and use. The journal was created in 1974 and in 2024 celebrates its 50th anniversary. Motivated by this special event, this paper presents a bibliometric overview of the leading trends of the journal during its first half-century of existence. This paper analyses *Resources Policy*'s publication and citation structure using the Web of Science Core Collection and examines various aspects, including the most cited documents, productive authors, institutions, countries, and popular keywords, and topics. The paper also develops a graphical visualization of the bibliographic data using the Visualization of Similarities (VOS) viewer software. This approach utilises various bibliometric techniques, including bibliographic coupling, co-citation, and co-occurrence of keywords. The results demonstrate a significant expansion of the journal over the past five years and highlight its global profile, with publications from around the world. Currently, Chinese researchers are the most productive, due to a significant increase in their contributions over the last five years.

1. Introduction

Resources Policy started in 1974 as an international journal devoted to minerals policy and economics, aimed at economists and decision-makers in academia, government, and industry. The first editor, Lyndon Driscoll, worked for the publisher and was dependent on an editorial board for professional guidance. This system was used until 1989 when Dr Roderick (Rod) Eggert from Colorado School of Mines took over as the first academic Editor-in-Chief of *Resources Policy*. Rod was editor for seventeen years (1989–2006) and played a pivotal role in the journal's development. In 2007, Dr Eggert was succeeded as Editor-in-Chief by Dr Philip Maxwell from Curtin University of Technology in Australia. Due to his retirement, Philip was succeeded in 2012 by Mark Roberts and Gary Campbell from the Michigan Technological University. In 2017, Dr David Fleming-Muñoz of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia joined Gary as Co-Editor-in-Chief after Mark retired in 2014. In 2020, a third editor, Dr Yalin Lei from the China University of Geosciences, joined the team. Recently, in mid-2024, Dr Vlado Vivoda, affiliated with the University of Queensland, replaced Dr Fleming-Muñoz, who left his editorial role to pursue other activities.

Historically, the number of Associate Editors has been small, but this trend has changed in recent years. In the period 2017–24, the number of Associates more than doubled, with fourteen members in 2024. The Editorial Board has also seen a larger number of colleagues collaborating, a number that is expected to keep growing. In 1974, *Resources Policy* published two issues with eleven research articles, book reviews, and conference information. By 1989, the journal published four issues with 24 articles, and by 2007, it published four issues containing 17 research articles. In 2012, the journal started to increase the number of

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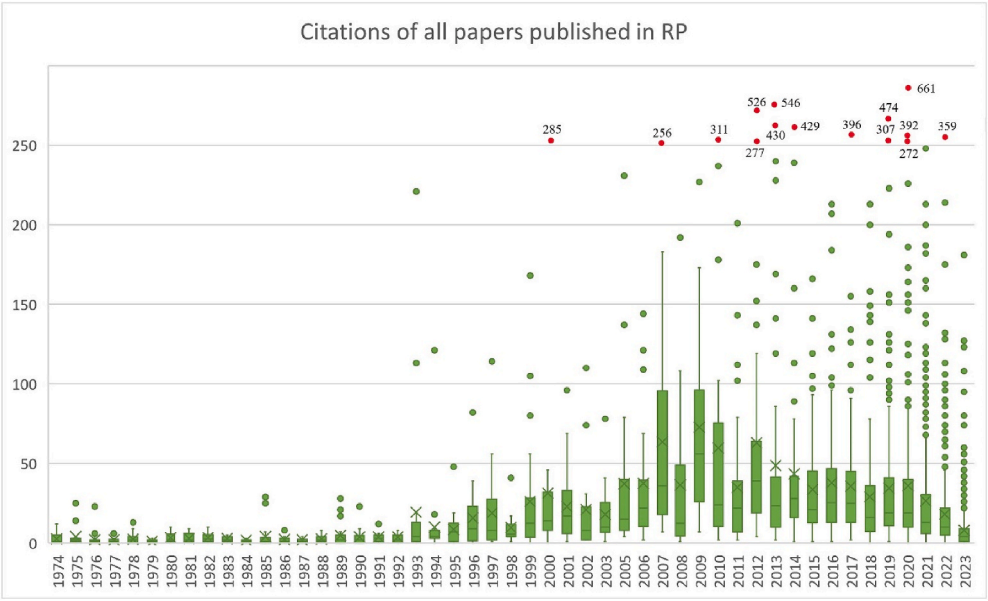

Fig. 1. Annual box-whisker plot structure of the citations of all papers published in RP.

Table 1
Number of submissions received between 2016 and 2024.

Month	2016	2017	2018	2019	2020	2021	2022	2023	2024
January	0	31	43	60	96	132	190	297	468
February	0	23	51	82	101	108	158	315	414
March	21	43	48	54	108	150	194	433	505
April	29	37	55	87	121	132	194	416	535
May	33	37	44	79	124	118	260	524	–
June	29	44	53	62	111	125	248	341	–
July	50	55	37	78	122	147	251	437	–
August	36	55	51	62	141	152	273	434	–
September	21	42	49	64	103	144	269	409	–
October	29	66	51	70	125	154	291	493	–
November	33	44	46	81	124	168	287	485	–
December	24	61	60	80	118	222	303	553	–
Total	305	538	588	859	1394	1752	2918	5137	1922

articles published with 52 documents. Due to the significant growth in the number of submissions from all over the world, this increase has continued during the last years, reaching a record of 1087 articles published in 2023. In the 2022 Journal Citation Reports (JCR) of the Web of Science (WoS), the journal had an impact factor of 10.2, being ranked in the 8th position out of 128 journals in the WoS category of Environmental Studies (Social Sciences Citation Index edition).

In 2024, *Resources Policy* celebrates its 50th anniversary. Motivated by this event, this article develops a bibliometric overview of the leading trends occurring in the journal during this period. The objective is to identify and visualize the main patterns in the journal in terms of publication and citation structure, most cited documents, most productive authors, universities and countries, and most popular keywords and topics. To do so, the paper collects all the documents published in the journal between 1974 and 2023 using the Web of Science (WoS) Core Collection and analyses the bibliographic information by using a wide range of bibliometric indicators (Cancino et al., 2017; Merigó et al., 2015). Moreover, the study also maps the bibliographic data by using the Visualization of Similarities (VOS) viewer software (Van Eck and Waltman, 2010) and using different bibliometric techniques, including bibliographic coupling (Kessler, 1963), co-citation (Small, 1973) and co-occurrence of keywords (Merigó et al., 2018; Rialp et al., 2019).

In the existing literature, it is very common to develop some special activities when a journal celebrates a special anniversary as the 50th anniversary. Some journals have published a special anniversary issue, including the *American Political Science Review* (Sigelman, 2006), *American Economic Review* (Arrow et al., 2011), the *Economic Journal* (Cripps et al., 2015), *Journal of Political Economy* (List and Uhlig, 2017) and the *Journal of Econometrics* (Ng and Tamer, 2023). Some others, instead of a full special issue, published a dedicated editorial (Hart and Mizon, 1983; Khwaja and Mangal, 2018; Tisdell, 2020) or review (Kube et al., 2018; Lybbert et al., 2018). Note that special anniversaries do not only affect journals and usually attract significant attention by the readers. For example, it is common to celebrate the anniversary of a specific highly relevant topic (Dubois and Prade, 2015; Sarafidis and Wansbeek, 2021), association (Dasgupta, 2010; Beach et al., 2017), or institution (Granger, 2007; Morris and Gleave, 2016).

In many cases, the preparation of special activities for the anniversary of a journal includes the preparation of a bibliometric analysis of the journal or related topics. For example, Heck et al. (1986) studied the publications of the first 40 years of the *Journal of Finance* and Schwert (1993) presented a retrospective evaluation of the *Journal of Financial Economics*. Ramos-Rodriguez and Ruiz-Navarro (2004) analysed the first 20 years of the *Strategic Management Journal*, García-Merino et al. (2006) the first 25 years of *Technovation* and Biemans et al. (2007) the first 20 years of the *Journal of Product Innovation Management*. Castro e Silva and Teixeira (2011) presented a bibliometric account of the first two decades of *Ecological Economics* and Trianni et al. (2018) the first decade of

Table 2
Annual citation structure of *Resources Policy*.

Year	TP	TC	TC/TP	≥500	≥200	≥100	≥50	≥20	≥10	≥1	T50	HCP
1974	11	29	2.64	0	0	0	0	0	1	6	0	–
1975	16	65	4.06	0	0	0	0	1	2	13	0	–
1976	7	50	7.14	0	0	0	0	0	0	5	0	–
1977	18	36	2.00	0	0	0	0	0	0	13	0	–
1978	31	73	2.35	0	0	0	0	0	1	20	0	–
1979	23	23	1.00	0	0	0	0	0	0	13	0	–
1980	22	74	3.36	0	0	0	0	0	1	18	0	–
1981	22	63	2.86	0	0	0	0	0	0	17	0	–
1982	22	75	3.41	0	0	0	0	0	2	19	0	–
1983	19	52	2.74	0	0	0	0	0	1	18	0	–
1984	21	36	1.71	0	0	0	0	0	2	11	0	–
1985	22	88	4.00	0	0	0	0	2	2	13	0	–
1986	22	51	2.32	0	0	0	0	0	1	16	0	–
1987	22	44	2.00	0	0	0	0	0	0	15	0	–
1988	25	64	2.56	0	0	0	0	0	1	20	0	–
1989	23	110	4.78	0	0	0	0	2	3	16	0	–
1990	24	89	3.71	0	0	0	0	1	1	17	0	–
1991	25	93	3.72	0	0	0	0	0	3	21	0	–
1992	21	79	3.76	0	0	0	0	0	3	16	0	–
1993	23	446	19.39	0	1	2	2	2	7	20	1	–
1994	25	249	9.96	0	0	1	1	2	3	23	0	–
1995	25	213	8.52	0	0	0	0	1	10	22	0	–
1996	17	267	15.71	0	0	0	1	4	8	14	0	–
1997	21	396	18.86	0	0	1	2	6	9	21	0	–
1998	24	234	9.75	0	0	0	0	2	7	24	0	–
1999	26	678	26.08	0	0	2	4	9	14	25	0	–
2000	19	595	31.32	0	1	1	1	6	12	18	1	–
2001	23	529	23.00	0	0	0	3	10	15	23	0	–
2002	14	294	21.00	0	0	1	2	4	6	14	0	–
2003	14	252	18.00	0	0	0	1	4	8	14	0	–
2005	23	857	37.26	0	1	2	4	10	17	23	1	–
2006	25	937	37.48	0	0	4	5	12	19	25	0	–
2007	17	1081	63.59	0	1	4	6	13	15	17	2	–
2008	24	874	36.42	0	0	2	6	11	15	24	1	–
2009	27	1966	72.81	0	1	6	14	21	26	27	2	–
2010	29	1730	59.66	0	3	5	10	16	23	29	4	–
2011	39	1362	34.92	0	1	4	8	22	28	39	1	–
2012	53	3335	62.92	1	2	9	21	39	48	53	3	–
2013	78	3798	48.69	1	4	8	16	46	60	78	6	–
2014	59	2566	43.49	0	2	4	13	42	55	59	2	2
2015	98	3298	33.65	0	0	5	23	53	81	98	0	0
2016	112	4244	37.89	0	2	7	25	72	98	112	3	3
2017	131	4684	35.76	0	1	5	27	78	114	131	1	3
2018	148	4306	29.09	0	2	9	23	65	102	146	2	6
2019	245	8459	34.53	0	3	18	45	128	197	245	4	20
2020	299	10761	35.99	1	4	19	65	149	229	296	6	24
2021	530	14017	26.45	0	4	27	81	226	338	522	6	65
2022	618	11194	18.11	0	2	10	46	184	341	604	3	112
2023	1087	8352	7.68	0	1	4	27	126	286	959	1	234
Total	4269	93168	21.82	3	36	160	482	1369	2215	3992	50	469
%	100.00%	–	–	0.07%	0.84%	3.75%	11.29%	32.07%	51.89%	93.51%	1.17%	10.99%

Abbreviations: TP and TC = Total papers and citations; ≥500, ≥200, ≥100, ≥50, ≥20, ≥10, ≥5, ≥1 = Number of papers with equal or more than 500, 200, 100, 50, 20, 10, 5 and 1 citations; T50 = Number of documents in Table 5; HCP = Number of documents selected by WoS – ESI as Highly Cited Papers.

Energy Efficiency. Other journals have recently published a bibliometric study motivated by their 50th anniversary, including *Environment and Behaviour* (Milfont et al., 2019), the *Financial Review* (Baker et al., 2020) and *Technological Forecasting & Social Change* (Sarin et al., 2020). Note that during the last years, many other journals have also published a bibliometric overview of the journal motivated by a specific anniversary, including *Economic Modelling* (Pattnaik et al., 2022) and the *International Journal of Finance & Economics* (Baker et al., 2023).

Against this background, and with the aim of outlining key achievements of the journal throughout past half-century, this paper proceeds as follows: Section 2 presents the research methods used in the paper. Section 3 analyses the bibliometric results of the *Resources Policy*. The first part of the results focuses on the publication and citation structure of the journal, including the citing articles. The second part considers the most cited papers and the most productive authors, institutions, and countries. Section 4 develops a graphical mapping of the bibliographic information by using the VOS viewer software. Section 5 summarises the main conclusions and findings of the paper.

2. Bibliometric methods

Bibliometrics is a research field of library and information sciences that quantitatively analyses bibliographic information (Broadus, 1987; Pritchard, 1969). The objective is to collect bibliographic data to produce a general overview of a research field, journal, institution, or country (Donthu et al., 2021). Thanks to the development of computers and the internet during the last several decades (Bar-llan, 2008), bibliometrics has become a very popular research field. Note that bibliometric studies and equivalent approaches have been carried out for a long time since pioneers, such as Eugene Garfield (1955), spawned this research discipline. The main disadvantage in the twentieth century was that without strong computers and the internet, the process of collecting

Table 3
Analysis of *Resources Policy* in the JCR of the WoS.

Year	TC	IF	5YIF	ImIn	CI	AIS	RES	Q	PES
1997	21	0.09	–	0	15	–	41/42	Q4	3.57
1998	65	0.23	–	0.11	17	–	40/43	Q4	8.14
1999	67	0.31	–	0	19	–	36/45	Q4	21.11
2000	55	0.22	–	0	14	–	42/47	Q4	11.70
2001	44	0.17	–	0	11	–	47/48	Q4	3.12
2002	74	0.33	–	–	0	–	42/49	Q4	15.30
2003	65	0.16	–	–	0	–	48/50	Q4	5
2004	84	0.14	–	–	0	–	50/50	Q4	1
2005	83	0.07	–	0	19	–	51/51	Q4	0.98
2006	116	0.56	–	0	14	–	38/52	Q3	27.88
2007	155	0.41	0.55	0.05	17	0.17	49/52	Q4	6.73
2008	218	0.92	0.96	0.08	24	0.26	37/58	Q3	37.06
2009	255	0.90	1.10	0.51	27	0.30	45/66	Q3	32.57
2010	269	1	1.19	0.10	29	0.42	51/78	Q3	35.25
2011	402	2.14	1.87	0.12	39	0.68	17/89	Q1	81.46
2012	454	0.97	1.47	0.17	53	0.58	63/93	Q3	32.79
2013	630	1.39	1.84	0.23	78	0.6	44/98	Q2	55.61
2014	909	2.05	2.28	0.13	59	0.65	24/100	Q1	76.5
2015	1234	2.48	2.73	0.23	98	0.59	21/104	Q1	80.28
2016	1798	2.61	3.13	0.46	112	0.62	24/105	Q1	77.61
2017	2414	2.69	3.69	0.55	131	0.65	33/109	Q2	70.18
2018	3202	3.18	3.82	0.61	148	0.64	30/116	Q2	74.56
2019	4231	3.98	4.33	0.86	245	0.59	26/123	Q1	79.26
2020	7000	5.63	5.65	1.68	299	0.92	20/125	Q1	84.4
2021	11,237	8.22	7.65	2.10	587	0.97	13/128	Q1	90.23
2022	18,092	10.2	9.2	2.9	658	1.10	8/128	Q1	94.1

Abbreviations: TC = Total citations; IF = Impact factor; 5YIF = 5-year impact factor; ImIn = Immediacy index; CI = Citable items; AIS = Article Influence Score; RES = Ranking in the WoS category of environmental studies; Q = Quartile in ES; PES = Journal impact factor percentile in ES.

bibliographic information was very slow and inefficient.

Bibliometrics can be utilised for various purposes, including analysing a topic (Axarloglou and Theoharakis, 2003; Pan et al., 2023), a journal (Gaviria-Marín et al., 2018), an institution (Kalaitzidakis et al., 2003), an author (Coupé, 2003), or a country (Merigó et al., 2016; Yu and Gao, 2010; Muchie and Patra, 2020). Bibliometric studies focus on a wide range of fields including economics, environmental sciences, engineering, medicine, and physics. For example, in economics, Coupé (2003) and Kim et al. (2006) presented general overviews of the leading actors. Additionally, Bjork et al. (2014) developed time series methods for predicting the Nobel Prize; Yu and Gao (2010) studied the most prolific institutions in China and Bonilla et al. (2015) leading countries in Latin America; and Baltagi (2007) presented worldwide econometrics ranking between 1989 and 2005.

In environmental economics, there is a wide range of bibliometric studies. For example, Costanza et al. (2016) and Hoepner et al. (2012) developed a bibliometric analysis in the field of ecological economics. Qadri et al. (2024) studied the topic of green finance. Trivedi et al. (2024) studied energy transition and Yao et al. (2024) developed a bibliometric analysis of energy efficiency and Covid-19. Corbet et al. (2019) analysed the intellectual structure of the financial economics of precious metals. Yu et al. (2023) presented a bibliometric review of natural resources governance and geopolitical risks. Other studies developed bibliometric studies for different aspects of mining (Doussoulin and Mougenot, 2022; Jiao et al., 2021; Ojeda-Pereira and Campos-Medina, 2021). Finally, Lacárcel et al. (2024) studied the resource curse and its implications for sustainable development, and Pandey et al. (2023), artificial intelligence, machine learning, and big data in natural resources management.

In order to assess a bibliometric study, it is salient to define the bibliometric indicators utilised in the analysis. The most common indicators are typically the total number of documents and the total number of citations. These two indicators are considered the most adequate for measuring productivity and influence (Podsakoff et al., 2008). However, it is worth noting that they only provide general guidance because exceptional situations occur where these two indicators do not correctly or exactly measure productivity or influence. For example, co-authorship may condition productivity because single-authored papers reflect lower productivity when looking at the total number of publications. This issue can be partially assessed through fractional counting (Podsakoff et al., 2008), although challenges remain, such as unequal contribution by co-authors and other related problems.

This paper aims to comprehensively assess the bibliographic data by considering multiple indicators for the same variable. The justification for using this approach is that there is no consensus regarding the optimal method for evaluating research (Ding et al., 2014; Hicks et al., 2015). In general, depending on the specific problem considered, the approach adopted will be adapted to fit the purpose. An indicative example is the degree of importance used for productivity and influence. In some cases, the degree of importance will increase or decrease, but usually, in each problem, the level of importance and productivity do not correlate.

The most commonly used bibliometric indicators are the total number of documents, the total number of citations, the citations per paper ratio, the *h*-index (Hirsch, 2005), citation thresholds and highly cited papers (Liao et al., 2019). Note that the *h*-index is a measure that combines productivity and influence although it has many limitations, especially when considering outliers (Alonso et al., 2009). The *h*-index measures the X number of documents that have received X number of citations or more and at the same time, there are no $X+1$ documents that have received $X+1$ citations or more. Citation thresholds measure the number of documents that have reached a specific citation threshold, for example, 10 or 100 citations. Highly cited papers can be studied from different points of view including the identification of articles in a specific group of documents with many citations (Martínez et al., 2014) or through the modern and dynamic approach followed by WoS. Through the Essential Science Indicators (ESI), WoS bimonthly identifies articles that are among the 1% most cited in a specific year and research field. The focus of ESI is on a time window of ten years. Therefore, in June 2024, ESI considers only those articles published between 2014 and 2024. This data is bimonthly updated with a year update in May. Therefore, the documents published in 2014 will be considered by ESI until May 2025. And so on.

Table 4
Publication record of leading journals in Environmental Studies and Economics connected to *Resources Policy*.

Environmental Studies	H	TC	TP	C/P	≥500	≥100	YW	Y	IF	CS
Resources Policy	117	96840	4242	22.83	3	162	1976	1974	10.2	13.4
Environmental Science & Technology	485	2889012	40528	71.28	456	7988	1969	1967	11.4	17.5
Renewable & Sustainable Energy Reviews	397	1151065	12848	89.59	244	3300	1999	1997	15.9	31.2
Science of the Total Environment	347	838117	63328	13.23	160	3930	1977	1972	9.8	17.6
Journal of Cleaner Production	293	1489222	36547	40.75	74	3094	2002	1993	11.1	20.4
Applied Energy	277	1074549	20630	52.09	68	2661	1977	1975	11.2	21.2
Energy Policy	261	635163	13557	46.85	66	1495	1973	1973	9	17.3
Energy	236	1019457	29465	34.60	36	1846	1980	1976	8.9	15.3
Ecological Economics	234	339786	6036	56.29	60	820	1991	1988	7	12
Renewable Energy	230	696243	19249	36.17	30	1310	1994	1991	8.7	18.4
Journal of Environmental Management	229	643369	19325	33.29	56	1159	1973	1973	8.7	13.7
Energy Economics	206	271265	6058	44.78	23	712	1981	1979	12.8	18.6
Resources, Conservation & Recycling	187	260311	5651	46.06	18	580	1989	1988	13.2	22.9
Environmental Science & Pollution Research	180	700393	39487	17.74	17	659	1995	1994	5.8	8.7
Sustainability	155	764929	75819	10.09	6	433	2011	2009	3.9	6.8
Sustainable Development	90	43589	1337	32.60	5	76	1999	1993	12.5	17.3
Resource and Energy Economics	85	31034	1166	26.62	2	62	1982	1978	2.9	5.4
The Extractive Industries & Society	51	17228	1216	14.17	0	14	2014	2014	3.1	6.6
Natural Resources Forum	50	13085	981	13.34	1	22	1976	1976	3.3	6.1
Natural Resources Journal	38	11141	1833	6.08	0	5	1961	1961	0.5	1.2
Mineral Economics	22	2336	277	8.43	0	0	2011	1981	2.5	5.0
Economics & Business										
American Economic Review	449	1050153	11576	90.72	384	2415	1911	1911	10.7	18.6
Journal of Finance	394	695703	4971	139.95	288	1508	1946	1946	8	12.9
Quarterly Journal of Economics	366	553177	4480	123.48	234	1086	1899	1886	13.7	24.2
Econometrica	354	741344	4628	160.19	250	1960	1933	1933	6.1	11.0
Journal of Political Economy	343	589147	5521	106.71	221	1783	1899	1892	8.2	15.2
Journal of Econometrics	232	328589	4616	71.18	94	568	1980	1973	6.3	8.6
Review of Economic Studies	232	276635	3452	80.14	75	607	1933	1933	5.8	10.4
World Development	215	323219	7403	43.66	39	748	1976	1973	6.9	12.7
Economic Journal	211	262838	6080	43.23	61	585	1900	1891	3.2	6.6
Journal of Banking & Finance	195	239205	5824	41.07	26	573	1980	1976	3.7	6.4
Technological Forecasting & Social Change	177	241905	7093	34.10	18	505	1969	1969	12	21.3
Journal of Development Economics	173	149917	3300	45.43	20	390	1976	1974	5	8.3
J Environmental Economics Management	161	122149	2375	51.43	11	311	1974	1974	4.6	8.0
European Economic Review	153	140724	4613	30.51	22	294	1969	1969	2.8	4.7
Economics Letters	130	167896	12854	13.06	15	211	1978	1978	2	3.2
Economic Modelling	106	97386	5496	17.72	5	119	1984	1984	4.7	8
Finance Research Letters	104	64234	3938	16.31	5	114	2008	2004	10.4	11.1
Applied Economics	102	130177	10486	12.41	4	105	1969	1969	2.2	3.8
Int Rev Financial Analysis	87	43920	2171	20.23	2	67	2011	1992	8.2	10.3
Int Rev Economics & Finance	72	35098	2434	14.42	0	37	2008	1992	4.5	7.3

Abbreviations: H10, C10, P10 and C/P10 = H-index, citations, publications and cites per paper between 2014 and 2023; HCP = Highly Cited Papers; ≥500 and ≥ 100 = Number of articles with equal or more than 500 and 100 citations available in WoS; YW = Year available in WoS; Y = Year of origin; IF = Impact factor (WoS); CS = CiteScore (Scopus). The numbers provided in the table only consider "Articles" and "Reviews" up to December 31, 2023.

The search process for collecting the bibliographic data was carried out in May–June 2024. This study uses the WoS Core Collection and searches "*Resources Policy*" in the "Source Title" option. To consider all the documents published in the journal between 1974 and 2023, the search selects "Show Final Publication Year" and excludes 2024. This produces a total of 4717 documents. To focus only on research contributions, we implement an additional filter by selecting only Articles and Reviews, in the option of "Document Types". This produces a result of 4242 documents that will be used for building all the tables and figures of the paper. Note that the documents published in 1974 and 1975 are not directly available in WoS. These documents are presented in Table 2 and Fig. 1 by using the Cited Reference Search of WoS and the webpage of *Resources Policy*, and increases the total number of documents to 4269. Currently, the journal has obtained 93168 citations in WoS with an average of cites per paper of 21.82 and an *h*-index of 115. That is, 115 documents published in *Resources Policy* have obtained 115 citations or more, but at the same time, there are not 116 documents that have received 116 citations or more. Additionally, note that the 93,168 citations come from 34,276 citing articles.

To analyse the bibliometric results in more depth, this study develops a graphical mapping by using the VOS viewer software (Van Eck and Waltman, 2010). Other software tools are available for building graphical maps and related analyses (Cobo et al., 2011). VOS viewer is a computer software that collects the bibliographic information from a specific database such as WoS or Scopus and generates different types of graphical maps by using different bibliometric techniques and algorithms. The focus here is on co-citation (Small, 1973), bibliographic coupling (Kessler, 1963) and co-occurrence of keywords. Co-citation measures identify documents that are cited together by the same articles. This approach can be easily implemented for documents, journals, and authors because the focus is on the references of the papers and usually this is the information provided in the references. Note that when building graphical maps in VOS viewer with co-citation, the size of the circles measures the total number of citations received and the network links visualize the strongest co-citations. Bibliographic coupling analyses documents that cite the same references, indicating a thematic or methodological connection between them. This approach focuses on the title page. Therefore, it can consider documents, journals, authors, institutions, and countries. When building maps in VOS viewer with bibliographic coupling, the size of the circles indicates the number of documents published, and the network links visualize the strongest bibliographic coupling links among the set of documents.

For the co-occurrence of keywords (Merigó et al., 2018; Rialp et al., 2019), this study considers the author keywords provided in most of the articles on the title page. The justification is that we obtain a specific set of keywords selected by the authors, directly focused on the main topics

Table 5
The 50 most cited documents in *Resources Policy*.

R	TC	Title	Author/s	Year	Citations per year
1	661	Moving towards a sustainable environment: The dynamic linkage between natural resources, human capital, urbanization, economic growth, and ecological footprint in China	Ahmed, Zahoor; Asghar, Muhammad Mansoor; Malik, Muhammad Nasir; Nawaz, Kishwar	2020	132,2
2	546	Rare earth elements as critical raw materials: Focus on international markets and future strategies	Massari, Stefania; Ruberti, Marcello	2013	45,5
3	526	Exploring the origins of 'social license to operate' in the mining sector: Perspectives from governance and sustainability theories	Prno, Jason; Slocombe, D. Scott	2012	40,46
4	474	The impact of natural resources, human capital, and foreign direct investment on the ecological footprint: The case of the United States	Zafar, Muhammad Wasif; Zaidi, Syed Anees Haider; Khan, Naveed R.; Mirza, Faisal Mehmood; Hou, Fujun; Kirmani, Syed Ali Ashiq	2019	79
5	430	Social licence and mining: A critical perspective	Owen, John R.; Kemp, Deanna	2013	35,83
6	429	The paths to social licence to operate: An integrative model explaining community acceptance of mining	Moffat, Kieren; Zhang, Airong	2014	39
7	396	The evolution of the natural resource curse thesis: A critical literature survey	Badeeb, Ramez Abubakr; Lean, Hooi Hooi; Clark, Jeremy	2017	49,5
8	392	The dynamic impact of natural resources, technological innovations and economic growth on ecological footprint: An advanced panel data estimation	Ahmad, Mahmood; Jiang, Ping; Majeed, Abdul; Umar, Muhammad; Khan, Zeeshan; Muhammad, Sulaman	2020	78,4
9	359	The linkages between natural resources, human capital, globalization, economic growth, financial development, and ecological footprint: The moderating role of technological innovations	Jahanger, Atif; Usman, Muhammad; Murshed, Muntasir; Mahmood, Haider; Balsalobre-Lorente, Daniel	022	119,67
10	311	The Environmental sustainability of mining in Australia: key mega-trends and looming constraints	Mudd, Gavin M.	2010	20,73
11	307	Resource abundance, industrial structure, and regional carbon emissions efficiency in China	Wang, Keying; Wu, Meng; Sun, Yongping; Shi, Xunpeng; Sun, Ao; Zhang, Ping	2019	51,17
12	285	Sustainable development in the mining industry: clarifying the corporate perspective	Hilson, Gavin; Murck, Barbara	2000	11,4
13	277	Corporate Social Responsibility in the extractive industries: Experiences from developing countries	Hilson, Gavin	2012	21,31
14	272	Natural resource abundance, technological innovation, and human capital nexus with financial development: A case study of China	Khan, Zeeshan; Hussain, Muzzammil; Shahbaz, Muhammad; Yang, Siqun; Jiao, Zhilun	2020	54,4
15	256	Oil spills on other commodities	Baffes, John	2007	14,22
16	248	Assessing the environmental sustainability corridor: Linking natural resources, renewable energy, human capital, and ecological footprint in BRICS.	Nathaniel, Solomon Prince; Yalciner, Kursat; Bekun, Festus Victor	2021	62
17	240	An analysis of factors leading to the establishment of a social licence to operate in the mining industry	Prno, Jason	2013	20
18	239	Rare earths supply chains: Current status, constraints and opportunities	Golev, Artem; Scott, Margaretha; Erskine, Peter D.; Ali, Saleem H.; Ballantyne, Grant R.	2014	21,73
19	239	The macroeconomic determinants of volatility in precious metals markets	Batten, Jonathan A.; Ciner, Cetin; Lucey, Brian M.	2010	15,93
20	237	The crude oil market and the gold market: Evidence for cointegration, causality and price discovery	Zhang, Yue-Jun; Wei, Yi-Ming	2010	15,8
21	231	Natural resource abundance and economic growth revisited	Stijns, Jean-Philippe C.	2005	11,55
22	228	Is gold a hedge or safe haven against oil price movements?	Reboredo, Juan C.	2013	19
23	227	Using the cumulative availability curve to assess the threat of mineral depletion: The case of lithium	Yaksic, Andres; Tilton, John E.	2009	14,19
24	226	How do energy consumption and environmental regulation affect carbon emissions in China? New evidence from a dynamic threshold panel model	Wu, Haitao; Xu, Lina; Ren, Siyu; Hao, Yu; Yan, Guoyao	2020	45,2
25	223	Global renewable energy development: Influencing factors, trend predictions and countermeasures	Xu, Xiaofeng; Wei, Zhifei; Ji, Qiang; Wang, Chenglong; Gao, Guowei	2019	37,17
26	221	An almost practical step toward sustainability	Solow, Robert M.	1993	6,91
27	215	How COVID-19 drives connectedness among commodity and financial markets: Evidence from TVP-VAR and causality-in-quantiles techniques	Adekoya, Oluwasegun B.; Oliyide, Johnson A.	2021	53,75
28	214	Testing the fluctuations of oil resource price volatility: A hurdle for economic recovery	Xiuzhen, Xie; Zheng, Wenxiu; Umair, Muhammad	2022	71,33
29	213	Nexus between energy poverty and energy efficiency: Estimating the long-run dynamics	Li, Weiqing; Chien, Fengsheng; Hsu, Ching-Chi; Zhang, YunQian; Nawaz, Muhammad Atif; Iqbal, Sajid; Mohsin, Muhammad	2021	53,25
30	213	Is natural resource abundance a stimulus for financial development in the USA?	Shahbaz, Muhammad; Naeem, Muhammad; Ahad, Muhammad; Tahir, Iqbal	2018	30,43
31	213	Asymmetric impact of gold, oil prices and their volatilities on stock prices of emerging markets	Raza, Naveed; Shahzad, Syed Jawad Hussain; Tiwari, Aviral Kumar; Shahbaz, Muhammad	2016	23,67
32	207	Dynamic linkages among oil price, gold price, exchange rate, and stock market in India	Jain, Anshul; Biswal, P. C.	2016	23
33	201	Sustainable development principles for the disposal of mining and mineral processing wastes	Franks, Daniel M.; Boger, David V.; Cote, Claire M.; Mulligan, David R.	2011	14,36
34	200	Energy endowment, industrial structure upgrading, and CO_2 emissions in China: Revisiting resource curse in the context of carbon emissions	Wu, Linfei; Sun, Liwen; Qi, Peixiao; Ren, Xiangwei; Sun, Xiaoting	2021	50
35	200	Social impact assessment in the mining sector: Review and comparison of indicators frameworks	Mancini, Lucia; Sala, Serenella	2018	28,57
36	194	Natural resources and economic growth in Africa: The role of institutional quality and human capital	Zalle, Oumarou	2019	32,33
37	192	Challenges with eradicating illegal mining in Ghana: A perspective from the grassroots	Banchirigah, Sadia Mohammed	2008	11,29
38	187	Research on the impact of green finance on the upgrading of China's regional industrial structure from the perspective of sustainable development	Wang, Xinyue; Wang, Qing	2021	46,75

(*continued on next page*)

Table 5 (*continued*)

R	TC	Title	Author/s	Year	Citations per year
39	186	Natural resources, tourism development, and energy-growth-CO_2 emission nexus: A simultaneity modeling analysis of BRI countries	Khan, Anwar; Yang Chenggang; Hussain, Jamal; Bano, Sadia; Nawaz, AAmir	2020	37,2
40	184	Does uncertainty move the gold price? New evidence from a nonparametric causality-in-quantiles test	Balcilar, Mehmet; Gupta, Rangan; Pierdzioch, Christian	2016	20,44
41	183	Global trends in gold mining: Towards quantifying environmental and resource sustainability?	Mudd, Gavin M.	2007	10,17
42	182	Nexus between green finance, fintech, and high-quality economic development: Empirical evidence from China	Yang, Yuxue; Su, Xiang; Yao, Shuangliang	2021	45,5
43	181	Assessing oil price volatility co-movement with stock market volatility through quantile regression approach	Liu, Fang; Umair, Muhammad; Gao, Junjun	2023	90,5
44	178	An overview of global gold market and gold price forecasting	Shafiee, Shahriar; Topal, Erkan	2010	11,87
45	175	Natural resources and financial development: Role of business regulations in testing the resource-curse hypothesis in ASEAN countries	Tang, Chang; Irfan, Muhammad; Razzaq, Asif; Dagar, Vishal	2022	58,33
46	175	Development on whose terms?: CSR discourse and social realities in Papua New Guinea's extractive industries sector	Gilberthorpe, Emma; Banks, Glenn	2012	13,46
47	173	COVID-19 and oil market crash: Revisiting the safe haven property of gold and Bitcoin	Dutta, Anupam; Das, Debojyoti; Jana, R. K.; Xuan Vinh Vo	2020	34,6
48	173	Artisanal and small-scale mining as an extralegal economy: De Soto and the redefinition of formalization	Siegel, Shefa; Veiga, Marcello M.	2009	10,81
49	170	Rare earth elements in China: Policies and narratives of reinventing an industry	Wuebbeke, Jost	2013	14,17
50	169	How to evaluate raw material supply risks-an overview	Achzet, Benjamin; Helbig, Christoph	2013	14,08

Table 6
Citing articles of *Resources Policy*: Universities, countries, and journals.

R	University	TP	Country	TP	Journal	TP	Percentage
1	Chinese Academy Sciences	778	PR China	13154	Resources Policy	3299	77.77%
2	China U Mining Technology	583	USA	3258	Environmental Sci Pollution Res	1716	4.35%
3	China U Geosciences	537	UK	2697	Sustainability	1690	2.23%
4	Central South U	519	Australia	2318	J Cleaner Production	1187	3.25%
5	Beijing Institute Technology	389	Pakistan	1760	Extractive Industries and Society	639	52.55%
6	U Queensland	383	India	1621	Energy Economics	638	10.53%
7	U Chinese Academy Sciences	359	Turkey	1594	Energies	554	1.20%
8	Tsinghua U	309	Canada	1387	Energy	429	1.46%
9	Lebanese American U	289	France	1146	Frontiers in Environmental Sci	426	8.04%
10	Ho Chi Minh City U Econ	285	Germany	1136	J Environmental Management	377	1.95%
11	Jiangsu U	274	Spain	1077	Energy Policy	351	2.59%
12	CNRS France	273	Malaysia	974	Resources Conservation Recycl	342	6.05%
13	Xiamen U	271	Poland	901	Int J Environ Res Public Health	290	0.53%
14	Ilma Univ	270	Saudi Arabia	871	Renewable Energy	283	1.47%
15	Chongqing U	266	Russia	861	Finance Research Letters	265	6.73%
16	Wuhan U	252	South Africa	855	Science of the Total Environment	261	0.41%
17	Qingdao U	226	Brazil	827	Heliyon	225	1.00%
18	Ministry Natural Res China	222	Italy	784	Techn Forecasting Social Change	211	2.97%
19	Hunan U	199	Iran	762	PLOS One	193	0.07%
20	Xi An Jiaotong U	197	Vietnam	713	Minerals	192	2.54%
21	Shanghai Jiao Tong U	195	Nigeria	642	Int Review of Financial Analysis	187	8.61%
22	Nanjing U Aeronau Astronau	194	South Korea	632	Ecological Indicators	165	1.53%
23	U British Columbia	191	Japan	594	Renewable Sustainable Energy Rev	165	1.28%
24	CSIRO	189	Ghana	586	Land	162	2.31%
25	China U Petroleum	186	Netherlands	585	Mineral Economics	158	57.04%
26	South Ural State U	186	Taiwan	553	Environment Develop Sustain	151	5.03%
27	Southwestern U Fin Econ China	186	Sweden	528	Economic Analysis and Policy	149	11.26%
28	U Technology Sydney	185	Chile	472	Minerals Engineering	137	1.97%
29	U Int Business Economics	184	UAE	453	Applied Energy	134	0.65%
30	Cyprus Int U	183	Portugal	413	Frontiers In Energy Research	133	2.90%

of the document. The alternative was to analyse all the abstracts and generate the most representative keywords from the text. The problem in this case is that the most frequent keywords are general keywords, not directly focused on the topic of the paper, such as method, model, analysis, case, example, type, interpretation, etc. When building graphical maps in VOS viewer with co-occurrence of author keywords, the size of the circle represents the number of appearances of the keyword and the network links visualize the most frequent co-occurrence of keywords, i.e., keywords that appear more frequently in the same documents.

3. Results

This section presents the bibliometric results found for *Resources Policy* in WoS. The first part focuses on the publication and citation structure of the journal, including the identification of leading citing articles and a comparison with other top journals in Environmental Studies and Economics. The second part analyses the most cited documents of the journal in WoS and those documents most cited by articles published in *Resources Policy*. The last part of the section studies the most productive authors, institutions, and countries.

Table 7
Top 50 most cited documents in *Resources Policy* publications.

Rank	Year	First author	Reference	Volume	Page	Type	TC	C/Y
1	2007	Pesaran MH	J Appl Economet	v22	p265	A	244	14,35
2	2001	Sachs JD	Eur Econ Rev	v45	p827	A	213	9,26
3	2007	Westerlund J	Oxford B Econ Stat	v69	p709	A	188	11,06
4	2021	Pesaran MH	Empir Econ	v60	p13	A	181	60,33
5	1979	Dickey DA	J Am Stat Assoc	v74	p427	A	175	3,89
6	2001	Pesaran MH	J Appl Economet	v16	p289	A	171	7,43
7	1988	Phillips PCB	Biometrika	v75	p335	A	165	4,58
8	2012	Diebold FX	Int J Forecasting	v28	p57	A	162	13,50
9	2006	Mehlum H	Econ J	v116	p1	A	158	8,78
10	2008	Pesaran MH	J Econometrics	v142	p50	A	158	9,88
11	2010	Baur DG	Finan Rev	v45	p217	A	153	10,93
12	1987	Engle RF	Econometrica	v55	p251	A	148	4,00
13	2017	Badeeb RA	Resour Policy	v51	p123	A	140	20,00
14	1995	Sachs JD	Work Pap Series - NBER			WP	137	4,72
15	2001	Gylfason T	Eur Econ Rev	v45	p847	A	132	5,74
16	2010	Baur DG	J Bank Financ	v34	p1886	A	131	9,36
17	1978	Koenker R	Econometrica	v46	p33	A	123	2,67
18	2020	Khan Z	Resour Policy	v65		A	121	30,25
19	1982	Corden WM	Econ J	v92	p825	A	117	2,79
20	2011	Van Der Ploeg F	J Econ Lit	v49	p366	A	117	9,00
21	2018	Balsalobre-Lorente D	Energ Policy	v113	p356	A	114	19,00
22	2012	Dumitrescu EI	Econ Model	v29	p1450	A	114	9,50
23	2018	Shahbaz M	Resour Policy	v55	p223	A	114	19,00
24	2003	Im KS	J Econometrics	v115	p53	A	110	5,24
25	2014	Diebold FX	J Econometrics	v182	p119	A	105	10,50
26	1969	Granger CWJ	Econometrica	v37	p424	A	104	1,89
27	2009	Kilian L	Am Econ Rev	v99	p1053	A	104	6,93
28	2008	Brunnschweiler CN	J Environ Econ Manag	v55	p248	A	101	6,31
29	2021	Li ZY	Resour Policy	v73		A	99	33,00
30	2019	Machado JAF	J Econometrics	v213	p145	A	97	19,40
31	2021	Yang JX	Resour Policy	v72		A	95	31,67
32	2019	Danish	Sci Total Environ	v678	p632	A	92	18,40
33	2021	Rahim S	Resour Environ Sust	v4		A	91	30,33
34	2020	Ahmed Z	Resour Policy	v67		A	90	22,50
35	1987	Jarque CM	Int Stat Rev	v55	p163	A	89	2,41
36	1992	Kwiatkowski D	J Econometrics	v54	p159	A	88	2,75
37	2021	Shen YJ	Sci Total Environ	v755		A	87	29,00
38	2020	Danish	Sustain Cities Soc	v54		A	86	21,50
39	2006	Gylfason T	World Econ	v29	p1091	A	86	4,78
40	2016	Baker SR	Q J Econ	v131	1593	A	84	10,50
41	2019	Bekun FV	Sci Total Environ	v657	p1023	A	84	16,80
42	1991	Johansen S	Econometrica	v59	p1551	A	81	2,45
43	2002	Levin A	J Econometrics	v108	p1	A	81	3,68
44	2021	Umar M	Resour Policy	v72		A	81	27,00
45	2019	Zafar MW	Resour Policy	v63		A	81	16,20
46	2008	Brunnschweiler CN	World Dev	v36	p399	A	80	5,00
47	2012	Prno J	Resour Policy	v37	p346	A	80	6,67
48	2019	Zallé O	Resour Policy	v62	p616	A	79	15,80
49	2009	Diebold FX	Econ J	v119	p158	A	78	5,20
50	1984	Corden WM	Oxford Econ Pap	v36	p359	A	77	1,93

Abbreviations are available in the previous tables except: A = Article; WP = Working Paper.

3.1. Publication and citation structure of RP

Resources Policy published its first issue in September 1974. During the first decades, the journal published around 20 articles each year until 2010 when it started to grow significantly. During the last decade, the journal has grown the number of documents published annually from approximately 100 to 1000 documents. Note that since 2010, the strong consolidation of internet worldwide coupled with a substantial growth of research in developing countries has produced a significant increase of paper submissions all over the world. In the case of *Resources Policy*, the journal currently receives approximately 5000 submissions each year. To provide a detailed overview of the number of submissions, Table 1 presents the submissions received by the journal since 2016, when the editorial manager (EM) system was implemented.

As shown in Table 1, the journal received more than 500 submissions in 2017 and 1394 submissions in 2020. By 2022, the number of submissions reached near 3000 and, by 2023, more than5,100. Due to the substantial growth of research worldwide, if recent trends continue, the expectation is that in the near future, the number of submissions may increase further.

This significant increase in the number of submissions has resulted in the journal substantially increasing the number of documents published annually. Table 2 presents the results. Table 2 also presents the number of citations that the documents published in each year have achieved, the average citations per paper, and citation thresholds identifying the number of articles that have reached a specific number of citations. The table considers the number of documents for each specific year with equal or more than 1, 10, 20, 50, 100, 200 and 500 citations. The last two columns of the table show the number of papers in each year that are among the 50 most cited in the journal and those that ESI has selected as Highly Cited Papers, that is, those papers that are among the 1% most cited worldwide in a specific year and in the research area of Social Sciences, General. Note that in June 2024, only documents published between 2014 and 2023 can be considered Highly Cited Papers.

During its first three decades, *Resources Policy* published relatively few papers, and these papers generally did not receive many citations. In

Table 8
Top 50 most productive authors in *Resources Policy*.

R	Author Name	University	Country	TP	TC	C/P	H	≥100	≥10	T50	HCP
1	Vo XV	Ho Chi Minh City U Econ	VIE	46	1304	28.35	20	3	26	1	4
2	Mensi W	Sultan Qaboos U	OMA	34	903	26.56	18	1	25	0	2
3	Tiwari AK	Indian Inst Manag Bodh Gaya	IND	28	1036	37	16	1	21	1	3
4	Tilton JE	Colorado Sch Mines	USA	26	913	35.12	15	2	19	1	0
5	Cheng JH	China U Geosciences	CHN	26	577	22.19	14	0	18	0	2
6	Huang JB	Central South U	CHN	25	754	30.16	16	1	20	0	1
7	Shahbaz M	Beijing Inst Tech	CHN	24	2090	87.08	20	8	23	3	9
8	Umar M	Qingdao U	CHN	24	1655	68.96	20	5	23	1	16
9	Shahzad SJH	Montpellier Bus Sch	FRA	23	1125	48.91	18	2	19	1	3
10	Razzaq A	ILMA U	PAK	22	1121	50.95	17	2	20	1	17
11	Rehman MU	Ho Chi Minh City U Econ	VIE	22	668	30.36	15	0	15	0	1
12	Su CW	Qingdao U	CHN	22	576	26.18	15	0	17	0	10
13	Kang SH	Pusan National U	S.K	21	653	31.1	14	1	16	0	3
14	Bouri E	Lebanese American U	LEB	20	864	43.2	13	2	14	0	3
15	Gupta R	U Pretoria	S.AF	20	775	38.75	11	2	14	1	2
16	Sharif A	Sunway U	MAL	20	767	38.35	14	2	15	0	10
17	Zhang HW	Central South U	CHN	20	563	28.15	13	0	14	0	2
18	Adekoya OB	U Maine	USA	19	792	41.68	11	2	12	1	5
19	Salisu AA	U Ibadan	NIG	18	399	22.17	10	1	10	0	1
20	Lei YL	China U Geosciences	CHN	17	432	25.41	11	0	13	0	1
21	Geng Y	Shanghai Jiao Tong U	CHN	17	332	19.53	10	1	10	0	1
22	Al-Faryan MAS	U Portsmouth	UK	16	465	29.06	10	1	10	0	7
23	Radetzki M	Lulea U Technology	SWE	16	402	25.13	9	1	8	0	0
24	Fernandez V	U Adolfo Ibanez	CHL	16	314	19.63	10	0	10	0	0
25	Li HJ	China U Geosciences	CHN	16	228	14.25	9	0	9	0	0
26	Chen JY	Central South U	CHN	16	221	13.81	9	0	8	0	0
27	Humphreys D	U Dundee	UK	14	254	18.14	6	0	5	0	0
28	Gao XY	China U Geosciences	CHN	14	220	15.71	8	0	7	0	0
29	Oliyide JA	U Agriculture Abeokuta	NIG	13	659	50.69	9	2	8	1	4
30	Ali S	Bahria U	PAK	13	420	32.31	9	0	9	0	5
31	Wang XX	China U Geosciences	CHN	13	173	13.31	8	0	8	0	0
32	Irfan M	ILMA U	PAK	12	685	57.08	11	2	11	1	8
33	Feng C	Central South U	CHN	12	684	57	11	2	11	0	3
34	Mirza N	Excelia Bus Sch	FRA	12	579	48.25	10	1	10	0	6
35	Zaman K	King Saud U	SAR	12	572	47.67	12	1	12	0	3
36	Nassani AA	King Saud U	SAR	12	501	41.75	10	1	10	0	3
37	Lee CC	Nanchang U	CHN	12	431	35.92	10	0	10	0	8
38	Lagos G	Pontif U Catholic Chile	CHL	12	323	26.92	8	1	6	0	0
39	Song Y	China U Geosciences	CHN	12	234	19.5	7	0	7	0	1
40	Yildiz TD	Adana Alp Tur Sci Tech U	TUR	12	107	8.92	6	0	5	0	0
41	Hilson G	U Surrey	UK	11	1145	104.09	10	5	10	2	0
42	Balcilar M	Eastern Mediterranean U	TUR	11	697	63.36	9	2	9	1	3
43	Krzemien A	Central Mining Inst GIG	POL	11	352	32	8	1	8	0	0
44	An HZ	China U Geosciences	CHN	11	250	22.73	9	0	9	0	0
45	Gil-Alana LA	U Navarra	SPA	11	240	21.82	8	0	7	0	0
46	Wang ZY	Guangzhou U	CHN	11	162	14.73	6	0	6	0	6
47	12 authors	–	–	10	–	–	–	–	–	–	–
48	13 authors	–	–	9	–	–	–	–	–	–	–
49	23 authors	–	–	8	–	–	–	–	–	–	–
50	44 authors	–	–	7	–	–	–	–	–	–	–

Abbreviations are available in the previous tables.

this period, only two documents have obtained more than 200 citations and are among the 50 most cited. Additionally, between 1974 and 1992 none of the papers obtained more than 50 citations and only six got more than 20 citations. Since 2005, the performance of the journal has increased a lot, especially since 2012 when the number of documents published in the journal has increased rapidly. Currently, the three most cited documents were published in 2012, 2013, and 2020, respectively. In total, the journal published 36 articles with more than 200 citations which represents almost 1% of all documents. 3.7% of the documents have obtained more than 100 citations and 11% more than 50. About half of the papers have more than ten cites and 93% at least has received one citation. Note that during the last five years, the number of Highly Cited Papers has increased substantially due to the significant increase in the number of published articles–more than 2200 in the past three years alone (see Table 2).

To provide a more complete overview of the citation structure of all the papers published in the journal, Fig. 1 presents the annual box-and-whisker plot structure of all the papers with their respective citations (Tukey, 1977). Note that single dots on the top of the figure are the most cited papers and are classified as outliers in the box-and-whisker plot structure. Note that the boxplot structure visualizes the set of documents of a specific year, and where is the 25th percentile (first quartile), 50th percentile (second quartile), and 75th percentile (third quartile) most cited article. The boxplot also shows the interquartile range (third quartile minus first quartile), the minimum, the maximum, and the upper and lower boundaries (whiskers) generated by multiplying the interquartile range by 1.5. The "x' close to the middle of the boxplot indicates the average number of citations per paper published in the specific year considered. Note that if there are many outliers in a specific year (proportionally to the total number of papers), the average is higher. The figure is adjusted to 250 citations. For documents with more than 250 citations, the figure visualizes red dots indicating the total number of cites that these documents have achieved.

Most of the outliers are from the last years. Between 2005 and 2020, the annual average of cites per paper stood at thirty to seventy citations with 2009 the year with the highest ratio of 72.8 cites per paper. As

Table 9
Temporal evolution of the most productive authors.

R	Author	TP	R	Author	TP
1974–1993			2014–2023		
1	Humphreys D	9	1	Vo XV	46
2	Radetzki M	8	2	Mensi W	34
3	Vanrensburg WCJ	6	3	Tiwari AK	28
4	Anderson DL	5	4	Cheng JH	26
5	Kumar R	5	5	Huang JB	25
6	Owen AD	5	6	Shahbaz M	24
7	Tilton JE	5	7	Umar M	24
8	Campbell GA	4	8	Shahzad SJH	23
9	Crowson PCF	4	9	Razzaq A	22
10	9 authors	4	10	Rehman MU	22
1994–2003			11	Su CW	22
1	Tilton JE	7	12	Kang SH	21
2	Otto J	6	13	Bouri E	20
3	Batabyal AA	5	14	Gupta R	20
4	Naito K	5	15	Sharif A	20
5	Auty RM	4	16	Zhang HW	20
6	Chang HS	4	17	Adekoya OB	19
7	Clark AL	4	18	Salisu AA	18
8	Clements KW	4	19	Geng Y	17
9	Fraser R	4	20	Zhang YJ	17
10	Wernick IK	4	21	Al-Faryan MAS	16
2004–2013			22	Chen JY	16
1	Tilton JE	11	23	Li HJ	16
2	Radetzki M	5	24	Gao XY	14
3	Cuddington JT	4	25	Lei YL	14
4	Franks DM	4	26	Ali S	13
5	Guj P	4	27	Fernandez V	13
6	Hilson G	4	28	Oliyide JA	13
7	Humphreys D	4	29	Wang XX	13
8	Lagos G	4	–	8 authors	12
9	Moran CJ	4	–	5 authors	11
10	Rolfe J	4	–	12 authors	10

Abbreviations are available in the previous tables.

shown in Table 2, articles published during the first two decades received a very low number of citations. Note that the bigger size in the interquartile range between 2007 and 2012 occurs because in these years, several papers obtain a good number of citations and at the same time there are not many documents published. Therefore, just a couple of papers can easily increase the size of the interquartile range.

Next, we investigate the data provided by the JCR of the WoS to understand the journal's performance metrics (Clarivate, 2023). JCR implemented the impact factor in 1997. In later years, JCR added additional indicators to measure the quality of a journal. Table 3 presents all the data from *Resources Policy* available in JCR. The focus is on the total citations received, the impact factor, the 5-year impact factor, the immediacy index, the article influence score, and the rank, quartile, and percentile of the journal in the WoS category of Environmental Studies. Note that the data is dynamic in time and from a general point of view, most of the journals have performed significantly better in their indicators due to the increase in the number of documents published annually and the significant increase of WoS that now indexes more than twice as many journals as at the beginning of the millennium.

Resources Policy has grown its influence significantly during the last three decades, as demonstrated in Table 3. It is a classical journal that has always been indexed in WoS. Although its influence was low in the 1990s, it was one of the only 40–50 journals indexed in the WoS category of Environmental Studies. Between 1997 and 2005, it was ranked in the fourth quartile but due to the increase in the number of journals indexed in Environmental Studies and the significant increase in paper submissions every year, *Resources Policy* has become a first quartile journal. In the 2022 edition of JCR, it achieved an impact factor of 10.2 being ranked 8th among the 128 journals indexed in the WoS category of Environmental Studies.

Another interesting issue is to analyse the publication record of *Resources Policy* compared to the leading journals in the field of Environmental Studies and Economics and connected to the journal. To do so, Table 4 presents a selection of 20 leading journals in the field of Environmental Studies and 20 leading journals in Economics. Note that this selection is based on the journals that visualize the strongest influence and impact in *Resources Policy*. To undertake this selection, this paper considers the citing journals and the cited journals of *Resources Policy* that will be presented later in Tables 6 and 16, respectively. Note that many other journals could have been included in the list, but the table aims to present a quick overview of the performance of some journals strongly connected to *Resources Policy*. Also note that the data of *Resources Policy* in Table 4 does not match the data of Table 2 because Table 4 was collected in June 2024 and Table 2 in May 2024.

Resources Policy is becoming well-established in the academic community with a strong publication record. As we can see in most of the journals in Environmental Studies, it is very common that journals are significantly increasing the number of papers published in the journal. Many of these journals have already published more than 10,000 articles. Note that Table 4 is focused on leading and generally very broad journals. In this context, the results of *Resources Policy* are not outstanding. However, if we analyse journals more specialized in the fields of interest of *Resources Policy* such as *Resource and Energy Economics*, *Natural Resources Forum*, and *Mineral Economics*, then, *Resources Policy* is performing very well. Most of the top journals have almost full coverage in WoS Core Collection. *Environmental Science & Technology* and *Renewable & Sustainable Energy Reviews* are the journals with the best performance in the field of Environmental Studies. In Economics, the journals usually regarded as the top 5 in economics (Amiguet et al., 2017) obtain the best results together with the *Journal of Finance* and the *Journal of Econometrics*.

3.2. Influential papers in RP

Many articles and reviews have been published in *Resources Policy*, especially, during the last years. In this section, we analyse the most cited papers. Table 5 presents the 50 most cited papers of *Resources Policy* according to WoS Core Collection. Note that this table has been generated in May 2024. However, the number of citations is increasing over time. Therefore, the table presents the current picture, but the results may change in the future, especially with the appearance of newer papers that become very popular in the academic community.

The most cited paper in *Resources Policy* is a recent paper published by Zahoor Ahmed and collaborators (Ahmed et al., 2020) that has already received more than 600 citations. It is also the paper with the highest number of citations per year with 132. Two more papers have currently received more than five hundred citations (Massari and Ruberti, 2013; Prno and Slocombe, 2012) and another one is receiving more than 100 citations per year (Jahanger et al., 2022). The only paper in the list published before 2000 was published by the Nobel Prize in Economics Robert Solow, in 1993 (Solow, 1993). 2013, 2020 and 2021 are the years with the highest number of papers in the list with six documents each. It is worth noting that these 50 highly cited papers come from authors from all over the world.

Another interesting issue is to analyse who is citing the documents published in *Resources Policy*. To do so, we investigate the citing articles of the journal. That is, those articles that at least have cited in one reference the journal. Note that citing articles is a good approach to identify the influence of the journal. However, it does not measure exactly the number of references. Therefore, if one document cites in many references the same journal, still the counting only considers one unit. Additionally, note that the citing documents can be extrapolated to other variables, including co-authoring institutions, countries, and journals. Table 6 presents the universities, countries, and journals with the highest number of papers citing *Resources Policy*.

Chinese researchers are by far those who most frequently cite the

Table 10
The most productive and influential institutions in *Resources Policy*.

R	Institution	Country	TP	TC	C/P	H	≥100	≥10	T50	HCP
1	China U Geosciences	CHN	156	3087	19.79	31	1	99	0	8
2	Central South U	CHN	84	2332	27.76	29	3	54	1	10
3	Ministry Natural Resour PR China	CHN	70	1497	21.39	25	0	48	0	2
4	Colorado School of Mines	USA	70	1352	19.31	22	1	39	0	0
5	Ho Chi Minh City U Economics	VIE	67	1947	29.06	26	3	39	1	8
6	Qingdao U	CHN	62	2662	42.94	29	7	46	1	32
7	China U Mining Technology	CHN	62	1422	22.94	22	1	41	0	8
8	U Queensland	AUS	58	2329	40.16	22	5	41	4	2
9	Beijing Institute of Technology	CHN	49	4151	84.71	28	13	36	6	26
10	U Witwatersrand	S.AF	49	621	12.67	15	0	20	0	0
11	Montpellier Business School	FRA	48	3068	63.92	32	10	43	2	11
12	ILMA U	PAK	48	2129	44.35	27	4	41	1	31
13	Chinese Academy of Sciences	CHN	47	1270	27.02	17	2	26	2	10
14	Lebanese American U	LEB	46	766	16.65	17	0	22	0	15
15	Curtin U	AUS	44	1414	32.14	21	4	32	1	1
16	South Ural State U	RUS	42	1638	39	23	3	28	1	6
17	U Western Australia	AUS	39	819	21	15	0	29	0	1
18	Lulea U Technology	SWE	37	935	25.27	19	1	25	0	0
19	Anhui U Finance Economics	CHN	35	1037	29.63	16	2	23	0	10
20	King Saud U	SAR	35	793	22.66	14	1	15	0	8
21	Jilin U	CHN	34	562	16.53	11	1	13	0	7
22	Wuhan U	CHN	32	1466	45.81	16	3	20	2	15
23	Sultan Qaboos U	OMA	32	874	27.31	17	1	24	0	2
24	U British Columbia	CAN	32	565	17.66	9	1	9	1	0
25	Tsinghua U	CHN	31	1549	49.97	14	5	19	2	9
26	Pontificia U Catholic Chile	CHL	31	884	28.52	15	2	20	1	0
27	Nisantasi U	TUR	31	766	24.71	14	1	18	0	13
28	U Ibadan	NIG	30	742	24.73	14	2	21	0	2
29	Comsats U Islamabad	PAK	29	2824	97.38	22	8	25	4	10
30	Shanghai Jiao Tong U	CHN	28	712	25.43	13	2	16	0	5
31	U Chile	CHL	27	494	18.3	12	1	13	0	0
32	U Pretoria	S.AF	26	895	34.42	12	2	16	1	2
33	McGill U	CAN	26	415	15.96	12	0	14	0	0
34	Jiangsu U	CHN	25	1042	41.68	13	2	17	2	9
35	Xi An Jiaotong U	CHN	25	743	29.72	17	1	20	0	8
36	Tashkent State U Economics	UZB	25	425	17	10	0	10	0	9
37	Xiamen U	CHN	24	1009	42.04	15	2	18	1	6
38	Nanjing U Finance Economics	CHN	24	640	26.67	14	0	17	0	5
39	Sichuan U	CHN	24	629	26.21	10	2	10	0	6
40	Tianjin U Commerce	CHN	24	518	21.58	12	0	13	0	10
41	U Adolfo Ibanez	CHL	24	509	21.21	12	0	15	0	0
42	Nanjing U Aeronautics Astronautics	CHN	23	793	34.48	14	2	17	0	7
43	Pusan National U	S.K	23	668	29.04	14	1	17	0	3
44	Fuzhou U Int Studies Trade	CHN	23	603	26.22	11	1	11	1	11
45	Australian National U	AUS	23	578	25.13	9	1	9	1	2
46	Southwest Jiaotong U	CHN	23	368	16	12	0	17	0	2
47	Commonw Sci Ind Res Org (CSIRO)	AUS	22	1234	56.09	17	3	20	1	1
48	Ural Federal U	RUS	22	621	28.23	14	2	16	0	9
49	Michigan Technological U	USA	22	354	16.09	11	0	12	0	0
50	China Geological Survey	CHN	22	253	11.5	11	0	11	0	0

Abbreviations are available in the previous tables.

journal. This result is obvious due to the substantial size of Chinese research and its influence in the journal. Nineteen of the 30 institutions are from China. Pakistan also performed well, reaching the fifth position and with two institutions on the list. Other countries that usually do not get a good ranking in research but appear on the list are Malaysia, Vietnam, Nigeria, and Ghana. It is worth noting that none of the institutions in the Top 30 are from the United States of America (USA) or the United Kingdom (UK).

Focusing on journals that frequently cite *Resources Policy*, it is important to note that journal self-citations are the most relevant. Note that this is quite common in the literature (Merigó et al., 2018) because usually, articles published before in the journal have a lot of influence on papers published later. *Environmental Science and Pollution Research*, *Sustainability*, and the *Journal of Cleaner Production* are the journals that give more citations to *Resources Policy*. Note that an important issue here is that most of the journals in the first positions are large journals that publish a lot of papers. Therefore, it is simple for them to make the list although they are not so much influenced by *Resources Policy*. As an example, if we divide the number of citing articles by the total number of papers of the journal (see Table 4), then the percentage of all documents of the journal that cite *Resources Policy* is only 4%, 2%, and 3%, respectively. On the other hand, smaller journals influenced by *Resources Policy* would get a better result, including the *Extractive Industries and Society* with 52%, and *Mineral Economics* with 57%.

Next, we analyse the documents that are most cited by papers published in *Resources Policy*. To do this, we utilise the VOS viewer software (Van Eck and Waltman, 2010) and through the co-citation of cited references it can identify the most cited documents. Table 7 presents the results.

Ten papers from the journal are among the 50 most cited ones. The *Journal of Econometrics* has six papers and *Econometrica* has four. Mohammad Hashem Pesaran has four articles as first author among the top 10 including the most cited document. All these documents are related to his seminal contributions in econometrics. Note that there is no book on the list and only one Working Paper by Jeffrey D. Sachs. Another interesting issue is that some of the most cited documents are

Table 11
Temporal evolution of the most productive institutions.

R	Institution	TP	R	Institution	TP
1974–1993			2014–2023		
1	Colorado School of Mines	17	1	China U Geosciences	149
2	U New South Wales Sydney	13	2	Central South U	84
3	Michigan Technological U	10	3	Ho Chi Minh City U Economics	67
4	U British Columbia	9	4	Ministry Natural Resources PR China	67
5	Queens U Canada	8	5	Qingdao U	62
6	U Sussex	8	6	China U Mining Technology	61
7	The World Bank	7	7	Beijing Institute of Technology	48
8	U Arizona	7	8	ILMA U	48
9	U Texas Austin	7	9	Montpellier Business School	48
10	U Aberdeen	6	10	Lebanese American U	46
1994–2003			11	U Queensland	45
1	Colorado School Of Mines	15	12	Chinese Academy of Sciences	43
2	U Western Australia	12	13	U Witwatersrand	43
3	Lulea U Technology	7	14	South Ural State U	42
4	Met Min Agcy Japan	5	15	Anhui U Finance Economics	35
5	The World Bank	5	16	King Saud U	35
6	U Dundee	5	17	Jilin U	34
7	Griffith U	4	18	Curtin U	32
8	Imperial College London	4	19	Sultan Qaboos U	32
9	Lancaster U	4	20	Wuhan U	32
10	Michigan Technological U	4	21	Nisantasi U	31
2004–2013			22	Tsinghua U	30
1	Colorado School Of Mines	20	23	Comsats U Islamabad	29
2	Pontificia U Catholic Chile	15	24	U Ibadan	29
3	Curtin U	10	25	Shanghai Jiao Tong U	27
4	Lulea U Technology	10	26	U Pretoria	26
5	U Queensland	10	27	Jiangsu U	25
6	U Western Australia	10	28	Tashkent State U Economics	25
7	U Manchester	9	29	Xi An Jiaotong U	25
8	China U Geosciences	7	30	5 Universities	24
9	U Reading	7	31		
10	3 universities	5	32		

Abbreviations are available in the previous tables.

written by Nobel Prize winners in Economics, including Robert F. Engle and Clive W.J. Granger. Another interesting fact is that economics journals have more presence in the list while there are not many papers from environmental sciences, excluding those from *Resources Policy*.

3.3. The most productive authors, institutions, and countries

In this section, we analyse the most productive authors, institutions, and countries. First, we focus on authors. To do so, Table 8 presents the 50 authors with the highest number of papers published in the journal. The table considers the current affiliation and country of the authors and several indicators that analyse the current results these authors have achieved according to WoS Core Collection. Particularly, the table considers the total number of papers, the citations these papers have obtained, the cites per paper, the *h*-index, number of articles with equal or more than ten and 100 citations, number of documents in the Top 50 of Table 5, and number of papers selected by WoS – ESI as Highly Cited Papers.

Xuan Vinh Vo, from the Ho Chi Minh City University of Economics (Vietnam), is the most productive author in *Resources Policy* with 46 documents and the third most cited author with 1304 citations. He also performs very well in the rest of the indicators. The second place in the ranking goes to Walid Mensi from Sultan Qaboos University (Pakistan) with 34 papers. The most cited author is Muhammad Shahbaz, from Beijing Institute of Technology (China), with 2090 citations and 24 documents. He also has the highest cites per paper ratio with 87. Chinese authors represent the biggest group in *Resources Policy*. Currently, there are seventeen authors in the Top 50, six from China University of Geosciences and four from Central South University. Ho Chi Minh City University of Economics, ILMA University, King Saud University, and Qingdao University, have two authors on the list. Pakistan and the United Kingdom have three authors among the Top 50. It is worth noting that authors from all over the world publish in *Resources Policy*.

Next, we develop a temporal classification of the most productive authors. To do so, we consider four time periods: 1974–1993, 1994–2003, 2004–2013, and 2014–2023. Table 9 presents the results. Note that for 2014–2023 the table considers 29 authors with at least thirteen documents while for the other periods, it only considers the ten most productive authors. The reason for doing so is that in the last period, the number of documents published in the journal represent 77.9% of all papers published in the journal.

The three most productive authors from 2014 to 2023 are also the three most productive ones in Table 8: Xuan Vinh Vo, Walid Mensi and Aviral Kumar Tiwari. John E. Tilton, from Colorado School of Mines (USA), is the author with the most representative presence in the journal through the first 50 years of the journal. He was the most productive author in 1994–2003 and 2004–2013 and reached the fourth – seventh position in 1974–1993. Marian Radetzki (1936–2022) (Ericsson et al., 2023), from Lulea University of Technology (Sweden), also performed very well over time achieving the second position in 1974–1993 and 2004–2013. David Humphreys (2024), from the University of Dundee (UK), performed well, being ranked first in 1974–1993 and seventh in 2004–2013.

Another interesting issue is to analyse the institutions where the top authors are working. To do this, this study analyzes the author affiliation at the time of publication of each article. Note that this approach aims to provide a historical perspective. However, it is worth noting that many deviations may occur because authors may change university over time and other related issues. Table 10 presents the 50 most productive universities in *Resources Policy*. Similar to Table 8, this table considers different bibliometric indicators to provide a complete perspective of the publications of an institution. Particularly, this table considers the total number of papers and citations, the cites per paper, the *h*-index, the number of documents with equal or more than 10 and 100 citations, the number of papers in the Top 50 of Table 5, and the number of articles selected by WoS – ESI as Highly Cited Papers.

China University of Geosciences is by far the most productive university in *Resources Policy* with 156 documents and the second most cited one with 3087 cites. The second position goes to Central South University (China) with 84 documents and in the third position, there is a tie with 70 articles between the Ministry of Natural Resources of the Peoples Republic of China and the Colorado School of Mines (USA). The most cited institution is the Beijing Institute of Technology with 4151 cites. It is also ranked first according to the cites per paper, number of articles with equal or more than 100 citations, and number of papers in the Top 50 of Table 5. China is leading the table with 44% of the institutions. Australia has five universities, and Chile and Pakistan have three. Similar to Table 8, the results visualize the worldwide distribution of *Resources Policy* with institutions and publications from all over the World.

Next, we investigate the most productive institutions through time. To do so, Table 11 presents the most productive universities for four different periods: 1974–1993, 1994–2003, 2004–2013, and 2014–2023. Similar to Table 9, the table considers the Top 10 for the first three periods and the Top 30 for the last period.

The first two universities for 2014–2023 are the same as the first two universities in Table 10: China University of Geosciences and Central South University. Colorado School of Mines achieved the best

performance over time, being ranked on top for the first three periods. An interesting result from this table is that the leading institutions between 1974 and 2013 are from developed countries. In contrast, over the past decade, a significant increase in published papers from universities located in developing countries is noted.

To gather a more complete picture of the author-affiliated institutions with publications in *Resources Policy*, we develop a geographical classification of the most productive universities. Table 12 presents the 20 most productive institutions of eight representative regions of the world. Note that the design of the size of these eight regions is based on the results identified in the publications of *Resources Policy*.

Colorado School of Mines is the most productive university from North America, followed by the University of British Columbia and McGill University. In Europe, Montpellier Business School, South Ural State University and Lulea University of Technology lead the ranking although the UK has nine institutions among the Top 20. In the Middle East, the Lebanese American University is the most productive one followed by King Saud University, Sultan Qaboos University, and Nisantasi University. In East Asia, we find the most productive institutions of the journal including China University of Geosciences and Central South University. Note that all the universities on the list are from China. For the rest of Asia, Ho Chi Minh City University of Economics ranks first followed by ILMA University. In Latin America, the three universities that were included in Table 10 and are the most productive of the region are the Pontifical University of Chile, the University of Chile, and the Adolfo Ibanez University. In Africa, the University of Witwatersrand is by far the most productive one with 49 documents followed by the University of Pretoria and the University of Johannesburg. Finally, in Oceania, the most productive institutions are the University of Queensland, Curtin University, and the University of Western Australia.

Next, we analyse the most productive countries in *Resources Policy*. Note that the analysis focuses on the country of the author's affiliation at the time of publication. Therefore, it does not consider the original nationality of the author. The objective is to consider the place where the papers are being produced. Note that in many cases, there are authors that, over time, have changed the country where they work. From a general point of view, developed countries, especially the USA, the UK, and Australia, achieve better results because they often acquire some of the best researchers from the rest of the world. Table 13 presents the results. As in Tables 8 and 10, the table considers several bibliometric indicators to provide a complete picture of the current results the countries are achieving. Table 13 analyzes the total number of articles and citations, the cites per paper, the *h*-index, the number of documents with equal or more than 10 and 100 citations, the number of articles in

Table 12
Geographical classification of the most productive institutions.

R	North America		Europe		Middle East		East Asia	
	University	TP	University	TP	University	TP	University	TP
1	Colorado School of Mines	70	Montpellier Bus Sch	48	Lebanese American U	46	China U Geosciences	156
2	U British Columbia	32	South Ural State U	42	King Saud U	35	Central South U	84
3	McGill U	26	Lulea U Technology	37	Sultan Qaboos U	32	Min Nat Resour PR China	70
4	Michigan Technological U	22	Ural Federal U	22	Nisantasi U	31	China U Mining Tech	62
5	Queens U Canada	20	CNRS France	19	Eastern Mediterran U	21	Qingdao U	62
6	Simon Fraser U	17	U Dundee	19	Amirkabir U Tech	19	Beijing Institute Tech	49
7	U Alberta	16	Excelia Bus Sch	17	Tashkent State U Econ	16	Chinese Acad Sciences	47
8	Pennsylvania State U	14	U Manchester	16	Istanbul Gelisim U	15	Anhui U Finance Econ	35
9	Harvard U	11	U Reading	16	Tarbiat Modares U	15	Jilin U	34
10	West Virginia U	11	Polish Acad Sciences	15	Erciyes U	14	Wuhan U	32
11	Drexel U	10	UK Res Innovation	15	Islamic Azad U	14	Tsinghua U	31
12	US Geological Survey	10	U Castilla La Mancha	15	Kharazmi U	14	Shanghai Jiao Tong U	28
13	U Montreal	10	U Portsmouth	15	Cyprus International U	13	Jiangsu U	25
14	US Dep Energy	9	Silesian U Technology	14	Istanbul Medeniyet U	13	Xi An Jiaotong U	25
15	U Arizona	9	U East Anglia	14	Pr Sat Bin Abdulaziz U	13	Nanjing U Fin Econ	24
16	U Texas Austin	9	U Sussex	14	U Sharjah	13	Sichuan U	24
17	York U Canada	9	U College London	13	Ad A Turk Sci Tech U	12	Tianjin U Commerce	24
18	MIT	8	U Navarra	13	Lefke Avrupa U	11	Xiamen U	24
19	John Hopkins U	7	U Oviedo	13	Namik Kemal U	11	Fuzhou U Int Stud Trade	23
20	4 Universities	7	U Oxford	13	Pr Nourah Bint Abd U	11	2 Universities	23
R	Latin America		Africa		Rest of Asia		Oceania	
	University	TP	University	TP	University	TP	University	TP
1	Pontificia U Catholic Chile	31	U Witwatersrand	49	Ho Chi Minh U Econ	67	U Queensland	58
2	U Chile	27	U Pretoria	26	ILMA U	48	Curtin U	44
3	U Adolfo Ibanez	27	U Johannesburg	20	Comsats U Islamabad	29	U Western Australia	39
4	U Catholic del Norte	16	U Cape Coast	14	Tashkent State U Econ	25	Australian National U	23
5	Getulio Vargas Foundation	8	U Ghana	14	Sultan Qaboos U	24	CSIRO	22
6	U State Campinas	8	U Cape Town	11	Sunway U	19	U New South Wales	18
7	U ESAN Peru	7	U Dschang	9	Ton Duc Thang U	17	Queensland U Technology	16
8	U Sao Paulo	7	U the Free State	7	U Sains Malaysia	17	Griffith U	15
9	Pontificia U Catholic Peru	6	Cairo U	6	U Management Tech	17	U Adelaide	14
10	U Espec Espiritu Santo	6	C U Ain Temouchent	6	U Ibadan	16	U Technology Sydney	14
11	U National Colombia	6	Kwame N U Sci Tech	6	U Putra Malaysia	14	U South Australia	12
12	U Fed Rio de Janeiro	6	U Yaounde II	6	U Utara Malaysia	14	Massey U	11
13	U Fed Rio Grande do Sul	6	U Agricult Abeokuta	6	U Central Punjab	13	U Melbourne	11
14	U National Loja	5	U Zambia	6	Taylor S U	11	Monash U	10
15	U Concepcion	5	U Development Stud	5	U Wah	11	Central Queensland U	8
16	U Tec Federico Santa Maria	5	U Mines Technol	4	U Tech Malaysia	11	U New England	8
17	EPGE Brazil	4	U Internat Rabat	4	Curtin U Malaysia	10	U Newcastle	8
18	U Estado Rio de Janeiro	4	U Dar Es Salaam	4	Iqra U	10	Macquarie U	7
19	U Buenos Aires	4	U South Africa	4	Thuongmai U	10	U Tasmania	7
20	6 Universities	3	9 Universities	3	2 Universities	10	U Wollongong	7

Abbreviations are available in the previous tables.

the Top 50 of Table 5, the number of papers selected by WoS – ESI as Highly Cited Papers, the population of the country, and the papers and citations per million inhabitants.

China is by far the most productive country in *Resources Policy* with 1505 papers. It almost has three times the number of publications of the second country, the USA. China performs very well in all the indicators except the results per capita where some smaller countries perform better in publications and cites per paper. The UK and Australia achieve the third and fourth positions, respectively. However, an interesting result is that developing countries perform very well in *Resources Policy*. Especially, Pakistan, Turkey, Malaysia, Vietnam, Chile, and Nigeria. Pakistan reaches the fifth position and performs very well in all the indicators, and Turkey is ranked sixth. Malaysia is ranked tenth and obtains impressive results in all the indicators considering the size of the country and its productivity in other research fields. Vietnam is ranked the 13th, Chile the 14th, and Nigeria the 15th, respectively.

When normalizing the results per capita, Australia obtains the best results. In papers per million inhabitants, it is followed by Lebanon with 10.2 articles per million inhabitants and Oman with 8.6. In citations per million inhabitants, Australia leads with 370.2 cites followed by New Zealand with 293 and Lebanon with 250 cites per million inhabitants, respectively.

Another interesting fact is to analyse the publication evolution of the countries through time. To do so, Table 14 presents the temporal evolution. Note that the first four columns after the countries are the four periods used in Tables 9 and 11: 1974–1993, 1994–2003, 2004–2013, and 2014–2023. Next, the table shows the total number of documents as in Table 13 and the rest of the columns are the annual number of papers published by each country between 2005 and 2023.

Almost all the publications of China come from the last five years, especially from 2023 to 2022. Due to the rapid growth of the journal, most countries have increased their number of publications in the last five years. However, in the case of developed countries, the difference is not as significant as it occurs in developing countries. Looking at the last years, including the last decade, Pakistan has already become the second most productive country in the world. Some other developing countries that are growing a lot are Turkey, India, and Malaysia. During the first three decades of the journal, the USA, the UK, and Australia were the

Table 13
The most productive and influential countries in *Resources Policy*.

R	Country	TP	TC	C/P	H	≥100	≥10	T50	HCP	Population	P/Po	C/Po
1	PR China	1505	37552	24.95	83	57	847	18	365	1,432,000,000	1.05	26.22
2	USA	535	9355	17.49	47	13	219	4	16	336,385,000	1.59	27.81
3	UK	406	8949	22.04	50	18	187	4	23	67,000,000	6.06	133.57
4	Australia	356	9788	27.49	48	18	214	8	23	26,439,111	13.46	370.21
5	Pakistan	270	11825	43.8	57	30	203	9	123	220,892,340	1.22	53.53
6	Turkey	230	7740	33.65	51	21	150	2	59	85,771,000	2.68	90.24
7	Canada	196	4060	20.71	30	7	86	4	3	38,949,000	5.03	104.24
8	India	193	5864	30.38	42	16	111	4	32	1,439,323,000	0.13	4.07
9	France	176	6553	37.23	45	15	118	4	34	65,310,000	2.69	100.34
10	Malaysia	141	4480	31.77	37	9	91	2	46	34,308,525	4.11	130.58
11	Saudi Arabia	138	3619	26.22	33	6	74	1	36	36,947,025	3.74	97.95
12	South Africa	128	2625	20.51	29	4	60	1	3	60,756,135	2.11	43.21
13	Vietnam	122	3430	28.11	34	4	77	1	17	97,338,579	1.25	35.24
14	Chile	112	2289	20.44	23	3	63	1	0	19,629,590	5.71	116.61
15	Nigeria	111	2962	26.68	31	7	62	2	19	230,842,000	0.48	12.83
16	Russia	105	3028	28.84	32	5	65	1	18	145,805,947	0.72	20.77
17	Spain	105	2889	27.51	29	4	61	2	14	47,278,000	2.22	61.11
18	Poland	100	2007	20.07	28	1	58	0	13	38,008,000	2.63	52.80
19	Iran	100	1817	18.17	25	2	51	0	8	88,608,000	1.13	20.51
20	Germany	98	2908	29.67	29	6	64	3	3	83,695,000	1.17	34.75
21	Italy	89	2338	26.27	23	4	46	2	5	59,618,000	1.49	39.22
22	Sweden	82	1624	19.8	24	2	41	0	0	10,452,000	7.85	155.38
23	Brazil	71	1171	16.49	20	0	38	0	3	216,284,000	0.33	5.41
24	Taiwan	65	1680	25.85	24	2	36	0	14	23,923,276	2.72	70.22
25	Japan	65	1316	20.25	21	2	40	0	10	125,220,000	0.52	10.51
26	South Korea	61	1387	22.74	21	2	36	1	10	51,844,000	1.18	26.75
27	Tunisia	60	1453	24.22	23	1	36	0	7	12,458,223	4.82	116.63
28	Ghana	56	1522	27.18	21	2	35	0	5	34,589,092	1.62	44.00
29	Lebanon	56	1373	24.52	22	2	31	0	16	5,479,000	10.22	250.59
30	Netherlands	54	1769	32.76	25	5	37	0	1	17,618,299	3.06	100.41
31	U Arab Emirates	51	1635	32.06	21	5	29	0	17	9,890,402	5.16	165.31
32	Finland	41	1193	29.1	19	1	28	1	3	5,554,000	7.38	214.80
33	Oman	39	976	25.03	18	1	27	0	4	4,520,471	8.63	215.91
34	New Zealand	36	1512	42	17	4	20	2	3	5,160,000	6.98	293.02
35	Portugal	33	521	15.79	13	0	19	0	5	10,298,000	3.20	50.59
36	Bangladesh	30	1275	42.5	15	3	20	1	15	169,828,911	0.18	7.51
37	Norway	30	661	22.03	12	1	16	0	0	5,515,000	5.44	119.85
38	Austria	28	587	20.96	11	1	13	0	3	9,112,000	3.07	64.42
39	Uzbekistan	28	545	19.46	12	0	12	0	10	37,030,884	0.76	14.72
40	Romania	27	580	21.48	14	1	17	0	8	19,129,000	1.41	30.32
41	Peru	27	314	11.63	10	0	10	0	2	34,352,720	0.79	9.14
42	Switzerland	26	256	9.85	9	0	9	0	0	8,864,000	2.93	28.88
43	Greece	24	790	32.92	17	1	20	0	2	10,364,000	2.32	76.23
44	Denmark	24	706	29.42	15	0	15	0	2	5,888,000	4.08	119.90
45	Czech Republic	24	491	20.46	11	1	14	0	5	10,494,000	2.29	46.79
46	Ireland	23	1026	44.61	14	2	16	1	5	5,124,000	4.49	200.23
47	Indonesia	22	347	15.77	9	0	9	0	4	279,134,505	0.08	1.24
48	Belgium	21	794	37.81	12	2	14	0	1	11,631,000	1.81	68.27
49	Jordan	20	224	11.2	10	0	10	0	1	11,484,805	1.74	19.50
50	Egypt	19	508	26.74	10	2	10	0	1	111,247,248	0.17	4.57

Abbreviations are available in the previous tables except: P/Po and C/Po = Papers and cites per million inhabitants.

Table 14
Annual number of papers classified by countries.

R	Country	D1	D2	D3	D4	Total	23	22	21	20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05
1	PR China	1	5	19	1480	1505	740	314	168	108	65	24	28	17	15	1	6	3	3	2	1	2	0	0	2
2	USA	152	71	63	249	535	58	35	36	28	24	24	16	13	10	5	16	7	5	6	3	7	6	4	9
3	UK	104	35	51	216	406	61	43	31	19	18	9	8	10	7	10	6	17	6	1	8	2	3	4	4
4	Australia	44	33	52	227	356	38	25	37	18	32	16	17	14	15	15	18	5	9	5	2	7	2	1	3
5	Pakistan	1	0	1	268	270	102	70	44	17	26	4	2	2	0	1	0	1	0	0	0	0	0	0	0
6	Turkey	0	0	7	223	230	76	51	34	32	16	1	3	4	5	1	3	2	0	0	0	1	0	1	0
7	Canada	39	15	22	120	196	23	21	23	13	13	7	7	6	4	3	3	4	4	3	4	0	1	2	1
8	India	9	5	3	176	193	52	37	24	15	20	7	7	5	6	3	1	0	0	0	0	0	1	1	0
9	France	10	3	7	156	176	31	25	28	14	25	12	9	4	8	0	3	1	1	0	0	1	0	1	0
10	Malaysia	0	0	1	140	141	71	28	16	9	5	1	6	4	0	0	1	0	0	0	0	0	0	0	0
11	Saudi Arabia	0	0	0	138	138	74	22	16	15	10	0	0	0	1	0	0	0	0	0	0	0	0	0	0
12	South Africa	4	2	14	108	128	28	16	15	8	4	22	7	3	3	2	2	6	1	1	1	0	0	3	0
13	Vietnam	0	0	0	122	122	32	31	28	20	8	1	1	1	0	0	0	0	0	0	0	0	0	0	0
14	Chile	5	5	23	79	112	9	10	24	6	10	8	5	2	3	2	1	1	3	7	1	3	4	0	3
15	Nigeria	0	3	2	106	111	33	27	25	10	6	0	1	2	2	0	0	1	0	0	0	1	0	0	0
16	Russia	1	0	3	101	105	29	21	26	11	5	1	2	2	4	0	1	1	0	1	0	0	0	0	0
17	Spain	0	0	7	98	105	28	17	15	9	6	4	6	3	7	3	2	1	1	0	0	0	0	1	2
18	Poland	0	2	3	95	100	25	16	15	5	10	4	7	6	5	2	0	0	0	0	0	1	0	1	1
19	Iran	0	0	3	97	100	28	24	13	6	9	6	6	1	2	2	1	1	0	0	0	1	0	0	0
20	Germany	3	1	12	82	98	12	11	10	8	12	3	6	9	9	2	4	1	2	0	3	1	1	0	0
21	Italy	1	4	4	80	89	20	14	13	8	5	12	2	3	3	0	2	0	1	0	0	0	0	1	0
22	Sweden	14	8	15	45	82	8	7	6	3	6	3	2	3	4	3	3	1	5	0	2	2	1	1	0
23	Brazil	3	4	5	59	71	10	10	13	7	6	4	4	2	2	1	2	0	0	1	1	0	0	1	0
24	Taiwan	0	2	4	59	65	28	14	7	1	4	1	1	1	1	1	0	0	1	0	0	0	1	2	0
25	Japan	1	12	5	47	65	15	6	10	2	3	2	3	3	2	1	1	0	2	0	0	0	0	0	2
26	South Korea	1	0	4	56	61	20	11	14	3	4	0	3	1	0	0	0	0	2	1	0	0	0	1	0
27	Tunisia	0	0	0	60	60	20	6	21	6	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0
28	Ghana	0	3	5	48	56	16	12	12	2	3	2	0	0	1	0	0	1	0	1	2	0	0	1	0
29	Lebanon	0	0	0	56	56	34	7	8	2	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0
30	Netherlands	2	4	3	45	54	5	4	6	2	3	6	8	7	3	1	1	1	0	0	0	0	0	1	0
31	U Arab Emirates	0	0	0	51	51	20	14	9	3	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0
32	Finland	2	1	0	38	41	4	6	6	4	4	4	2	3	4	1	0	0	0	0	0	0	0	0	0
33	Oman	0	0	0	39	39	14	6	12	4	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
34	New Zealand	4	0	4	28	36	7	2	12	4	2	0	1	0	0	0	1	1	0	1	0	0	1	0	0
35	Portugal	0	0	0	33	33	15	5	5	3	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0
36	Bangladesh	0	0	1	29	30	16	9	1	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0
37	Norway	1	3	3	23	30	4	3	7	2	1	2	3	1	0	0	0	1	0	0	1	0	0	0	1
38	Austria	2	1	2	23	28	8	3	5	2	1	1	1	1	1	0	1	0	0	1	0	0	0	0	0
39	Uzbekistan	0	0	0	28	28	22	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Romania	0	0	1	26	27	16	3	3	1	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0

Abbreviations are available in the previous tables.

most productive countries in *Resources Policy*.

Finally, we summarize the publications of the countries in the supranational regions shown in Table 11. The objective is to see at a general scale, the productivity of the different regions of the world. Table 15 presents the results. Similar to Tables 13 and it considers different bibliometric indicators including the total number of papers and citations, the cites per paper, the *h*-index, the number of documents with equal or more than 10 and 100 citations, the number of papers in the Top 50 of Table 5, the number of articles selected by WoS – ESI as Highly Cited Papers, and the documents and cites per million inhabitants.

Eastern Asia is the most productive region closely followed by Europe. However, when normalizing the results per capita, Europe performs a bit better. All the regions obtain quite good results having many publications in the journal. Oceania obtains the best results when considering papers and cites per million inhabitants.

4. Mapping *Resources Policy* with the VOS viewer software

4.1. General overview

To analyse deeper the results of Section 3, this section develops a graphical mapping of the bibliographic data by using VOS viewer software (Van Eck and Waltman, 2010). The software collects the data by generating graphical maps by using different bibliometric techniques including co-citation (Small, 1973), bibliographic coupling (Kessler, 1963), and co-occurrence of author keywords (Merigó et al., 2018). Note that in the literature there is a wide range of software packages for dealing with bibliometric information (Cobo et al., 2011).

First, we investigate co-citation analysis of journals. Recall that co-citation occurs when two documents receive a citation from the same third paper. For journals, this link appears when two journals receive a citation from the same document. Fig. 2 presents the co-citation analysis of *Resources Policy*. To appear on the map, there is a minimum threshold of 100 citations. Note that the size of the circles indicates the number of citations, so the bigger the circle, the more cited the journal.

The self-citations of *Resources Policy* are the most representative cites in the journal. This result is very common in most journals because research published usually engages previous research published in the same outlet. Some other journals well cited are *Energy Economics*, *Journal of Cleaner Production*, *Energy Policy* and *Environmental Science and Pollution Research*. The figure visualizes four main clusters. The first cluster (red) includes *Resources Policy* and the *Journal of Cleaner Production* and connects with many journals around the main topics of the journal, especially, mineral economics. The second cluster (yellow) groups several journals in the field of Energy and Environmental Sciences. The third cluster (green) includes many journals in economics and finance around *Energy Economics*. The fourth cluster (blue)

Table 15
Publication structure classified by supranational regions.

R	Region	TP	TC	C/P	H	≥100	≥10	T50	HCP	Population	P/Pop	C/Pop
1	Asia	2294	57336	24.99	99	96	1296	26	440	4,700,000,000	0.49	12.20
	Eastern Asia	1616	40003	24.75	84	61	911	18	373	1,600,000,000	1.01	25.00
	Middle East	612	16202	26.47	65	31	356	3	123	350,000,000	1.75	46.29
	Rest of Asia	713	23298	32.68	79	52	438	14	192	2,750,000,000	0.26	8.47
2	Europe	1301	33811	25.99	86	64	707	19	120	750,000,000	1.73	45.08
3	North America	718	13195	18.38	53	20	300	8	19	380,000,000	1.89	34.72
4	Africa	440	10099	22.95	50	16	239	4	40	1,400,000,000	0.31	7.21
5	Oceania	390	10851	27.82	51	20	232	10	26	31,000,000	12.58	350.03
6	Latin America	247	4418	17.89	33	4	128	1	13	660,000,000	0.37	6.69

Abbreviations available in the previous tables.

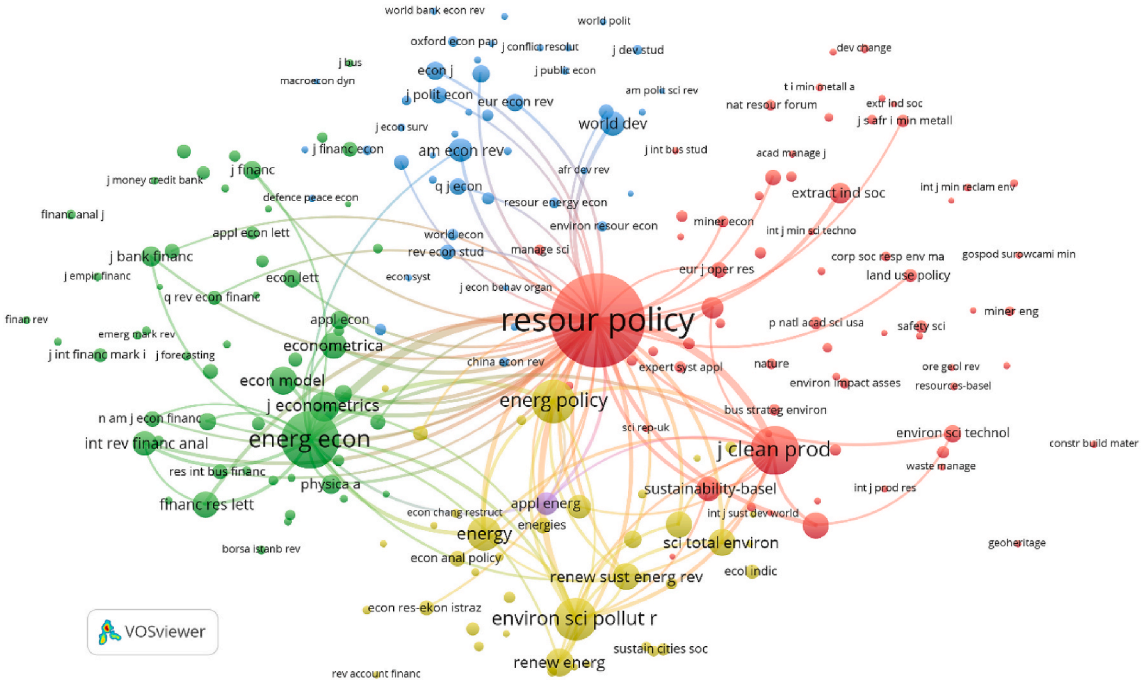

Fig. 2. Co-citation of journals cited in *Resources Policy*: minimum citation threshold of 100 and 100 links.

represents general economics journals that are frequently cited in *Resources Policy*.

Next, we analyse the co-citations through time. To do so, we consider the four periods that have been used in the previous section: 1974–1993, 1994–2003, 2004–2013, 2014–2023. First, we analyse co-citations of *Resources Policy* between 1974 and 1993. Fig. 3 shows the results considering a minimum threshold of five citations and visualizes the 50 most representative co-citation links.

The self-citations are the most common in the journal. In this period, the clusters are more dispersed although there is a large group around mining and resources, and another group mainly connected to economics.

Fig. 4 presents the co-citations between 1994 and 2003. In this graph, the minimum citation threshold is five and it includes the 100 strongest co-citation links. The results are quite similar to the previous period where the self-citations of *Resources Policy* are the most representative and the groups are dispersed although we see two main groups around mining and resources, and economics.

Fig. 5 shows the co-citations between 2004 and 2013. This map considers a minimum threshold of ten citations and visualizes the 100 most representative co-citation links. In this case, the formation of clusters seems to be more evident, and we start to see a general alignment with the general structure of the co-citations presented in Fig. 2. However, the citations to energy and environmental journals are still low.

Fig. 6 presents the co-citations between 2014 and 2023 considering a minimum threshold of 100 citations and the 100 strongest co-citation links. The results are well aligned with the main structure shown in Fig. 2 where we have four general clusters: mineral economics, energy and environmental sciences, economics and finance strongly connected to *Energy Economics*, and general economics journals.

To complete the analysis of the co-citation of journals, we summarize the graphical results of the citations. Table 16 presents the 40 most cited journals in *Resources Policy* including the results for the four periods mentioned above.

As we can see, the self-citations of *Resources Policy* are by far the most common citations in the papers published in the journal. Some other highly cited journals are *Energy Economics*, *Journal of Cleaner Production*, *Energy Policy*, and *Environmental Science and Pollution Research*. Currently, energy and environmental science journals lead the list. However, if we look at the first three decades, we see that economics journals were more cited. The reason for not appearing in the first positions of the global table is that in these three decades, the number of documents published in the journal was very low compared to the number of papers published in the last years. Some of the most cited economics journals in the first thirty years of *Resources Policy* are the *American Economic Review*, *Econometrica*, and the *Journal of Political Economy*.

Another interesting issue is to analyse the co-citation of documents. That is, those documents that receive citations from the same papers. Fig. 7 visualizes the results considering a minimum threshold of 50

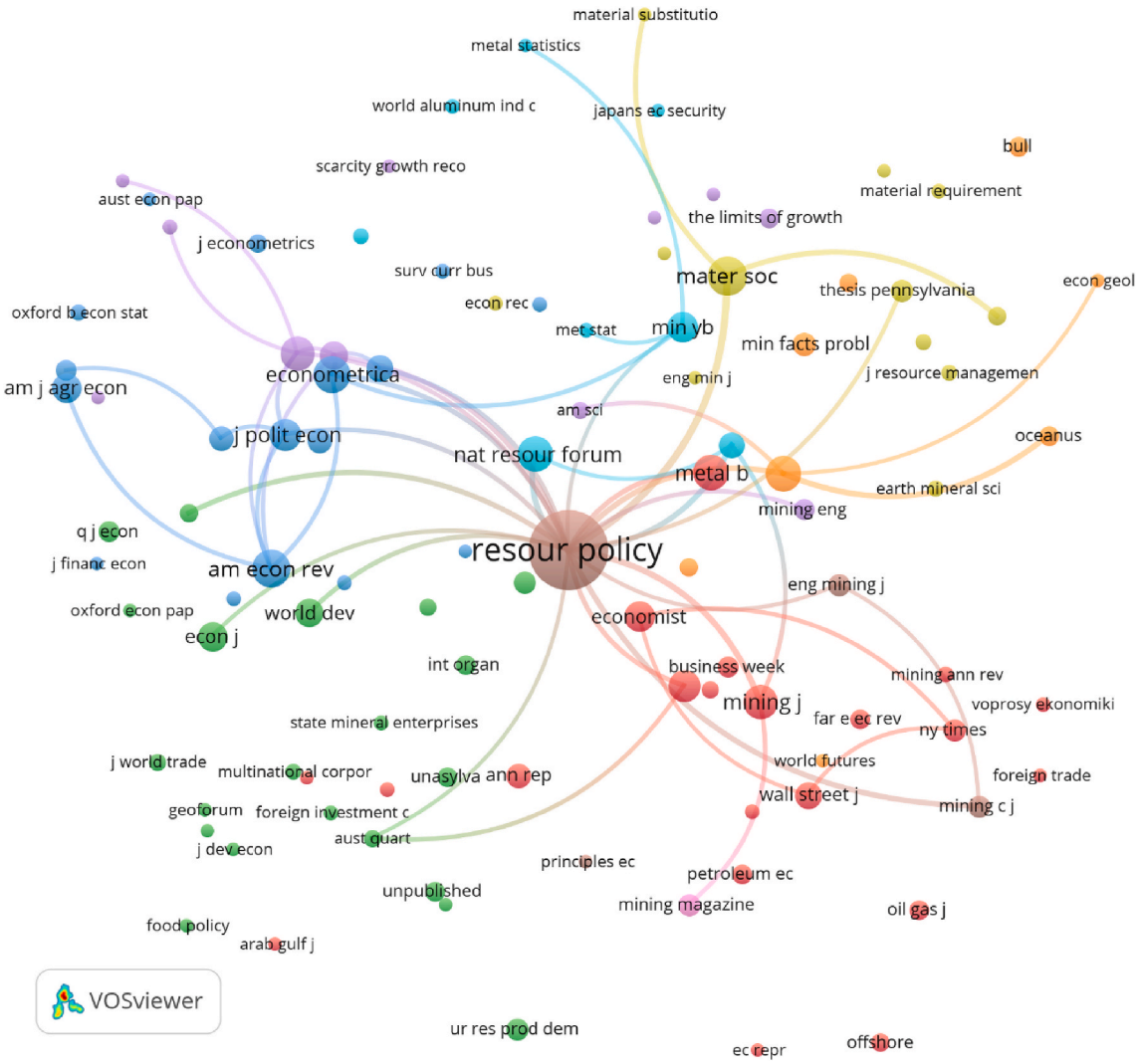

Fig. 3. Co-citation of journals in *Resources Policy*: 1974–1993 (minimum citation threshold of 5 and 50 links).

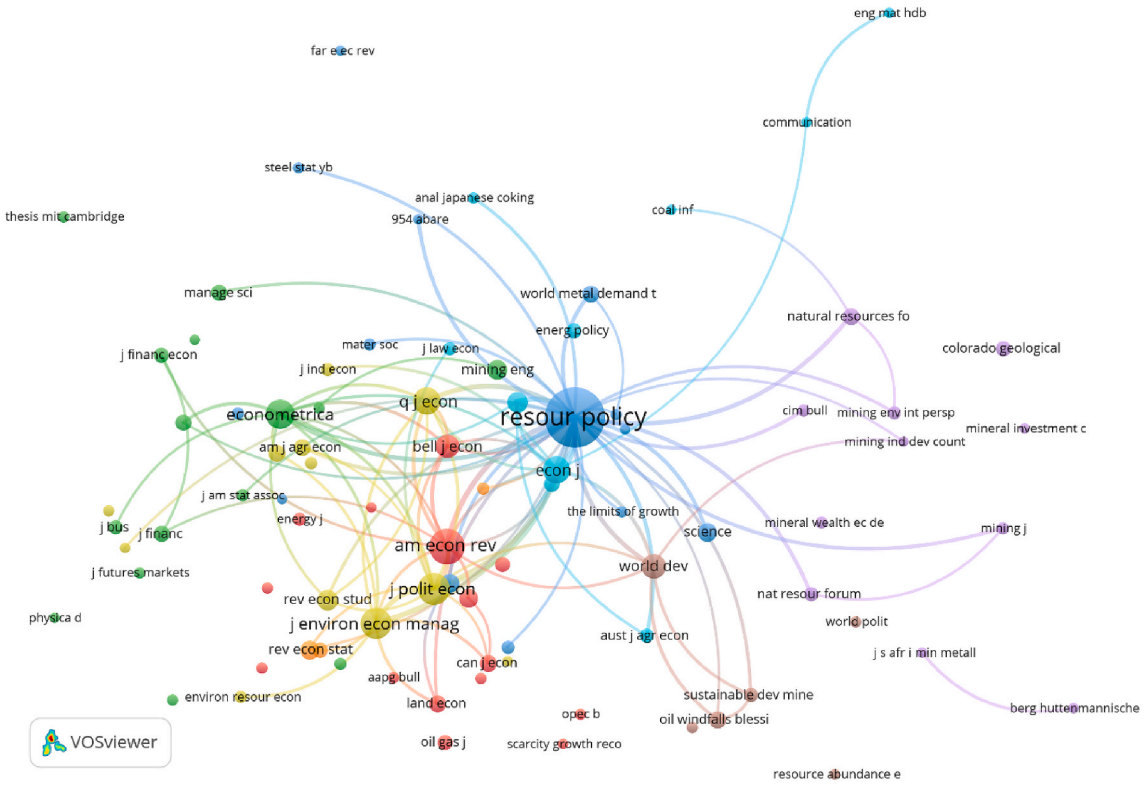

Fig. 4. Co-citation of journals in *Resources Policy*: 1994–2003 (minimum citation threshold of 5 and 100 links).

citations and the 200 strongest co-citation links.

When looking at documents, it is interesting to mention that the most cited documents are mostly from economics journals. Particularly, it is worth noting the work of Mohammad Hashem Pesaran, Francis X. Diebold, and Jeffrey D. Sachs. Some classic papers written by Nobel prize winners also appear including the classic work of Clive W.J. Granger published in *Econometrica* in 1969 and the work of Robert F. Engle published in *Econometrica* in 1982. Many papers from *Resources*

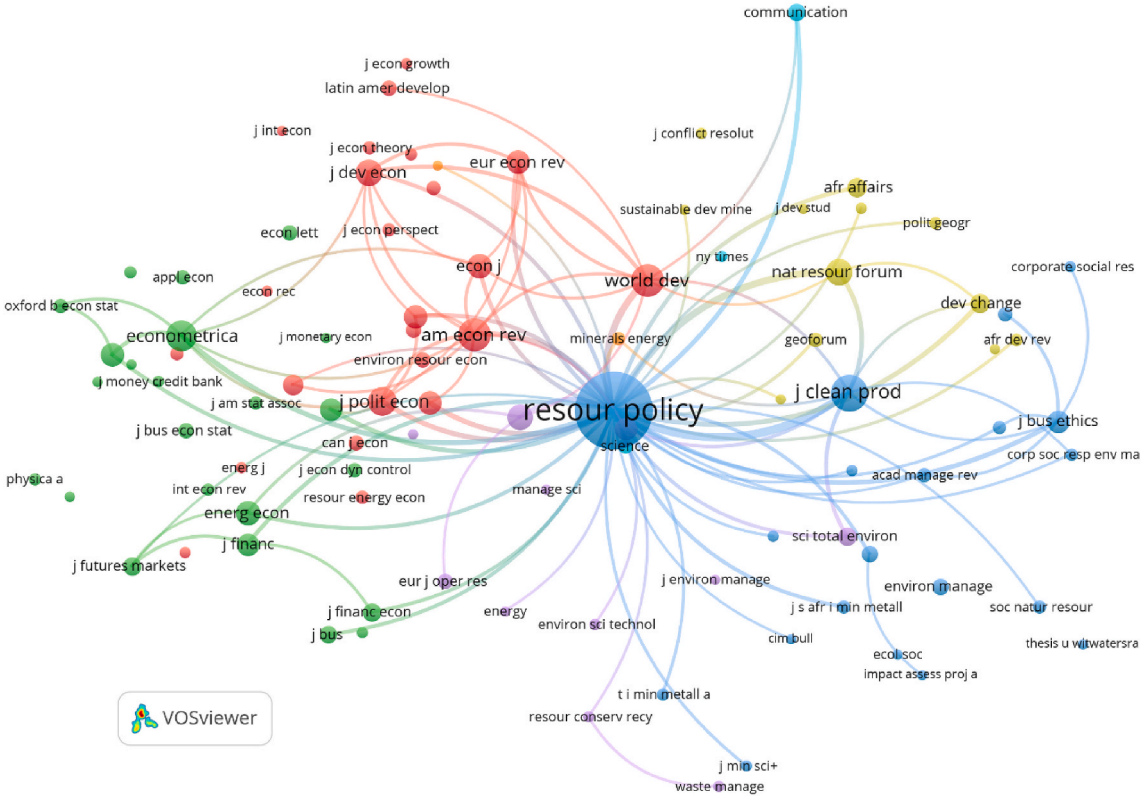

Fig. 5. Co-citation of journals in *Resources Policy*: 2004–2013 (minimum citation threshold of 10 and 100 links).

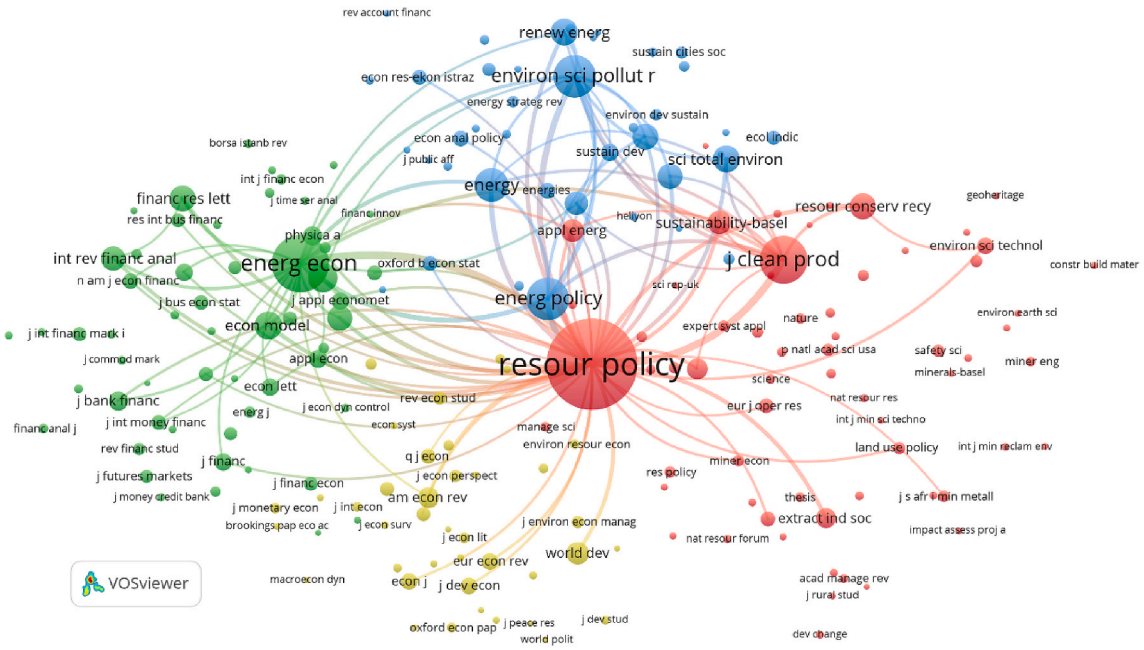

Fig. 6. Co-citation of journals in *Resources Policy*: 2014–2023 (minimum citation threshold of 100 and 100 links).

Policy are also relevant in this general co-citation map.

Next, we investigate the co-citation of authors. Note that this approach connects significantly with the previous figure since the authors studied are those who published highly cited documents in Fig. 7. Fig. 8 presents the results. The authors that appear in the figure have received at least 100 citations in *Resources Policy*. The network links visualize the 100 most representative co-citation links.

The most cited author is Mohammad Hashem Pesaran thanks to his influential papers in econometrics that have significantly influenced many papers published in *Resources Policy*. Some other authors highly cited in the journal and more connected to the core topics of *Resources Policy* are Gavin Hilson, Walid Mensi, Chi Wei Su, Dirk G. Baur, and Zeeshan Khan. From the general economics perspective and apart from Professor Pesaran, as we have seen in Fig. 7, highly cited authors are Jeffrey D. Sachs and Francis X. Diebold. It is worth noting that documents from the World Bank and the European Commission are also widely cited in the journal.

Another interesting fact is to analyse the bibliographic coupling of documents. Recall that bibliographic coupling occurs when two documents cite the same third paper (Kessler, 1963). Fig. 9 shows the results considering only papers published in *Resources Policy* that have obtained a minimum threshold of 100 citations in the WoS Core Collection. The network links visualize the 200 strongest bibliographic coupling links.

There is a central cluster (green) that includes papers from different periods including the nineties. Two other clusters (blue and purple) mostly include documents from the last five years. The yellow cluster considers articles since 2010. The red and light blue clusters include papers published during the two decades prior to 2018. Note that the top 50 papers from Table 5 are the most representative documents in this figure.

Next, we investigate the bibliographic coupling of authors. Note that in the bibliographic coupling maps (except in Fig. 9), the size of the circle measures the number of documents published and the network links are the bibliographic couplings. Fig. 10 presents the results

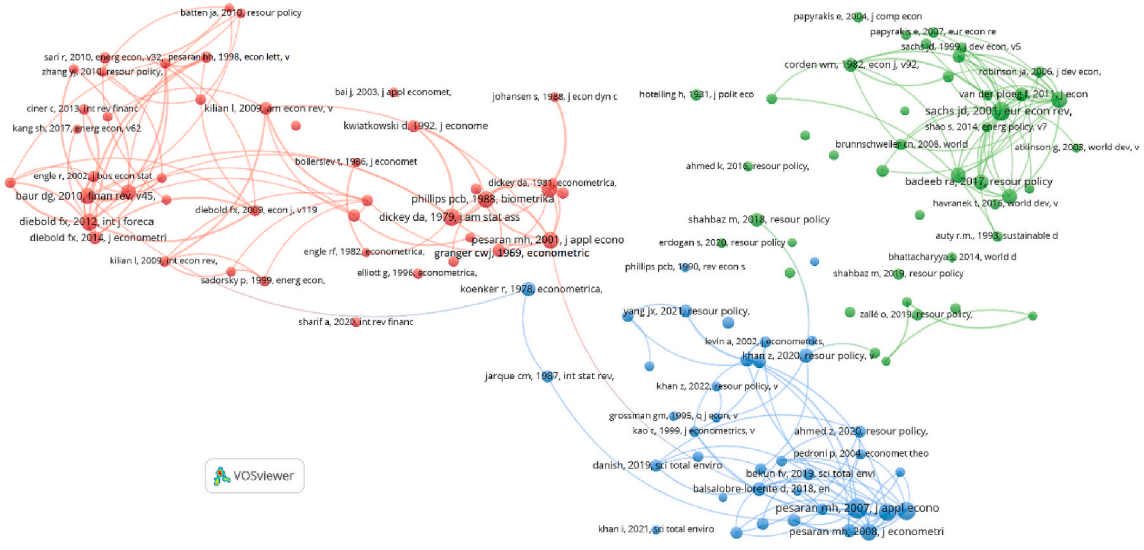

Fig. 7. Co-citation of documents cited in *Resources Policy*: minimum citation threshold of 50 and 100 links.

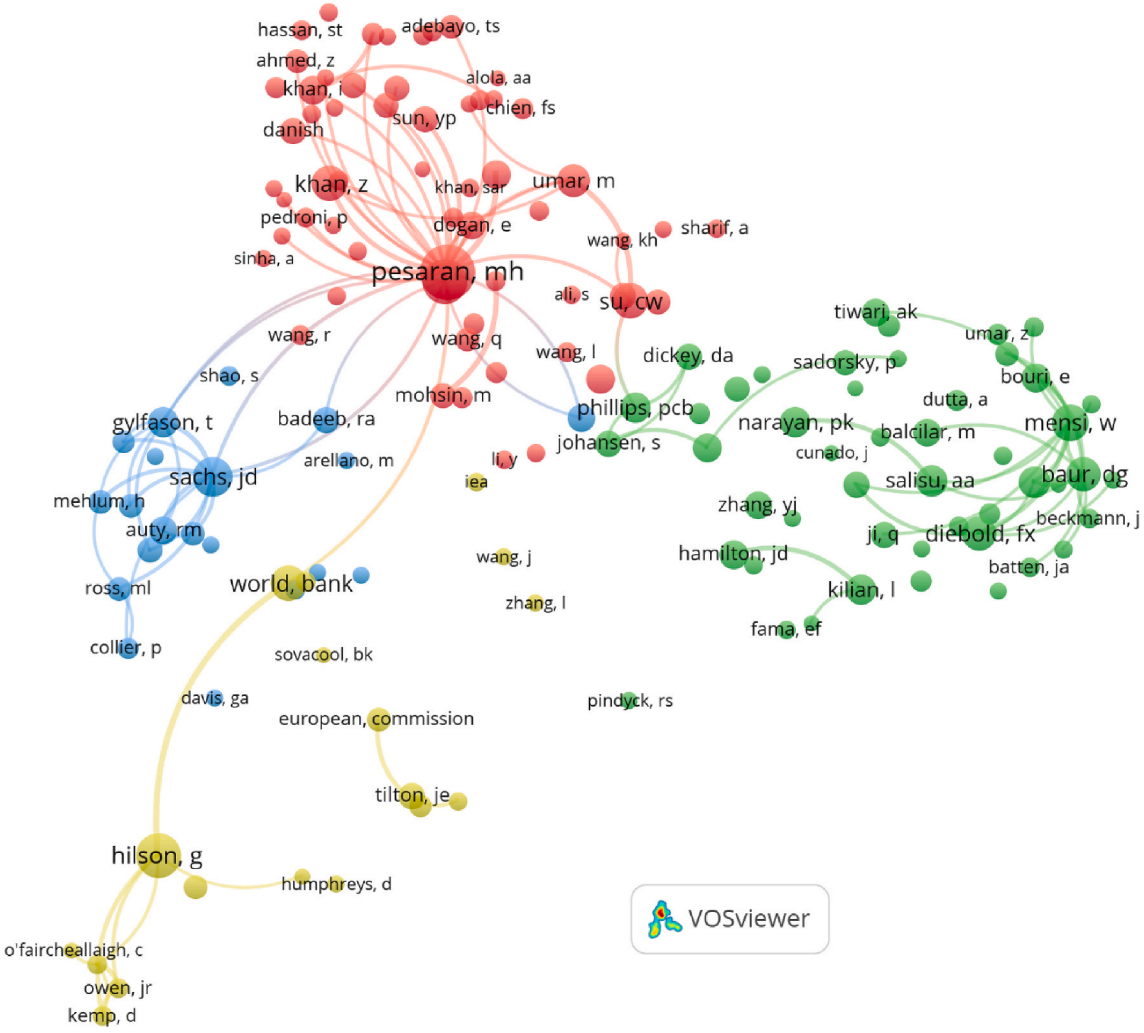

Fig. 8. Co-citation of authors cited in *Resources Policy*: minimum citation threshold of 100 and 100 links.

considering a minimum threshold of five documents published in the journal and the 200 most representative bibliographic coupling links.

The results follow the results in Table 8 where the 50 most productive authors appear in this figure as the most productive ones. Additionally, they also represent the main cores for the bibliographic coupling links. The red cluster includes authors that have published in the journal a long time ago. The blue, green, and yellow clusters visualize authors that have published mostly in the last five or ten years.

Another interesting issue is to analyse the institutions that publish frequently in *Resources Policy*. Note that these institutions are connected to the author affiliation at the time of publication of a document. To do so, we develop a bibliographic coupling of institutions. Fig. 11 visualizes the results by using a minimum publication threshold of ten documents and the 100 strongest bibliographic coupling links.

The China University of Geosciences is the most productive institution followed by the Central South University (China). The clusters in purple, green, blue, and yellow are mostly from institutions that have published most of their papers during the last five or ten years. On the other hand, the red cluster includes institutions that have published regularly in the journal over the last 50 years. Another interesting issue from the red cluster is that most of the institutions are from developed countries while the other clusters are mainly formed by developing countries. Note that the results in Fig. 11 are in accordance with the results presented in Table 10.

Next, we extend the analysis made for institutions to countries. That is, the countries of the institutions of the authors affiliation at the time of publication. To do so, Fig. 12 presents the bibliographic coupling of countries that publish in *Resources Policy* considering a minimum publication threshold of five papers and the 50 most significant bibliographic coupling links.

China is by far the most productive country in the journal followed by the USA, the UK, Australia, and Pakistan. The red cluster mostly includes developed countries while the green cluster visualizes mostly developing countries. The rest of the clusters do not include many publications and are not as widely connected as the red and green clusters. Note that the reason for this is that the link connectivity visualizes only the 50 strongest connections. Also, note that the results in Fig. 12 follow the results in Table 13.

4.2. Keyword and topical analysis

This section analyses the most popular keywords and topics published in *Resources Policy*. To do so, first, we utilise VOS viewer software to generate maps based on co-occurrence of author keywords. Recall that co-occurrence of author keywords occurs when two keywords appear in the same document (Laengle et al., 2017). Fig. 13 presents the general co-occurrence of author keywords in the journal considering a minimum occurrence threshold of ten documents and the 100 most representative co-occurrence links.

Natural resources is by far the most common keyword in the journal followed by China, mining, economic growth, and sustainable development. The figure visualizes mainly five clusters. The green cluster is

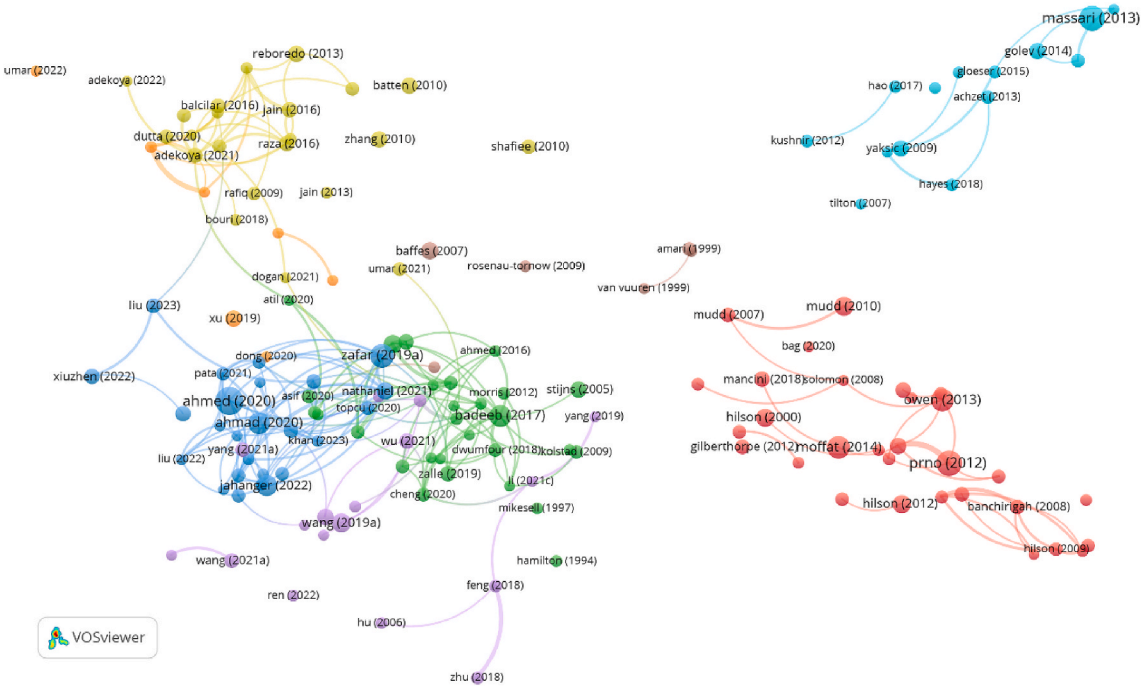

Fig. 9. Bibliographic coupling of documents published in *Resources Policy*: minimum threshold of 100 citations and 200 links.

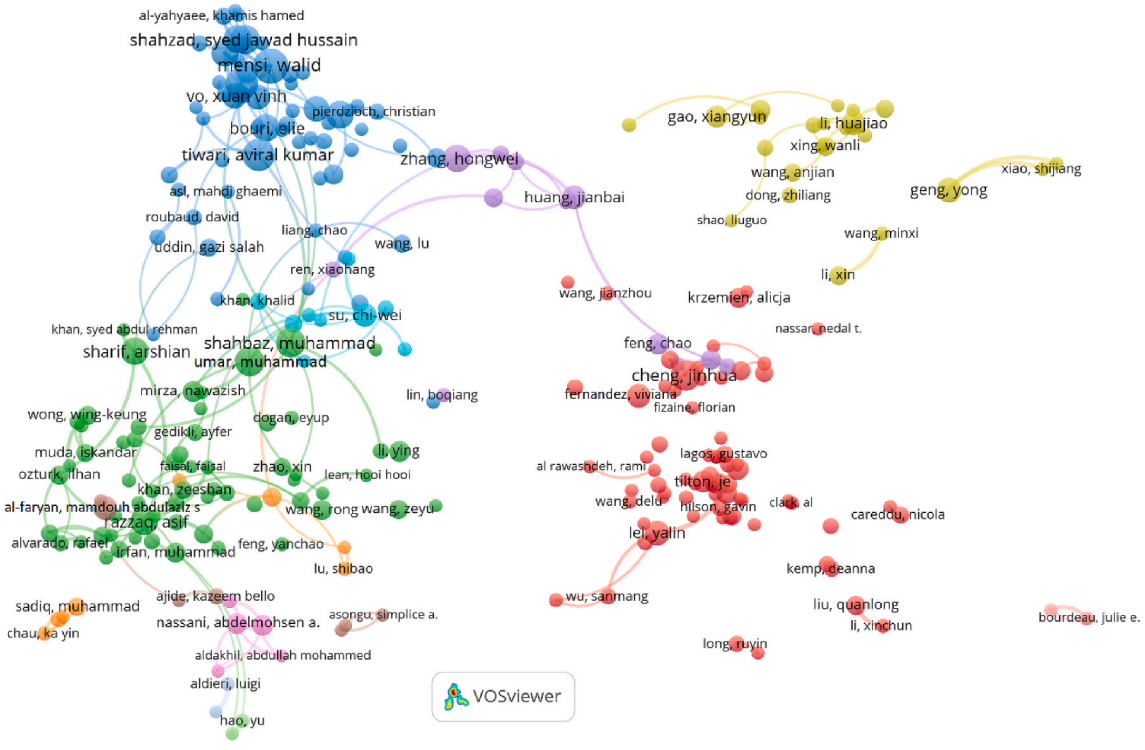

Fig. 10. Bibliographic coupling of authors publishing in *Resources Policy*: minimum publication threshold of 5 documents and 200 links.

built around natural resources although we find keywords from different fields. The red cluster is mainly cantered around Covid-19 with some influence from gold. In this cluster, we find many resources, including oil and precious metals. The yellow cluster is based on mining and related topics. The blue cluster is quite central and includes China and sustainability. The purple cluster is built basically with sustainable development and resource curse.

Next, we develop a geographical classification of the results. First, we present graphically the three most representative regions: North America, Europe, and East Asia. Later, the study will present a general table that divides the World into eight regions and presents the 20 most popular keywords for each region. By doing this, the aim is to provide a comprehensive overview of the most popular keywords and topics published in the journal by authors established in different countries around the world. Recall that these regions depend on the author affiliation and not on the author nationality. Therefore, we identify

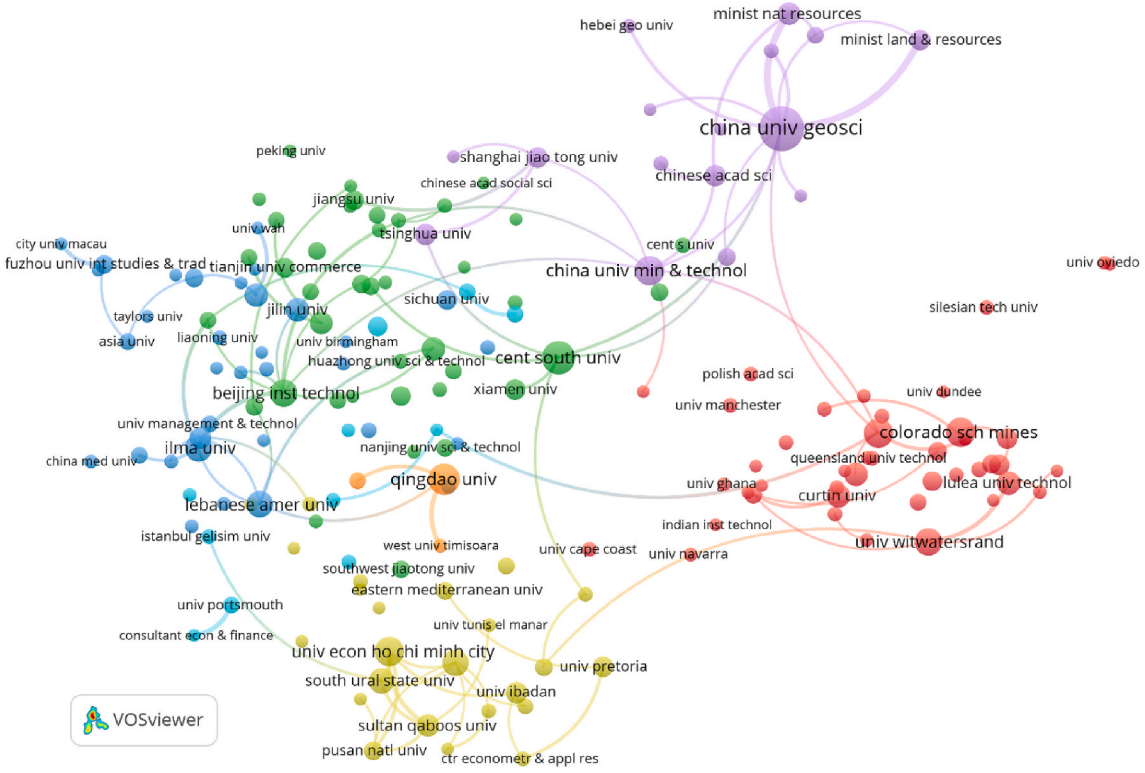

Fig. 11. Bibliographic coupling of institutions publishing in *Resources Policy*: minimum publication threshold of 10 documents and 100 links.

researchers working in these countries independently that they are citizens or not.

Fig. 14 shows the co-occurrence of author keywords for the documents published in *Resources Policy* by authors working at North American institutions. The figure considers a minimum occurrence threshold of three documents and the 100 strongest co-occurrence links.

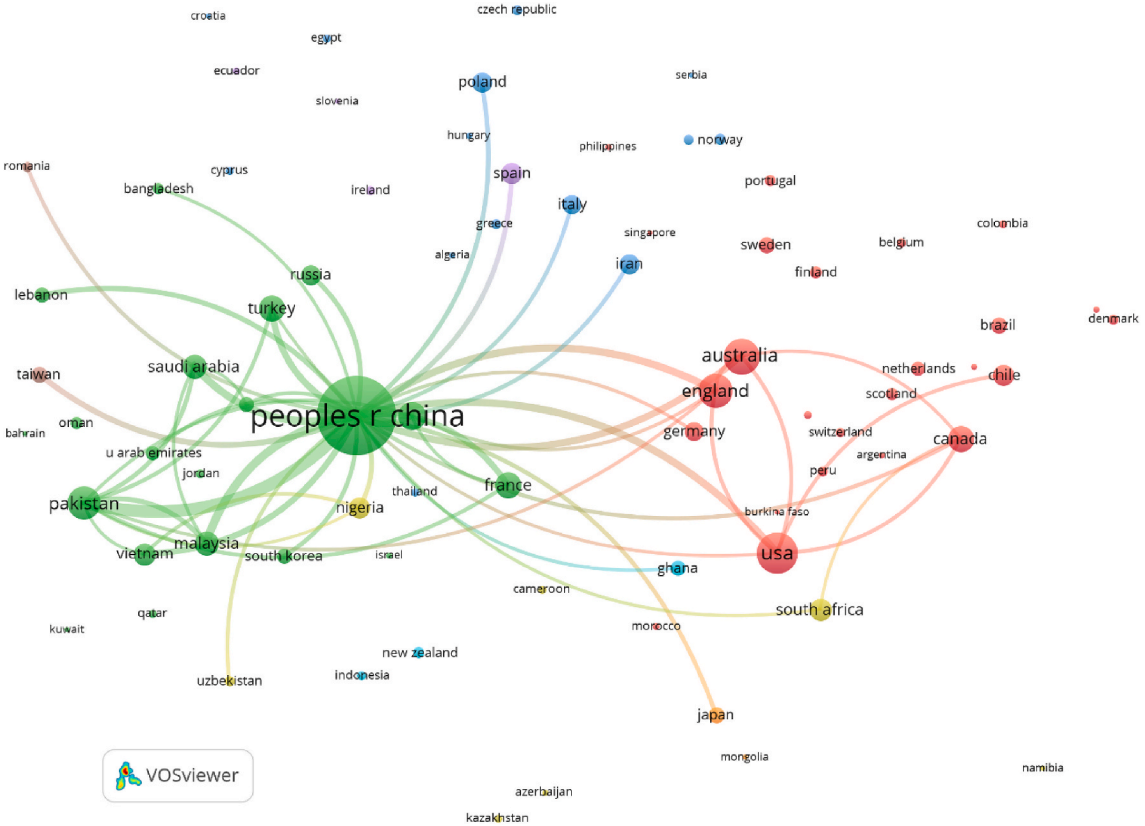

Fig. 12. Bibliographic coupling of countries publishing in *Resources Policy*: minimum publication threshold of 5 documents and 50 links.

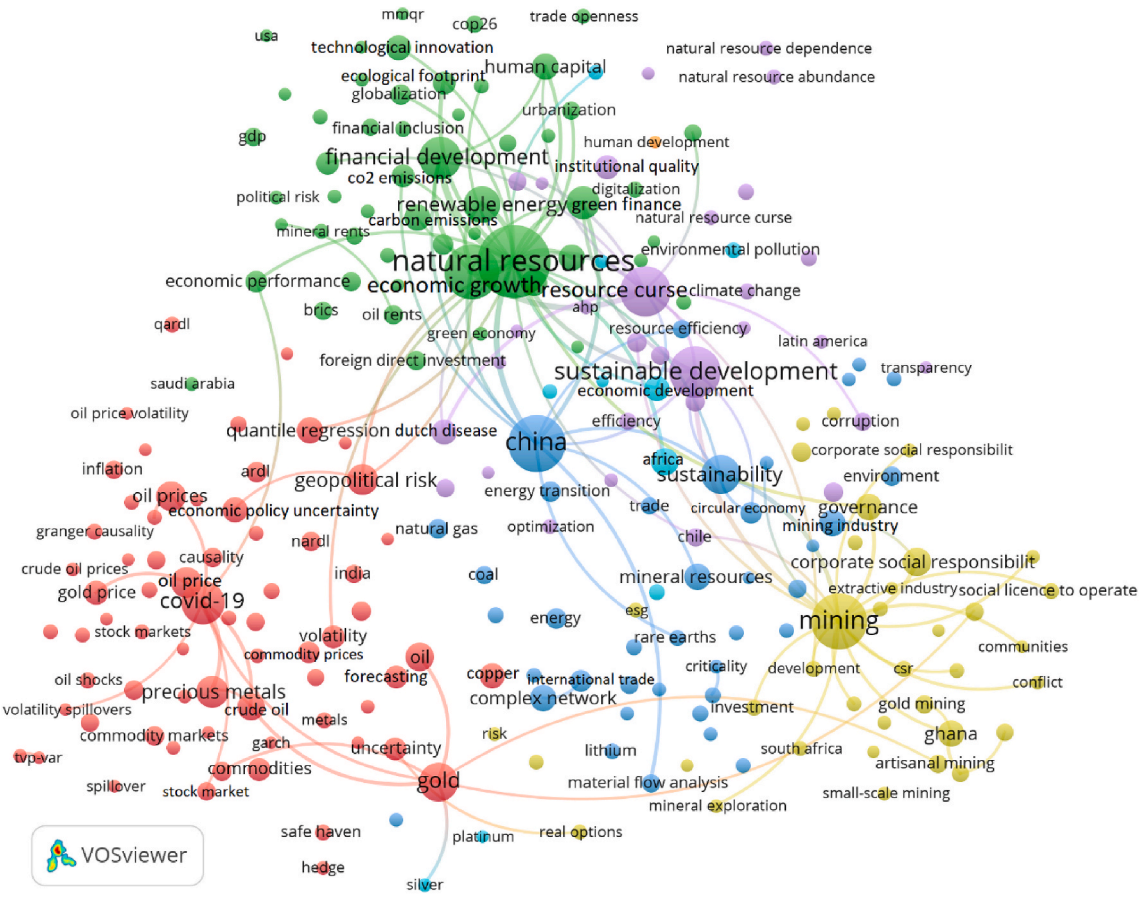

Fig. 13. Co-occurrence of author keywords in *Resources Policy*: minimum occurrence threshold of 10 and 100 links.

Mining is the most popular keyword used by North American authors followed by resource course, natural resources, and sustainability. There is a wide dispersion in the formation of the clusters, with keywords from different fields. Many natural resources appear in the figure including oil, natural gas, copper, and water.

Next, we investigate the results for Europe. Fig. 15 shows the co-occurrence of author keywords for the publications of European institutions. Since Europe has published more documents in *Resources Policy* than North America, in this case, the figure uses a minimum occurrence threshold of five documents and the 100 most representative co-occurrence links.

Natural resources is the most popular keyword followed by mining and resource curse. Gold, economic growth, and Covid-19 have also become very popular among authors working at European universities. Note that in the European publications there is less dispersion in the keyword clusters. The red cluster is well consolidated around gold, Covid-19, and precious metals. The yellow cluster is based on natural resources, the purple cluster is around mining and resource curse, and the light blue cluster is mainly on sustainability and sustainable development.

Fig. 16 presents the co-occurrence of author keywords for the documents published by Eastern Asian institutions. Note that most of the results are from Chinese researchers. The figure uses a minimum occurrence threshold of five documents and 100 co-occurrence links.

Natural resources is the most popular keyword followed by China, economic growth, and sustainable development. Similar to the European results, there is a well-consolidated red cluster around Covid-19, geopolitical risk, gold, and oil. From a general point of view, the rest of the results have strong similarities with those from Europe indicating that the work of European and Eastern Asian researchers follows similar research lines.

For other regions, we briefly investigate the results in Table 17, which presents the 20 most frequent keywords for each of the eight regions. Note that in America and Oceania, the most popular keyword is mining while in the rest of the World, the most popular keyword is natural resources. Natural resources is also highly ranked in America and Oceania. But mining is not highly ranked in the rest of the regions except Europe and Africa.

From a general point of view, some general keywords appear in all or most of the regions, while some other keywords are only used by a small number of regions. For example, in the case of North America, we see some very common keywords such as mining, natural resources, resource curse, and sustainability. Additionally, some keywords connect with other regions, such as Ghana and gold with Africa, and Chile and copper with Latin America. Covid-19 is very common in Europe, Africa, and Asia. In Oceania, it is worth noting corporate social responsibility that is ranked in the second place. Next, we investigate the temporal evolution of the keywords in Resources Policy. Note that in the first decades, the journal did not use author keywords. Therefore, the analysis is only focused on the last decades: 2014–2023, 2004–2013, and 1994–2003. Table 18 presents the forty most popular keywords of the journal classifying the results in three decades.

As we can see, the results are in accordance with those presented before in the figures. Natural resources is by far the most popular keyword published in the journal, followed by China, mining, and economic growth. Note that natural resources is ranked first due to the results from the last decade. For papers published before 2014, the most popular keyword is mining, followed by corporate social responsibility, resource curse, and sustainable development. Covid-19 has been widely used in the journal reaching the seventh position. Oil and gold are also very common keywords. Note that if oil and gold are analysed together with oil price (and crude oil) and gold price, these keywords would be

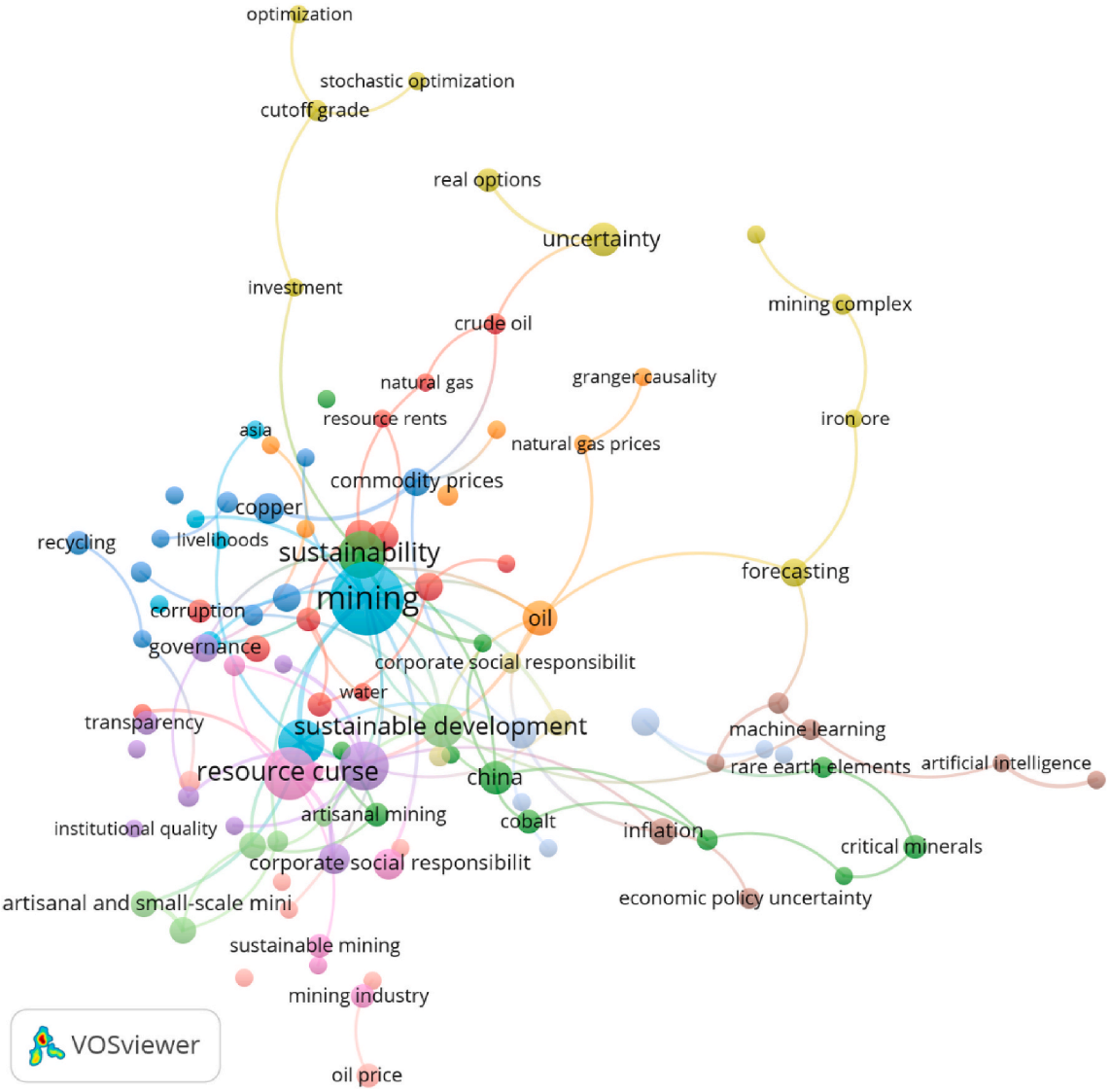

Fig. 14. Co-occurrence of author keywords in *Resources Policy*: North America (minimum occurrence threshold of 3 and 100 links).

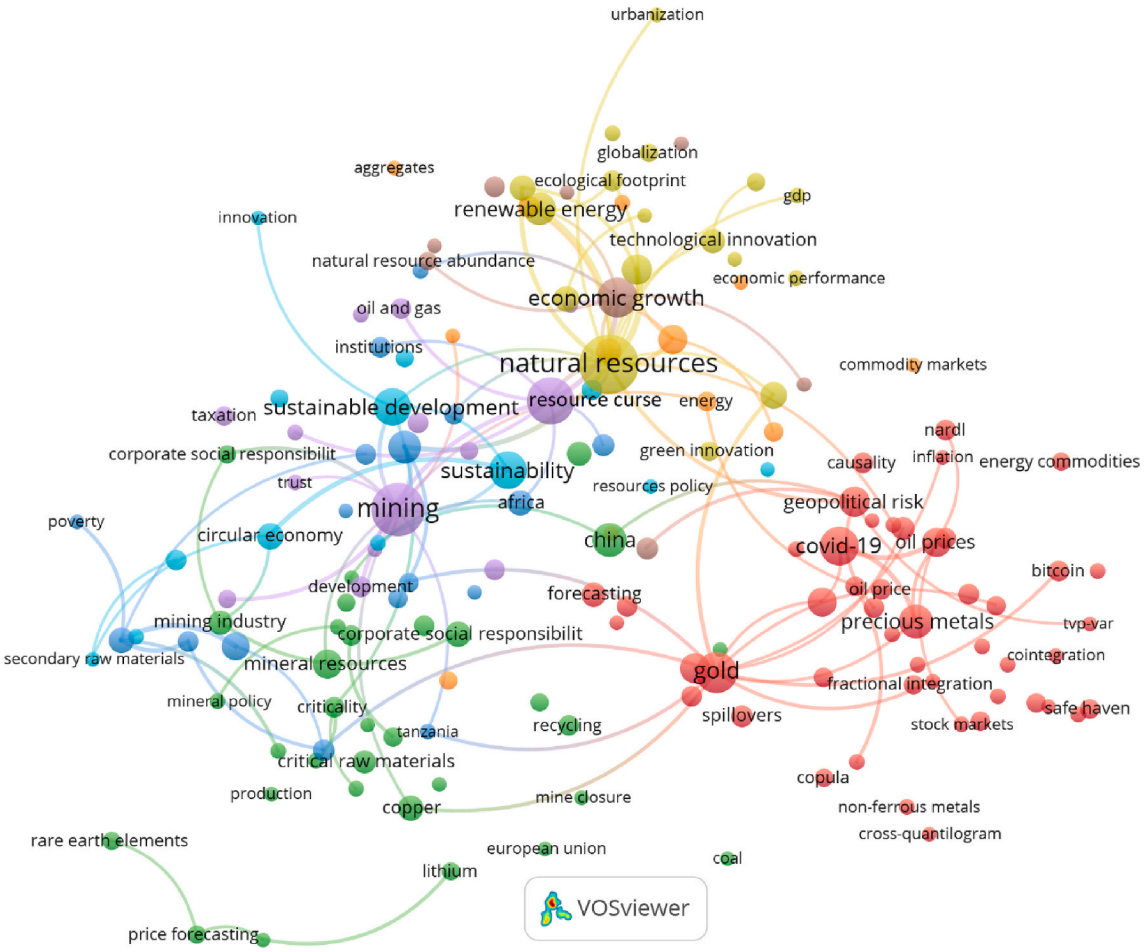

Fig. 15. Co-occurrence of author keywords in *Resources Policy*: Europe (minimum occurrence threshold of 5 and 100 links).

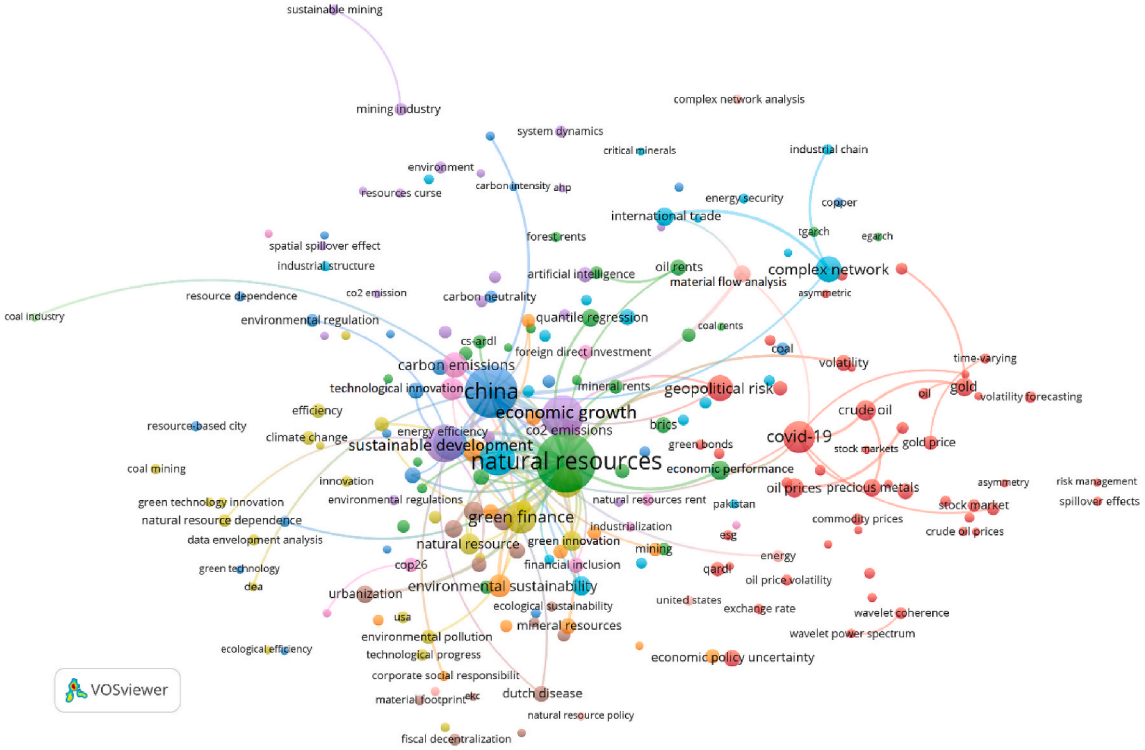

Fig. 16. Co-occurrence of author keywords in *Resources Policy*: East Asia (minimum occurrence threshold of 5 and 100 links).

Table 16
Citations of journals cited in *Resources Policy*: Global and temporal analysis.

R	Global		2014–2023		2004–2013		1994–2003		1974–1993	
	Journal	Cit	Journal	Cit	Journal	Cit	Journal	Cit	Journal	Cit
1	Resour Policy	19525	Resour Policy	18661	Resour Policy	543	Resour Policy	154	Resour Policy	167
2	Energ Econ	7498	Energ Econ	7436	J Clean Prod	121	Am Econ Rev	54	Nat Resour Forum	52
3	J Clean Prod	5262	J Clean Prod	5139	World Dev	98	J Polit Econ	44	Mater Soc	41
4	Energ Policy	4272	Energ Policy	4199	Am Econ Rev	96	J Environ Econ Manag	42	Am Econ Rev	38
5	Environ Sci Pollut R	4063	Environ Sci Pollut R	4062	Econometrica	86	Econometrica	37	Econometrica	36
6	Energy	2663	Energy	2644	J Polit Econ	77	Econ J	32	Metal Bulletin	33
7	J Econometrics	2048	J Econometrics	1979	Nat Resour Forum	65	Q J Econ	32	Science	33
8	Econ Model	1741	Econ Model	1736	J Dev Econ	63	World Dev	25	J Environ Econ Manag	32
9	Renew Energ	1727	Renew Energ	1723	Energ Policy	60	Bell J Econ	24	Mining J	32
10	Sci Total Environ	1693	Sci Total Environ	1661	Econ J	55	Nat Resour Forum	21	Communication	28
11	Renew Sust Energ Rev	1620	Renew Sust Energ Rev	1613	Energ Econ	54	Econ Rec	19	J Polit Econ	28
12	Econometrica	1588	Financ Res Lett	1558	Eur Econ Rev	52	Rev Econ Stud	18	Economist	25
13	Financ Res Lett	1559	Resour Conserv Recy	1533	J Environ Econ Manag	51	Mining Eng	17	Am J Agr Econ	23
14	Resour Conserv Recy	1550	J Environ Manage	1506	Q J Econ	50	Ecol Econ	16	Econ J	23
15	J Environ Manage	1523	Econometrica	1429	J Econometrics	49	Resour Energ	15	Rev Econ Stud	22
16	Int Rev Financ Anal	1363	Int Rev Financ Anal	1362	J Bus Ethics	48	Rev Econ Stat	15	World Dev	22
17	World Dev	1342	Sustainability-Basel	1313	Rev Econ Stat	48	Science	15	Bell J Econ	19
18	Sustainability-Basel	1313	Technol Forecast Soc	1233	Ecol Econ	47	Am J Agr Econ	13	Wall Street J	19
19	Technol Forecast Soc	1244	World Dev	1197	J Financ	47	Can J Econ	13	Rev Econ Stat	17
20	Am Econ Rev	1221	Appl Energ	1193	Rev Econ Stud	38	Land Econ	13	J Financ	16
21	Appl Energ	1197	Am Econ Rev	1033	Dev Change	36	Rand J Econ	13	Eng Mining J	13
22	Ecol Econ	1048	Ecol Econ	985	Afr Affairs	34	J Econ Perspect	11	Mining C J	13
23	Extract Ind Soc	966	Extract Ind Soc	966	Sci Total Environ	32	J Econometrics	11	Mining Magazine	13
24	J Bank Financ	894	J Bank Financ	881	J Futures Markets	31	J Financ	11	NY Times	13
25	Physica A	875	Physica A	861	J Financ Econ	30	Manage Sci	11	Appl Econ	12
26	Appl Econ	787	Appl Econ	751	Communication	28	Energ Policy	10	Business Week	12
27	J Financ	775	J Appl Economet	706	J Bus	27	J Econ Lit	10	Mining Eng	12
28	Econ J	742	J Financ	701	Environ Impact Asses	25	J Financ Econ	10	Q J Econ	12
29	Eur Econ Rev	723	Int Rev Econ Financ	696	Environ Manage	25	J Public Econ	10	Far E Ec Rev	10
30	J Dev Econ	715	Sustain Dev	687	Can J Econ	23	Oil Gas J	10	Oil Gas J	10
31	Econ Lett	714	Econ Lett	683	Eur J Oper Res	23	Aust J Agr Econ	9	Aust J Agr Econ	9
32	J Appl Economet	713	Eur Econ Rev	667	Latin Amer Develop	23	Energy Policy	9	Futures	9
33	Int Rev Econ Financ	699	Environ Sci Technol	659	Science	23	J Bus	9	J Econometrics	9
34	Sustain Dev	690	J Dev Econ	644	Econ Lett	22	Sustainable Dev Mine	9	Sci Am	9
35	Environ Sci Technol	672	Econ J	632	Environ Resour Econ	22	Energy J	8	Am Sci	8
36	J Polit Econ	635	Energies	577	J Bus Econ Stat	22	J Ind Econ	8	Aust Quart	8
37	Q J Econ	605	Econ Anal Policy	558	J Econ Lit	21	J Law Econ	8	Fortune	8
38	Energies	577	N Am J Econ Financ	548	Appl Econ	20	Aust J Agr Resour Ec	7	J World Trade	8
39	Econ Anal Policy	560	Eur J Oper Res	531	Oxford B Econ Stat	20	Cim Bulletin	7	Far Eastern Ec Rev	7
40	J Bus Ethics	559	J Int Money Financ	521	Oxford Econ Pap	20	Econ Lett	7	J Am Stat Assoc	7

Abbreviations: Cit = Citations; CLS = Citation link strength.

ranked much higher in the list. Particularly, oil would reach the second position and gold would be ranked eighth.

To generate a more general picture of the keyword analysis that also provides some overview of topics, we investigate, more especially, the most popular topics published in the journal. To do this, we utilise the information provided by Scopus through the SciVal platform. SciVal is a sub-database of Scopus that collects the bibliographic data of the publications of Scopus from the last ten years, currently, 2013–2022. It also considers shorter periods and can analyse more recent data up to 2024. It analyses a wide range of parameters including authors, institutions, countries, journals, and topics (SciVal, 2024).

In this study, to develop a representative picture of the results, the focus is on the data provided for the topics between 2013 and 2022. By using this information, we can summarize the keyword analysis into broader topics that give a general idea of the themes that are being studied in *Resources Policy*. Table 19 presents the most frequent topics published in the journal. Note that these topics are generated by different experts from SciVal – Scopus who analyse the material of each journal and assign each paper to a specific topic. In the case of a tie between two or more topics, the topics are ranked according to the prominence percentile (Klavans and Boyack, 2017). That is, the worldwide impact of this topic compared to similar topics in all the journals indexed in Scopus. Observe that this data only indicates how popular and influential is the topic today in the academic community. But this data does not affect the journal. The citations and impact of the topic for the journal is measured in the field-weighted citation impact (FWCI) (Purkayastha et al., 2019) where a value above one indicates that the documents published in *Resources Policy* on this topic are cited above the average of citations of all the papers worldwide in this topic and in this year (or period). A value below one would indicate that the average citations on this topic in the journal are below the world average in this topic.

The two most popular topics in *Resources Policy* are "Gold Price; Spillover Effect; Volatility" and "Resource Wealth; Economic Growth; Developing World" with 235 publications each. Two other topics connected to oil price and greenhouse gas emissions are also very popular with 153 and 128 documents, each. Many other topics are based on some specific natural resource. Note that several topics connect to specific countries including China and Ghana. Note that most of the topics are cited above the world average with very high results in the FWCI and their prominence percentile is also very high, usually above 90.

Next, we investigate the Topic Clusters that group several topics into topic clusters. Table 20 presents the thirty most frequent topic clusters in *Resources Policy*. These results are also available in the SciVal platform of Scopus and consider the same bibliometric indicators as Table 19. That is, the total number of papers of the topic cluster in the journal, the FWCI, and the prominence percentile (Klavans and Boyack, 2017).

With this style of clustering, "Volatility; Investors; Commerce" is the most popular topic cluster with 552 documents published between 2013 and 2022. "Cointegration; Environmental Kuznets Curve; Carbon

Table 17
Occurrence of author keywords in *Resources Policy*: Geographical classification.

R	North America		Europe		Middle East		East Asia	
	Keyword	TP	Keyword	TP	Keyword	TP	Keyword	TP
1	Mining	47	Natural resources	90	Natural resources	94	Natural resources	259
2	Natural resources	26	Mining	62	Economic growth	47	China	174
3	Resource curse	24	Resource curse	48	Oil prices	44	Economic growth	113
4	Sustainability	20	Gold	38	Financial development	34	Sustainable development	92
5	Ghana	18	Economic growth	34	Natural resource rent	34	Financial development	78
6	Sustainable development	16	Covid-19	33	Covid-19	33	Resource curse	71
7	Corporate social responsibility	15	Sustainability	31	Renewable energy	30	Covid-19	66
8	Oil	11	Sustainable development	31	Precious metals	28	Green finance	66
9	China	10	Corporate social responsibility	30	Resource curse	25	Renewable energy	61
10	Uncertainty	10	Oil prices	27	Sustainable development	24	Natural resource rent	61
11	Chile	8	China	25	China	20	Geopolitical risk	56
12	Copper	8	Precious metals	25	Gold	18	Technological innovation	45
13	Economic development	8	Governance	23	Crude oil	16	Complex network	43
14	Economic growth	8	Renewable energy	23	Ecological footprint	16	Carbon emissions	41
15	Gold	8	Artisanal small-scale mining	23	Geopolitical risk	16	Environmental sustainability	32
16	Commodity prices	7	Financial development	21	Human capital	16	Sustainability	30
17	Energy	7	Oil	21	Sustainability	16	CO2 emissions	27
18	Forecasting	7	Geopolitical risk	20	Environmental sustainability	15	Crude oil	27
19	Governance	7	Environmental sustainability	19	Green finance	12	Green innovation	26
20	Latin America	7	Mineral resources	19	Institutional quality	12	Human capital	26

R	Latin America		Africa		Rest of Asia		Oceania	
	Keyword	TP	Keyword	TP	Keyword	TP	Keyword	TP
1	Mining	35	Natural resources	31	Natural resources	116	Mining	43
2	Natural resources	25	Africa	30	Economic growth	58	Corporate social responsibility	22
3	Chile	17	Gold	25	Financial development	43	Sustainable development	17
4	Copper	15	Oil price	24	Covid-19	41	Natural resources	15
5	Sustainability	12	Economic growth	22	Oil prices	37	Australia	13
6	Social license to operate	12	Mining	21	Renewable energy	30	Social licence to operate	11
7	Brazil	10	Ghana	19	China	29	Sustainability	11
8	Mining industry	9	Covid-19	18	Precious metals	29	Resource curse	10
9	Latin America	7	Sustainable development	17	Resource curse	28	Oil prices	9
10	Sustainable development	7	Resource curse	15	Sustainable development	28	China	8
11	Forecasting	6	Sustainability	15	Natural resource rent	25	Gold	8
12	Innovation	5	Precious metals	14	Gold	23	Coal mining	7
13	Lithium	5	Artisanal small-scale mining	13	Human capital	22	Cumulative effects assessment manag	7
14	Circular economy	4	Forecasting	11	Environmental sustainability	15	Cumulative impacts	7
15	Commodities	4	Hedging	11	Sustainability	15	Economic growth	7
16	Governance	4	South Africa	11	Carbon emissions	14	Human capital	7
17	Mine planning	4	Sub-Saharan Africa	11	Gold price	13	Governance	6
18	Mineral resources	4	Natural resource rent	11	Qardl	13	Mineral exploration	6
19	Peru	4	Corporate social responsibility	10	Ecological footprint	12	Copper	5
20	Regional development	4	Economic policy uncertainty	9	Geopolitical risk	12	Dutch disease	5

Dioxide Emission" and "Natural Resource; Economic History; Finance" are also very popular topic clusters with 267 and 236 documents, each. Most of the topic clusters have a FWCI above two which indicates that the documents published in the journal are cited well over the average of the documents published in this research field in other journals. Additionally, note that several of the topic clusters have prominence percentiles above 90, which indicates that these topics are currently very popular in the scientific community.

5. Conclusions

In 2024, *Resources Policy* celebrates its 50th anniversary. Motivated by this special event in the life of the journal, this study has presented a bibliometric overview of *Resources Policy* between 1974 and 2023. The objective is to provide the readers of the journal with the current picture in terms of the publication and citation structure, most productive authors, institutions and countries, most frequent keywords and topics, journal connections, and citing articles. The results show the classical trends over the first decades, and their rapid change during the last decade, especially, the last five years. The key explanation for this significant change is the substantial increase in the number of submissions received from all over the world, especially from developing countries, which has increased the number of documents published in the journal drastically. In 2023, the journal received more than 5000 submissions and published 1087 articles or reviews.

Resources Policy is a leading international journal in the field of mineral economics and have strong connections to journals in the fields of environmental sciences and economics. The results have shown how the connectivity of the journal has evolved between economics and environmental studies. In the first decades and according to its citation structure, the journal was more connected to economics journals, such as the *American Economic Review*, *Econometrica*, and the *Journal of Political Economy*. But during the last years it is moving towards a closer connection to environmental sciences journals such as *Energy Economics*, *Journal of Cleaner Production*, and *Energy Policy*. The main reason is the specialization that research is suffering during the last years due to the significant growth in research worldwide. This issue has opened an incredibly wide range of research fields with a stronger connection to specialized journals rather than general journals.

Currently, China is by far the most productive country in *Resources Policy*, due to the substantial increase in publications from scholars based at Chinese universities over the last five years. Many of the most productive authors and institutions come from China. It is worth noting that in Table 10 we saw that 44% of the institutions in the Top 50 list were from China, including the first two: China University of Geosciences and Central South University. Additionally, China is also, by far,

Table 18
Occurrence of author keywords in *Resources Policy*: Global and temporal analysis.

R	Global		2014–2023		2004–2013		1994–2003	
	Keyword	TP	Keyword	TP	Keyword	TP	Keyword	TP
1	Natural resources	361	Natural resources	349	Mining	40	Mining	8
2	China	196	China	182	Corporate social responsibility	21	Sustainable development	8
3	Mining	190	Economic growth	176	Resource curse	15	Recycling	6
4	Economic growth	185	Mining	142	Ghana	13	Dutch disease	5
5	Sustainable development	157	Sustainable development	140	Gold	12	Exploration	5
6	Resource curse	155	Resource curse	137	Artisanal small-scale mining	12	Ghana	4
7	Covid-19	114	Covid-19	114	China	11	India	4
8	Oil prices	112	Oil prices	111	Development	9	Mineral policy	4
9	Financial development	106	Financial development	106	Governance	9	Minerals	4
10	Gold	94	Natural resource rents	90	Sustainable development	9	Sustainability	4
11	Sustainability	93	Renewable energy	84	Natural resources	9	Uncertainty	4
12	Natural resource rent	90	Sustainability	82	Artisanal mining	8	Australia	3
13	Renewable energy	84	Gold	80	Copper	8	China	3
14	Corporate social responsibility	77	Geopolitical risk	76	Cumulative effects assessm manag	8	Copper	3
15	Geopolitical risk	76	Green finance	68	Cumulative impacts	8	Economic growth	3
16	Green finance	68	Precious metals	60	Mineral resources	8	International trade	3
17	Precious metals	61	Corporate social responsibility	55	Oil	8	Investment	3
18	Artisanal small-scale mining	52	Gold price	50	Commodity prices	7	Natural resources	3
19	Gold price	50	Technological innovation	49	Small-scale mining	7	Oil	3
20	Oil	49	Crude oil	47	Sustainability	7	Policy	3
21	Technological innovation	49	Carbon emissions	43	Uncertainty	7	Resource curse	3
22	Crude oil	48	Complex network	43	Economic growth	6	Resource depletion	3
23	Africa	45	Environmental sustainability	42	Gold mining	6	Taxation	3
24	Ghana	44	Human capital	42	Real options	6	Central Asian republics	2
25	Governance	44	Mining industry	42	Africa	5	Coal	2
26	Mineral resources	44	Quantile regression	41	Australia	5	Coking coal	2
27	Carbon emissions	43	Africa	40	Corruption	5	Copper mining industry	2
28	Complex network	43	Artisanal small-scale mining	40	Diamonds	5	Dynamic modelling	2
29	Environmental sustainability	43	Economic policy uncertainty	38	Dutch disease	5	Extraction	2
30	Human capital	43	Oil	38	Granger causality	5	Gold	2
31	Mining industry	43	Economic development	35	Mineral exploration	5	Hedonic pricing	2
32	Quantile regression	41	Governance	35	Mineral policy	5	Industrial ecology	2
33	Dutch disease	40	Institutional quality	35	Poverty	5	Input-output analysis	2
34	Economic development	39	Mineral resources	34	South Africa	5	Integrated model	2
35	Copper	38	CO2 emissions	33	Coal mining	4	Intensity of use	2
36	Economic policy uncertainty	38	Ecological footprint	31	Cointegration	4	Iron ore	2
37	Institutional quality	35	Circular economy	30	Commodities	4	Kazakhstan	2
38	CO2 emissions	34	Dutch disease	30	Community development	4	Kyrgyzstan	2
39	Forecasting	34	Forecasting	30	Economic development	4	Labor productivity	2
40	Uncertainty	34	Economic performance	28	Forecasting	4	Management	2

Abbreviations: R = Rank; TP = Total papers.

the largest source of citations to the journal. In this case, the study revealed that 63% of the institutions in the Top 30 came from China. In Table 17, we saw that the most popular topics published in *Resources Policy* from Chinese researchers were focused on issues related to natural resources, economic growth, and sustainable development.

Some smaller developing countries have also achieved impressive results in the journal. In all these cases, akin to China, this can be attributed to the significant increase in the number of papers published in *Resources Policy* during the last five years. It is worth mentioning the cases of Pakistan, Vietnam, and Nigeria. Pakistan reached the fifth position in the overall ranking in Table 13, and during the last three years, there is evidence that Pakistan is becoming the second most productive country in the journal. ILMA University and Comsats University Islamabad are already among the 50 most productive institutions. Some Pakistani researchers are already among the 50 most productive ones in Table 8. At a lower level, Vietnam and Nigeria achieved similar results than Pakistan. Ho Chi Minh City University of Economics (Vietnam) and Ibadan University (Nigeria) are among the 50 most productive institutions in Table 10 and both countries have increased a lot their productivity in the journal during the last three years.

Turkey, Malaysia, Saudi Arabia, South Africa, and Chile also perform well, in accordance with their usual rankings in worldwide research. However, these countries are more developed than the previous ones. All these countries have authors or institutions in the Top 50 in Tables 8 and 10. Some other countries that surprisingly also appear in Table 10 are Tunisia, Ghana, Lebanon, Oman, Bangladesh, Uzbekistan, and Peru. These countries usually are not among the Top 50 countries in research worldwide, so it was also appealing to see them as the most productive ones in *Resources Policy*.

Focusing on developed countries, the USA is the second most productive country in the journal although it has been losing momentum during the last three years. Only two of their institutions appear in the Top 50 in Tables 8 and 10: Colorado School of Mines and Michigan Technological University. However, if we look at the first decades of the journal, then, from a classical point of view, the USA has been the most productive country in the journal closely followed by the UK.

The UK is currently ranked the third most productive country. However, similar to the USA, during the last five years, the UK has lost momentum due to the significant increase in publications from developing countries. A similar situation happens to Australia and Canada, which are ranked in the fourth and seventh position in Table 13, respectively. Australia has five institutions in the Top 50 in Table 10: the University of Queensland, Curtin University, University of Western Australia, Australian National University, and CSIRO. Canada has two institutions: the University of British Columbia and McGill University.

Countries from continental Europe have been losing many positions in the rankings in Tables 8, 10 and 13, during the last five years. Only France reaches the Top 10 in Table 13, being placed in the ninth position, and only two institutions from Continental Europe appear in Table 10: Montpellier Business School (France) and Lulea University of

Table 19
Leading topics in *Resources Policy* between 2013 and 2022 (Scopus).

R	Topic	TP	FWCI	PP
1	Gold Price; Spillover Effect; Volatility	235	5.04	99.35
2	Resource Wealth; Economic Growth; Developing World	235	5.48	98.09
3	Oil Price; Exchange Rate; Volatility	153	4.86	99.62
4	Greenhouse Gas Emissions; Carbon Dioxide; Environmental Kuznets Curve	128	14.85	99.99
5	Mineral Resource; Environmental Impact Assessment; Life Cycle Assessment	98	3.42	99.02
6	Artisanal Mining; Small Scale Mining; Ghana	98	2.24	97.76
7	Corporate Social Responsibility; Environmental Impact Assessment; Industrial Sector	71	3.45	90.64
8	Open Pit Mine; Ore Deposit; Integer Programming	53	2.01	87.70
9	Neural Network; Oil Price; Commerce	38	4.41	95.66
10	Commodity Derivative; Hedging; Future Market	38	1.64	90.08
11	Rare Earth Element; China; Life Cycle Assessment	33	4.51	84.53
12	Complex Networks; International Trade; Commerce	31	3.3	92.04
13	China; Data Envelopment Analysis; Carbon Dioxide Emission	25	5.23	99.43
14	Coal Mine; China; Gaseous Explosion	23	3.47	87.87
15	Regional Development; Chile; Industry	22	2.67	78.85
16	Bitcoin; Cryptocurrency; Volatility	19	6.02	99.85
17	Iron Ore; China; Steel Industry	19	1.41	41.37
18	Real Options Analysis; Decision Making; Commerce	18	1.3	88.77
19	China; Environmental Standard; Green Innovation	16	11.54	99.9
20	Tax System; Mineral Resource; Taxation	16	0.92	66.82
21	Sustainable Development; Renewable Energy; Finance	15	18.17	99.57
22	Material Flow Analysis; China; Recycling	15	2.28	97.27
23	China; Sustainable Development; Natural Resource	15	4.57	85.66
24	Regional Development; Canada; Industry	15	1.55	73.63
25	Energy Consumption; Economic Growth; Cointegration	14	10.54	99.26
26	Stock Market; Capital Market Returns; Volatility	14	3.82	95.84
27	Indigenous Population; Canada; Natural Resource	14	1.74	70.05
28	China; Sustainable Development; Finance	13	20.94	99.29
29	China; Capacity Utilization; Coal Industry	13	3.88	83.76
30	Corporate Social Responsibility; Corporate Volunteering; Industry	12	2.28	98.84
31	Natural Gas Market; China; Pricing	12	3.58	86.2
32	Sustainable Development; Environmental Impact Assessment; Circular Economy	11	6.53	99.98
33	Stock Market; COVID 19 Epidemic; Volatility	11	4.75	99.87
34	China; Carbon Dioxide; Decomposition Analysis	11	5.11	99.67
35	Biofuel; Oil Price; Volatility	11	4.83	90.29
36	Ghana; Uganda; Oil Industry	11	1.92	78.53
37	Ghana; Resource Wealth; Industry	11	2.92	66.29
38	Turkey; Land Use; Natural Resource	11	2.49	55.99
39	Compressive Strength; Powder; Ultimate Tensile Strength	10	1.72	96.18
40	China; Input-Output Analysis; Carbon Dioxide Emission	9	2	99.57
41	Lithium Molecular Entity; Adsorption; Lithium Ion	9	3.03	99.03
42	Spillover Effect; Business Cycle; Economic Policy Uncertainty	9	4.71	98.95
43	Geoheritage; Environmental Impact Assessment; Brazil	9	3.82	97.89
44	Spillover Effect; Oil Price; Commerce	9	7.88	95.72
45	Corporate Social Responsibility; Peru; Andes	9	2.11	89.46
46	Sustainable Development; Environmental Impact Assessment; Wealth	9	0.68	82.76
47	Coal Mining; Anthracite; Poland	9	2.88	61.27
48	Mineral Resource; Environmental Protection; Poland	9	1.42	49.01
49	3 Topics	8	–	–
50	1 Topic	7	–	–

Abbreviations: R = Rank; TP = Total papers; FWCI = Field-weighted citation impact (data from SciVal – Scopus); PP = Worldwide prominent percentile (according to SciVal – Scopus and FWCI).

Technology (Sweden). This trend may continue in the near future because developing countries appear more productive than developed countries in the journal, and the expectation is that they will further improve their ranking.

To provide a deeper analysis of the bibliometric results, the paper develops a graphical mapping of the bibliographic data by using the VOS viewer software. By using this approach, the study uses co-citation, bibliographic coupling, and co-occurrence of keywords, to see how the most popular and productive variables of the journal connect with each other. The results follow the tables presented in Section 3, although in this case, the maps have been very useful in identifying how the different documents, journals, authors, institutions, and countries, connect between them.

Following the keyword and topical analysis, *Resources Policy* is primarily focused on topics connected to mineral economics including natural resources, mining, economic growth, and sustainable development. Covid-19 has also become a popular topic among researchers who publish in the journal. An interesting result identified in Table 17 is that authors from developed countries tend to use frequently the keyword "mining" while researchers from developing countries do not use this keyword that much. This may reveal some differences in the research interests of researchers from different regions of the world. From a general point of view, the temporal evolution documented in Tables 9, 11 and 14, has shown that researchers working at institutions from developed countries were the most productive ones in the journal during the first decades of *Resources Policy*. However, during the last five years, researchers working at institutions from developing countries have become the most productive in the journal.

This paper presents a general bibliometric overview of *Resources Policy* during the last 50 years. This approach is very useful for providing a quick picture of the current results identified in the journal. However, it is worth noting some general limitations that appear when developing a bibliometric analysis. First, the results are based on the bibliometric data provided by WoS Core Collection. Although the information is very complete and representative, different factors may condition the results. For example, WoS uses full counting giving one unit to each

Table 20
Leading topic clusters in *Resources Policy* between 2013 and 2022 (Scopus).

R	Topic Cluster	TP	FWCI	PP
1	Volatility; Investors; Commerce	552	4.47	96.86
2	Cointegration; Environmental Kuznets Curve; Carbon Dioxide Emission	267	11.59	98.95
3	Natural Resource; Economic History; Finance	236	5.46	12.09
4	Life Cycle Assessment; Circular Economy; Energy Engineering	145	3.3	98.3
5	Environmental Monitoring; Emissions; Nutrition	98	2.24	92.21
6	Mongolia; Territory; Russia	94	3.13	9.15
7	Kriging; Geostatistics; Interpolation	62	1.95	23.61
8	Green Innovation; Industry; Social Responsibility	46	3.9	97.71
9	Data Envelopment Analysis; Industry; Regression Analysis	45	4.13	79.13
10	Carbon Dioxide Emission; Environmental Policy; Climate Change	38	3.32	95.74
11	Data Mining; Graph Neural Network; Social Network Analysis	33	3.16	94.57
12	Geochemistry; Mineralogy; Zircon	33	4.51	54.67
13	Internationalization; Outward Foreign Direct Investment; Emerging Market	32	2.22	72.26
14	Multiple-Criteria Decision Analysis; Analytical Hierarchy Process; Artificial Intelligence	30	2.61	83.97
15	Occupational Health; Safety Management; Engineering	30	3.21	70.76
16	Urban Policy; Global South; Welfare	28	2.43	37.60
17	Supply Chain Management; Industry; Airline	25	3.77	98.03
18	Finance; Industry; Capital Structure	24	1.73	77.95
19	Natural Resource; Land Use Change; Contingent Valuation	23	2.47	95.61
20	Taxation; Tax Avoidance; Transfer Pricing	22	1.54	14.71
21	Blockchain; Smart Contract; Authentication	20	6.26	99.08
22	World Trade Organization; International Trade; Industry	18	1.81	82.47
23	Structural Change; Industry; Macroeconomics	16	0.97	51.14
24	Alaska; Climate Change; Canada	15	1.74	9.09
25	Ultimate Tensile Strength; Mechanical Strength; Silicate	12	2.54	98.75
26	Energy Engineering; Electricity Market; Power Generation	12	3.45	94.83
27	Ion Exchange; Solvent Extraction; Lithium	11	3.01	89.40
28	Tourism Industry; COVID-19; Visitor Behavior	10	4.55	97.77
29	Territory; Autonomy; Democracy	10	2.08	8.96
30	2 Topic Clusters	9	–	–

Abbreviations are available in Table 19.

participating co-author. This is a good approach for promoting collaboration but favours multiple-authored papers rather than single-authored articles. To solve this problem, this study uses full counting in Section 3 but analyses the graphical maps of Section 4 with fractional counting.

Second, many authors do not work in their home country. Therefore, when measuring the productivity of an institution or a country, it reflects the productivity of their researchers independently that they are nationals or foreigners. Additionally, many researchers may change institutions and countries over time. Therefore, the results presented in this paper provide a general overview of the bibliometric data of *Resources Policy*, but different perspectives could be considered when evaluating these results.

Third, it is not easy to measure different topics because authors working on popular topics usually perform better than those authors that work on less popular or more specific topics. The current data is very representative, but it is important to keep in mind this issue when analysing bibliometric information. Note that the platform SciVal of Scopus, with the introduction of the FWCI and the prominence percentile (Klavans and Boyack, 2017), provides a first step to solve this problem. In any case, more research in this direction is needed.

Finally, note that the results presented in this paper consider the bibliographic data of the journal between 1974 and 2023, and was carried out between May and June 2024. This is the current picture of the journal. But in the future, the results may change depending on how the leading and most productive trends evolve, and with the appearance of new emerging trends.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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