



Editorial

Community, Natural Resources, and Sustainability: Overview of an Interdisciplinary and International Literature

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Abstract: The Special Issue *Community, Natural Resources, and Sustainability* seeks to engage in an interdisciplinary and international dialogue on the interrelationships of society, natural resources, and sustainability at the community level. In addition to introducing the twelve research articles published in this collection, we provide an overview of the existing literature on community and natural resource management, mainly through a review of previous reviews and a bibliometric analysis. While this literature is dominated by studies on various aspects of community-based natural resource management, the present Special Issue showcases multiple thematic areas of research that collectively contribute to a more complete understanding of the community-resources-sustainability linkages. Our review also pinpoints important gaps in existing meta-analyses and bibliometric analyses. Promising directions for future research are highlighted.

Keywords: community-based natural resource management; natural resource dependence; vulnerability and adaptation; community response; community resilience; community sustainability; systematic review and meta-analysis; bibliometric analysis

1. Introduction

Natural resource-based communities (communities with intimate ties to natural resources) are uniquely situated in the intersection of human society and the environment. Community-related theories and approaches have been increasingly employed by researchers from a range of disciplines to study natural resource use and management in both developing and developed country settings. Due to the diverse perspectives and interests involved in the study of community and natural resources, there are considerable variations in conceptual definitions/frameworks, research methods, and empirical findings, while synthesis across disciplinary lineages and development contexts is largely limited. As a concrete dimension of sustainability and sustainable development, community sustainability provides an overarching framework for bridging and integrating research on the multifaceted community-resources nexus. This Special Issue of *Sustainability* seeks to engage in an interdisciplinary and international dialogue on the interrelationships of society, natural resources, and sustainability at the community level.

The community approach to natural resource use and conservation holds a pivotal role in the study of the relationships between community and natural resources. Human dimensions were generally neglected in traditional practices of environmental and natural resource management. Early theories,

such as Malthusianism, suggest simplistic negative relationships between population growth and the natural environment [1]. Such views essentially put people and the environment in opposition. Population pressure was viewed as a root cause of environmental degradation and resource depletion. Residents in rural communities often directly rely on natural resources for subsistence, hence the needs of local communities were considered to be incompatible with the goals of environmental conservation. Meanwhile, communally owned resources were believed to be subject to “tragic” degradation due to overpopulation and the lack of clearly articulated property rights [2]. All these perspectives implied that natural resources could only be saved through the coercive management of the state or through the privatization of resources.

The poor outcomes of top-down environmental conservation, the spread of democratic governance principles, and emergent transnational development goals (e.g., social justice, environmental health, and sustainability) have all contributed to the popularization of community-based natural resource management (CBNRM) programs [3–5]. CBNRM has been defined as comprehensively managing resources in a way that “integrates community development and biodiversity conservation” [6] (p. 172). The concept is rooted in the premises that those living closest to natural resources have the most impactful relationships with those resources, are the most likely to bear the costs and reap the benefits of conservation, and are the most capable of preserving those resources [3].

Since its scaling-up in the 1980s, CBNRM has become an established paradigm of environmental policy worldwide. It is a complex process that can take various forms within different social, economic, political, and environmental contexts. In many developing countries, CBNRM is often practiced in places where resources are either communally owned or controlled by the central government but are nonetheless co-managed with local residents. By contrast, natural resources in developed countries are generally managed by private land owners or governmental agencies, while local communities rarely own any resources on the basis of common property systems. Nevertheless, in both development contexts, local communities have high stakes in the management of public land and resources, and CBNRM practices generally embrace the dual objectives of improving both environmental conservation and community well-being.

Several works have examined the institutional and applied roots of the knowledge domain of CBNRM. Notably, Brosius et al. provided illuminating windows into the complexities of CBNRM by investigating key areas of thematic significance within the domain, including methodologies, power relations, environmental justice, and conservation practices [7]. Although they curated a powerful collection of studies on this topic, these works did not endeavor to summarize or capture broader meta-knowledge (or knowledge about scientific knowledge) [8] trends around prior literature. Some scholars also conducted critical reviews of the use of *community* in natural resource management [9–11]. For example, Luloff et al. [9] identified multiple major research areas (including CBNRM) at the intersection of community and natural resource social science, and argued that community remained an elusive concept in this literature.

As the empirical research on CBNRM has grown rapidly in recent decades, there is an increasing trend of synthesizing research findings through systematic reviews and meta-analyses in this area. Glasmeier and Farrigan [12] presented a comprehensive meta-synthesis framework encompassing meta-theory, meta-analysis, and meta-method dimensions for community forestry research. Their qualitative meta-study of various aspects of community forestry largely represented a typical narrative literature review. Adopting a more quantitative synthesis approach, Pagdee et al. [13] identified key factors influencing the outcomes of community forest management by analyzing relationships between variables coded from 69 case studies across the world. In a similar vein, other scholars examined a range of social, cultural, and economic contextual factors associated with the success or failure of community-based environmental conservation interventions through bivariate and multivariate statistical analyses of data systematically extracted from relevant case studies [14–16]. Using qualitative comparative analysis (QCA), Qin et al. [17] conducted an exploratory CBNRM meta-analysis to showcase a novel approach to capturing the community contexts of social-environmental issues.

Several recent systematic reviews of CBNRM have focused on analyzing previous case studies based on Ostrom's design principles for common-pool resource management [18]. Milupi et al. [19] analyzed the success or failure of 21 CBNRM cases from around the world, finding 15 successful cases and six failures according to their diagnostic framework. Villamayor-Tomas and García-López [20] looked more specifically at the impact of social movements on CBNRM in their qualitative meta-analysis of 81 cases worldwide. These studies all provide important context for understanding the extant literature on community and natural resource management, though they explicitly focus on drawing conclusions regarding the comprehensive findings and methods of previous studies, rather than investigating knowledge formation in this realm.

While meta-analysis provides a useful approach for identifying overall patterns of evidence in existing literature, bibliometric analysis, or quantitative analysis of scientific publications, is often employed to examine the pattern and contexts of knowledge production in various fields of study (e.g., [21–23]). Bibliometric approaches have been taken to examine the dimensions of a key subdomain of CBNRM—community forestry. Bullock and Lawler [24] provided a comprehensive bibliometric study of community forestry research in Canada, highlighting thematic, temporal, and spatial trends in this evolving literature. Clare and Hickey [25] also specifically investigated research topic trends within community forestry between 1990 and 2017. They found four major and 20 latent topics of study based on an analysis of abstracts, showing the movement of research foci from broader to more local outcomes. Thus far, despite the disciplinary breadth and historical depth of the inquiry on CBNRM, there has yet been no bibliometric study of this field as a whole.

2. Bibliometric Review of Community and Natural Resource Management

Bibliometric reviews are often used to illuminate general patterns in relevant academic literature, including identifying influential scholars, publications, journals, and topics, as well as distinctive scholarly networks. Building on the reviews and meta-studies discussed above, we use some typical bibliometric methods to provide an overview of the research on CBNRM or community-based environmental conservation (CBEC) in this section [26].

2.1. Article Search and Database Construction

Relevant publications were manually collected using keyword searches in the scientific article database Scopus. The research team collaboratively developed search strings, each of which contained two elements: (1) the term “community” or “community-based” and (2) a natural resource-related term (e.g., conservation, environment, natural resource, forest*, fish*, water*, land, wildlife, etc.) Some searches also included an additional term, such as “management” or “co-management,” to limit spurious results. The full list of keyword searches is provided in Table 1.

The keyword strings were searched in article title and keyword fields for all existing publication dates through March 2019. In order to center this analysis on peer-reviewed research articles, the searches excluded editorials, errata, letters, notes, short surveys, and conference papers. Members of the research team individually scanned publication titles and abstracts for relevance and removed results that were not in some way related to CBNRM/CBEC. The resulting lists were then crosschecked between members of the research team, at which time any discrepancies in article inclusion or exclusion were resolved jointly. Ambiguous cases, such as when there was no abstract available or the topic was only tangentially related to natural resources (e.g., community land trusts), were generally included. The final dataset contained 2727 articles from 737 sources, published between 1945 and 2019. We exported the full citation and bibliographic information of these articles from Scopus in July 2019.

Bibliometric analyses were conducted to gain insight into the descriptive features and trends in the CBNRM literature and to visualize journal citation, journal bibliographic coupling (citation of common sources), and keyword co-occurrence networks within that literature. Microsoft Excel was used to conduct descriptive analyses of the number of articles as well as the major publication sources and countries represented in the database. Then, an open-access software tool (VOSviewer) was employed

for analysis and visualization of the bibliometric networks. VOSviewer allows for the construction and visualization of various types of bibliometric networks, including co-authorship, citation, co-citation, bibliographic coupling, and the co-occurrence of author keywords (keywords specified by authors).

Table 1. Keyword strings for Scopus search.

Keywords Searched in the “Article Title” and “Keywords” Domains ¹
<ul style="list-style-type: none"> • community-based conservation; community-based environment *; community-based natural resource; community-based resource; community-based ecosystem; community-based forest *; community-based fish *; community-based water *; community-based land; community-based wildlife ² • community conservation; community forestry; community forest management; community forest conservation; community fish *; community water management; community water conservation; community watershed; community land AND NOT community land model; community wildlife ³ • community AND co-management AND natural resource; community AND co-management AND forest *; community AND co-management AND fish *; community AND co-management AND water; community AND co-management AND land; community AND co-management AND wildlife ⁴

¹ Editorials, errata, letters, notes, short surveys, and conference papers were excluded from the search. ² The wildcard symbol (*) represents zero or more non-space characters. ³ The Boolean operator “AND NOT” excludes a term from the search. “Community land model” was found to return irrelevant articles in the search process, and so this phrase was specifically excluded. ⁴ The Boolean operator “AND” means both terms need to appear in a search field. We included both “co-management” and its variant “comanagement” in the search.

2.2. Results

The complete dataset shows publication trends in the domain of community and natural resource management literature from the earliest relevant publication (1945) to a period of growth in the late 1990s and early 2000s, until a plateau (hovering around 180–200 publications per year) was reached in 2012 and was roughly maintained through 2018 (Figure 1). Additional analysis shows that the most cited publications in the database are primarily from the early to mid-2000s. Major journals, based on the number of articles published on community and natural resource management, included interdisciplinary social science journals and natural science journals, with significant representation of sociology, economics, development, environmental sciences, forestry, and policy (Table 2).

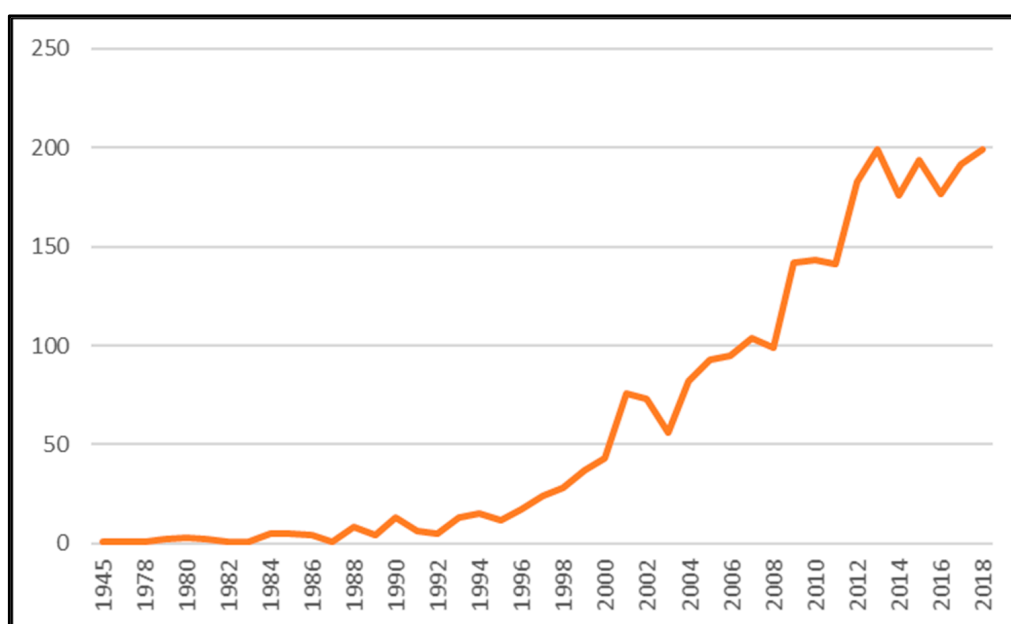


Figure 1. Number of articles by year.

A notable feature of the community and natural resource management literature revealed by this analysis is its breadth in the geographic location of authors. Table 3 lists those countries/areas of author affiliation associated with 20 or more publications. Community and natural resource management literature has been published by scholars from countries around the world, with relatively less representation in North and Central Africa, Eastern Europe, Central Asia, and the Arctic (Figure 2). These areas tend to align with austere geographies, including polar and tundra areas (e.g., Greenland), arid desert regions (Sahara and Kalahari), and mountain ranges (the Greater Caucasus). This map almost certainly underrepresents the geographic extent of this knowledge domain by focusing on the country of author affiliation rather than the country of study. Determining the country of study for each of the 2727 publications was beyond the scope of this analysis but could be a fruitful avenue for future research into the metaknowledge landscape of community and natural resource management.

Table 2. Major journals in the full database.

Journal	No. of Publications (No. of Citations)	Journal	No. of Publications (No. of Citations)
Society & Natural Resources	114 (3725)	Forest Ecology & Management	34 (1134)
International Forestry Review	89 (1272)	Forests	32 (422)
Forest Policy & Economics	83 (1743)	Biodiversity & Conservation	31 (1250)
Ecology & Society	68 (2807)	Biological Conservation	29 (1076)
Journal of Sustainable Forestry	68 (502)	Geoforum	29 (931)
Environmental Conservation	59 (1768)	Ocean & Coastal Management	29 (484)
Small-Scale Forestry	56 (320)	Ecological Economics	28 (1181)
Environmental Management	55 (1891)	Conservation & Society	28 (317)
Marine Policy	52 (1354)	Forests Trees & Livelihoods	28 (154)
Land Use Policy	47 (598)	Forestry Chronicle	25 (235)
Conservation Biology	44 (2454)	Journal of Forestry	21 (217)
Oryx	41 (913)	International Journal of Sustainable Development & World Ecology	21 (183)
World Development	37 (4131)	Global Environmental Change	18 (740)
Human Ecology	37 (834)	Arboriculture & Urban Forestry	17 (168)
Journal of Environmental Management	35 (1588)	Environment, Development & Sustainability	17 (141)

Table 3. Major countries/areas of author affiliation in the full database.

Country	No. of Publications (No. of Citations)	Country	No. of Publications (No. of Citations)	Country	No. of Publications (No. of Citations)
United States	971 (22690)	Brazil	71 (1335)	Botswana	25 (587)
United Kingdom	331 (9315)	Kenya	69 (1178)	Bangladesh	25 (281)
Australia	268 (3751)	Thailand	60 (1254)	Italy	24 (339)
Canada	249 (7488)	Philippines	57 (875)	Finland	24 (321)
India	137 (2464)	Denmark	52 (1353)	Namibia	22 (455)
Nepal	121 (1862)	France	49 (967)	Austria	22 (238)
Indonesia	114 (2466)	Tanzania	49 (946)	Malaysia	22 (196)
Mexico	101 (1840)	Sweden	45 (1185)	Zimbabwe	21 (1208)
Germany	101 (1537)	Norway	44 (895)	Cameroon	20 (355)
South Africa	96 (1668)	Spain	43 (744)	Switzerland	20 (223)
Japan	92 (1012)	New Zealand	36 (655)		
Netherlands	87 (1550)	China (mainland)	36 (559)		

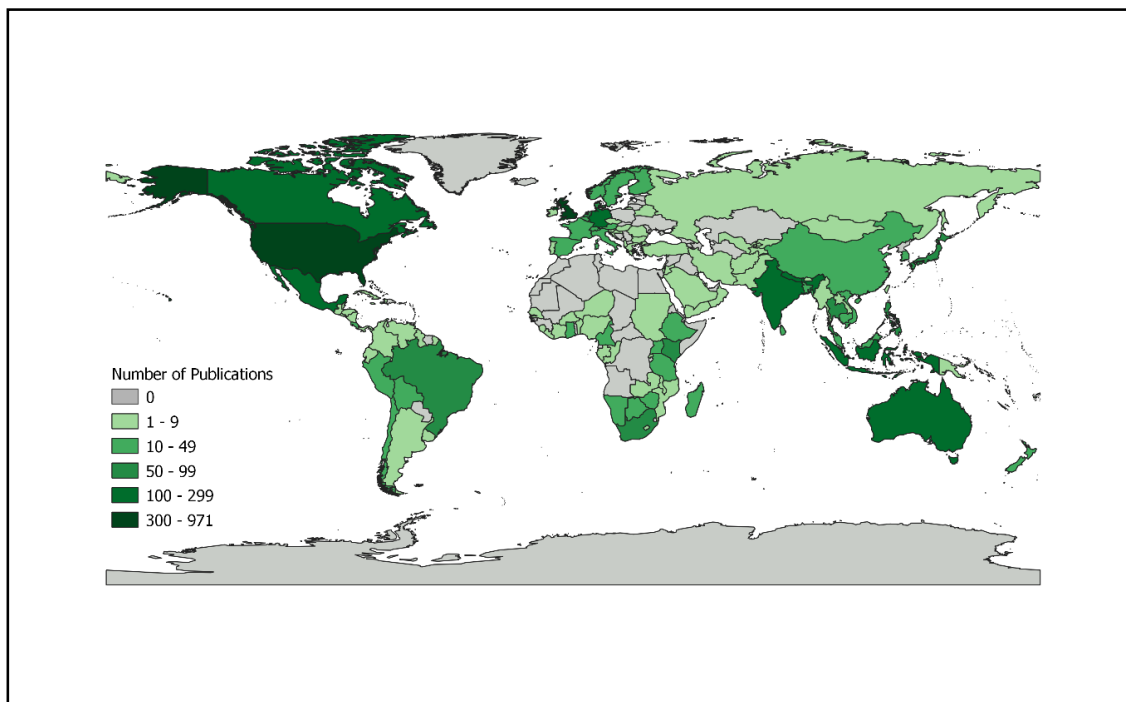


Figure 2. Articles by country of publication in the full database.

The citation and bibliographic coupling networks by publication source are visualized, respectively, in Figures 3 and 4, which include 49 sources that had published at least ten community and natural resource management articles. The networks are color-coded based on the average year of publication, with blue representing earlier average publication years (e.g., 2001 for *Forestry Chronicle*) and red representing more recent ones (e.g., 2015 for *Sustainability*). The layout of the network illuminates the central roles of several journals, including *Society and Natural Resources*, *World Development*, *Ecology and Society*, and *International Forestry Review*. These journals are symbolized in green to orange tones, indicating average years of publications in the late 2000s and early 2010s, which likely represent their historical and ongoing publication of relevant literature. Sources with more recent average years of publication may represent newer journals (e.g., *Forests*, *Sustainability*) and/or older journals that have only recently published relevant articles included in the database (e.g., *Land Use Policy*). For this latter group, community and natural resource management may be a domain with which these sources are beginning to intersect. Journals with much earlier average years of publication (e.g., *Journal of Arboriculture* and *Forestry Chronicle*) may represent earlier trends in community-based natural resource management (i.e., the dominance of community forestry) or origins of the earlier literature on these topics. The network layout in both maps shows close links among forestry journals, several of which remain distant, in terms of citation relations, from the bulk of the highly networked connections between interdisciplinary social science and natural science journals.

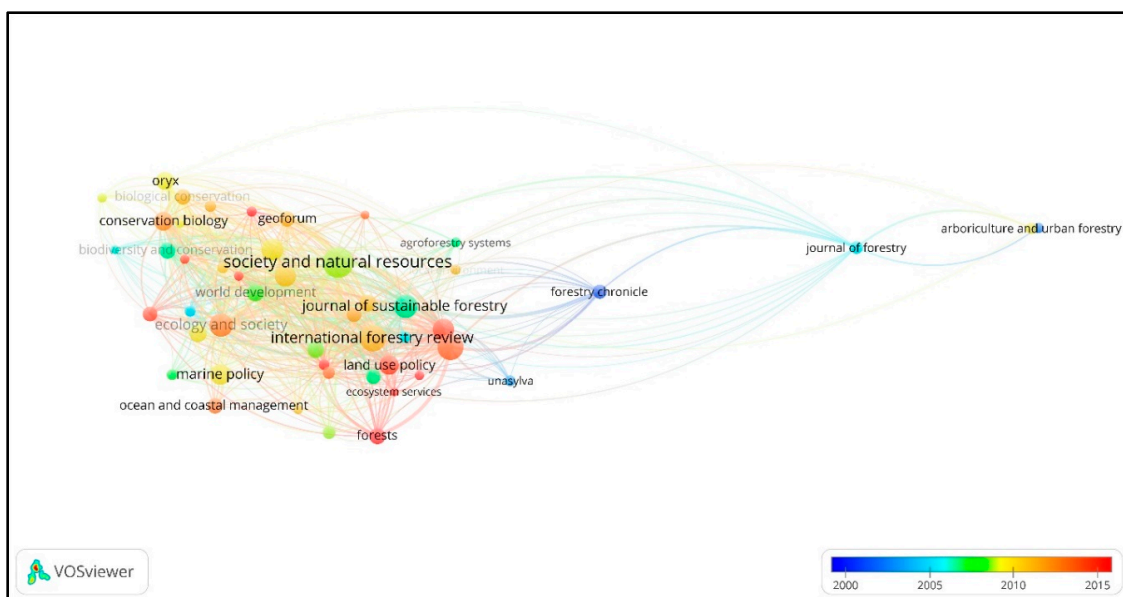


Figure 3. Citation networks by publication source. Note: The circle size is weighted by the number of articles. The line width denotes the strength of citation relations.

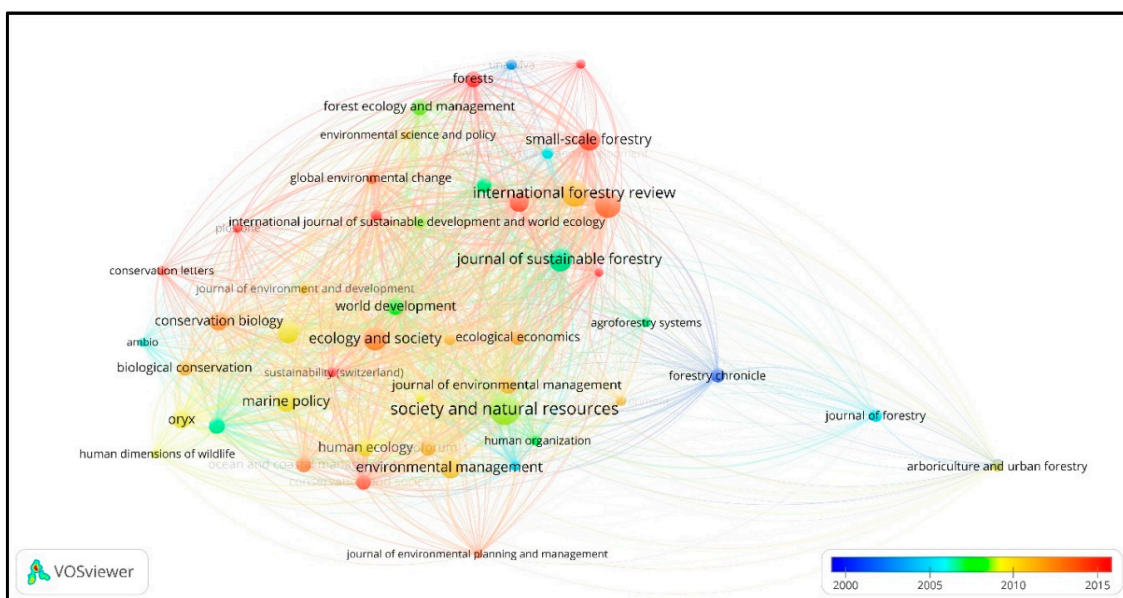


Figure 4. Bibliometric coupling networks by publication source. Note: The circle size is weighted by the number of articles. The line width denotes the strength of bibliographic coupling relations.

Furthermore, author keyword co-occurrence provides insight into thematic trends in the community and natural resource management literature. These networks can be more illuminating in a comparative context, so the database is divided into two time periods here: 1945–2011 and 2012–2019. The cutoff of 2012 is relevant because that year marked the start of the plateau of publications related to community and natural resources management, potentially signaling the maturation of the domain from a knowledge production standpoint (Figure 1). Figures 5 and 6 display the keyword co-occurrence networks including the top 50 keywords (by link strength) of those that appeared a minimum of ten times during 1945–2011 and 2012–2019, respectively.

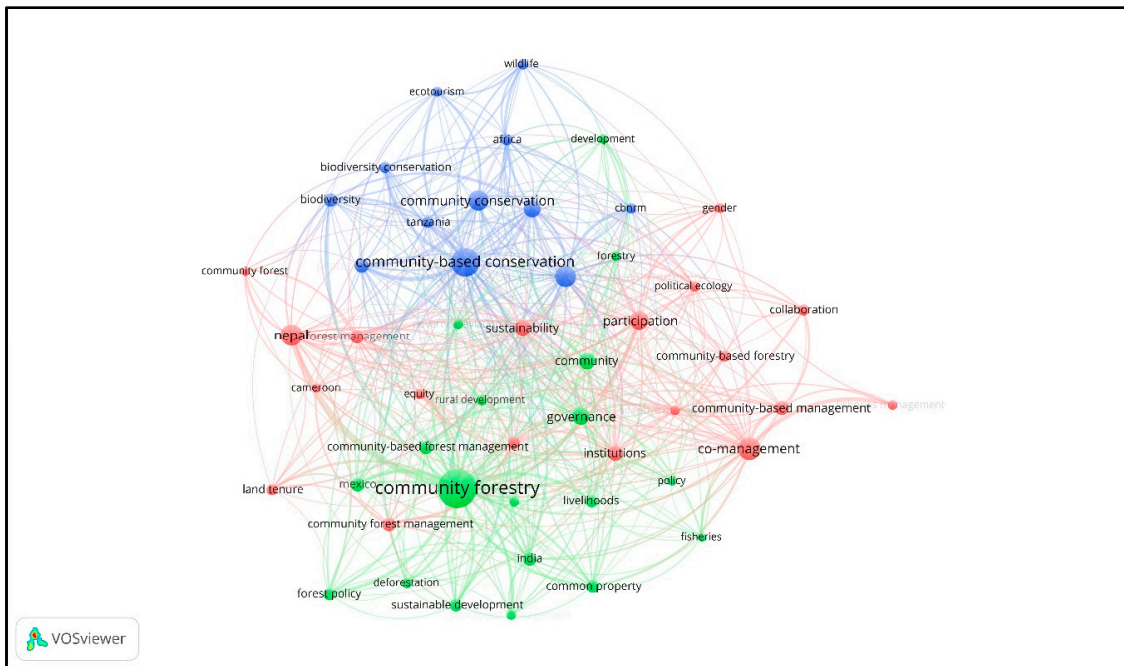


Figure 5. Author keyword co-occurrence map (1945–2011). Note: The colors indicate different clusters generated by VOSviewer. The circle size is weighted by the number of occurrences. The line width denotes the strength of co-occurrence relations.

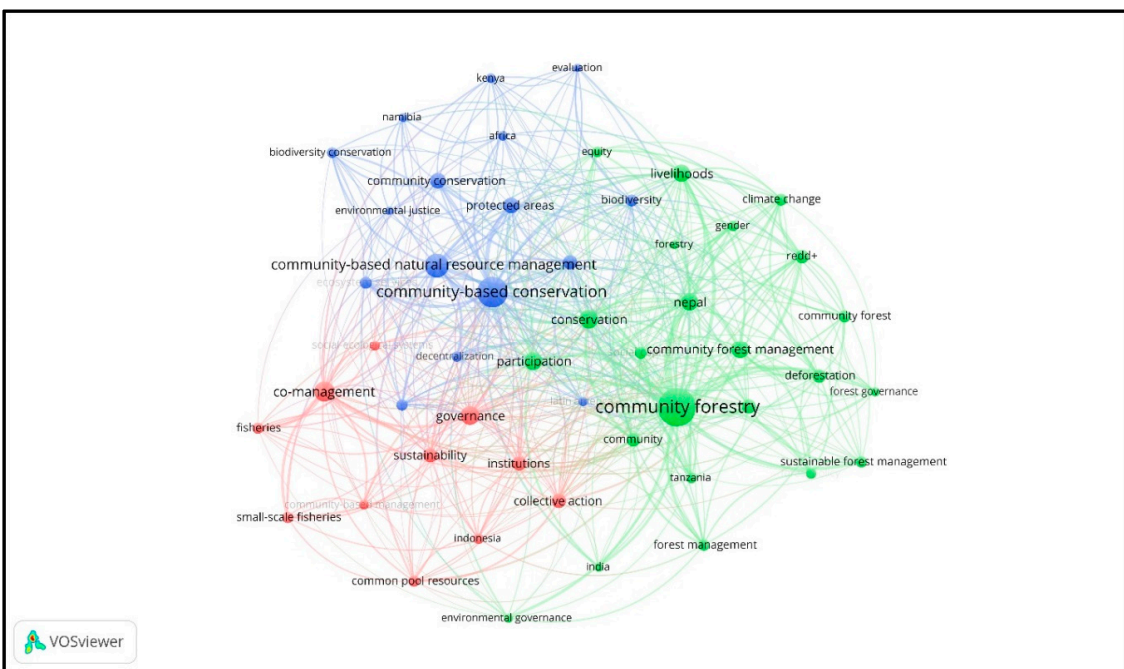


Figure 6. Author keyword co-occurrence map (2012–2019). Note: The colors indicate different clusters generated by VOSviewer. The circle size is weighted by the number of occurrences. The line width denotes the strength of co-occurrence relations.

Perhaps most significantly, many of the themes in community and natural resource management research appear to have remained relevant across both time periods. The network structure and density of linkages are comparable, and the major themes—community forestry, community-based conservation, community-based natural resource management, and co-management—have had enduring relevance across the history of the research domain.

The two keyword co-occurrence maps show many overlapping concepts or country/region names, such as community, participation, governance, gender, livelihoods, equity, sustainability, Nepal, and Africa. Some terms, however, might have declined in relevance while other new terms were emergent, based on their relevance to one or the other of the time periods as well as the relations between main themes. Land tenure, political ecology, development (and rural development, sustainable development), ecotourism, and poverty alleviation were major keywords in the earlier time period but did not appear within the top terms for the more recent time period. Alternatively, some keywords emerged in the more recent phase that were not previously included—such as ecosystem services, climate change, environmental governance (and forest governance), REDD+, evaluation, collective action, environmental justice, and Latin America. These differences mostly represent newer concepts, methods, policies, and areas of interest within the knowledge domain of community and natural resource management.

Other changes between the keyword networks indicate more nuanced structural and thematic changes. These include the shift from “common property” as a keyword in the earlier period to “common pool resources” in the later period, and the movement of the terms “gender” and “participation” from peripheral placements within the network to relatively more central positions. These developments may be indicative of trends as simple as terminology evolutions or more complex reorientations around key themes and the evolving relationships between them.

3. Summary of Special Issue Articles

The above bibliometric review provides a broad backdrop for this Special Issue on the interactions between community, natural resources, and sustainability. Our call for submissions was open to theoretical, empirical, and methodological research articles as well as practice-based papers that addressed a variety of relevant topics including and beyond CBNRM: (1) the relationships between natural resource dependence and community sustainability (or more specific aspects such as community vulnerability/adaptation, community capitals, and community resilience); (2) community approaches to common-pool or public natural resource management (e.g., community-based natural resource management or community involvement in resource management); (3) the impacts of demographic change (e.g., labor out-migration and amenity migration) on community and natural resources; (4) community responses to natural resource-related shocks/stressors (e.g., floods, wildfires, and forest insect disturbances) or resource-based growth (e.g., energy or tourism development); and (5) community contextual effects on individual natural resource-related attitudes and behavior.

The 12 research articles published here are authored by 34 scholars from 10 countries, representing more than 15 disciplines such as Geography, Sociology, Economics, Environmental Science, and Natural Resources. These studies were conducted in 10 different countries (sometimes not the same as the countries of author affiliations) and covered a range of topical areas, including water resources, forest disturbance, resource (mining) dependence, disaster impacts, community development, rural livelihoods, and urban planning.

Water is the most represented sector of natural resources in this Special Issue. Kitamura and colleagues [27] propose a framework of integrated local environmental knowledge which posits the critical role that local knowledge plays in facilitating community actions seeking to solve environmental problems. The study applies the proposed framework to examine the case study of the Nishibetsu watershed in Hokkaido, northern Japan, to analyze the process of collaborative actions and the formation of a community of practice. The authors seek to illustrate how collaborative actions, through the use of integrated and translated knowledge, can help solve local problems. They find that, through diverse types of local environmental knowledge (i.e., livelihood-based technologies and skills of working as a group and with local governments), which informs decision-making and action, local formal and informal institutions in the watershed are strengthened.

Using the case of Dong Village in Jiangsu Province, China, Huang et al. [28] examine the connections between environmental issues and social conditions, investigating how water pollution led to drastic societal changes. More specifically, through observations and interviews, the authors

analyze how water pollution affects the historical social norms and the order of clans. The findings show changes between and within clans as a result of the water crisis in the study community, where a new social order replaced the traditional supremacy of clan interests by placing family or individual interests as the top priority. In another case study conducted in China, Fan et al. [29] examine the role that community contextual factors, including social (i.e., perceptions) and institutional factors, play in community-based water management. The study uses farmer surveys to assess smallholder farmer communities in Minqin County, Gansu Province. The results show that the perceptions of water scarcity promote community actions dealing with water shortage, while the perceptions of production risks encourage overall community responses related to farming and irrigation. In terms of institutional factors, the research reports that communities with a stronger institutional enforcement are more responsive in taking actions to solve their water management problems.

In the field of natural resource management, participatory processes that incorporate women have been widely promoted as a way to promote more efficient resource use. Relatedly, a decentralized irrigation system has been encouraged in Kyrgyzstan as a method to make water distribution more equitable and efficient. Using interviews with water-user association (WUA) officials, village leaders, and female farmers in five communities in southern Kyrgyzstan, Nixon and Owusu [30] examine what factors are associated with female farmers' participation in WUAs. Women in Kyrgyzstan are active in such WUAs in part due to labor migration, yet leadership and membership in the WUAs is largely male. The authors contend that female farmers are strategic in their participation in WUAs and how they irrigate within the boundaries of them. At the same time, they find that women can be limited by their gender, age, and class in terms of access to information and inclusion in WUA activities. Their findings suggest that gendered participation in natural resource management is complex and that, in order to increase female farmers' inclusion in WUAs, there needs to be a reassessment of participatory processes in WUAs in Kyrgyzstan.

Two articles in this collection tackle a traditional issue in the research on community and natural resources—resource dependence and rural development. A paradox exists with regards to the impacts of extractive natural resource industries within places of development. While some studies find that it can contribute to both poverty reduction and economic growth, others find that natural resource dependence can result in limited development, environmental degradation, and social disruption. Nguyen et al. [31] use multiple research methods, including content analysis and interviews in mining and non-mining communities in rural Vietnam, to examine the extent to which mining contributes to livelihood development and socioeconomic well-being. The authors find that in comparison to non-mining communities, communities with active mines are better off in terms of job development, poverty, and infrastructure, and see increased incidences of corporate social responsibility initiatives. At the same time, these places are more at risk for environmental degradation, criminal activity, and social problems (e.g., drug addiction). In addition, communities find it difficult to overcome the dependence they develop on mine-related employment when mine closures occur. Individuals in mining communities benefit less than local governments, which typically see increased tax revenues. Conversely, non-mining communities tend to have greater economic diversity and thus are more resilient to change.

Little is known about contemporary livelihood strategies and land dependence in some parts of upland Southeast Asia, such as Myanmar, particularly as globalization increasingly impacts distant upland areas with labor migration and subsequent remittances. While previously inaccessible to academic researchers, 94 households in the northern Chin State of Myanmar were studied to identify households' livelihood strategies, assess their dependence on land and natural resources, and compare income across different livelihood strategies. Using clustering techniques, Kmoch et al. [32] find that households engage in six somewhat distinct livelihood strategies: (1) reliance primarily on farming activities; (2) mixed income from agriculture and forest resources; (3) engagement in wage employment; (4) remittances from relatives abroad; (5) practicing non-forest tree husbandry; or (6) engagement in self-employed business activities. There are notable income differences between strategies, with

households engaging in remittance and wage-oriented livelihood strategies having higher incomes than those primarily involved in land-based activities. Such findings highlight differentiated vulnerabilities that can be associated with various livelihood strategies.

Another main theme of the Special Issue is community response, including experience, perceptions, and actions, to different types of environmental hazards or events. The Minqin County case study discussed above finds that communities with stronger institutional enforcement are more responsive in taking actions to mitigate and adapt to local water scarcity [29]. Qin and Flint [33] also provide important insights into the often-missing temporal dimension of community responses to environmental change. The authors use longitudinal survey data to explore changes in perceptions and activeness in response to forest disturbance associated with an extensive spruce bark beetle outbreak in Alaska. Their findings show that while community perceptions on the bark beetle condition diminished and merged in some ways over time, differences remained or emerged with regards to other aspects of local reactions. They also find that community context (community socioeconomic and biophysical characteristics) is important in affecting responses to the beetle outbreak and becomes even more influential in the re-study. Overall, this research provides a better understanding of the persistence of and change in community variability as well as the continuing relevance of community contextual effects over time.

Like forest insect disturbance, wildfire is a major type of forest risk throughout the world. The largest fire in modern Swedish history, the Västmanland wildfire, occurred during the summer of 2014. Using interviews with forest professionals and organizations involved with the fire or the post-fire work and a mail survey of residents directly affected by the wildfire, Lidskog [34] investigates post-disaster community dynamics, including how an extreme event impacts local identity and social cohesion. The findings suggest that such an experience and how the wildfire is interpreted by those who experience it can actually be therapeutic and lead to a strengthening of the community. The study finds that post-disaster community dynamics play an important role in the capacity of a community to handle extreme environmental events.

The other four Special Issue papers address relevant community resilience and development issues in various settings. Salvia and Quaranta [35] use a mixed method research approach to examine the importance of place-based development and resilience for local development in impoverished areas. The authors seek to understand local factors that can trigger or re-activate mechanisms that leads to resilience, particularly focusing on the southern Italian rural community of Caggiano, which has experienced a combination of economic depression and economic restructuring. The study categorizes its findings into three major interrelated local factors associated with community resilience, including the rebuilding of previously frayed social ties within the community (i.e., the growth of social capital and increased trust), the cascade effect of previous projects (i.e., an increased sense of self-reliance), and the adoption of a systemic approach (i.e., the ability to bring together areas and sectors that had previously been disconnected).

Similarly, Matarrita-Cascante et al. [36] seek to provide a better understanding of how rural residents and migrants in a community experiencing domestic amenity/lifestyle migration view each other and how such views affect integrated community development. With alterity theory as a guiding framework, interviews of both new and long-term residents in the Chilean community of Malalcahuello are used to examine how residents and migrants know each other (epistemological), value each other (axiological), and interact with each other (praxeological). The authors find that both types of residents know relatively little about the other group, have and constantly reproduce negative value judgments of the other, and typically interact in mostly mundane non-significant ways. This limited knowledge, value, and interaction between the groups has led to community development efforts in town that are limited in their sustainability and integration.

The relationships between community and natural resources can be studied in rural areas, small towns, as well as metropolitan centers. Lui and Kim [37] analyze how podium garden design can lead to positive social outcomes in urban communities. Using a mixed methodology approach in the Kwai Chung District of Hong Kong, China, the authors examine: (1) the relationship between

residential satisfaction and the physical conditions of podium gardens in public and private housing estates and (2) the influences of visibility and accessibility on the quality and usability of podium gardens. The study finds that making residential podium gardens available to the public can provide a balance between public and private areas while also promoting satisfaction, tolerance, and community cohesion. The authors conclude that a well-planned garden design can improve the social and physical qualities of living environments.

Finally, from a somewhat different angle, Perry and others [38] focus on studying the roles of “parknerships” (park partnerships with local organizations) in local socio-ecological development, as they link together individuals, the community, and the natural environment. Specifically, the authors try to fill in the gap of a lack of information on the mechanisms that contribute to the long-term success of parknerships. Through semi-structured interviews, the study examines the case of a parknership between the National Park Service and different park-related organizations in the San Francisco Bay area. The findings suggest that sustainable parknerships are guided by a consideration of three main areas by all involved actors: the context (i.e., understanding the place-based characteristics of the region), the process (i.e., establishing a supported structure, cultivating a collaborative mindset, and embracing the unknown), and the goal (i.e., the sustainability of processes within the given context).

4. Concluding Remarks

The intersection between community and natural resources can be asserted as a shared conceptual center of relevant disciplines that engage in natural resource social science. After several decades' efforts, community and natural resource research has matured into an established knowledge domain populated by a disciplinarily and geographically diverse field of scholars. While this literature is dominated by studies on various aspects of CBNRM, the present Special Issue showcases multiple thematic areas of research that collectively contribute to a more complete understanding of the community-resources-sustainability linkages. The papers published here highlight several promising directions for future research including: (1) the conceptualization of community and sustainability in natural resource management; (2) the temporal and spatial dimensions of community and environmental processes; (3) the interrelated or nested connections across multiple scales; and (4) special research design and method topics, such as collaborative and comparative field-based studies, longitudinal community survey research, the assessment of community contextual effects, and indicators for community and natural resource sustainability.

Moreover, our bibliometric analysis of the CBNRM/CBEC research provides an informative overview of the intellectual landscape of this field, and pinpoints important gaps in existing meta-analyses and bibliometric reviews. Looking forward, additional research efforts could build upon the analysis here by using bibliometrics to explore other CBNRM subdomains besides community forestry, such as community fisheries or community-based wildlife conservation. There is a fruitful body of work to be pursued in investigating the nuances that may exist between these subdomains. Understanding the convergences and divergences in knowledge production across different realms could ultimately provide opportunities for crosspollination and integration.

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