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Community climate commons for collective climate action

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Abstract

Mitigating and adapting to climate change is a vital challenge that cannot rely solely on technology or macro policies but need also be tailored to local social and ecological contexts. As theory suggests, institutional designs that increase collective climate action could potentially speed up climate action in society. In this article we explore the concept of 'community climate commons' (CCCs) to foster interconnected and holistic approaches involving citizens and civil society in addressing climate change. Based on a systematic literature review, the aim is to further develop the concept of CCCs and to identify key features for the successful establishment of CCCs for the promotion of collective climate action. The results identify four key features for CCCs: (1) democratic organization with transformative leadership, (2) small group sizes with clear boundaries and existing rules-in-use for participation, (3) access to organizational structures, meeting places, social capital, collective identity, and social cohesion, and (4) external financial, political, and social support. In conclusion, CCCs have a real potential to foster a wider societal mobilization of collective climate action while simultaneously addressing other issues of concern in local communities.

KEYWORDS

climate change, collective action, community climate commons, social mobilization, systematic review

1 | INTRODUCTION

The primary approach today to address ongoing climate change is technological, such as through electric vehicles, renewable energy solutions, and digitalization. Considering the urgency to act more swiftly to tackle climate change, we also need to develop engagement mechanisms that could promote a greater citizen involvement for actively dealing with climate change (Frantzeskaki et al., 2016; Hulme, 2020). As theory in both the social and natural sciences suggest, there are potentially many benefits to reap from a greater citizen involvement for climate change action, not the least for raising awareness and learning about climate change in broader society, which is a prerequisite for effective national policies to address this challenge (Holmgren et al., 2019; Lenzholzer et al., 2020). Such benefits also

include a plethora of social detriments (Colding & Barthel, 2013; Howarth et al., 2020). Some scholars even going so far as arguing that deliberative engagement mechanism is a necessary precondition for boosting climate action in society (Willis et al., 2022).

As shown in plentiful studies, 'commons' have been shown to be an effective property rights regime to manage natural resources and ecosystems (Berkes et al., 2003; Berkes & Folke, 1998; Ostrom, 1990). Resources managed as commons often offer a multitude of social benefits to their users such as boosting social capital and creating a sense of community (Colding & Barthel, 2013). At a general level, clearly defined property rights—whether private, state, or common—play a crucial role in defining ownership, control, and access to resources, establishing legal frameworks for the use, management, and distribution of those resources, and providing incentives

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for responsible stewardship of nature and even for socio-economic development (Hanna et al., 1996). Common property systems consist of social arrangements that govern the maintenance and utilization of natural resources and other types of resources and services of different kinds. Rights to control and manage these are held by a clearly defined community of users, who have the right to establish their own institutions to fulfill them (Berkes et al., 2003; Berkes & Folke, 1998; Ostrom, 1990). Within these systems, members collectively organize to manage resources through a diverse set of self-imposed and agreed-upon operational rules, norms, and social mechanisms adapted to the local context (Berkes et al., 2000; Colding & Folke, 2001; Ostrom, 1990).

Surprisingly, there are still relatively few analyses of common property systems related to climate mitigation and adaptation, even though some scattered cases are documented in both natural and social science literature. As climate change can be described as a collective action problem, the notion of a 'community'—as opposed to a private individual, a company, or even the state—is a key characteristic of the commons (Ostrom, 1990). It has been acknowledged that individualistic oriented communities are less likely to take climate-friendly action than those with a more collectivist orientation (Chepaitis & Panagakis, 2010; Hay, 2010; Labaeye, 2019). For one thing, learning about climate change and other environmental issues are promoted when people meet (Bendt et al., 2013; Colding & Barthel, 2013; Holmgren et al., 2019). Commons have been discussed among scholars for potentially remedying that void (Borch & Kornberger, 2015; Chaudhary et al., 2015; Villamayor-Tomas et al., 2020).

Over the last decades, studies on climate action within commons have been addressing various sociopolitical and environmental aspects. Foster et al. (2021) traces the discussion of commons back to Marx, in his analysis of so-called 'primitive accumulation', where it was argued that the existence of commons is a vital precondition for a sustainable environment. Lately, there has been an aspiration among scholars to connect the concept of climate action with commons in different forms, such as 'urban green commons' and 'environmental commons' (Colding & Barthel, 2013). In this article we elaborate on the idea of 'community climate commons' (CCCs), with an emphasis on community and community work as essential component in fostering collective climate action (Chepaitis & Panagakis, 2010; Colding et al., 2022). To create climate mitigation commons there is a need for agency, and we consider communities—geographically and/or interest based—to hold significant potential in driving this effort. Community work promotes collective mobilization and action (Dominelli, 2012; Fook, 2016; Popple, 2015) and might then play a crucial role in the creation of climate commons.

Previous work has briefly discussed CCCs as a tentative concept, relating the community and commons concepts to collective action for climate mitigation and adaptation (Colding et al., 2022). Based on a systematic literature review, the aim of this article is to further develop the concept of CCCs and to identify key features for the successful establishment of CCCs for the promotion of collective climate action. The purpose is to broaden the understanding of the different

ways local communities and civil-society groups work to abate and prepare for climate change, what types of CCCs exist, as indicated in the social and natural science literature, and to increase knowledge about how CCCs are structured and organized. Using the scientific literature as empirical basis for systematizing and analyzing different forms of commons, we explore how commons ideally work to instigate climate action and how this can be promoted by community work. Based on themes emanated from the literature, we examine both internal (in-group dynamics) and external factors that support such commons, as well as other key elements important for the successful development of CCCs.

2 | CONCEPTUAL FRAMEWORK FOR COMMUNITY CLIMATE COMMONS

The idea of CCCs was first launched in Colding et al. (2022), where it was tentatively described as community-based commons that instigate climate action, where communities are mobilizing collectively to act against climate change. Having that tentative description as a point of departure for this study, we here present a conceptual framework as a tool to further understand the interrelated parts of the CCC concept. The tentative description and the conceptual framework are then used to discuss the results from the content analysis to further develop the concept and to identify key features of CCCs.

Colding and Barthel (2013) argue that the ability of people to 'manage' land and resources in cities is a highly important characteristic of 'urban green commons' (UGCs). Participants in such commons hold several crucial bundles of rights (Schlager & Ostrom, 1992), encompassing access rights, withdrawal rights, management rights, and in some instances also exclusion rights to the land. In contrast to park lands in cities that do not allow for management by ordinary citizens UGCs allow for practical land management by different types of user groups (Bendt et al., 2013). Hence, a greater set of individuals is granted the right to participate in management and perhaps even governance of the resource, project, or other type of property. As long as the transaction costs aren't becoming a burden for their users, it makes sense to instigate collective action to reach aims and goals set by the community of users.

The building of social relations, common resources, and services creates conditions for the democratic spread of power and influence on individuals in networks that build social relations, often in the form of local communities (Borch & Kornberger, 2015). The notion of commons is to enhance the influence in and beyond the state and the market, and that people affected by decisions, strategies and policies should have the right to participate and influence over the decision-making processes that affect their undertakings (Labaeye, 2019). Through collectively using and managing common resources and testing alternative production forms, new forms of governance can emerge (Felstead et al., 2019).

All forms of problems may potentially affect the commons, for example, congestion, overharvesting, pollution, and inequities. To regulate problems like overharvesting and congestion, the commons are

usually excludable for persons not belonging to the group. Hence, users could be viewed as 'members' in a community, group, local association, or similar organization (Bendt et al., 2013). Being a recognized member means that the user shares, holds rights, and has the possibility to manage, organize and set the rules for how the commons is operated (Berkes, 1989; Ostrom, 2008). Thus, the right to exclude non-members is a highly critical property right for sustaining the commons and avoiding overharvesting resulting in "the tragedy of the commons" (Hardin, 1968).

The commons may sometimes be synonymous with the public property, governed and managed by the state, but public property becomes a commons only when the citizens have a real influence over public resources and hold management- and governance rights to the commons (Colding & Barthel, 2013; Ostrom, 1990). Commons with local-level institutions have been shown to learn and develop the capability to respond to environmental feedbacks and surprises much faster than formal institutions, for example state-ordained rules used by centralized agencies (Folke et al., 2007). This is due to that locally crafted institutions are socially monitored and enforced by the members themselves; hence, their flexible character suggests that commons are contextually sensitive to the leverage of different social, ecological, and economic policy outcomes.

Colding et al. (2022) in their elaboration on CCCs draw attention to the community discourse, referring to "community" as a group of people in organizations, movements, local societies, or neighborhoods, which may entail a specific geographical area, or a social community emerged through common interests (Rubin & Rubin, 2008; Stepney & Popple, 2008; Tan, 2009). Community work is, together with individual case work and group work, a corner stone within social work internationally (Healy, 2005; Payne, 2005; Trevithick, 2012). Community work aims to promote sustainable development in and with local geographical and/or interest-based communities, through local development, social planning, and social mobilization (Rothman, 1995; Sjöberg & Turunen, 2022).

A basis for community work is generally to establish broad cooperation and social networks consisting of different actors related to a specific community; public sector actors, voluntary associations and civil society, committed residents, and representatives from the private sector. Research shows that a prerequisite for successful community work is that involved actors are constantly present and based in the concerned peoples' living environment. This is a necessity for being able to create dialog and build trust and relationships, which is difficult if for example unknown professional actors suddenly address a community with ready-made solutions. When one is familiar to or being part of a community, it is possible to identify other key actors and people who are useful to get involved in cooperation. Civil society and its organizations are here central (Fook, 2016; Popple, 2015; Trevithick, 2012).

An important part of community work is to spread information, knowledge and create awareness related to specific issues; hence, acting for example as important learning platforms about climate change. Once community networks have been established, it is possible to begin to identify commonly perceived problems as well as what can

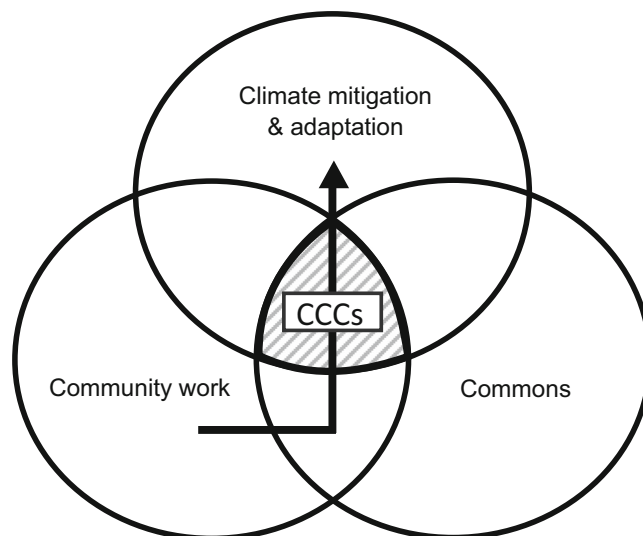
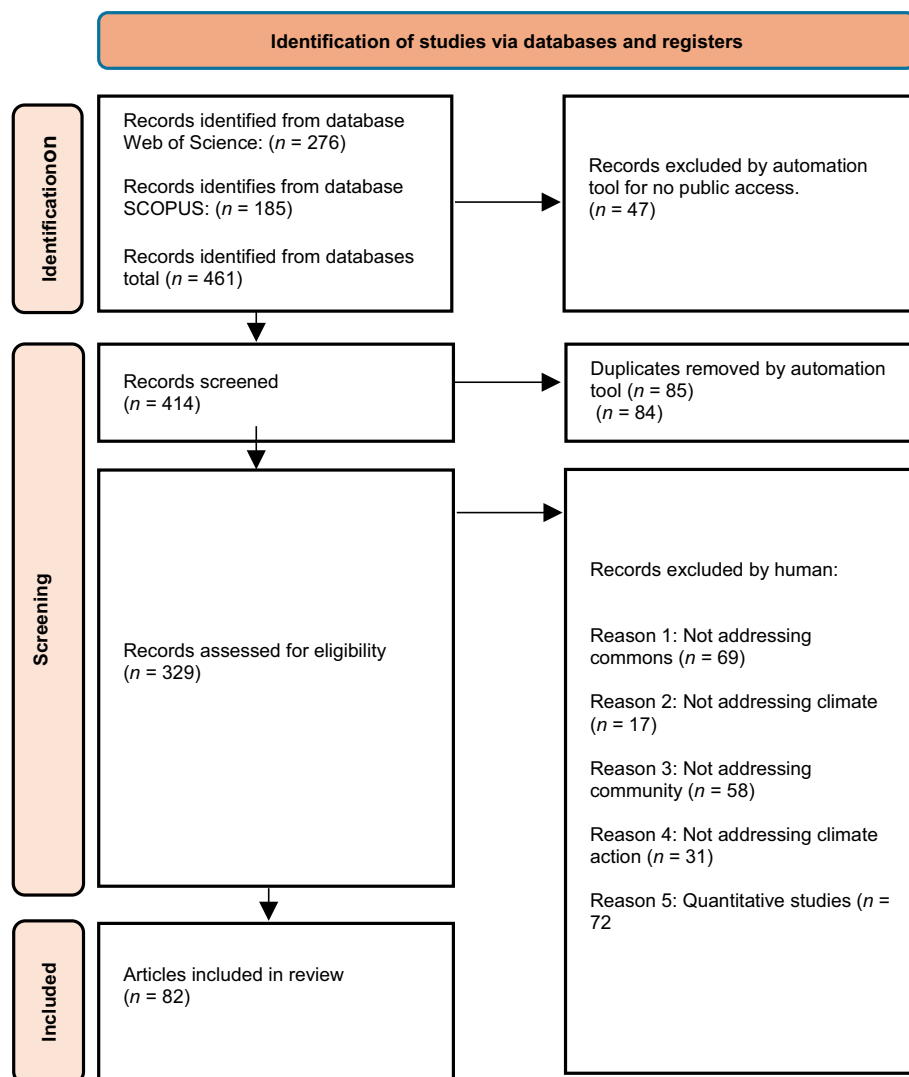


FIGURE 1 Conceptual framework for community climate commons (CCCs).

be done together and who will do what. In this work, promoting collective identity and the sense of belonging to a group is crucial. Community work can then promote what is identified as a central point in research on the commons: to support activation, commitment, active participation, and democratic influence in decision-making processes (Poppo, 2015; Sjöberg & Turunen, 2022). There are examples where various experts have drawn up project plans top-down, with good intentions without giving the concerned community opportunity to actively participate and have influence in the decision-making process, with the result that community members rather turn against the project than welcome it. Community work is a long-term process over many years that in the long run aims at joint capacity and resource building and collective empowerment, so that the community itself can mobilize and be the driving force in sustainable development (Adams, 2008; Fook, 2016; Popple, 2015; Sjöberg et al., 2015).

By drawing on the concept of community and connecting it with the features of commons, we see two significant fields that theoretically and based on the merits just elaborated on herein, may have significance to contribute to create collective action for dealing with climate change. Figure 1 provides a visual representation of the relationship between community-climate-commons. Community work is based on active participation and agency, which is crucial for the creation of commons that aim to address the urgent challenge of climate change. In this article, and based upon our elaboration, we hypothesize that CCCs as identified in the social and natural scientific literature, may be characterized by individuals forming communities to enhance awareness, knowledge, and collective action for climate mitigation and/or adaptation. This implies a potential to increase social-ecological resilience while simultaneously addressing social issues (Colding et al., 2013). Ideally, CCCs have the potential to bottom-up empowerment of citizens and civil society groups, providing them with greater influence in the climate transformation process. CCCs

FIGURE 2 Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram.



can then constitute an important complement to the currently dominant solutions that rely on technology, economic solutions, and top-down macro policies.

Figure 1 Illustration of how certain forms of community work can promote the creation of commons that instigate collective action for climate mitigation and adaptation.

3 | METHODOLOGY

The starting point for this article was a systematic literature review of articles that include the concepts community, climate, and commons to target the scientific discourse relevant for CCCs. The review provided a comprehensive overview and data collection that was used to further develop the understanding of CCCs and to identify key features for the successful development of CCCs. The literature search was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021; Sánchez Flores et al., 2024). The data collection for the study was undertaken in two phases: (1) the systematic identification

of empirical data, and (2) screening the data for eligibility. The former was conducted month of February 2022, the latter was performed during the month of March 2022. Thereafter, an inductive content analysis was employed to systematically analyze qualitative data, classify it to extract in-depth insights, make generalizable inferences, and identify research trends (Joshipura et al., 2024). Figure 2 summarizes the search and selection strategy.

3.1 | Systematic identification of empirical data

The review consists of material from a diverse set of disciplines in the natural, social, and humanistic sciences. The systematic identification of empirical data was performed by first and second author and constrained to peer-reviewed scientific articles published in English. This limitation was due to our restricted proficiency in other languages, which hindered our ability to translate and verify the accuracy of articles in those languages. We used the Web of Science core collection, including all indexes and categories, as well as Scopus databases, running a search using the search criteria “community” and “climate”

and “commons.” Two databases were selected because combining multiple databases yields a more comprehensive outcome for literature searches (Nilsson et al., 2024). No limitation on the publication year was imposed. The search was completed on the month of February 2022 identifying 461 articles, which dealt with all the three terms, “community,” “climate” and “commons,” with 185 obtained through Scopus and 276 obtained through Web of Science. The search revealed only one article (Colding et al., 2022) that used “community climate commons” as a coherent concept.

3.2 | Screening the data for eligibility

The eligibility screening process was carried out by the first and second authors of the study. The search results were downloaded and managed according to the PRISMA protocol for organizational and analytical purposes. ATLAS-ti.v.9, Scientific Software, was utilized to store the identified records, which thereafter offered the ability for systematic screening of the eligibility of the data. Prior to the screening process, with the use of an automation tool, 329 articles remained after exclusion of duplicates and those without public access. Subsequently, the first and second authors reviewed all abstracts and manually excluded articles that did not specifically address the concepts of commons, community, or climate (e.g., articles mentioning common occurrences or the overarching climate of a specific location or community). Furthermore, articles that did not discuss climate change or climate action were excluded from the study (e.g., articles mentioning the environmental climate, but not addressing any kind of climate action nor specifically issues related to climate change). After excluding articles for these reasons, 154 remained. These articles were then subjected to a comprehensive review. During this process, any articles presenting solely quantitative results without accompanying conceptual discussion were excluded. This was due to the study's focus on content analysis of the use and meanings of the concepts in articles including the three concepts community, climate, and commons. Ultimately, the following 82 peer-reviewed articles were included in the qualitative synthesis:

We consider these 82 cases to be an exhaustive selection of cases from peer-reviewed articles that represent the current state of the art of the research field focusing on the combination of community, commons, climate change and climate action. In this sense, our synthesis can disclose emerging patterns and themes that would not be possible to observe without a systematic review approach.

3.3 | Content analysis

In this study, we have adopted a cross-disciplinary perspective analysis, bringing together commons and community discourses. We used an inductive qualitative content analysis (Graneheim & Lundman, 2004) to explore the discourse around community, commons and climate change and action, allowing for flexibility and responding to emergent themes and patterns in the data. The

inductive approach was motivated by the fact that we did not want to lock ourselves into the tentative definition and conceptual frame. Instead, we wanted to see which themes appeared in the articles, to then relate the results to the tentative definition and conceptual frame and based on that further develop the understanding of CCC. The task of reading the literature and formulating codes was undertaken by the first and secondary authors, in continuous dialog with the other two authors. The reading and coding process was characterized by independent efforts, followed by a comparative stage where both authors individually examined 10 articles just to ensure congruence in their coding methodologies. Consequently, the first author reviewed and coded 53 peer-reviewed scientific articles, while the second author undertook the coding process for 29 articles.

ATLAS-ti.v.22, Scientific Software, was used for data analysis. The coding process is illustrated in Figure 3. At first, the “open coding” feature in ATLAS-ti.v.22 was used to label segments of text to represent relevant concepts or themes (Rambaree & Faxelid, 2013). This process transformed the raw textual data into more generalized terms, enabling links between the data and the objectives derived from the literature. Here, the inductive approach offered the possibility to develop a framework of the underlying structure of experiences or processes that are evident in raw data analysis (Marshall & Rossman, 2021), providing an overview of the different forms of commons covered in the review articles. Subsequently, the feature “axial coding” was used to explore interrelationships between codes from the data, identifying tentative themes (Rambaree & Faxelid, 2013). Once recurring code groups emerged, the “selective coding” feature in ATLAS-ti.v.22 was employed to examine, formulate, and classify relationships between themes. This process led to the identification of two dominant themes: “internal factors” referring to endogenous aspects of the commons, and “external factors” pertaining to exogenous factors that support the commons.

In the following section we present the results from the content analysis and relate to the tentative definition of CCCs by Colding et al. (2022). When the documents from the final review sample are referred to in the following, the reference is given as for example (Smith, D1) or when there are references to several documents just for example (1, 3, 7), according to the document ID numbers in Table 1 above.

4 | RESULTS

The 82 articles in the sample, focusing on community, commons, and climate (change and/or action), treated a wide range of different forms of commons (Table 2).

Altogether, eight ‘climate commons’ were found in the review (5, 17, 39, 61, 65, 76, 79, 81). These studies share a common focus on environmental concerns and stress the vital role of community engagement and alternative approaches in addressing these issues. These articles all propose that climate action undertaken by local communities and various civil society groups is primarily in response to the impact of climate changes on their lives or the perceived injustices

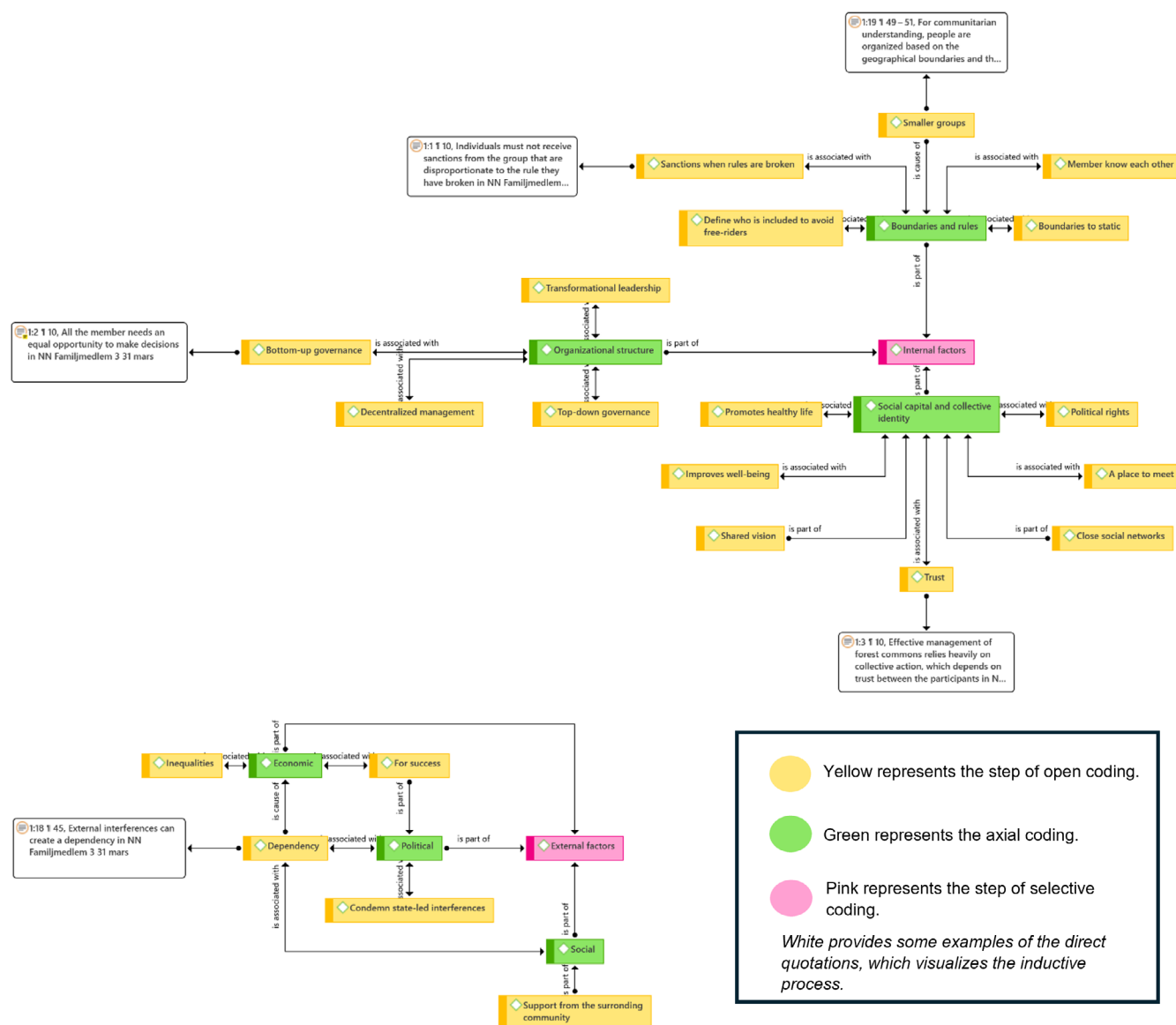


FIGURE 3 Network feature from ATLAS-ti.v.22, Scientific Software visualizing the sequential in the analysis process.

in climate policies. While these studies share some similar overarching conclusions, they diverge in terms of geographical scope, and research methodologies, with certain inquiries delving into local community initiatives, while others relate to extensive theoretical frameworks and policy implications that influence a grassroots approach to mitigating climate change. The remaining 74 articles addressed commons of other types, although climate orientation was part of them. This result indicates that CCCs might be developed based on various types of already existing commons. Thus, these represent a foundation for further development of climate proofing activities (e.g., mitigating and adapting to climate change).

However, as illustrated in Table 2, certain commons identified in the content analysis were cited more frequently in the review articles than others. Urban commons are the most referenced, with 96 citations, followed by forest commons with 76 and water commons with 74 citations. Climate commons also receive considerable attention,

being cited 58 times. These frequencies suggest that traditional commons such as water and forest, alongside climate and urban commons, have good potential to work as CCCs, as also hypothesized in Colding et al. (2022). The centrality of urban commons may be attributed to their critical role in sustainable urban development and climate initiatives in densely populated areas. Forest and water commons are perhaps essential due to their ecological functions, including carbon sequestration and biodiversity conservation. Climate commons highlight the necessity for collective stewardship and community-based approaches to managing climate-related resources and risks. Hence, these groups of commons each represents different facets of self-organized community climate-change work.

One primary overarching theme that emerged from the content analysis was what we here refer to as 'internal factors.' These include important institutional features such as organizational governance structure, system boundaries, operational rules-in-use, social capital,

TABLE 1 82 peer-reviewed articles included in the qualitative synthesis.

NO	Authors	Method	Communities	Type of commons	Place
1	Acosta et al. (2018)	Interviews, theoretical	Energy systems	Energy commons	Netherlands
2	Albagli and Iwama (2022)	Literature study, action research	Risks of natural disasters	Knowledge commons	Brazil
3	Anh Tran (2020)	Literature study	Farming	Knowledge commons	Vietnam
4	Archambault (2016)	Case study	Indigenous	Cultural commons	Kenya
5	Barr and Pollard (2017)	Two-year research project	Environmental activism	Climate commons	USA
6	Barthel et al. (2021)	Theoretical	Socially sustainable communities	Urban green commons	Various
7	Bayrak and Marafa (2017)	Systems-based livelihood survey	Indigenous	Forest commons	Vietnam
8	Bendt et al. (2013)	Interviews, observations	Public access community gardens	Urban commons	Berlin
9	Bogard (2015)	Theoretical	Various	Various	Haiti
10	Bray et al. (2012)	Interviews, observations	Indigenous communities	Forest commons	Mexico
11	Brosché, (2022)	Systematic comparative on fieldwork	Communal conflicts over commons	Forest, water, energy commons	Sudan
12	Bunge-Vivier and Martínez-Ballesté (2017)	Questionnaire's survey	Conservation programs	Forest, water, energy commons	Mexico
13	Casagrande et al. (2021)	Multiple-case-study	Fishing	Fish, water commons	Brazil, Italy
14	Chai and Zeng (2018)	Field survey, case study	Irrigation system	Water commons	China
15	Chaudhary et al. (2015)	Focus group, literature study	Fishing in Rupa Lake	Fish commons	Nepal
16	Chikozho and Mapedza (2017)	Case study	Management of canals systems	Water commons	Zambia
17	Choko et al. (2019)	Interviews	Action for climate change adaption	Climate commons	Nigeria
18	Cinner and McClanahan (2014)	Household surveys, interviews	Fishing	Fish commons	Kenya
19	Colding and Barthel (2013)	Literature study	Property systems	Urban green commons	-
20	Colding et al. (2022)	Theoretical	Various	Urban commons, community climate commons	-
21	Costanza (2013)	Theoretical	Various	-	-
22	Cowen and Delmotte (2020)	Theoretical	Community flood management	Water commons	UK
23	Creutzig et al. (2021)	Literature study	Housing, Mobility, and food consumption	Restorative commons	-
24	Dell'Angelo et al. (2017)	Literature study	Farming	Knowledge commons	-
25	Dey et al. (2019)	Literature review	Farming	Knowledge commons	-
26	DiNapoli et al. (2021)	Literature study	Sustainable practices	Forest, water, energy commons	Rapa Nui (Easter Island)
27	Dupuits et al. (2020)	Literature study	Urban water supply	Water commons	Latin America
28	Egerer and Fairbairn (2018)	Interviews, observations	Community gardens	Urban commons	California, US
29	Engel-Di Mauro, (2018)	Literature study	Community gardens	Urban commons	-
30	Esteves et al., 2020	Case study	Farming	Forest commons	UK, Portugal, Brazil, Senegal

TABLE 1 (Continued)

NO	Authors	Method	Communities	Type of commons	Place
31	Felstead et al. (2019)	Literature study	Shared residential landscapes	Urban commons	UK
32	Feinberg et al. (2021)	Literature study	Management of commons	Urban commons	-
33	Figuerola Helland et al. (2018)	Theoretical	Indigenous communities	Forest commons	Mexiko, Guatemala, Peru, US
34	Gebreegziabher et al. (2020)	Quantitative study on governmental reports	Forestry	Forest commons	Ethiopia
35	Ghosh et al. (2022)	Theoretical	Biodiversity conservation	Cultural and knowledge commons	India. Bangladesh
36	Gnych et al. (2020)	Comparative case study	Forestry	Forest commons	Mexico, Guatemala, Nepal, Namibia
37	Gurevich (2020)	Theoretical	Public health, environmental stewardship	Restorative commons	-
38	Hippu et al. (2022)	Field survey	Solar microgrid projects	Energy commons	India
39	Homsy (2018)	Interviews, document reviews	Climate change action	Climate commons	USA
40	Islar and Busch (2016)	Comparative case study	Renewable energy development	Energy commons	Germany, Denmark
41	Iwama et al. (2021)	Literature study	Climate change action	Knowledge commons	Latin America, Caribbean
42	Johnson et al. (2020)	Case study	Threats in biodiversity conservation	Knowledge commons	US
43	Kamil et al. (2021)	Literature review, case study	Communities living close to lakes	Water commons	Bali, East java
44	Karlan et al. (2021)	Surveys	Rangeland/livestock	Livestock commons	Namibia
45	Labaye (2019)	Theoretical	Sharing-cities	Urban commons	-
46	Li et al. (2021)	Game	-	-	US
47	London et al. (2017)	Interviews, document reviews	Fishing	Water, fish commons	Argentina
48	Lucke et al. (2019)	Photovoice study	Community garden	Urban commons	South Africa
49	Luintel et al. (2018)	Literature study	Forestry	Forest commons	Nepal
50	Magessa et al. (2020)	Survey, interviews, focus group interviews	Forestry	Forest commons	Tanzania
51	Mancebo (2018)	Theoretical	Community garden	Urban commons	France
52	Melville et al. (2017)	Interviews	Energy management	Energy commons	UK
53	Mohammed et al. (2016)	Surveys	Forestry	Forest commons	Bangladesh, Philippines
54	Murtinho (2016)	Surveys	Water scarcity by climate change	Water commons	Colombia
55	Narpat et al. (2012)	Literature study	Rural commons	Forest, water commons	India
56	Neelakantan et al. (2021)	Theoretical	Indigenous	Harvesting commons	India
57	Nonini, (2017)	Literature study	Urban housing	Urban commons	Denmark
58	Orchard et al. (2016)	Literature study	Mangrove systems	Restorative commons	Vietnam
59	Quigley et al. (2018)	Theoretical, literature study	-	Urban commons	-
60	Rathwell et al. (2015)	Literature study	Environmental indigenous	Knowledge commons	Artic
61	Rice and Burke (2018)	Theoretical	Climate change action	Climate commons	USA
62	Rogge and Theesfeld (2018)	Questionnaire survey	Community gardens	Urban commons	Germany
63	Schluter et al. (2016)	Modeling	Harvesty	Water, fish and pasture commons	-
64	Schnegg and Bollig (2016)	Field work	Livelihood (public water)	Water commons	Nambia

(Continues)

TABLE 1 (Continued)

NO	Authors	Method	Communities	Type of commons	Place
65	Schulte et al. (2021)	Literature study	Climate change action	Climate commons	-
66	Schulz et al. (2018)	household survey	Livelihood (public water)	Water commons	Brazil
67	Starlander et al. (2021)	52 Case study	Forestry	Forest commons	Finland
68	Stock et al. (2014)	Case study	Farming	Forest commons	England, Switzerland, New Zealand, Brazil
69	Sullivan and York (2021)	Household ecological survey	Forestry	Forest commons	Nepal
70	Sumner, (2009)	Theoretical	Organic horticulture	Restorative commons	-
71	Torres et al. (2018)	Questionnaire survey	Community gardens	Urban commons	France
72	Trentanovi et al. (2021)	Literature study, survey	Green spaces	Urban commons	Italy
73	Villamayor Tomas and Garcia Lopez (2018)	Meta-analysis of case studies	Natural resource management	Traditional commons	27 countries
74	Villamayor Tomas et al. (2020)	Comparative case study	Forestry, water supply	Forest, water commons	Mexico, Sri Lanka
75	Villamayor-Tomas and García-López (2021)	Comparative literature study	Community-rights movements, water and food commons	Political, food, water commons	Various
76	Wall (2014)	Theoretical	Climate change action	Climate commons	-
77	Weesie (2019)	Case study	Communal water supply	Adaptive commons	Ghana
78	Werthmann (2015)	Action research	Farming, urban livelihood	Farming, energy commons	Cambodia, Vietnam, India
79	Worden (2010)	Theoretical	Climate change adaption	Climate commons	-
80	Yitbarek et al. (2021)	Literature study	Common-pool resources from the perspective of Blackologists	Cultural commons	-
81	Young (2011)	Theoretical	Climate change action	Climate commons	-
82	Zhu et al. (2020)	Interviews and surveys	Community gardening	Urban commons	China

trust, and collective identity. A second detected overarching theme was ‘external factors’, in which we identified political, social, and economic support as the most important ones. The two themes are further elaborated upon in the following sections.

4.1 | Internal factors

4.1.1 | Organizational structure

As highlighted by several scholars within the review sample, an important aspect in commons is how local governance should be structured (1, 6, 14, 19, 33, 45, 50, 63, 73, 81). No consensus seems, however, to exist on this—a finding congruent with the lengthy discussion in academia for many years on how to successfully govern the commons (Hess & Ostrom, 2005; Ostrom et al., 1999). For example, some of the review articles suggest that there exist opposing views among scholars whether a commons should be governed top-down or bottom-up (7, 16, 21, 32, 45, 69, 73).

Interestingly, and following Hardin's famous essay “The Tragedy of the commons” (1968) which describes an open-access system rather than a commons, top-down arguments as found in our literature review still draw from this institutional misunderstanding of the

commons, proposing state government control or privatization of natural resources (13, 21, 32, 46, 63, 79). Still today, some scholars argue for top-down governance of the commons (5, 10, 15, 47, 72). Interestingly, the supportive argumentation here is that successful bottom-up governance is too challenging for a collective initiative to handle, such as identifying equitable users, creating mechanisms for participatory governance, developing inclusive policies, generating rules, and implementing enforcement systems (5, 13, 38, 53, 74). Hence, to develop successful CCCs seem contingent upon analyzing critical transaction costs (North, 1990).

Although some give arguments for top-down governance, most of the reviewed articles emphasize bottom-up perspectives (3, 7, 14, 28, 35, 46, 51, 63, 72), which is consistent with the tentative CCCs definition stressing community-based mobilization. Recent empirical work, identified in the literature review articles, has highlighted that communities are often capable to achieve sustainable resource use through cooperative self-governance (1, 7, 14, 25, 34, 46, 62, 64). For instance, some refer to how Elinor Ostrom demonstrated that communities themselves can, and do, self-govern shared resources, and sometimes with remarkable success (6, 21, 32, 47, 51, 56, 63, 69, 73, 81). While it is shown that commons can be democratically self-governed, the format of such governance is still debated among academics studying the commons (4, 6, 17, 25, 35, 51,

TABLE 2 Forms of commons.

Commons	Number of articles in the literature review	Citations to different forms of commons in the review articles
Forest commons	15	76
Urban commons	15	96
Water commons	15	74
Knowledge commons	8	47
Climate commons	8	58
Energy commons	7	32
Fish commons	4	28
Cultural commons	3	14
Urban green commons	2	15
Harvesting commons	1	3
Traditional commons	1	8
Political commons	1	3
Food commons	1	3
Adaptive commons	1	8
Farming commons	1	3
Pasture commons	1	6

61, 71, 79). For instance, if governance should emerge bottom-up, then this review provides opposing opinions whether a climate common or urban common should be decentralized managed or through a selected leader (3, 4, 15, 18, 28, 31, 47, 74).

Some articles argued that decentralized organizational arrangements are best suited to create democratic governance, due to that it often improves community participation, enhances the level of satisfaction and morale, fosters independence and status, and promotes a spirit of group cohesiveness (3, 15, 16, 25, 32, 48, 72, 77). However, some articles in the review argue that a risk with decentralized arrangement in commons was gender inequalities (25, 29, 69, 70, 77), as it reinforced traditional roles of women and men in a community (29, 34, 39, 70). For example, in urban commons where the main activity was gardening, women tended to focus on weeding and harvesting, while the men oversaw the labor that required more physical strength and the machines used (4, 25, 29, 56). Others argued that women's roles seemed to be changing as they are playing greater roles in production and marketing (4, 32, 44, 57, 58, 78). The results of this review also suggest that bottom-up governed commons require a strong leader emerged from the community (1, 3, 32, 39, 50, 68, 82). Here it is argued that these leaders can establish environments which encourage creative problem solving and empower change (17, 32, 51, 59, 62), and play important roles in seeking financial resources, building technical capacity around needed skill sets, and engaging across various stakeholders (13, 26, 46, 51, 63). Cinner and McClanahan (2014) (18) specify that leaders require superior information

which, if communicated credibly, induces others to follow the lead, and for the followers' ability to identify with their leader, which results in intrinsic motivation for their tasks (18). Further, the result of this review emphasizes the leader ability to commit itself strong enough to action, that is, to engage in enough up-front mitigation, to entice other actors to follow (35, 39, 53, 65, 71, 81).

4.1.2 | Boundaries and rules

Many of the articles in the review sample relate to Hardin's "Tragedy of the Commons," while referring to how Ostrom revealed ways of governing the commons that build on people's capacity for collective action (6, 11, 24, 38, 44, 61, 80). For instance, it was recurrently discussed that smaller groups where members know each other is better than bigger groups (2, 11, 29, 32, 42, 77), especially to prevent overuse of the commons (11, 31, 47, 81). Further, Choko et al. (2019) (17) described how social movements to act on climate change can be created by different forms of groups, such as "age grade" groups, women's groups, political groups, farmers and religious groups. The results from this review emphasize the pivotal role of rules in achieving success in common resource management (13, 14, 15, 22, 26, 34, 40, 47, 49, 53, 63, 64, 69, 74), and that the formulation and adaptation of these rules are most effectively achieved through a decentralized decision-making process that allows the active participation of all members (15, 34, 47, 64, 69, 74). This seems to be important findings for successful establishments of CCCs.

It is widely argued that rule establishment often reinforces informal norms within the community, creating social control and fostering a collective sense of responsibility (13, 26, 34, 40, 49, 63, 64, 74). However, as noted by DiNapoli et al. (2021), it is imperative to establish a robust system for punitive measures in case of rule violations. Boundaries and rules were argued by many to foster the ability to clearly define who is included and not in the commons (6, 18, 26, 34, 47, 64, 77), thereby enabling the advantage of enhancing collectiveness. However, some believe boundaries and rules are even more crucial for defending community use and management rights from outsiders, such as to exclude free-riders (11, 14, 24, 28, 64, 75). Although the general assumption seemed to suggest that clear boundaries are crucial, there is a risk if they become too static as it can result in conflicts and overuse somewhere else (17, 24, 31, 54, 61, 71, 77). For instance, some argued that within urban gardening there should be some openness to accepting newcomers so that the commons do not become an exclusive community for a privileged few (8, 12, 28, 37, 59, 72). However, according to Egerer and Fairbairn (2018) (28), keeping rather strict boundaries for the gardens can prevent them from becoming gentrified, which can be understood as a way to defend community use and management rights from those outside the community. Nonetheless, if some resource users cannot exclude others from using the same resource, Hardin's famous notion of over-exploitation and/or over-use of the commons is likely to occur (6, 12, 24, 31, 40, 54, 64, 77).

4.1.3 | Social capital and collective identity

The article sample in the literature review underscore the importance of developing strong social cohesion, collective identity, and social capital (3, 8, 9, 14, 30, 36, 40, 75). These are doubtless crucial elements for successful community mobilization by CCCs, as defined by Colding et al. (2022). Social capital is commonly used in the sampled articles with reference to Putnam's definition of the term: "features of social organizations, such as networks, norms and trust that facilitate action and cooperation for mutual benefit" (Putnam, 1993:35, stated in, 13, 36, 62). Many believe that social capital is seen as helpful to coordinate people's behavior and to make people follow the rules of the commons, while accepting the sanctions if rules are broken (5, 11, 14, 41, 51, 60, 78). Therefore, social capital may enhance a shared vision in the development of a CCCs. For instance, Islar and Busch (2016) (40) described how strong social cohesion makes people feel more collective responsibility for the ownership of neighborhood community energy systems. Social capital seems to be developed through trusting (1, 31, 49, 59, 64, 72), and Hippu et al. (2022) (38) for instance described in one article how energy commons in rural India relied on trust between community members for not overusing the electricity. However, others claimed that trust does not necessarily make commons better in achieving their goals (24, 26, 73). Through an empirical investigation of the Nepali forest commons and their collective actions, Chaudhary et al. (2015) (15) found that mutual trust among the forest-managing community households did not positively affect carbon storage. Nonetheless, the overall belief was that trusting each other enhances the prospect for social capital in commons (1, 2, 14, 31, 49, 58, 63).

Several scholars within the review sample argue that partaking in a commons can lead to feelings of belongingness to a group and thus contribute to a collective identity. For instance, community and urban gardening have the potential to bring people from different backgrounds together, creating social cohesion and contribute to cross-cultural understanding and diversity (4, 28, 36, 59, 74). In one of the articles, Bendt et al. (2013) (8) described how 'public-access community gardens' (so called 'PAC-gardens') have made people from former eastern and western Germany come together and that these meetings have increased their understanding of each other. Other results show how some Canadian community gardens contributed to social inclusion, bringing elderly and immigrants into the community (48). Therefore, the commons provides an arena for people to meet and exchange ideas, enhancing an individual's sense of being worthwhile and being recognized as an important community member, which seems to be important elements for successful establishments of CCCs. Further, community and urban gardens are claimed to have both positive psychological and physical impacts on those who participate and allowing people feel that they have control over one's life, build meaningful relations with nature, and positive effects of an individual's nutrition by consumption of locally produced vegetables from the garden (5, 8, 31, 37, 60, 71, 82). Participating in community and urban gardening can therefore improve one's physical well-being but is also claimed to have mental health benefits through active involvement in a community (19, 32, 48, 82). Moreover, collective identity can enhance the likelihood to assert political rights (7, 9, 17, 24, 33, 55, 60, 75, 82). For instance, Villamayor-Tomas and García-López

(2018), Villamayor-Tomas and García-López (2021) (75) claimed that community identity can be used in empowering people to combat racism and discrimination.

Creating a collective identity requires having a place for participants in a commons to meet, to imaginatively connect and fuse different identities, enabling transforming understandings of race, culture and relationships to nature (2, 3, 31, 54, 66, 73). These places to meet enabled motivation and encouragement, providing a combination of informal meetings, workshops, and other collaborative interactions (4, 14, 20, 42, 55, 61). Our results indicate that these meeting points required a geographically bound place (23, 38, 40, 49, 77). For instance, in many of the reviewed articles a reference to Elinor Ostrom (1990, cited in, 6, 13, 30, 62, 67, 73, 76) was provided, where it was argued that close contact and physical meetings with face-to-face contact are crucial for enhancing social capital. In contrast, when investigating the different narratives necessary for a meeting place, some of our results indicate that a digital meeting place can also play an important role; hence, reaching beyond geographical boundaries (22, 25, 32, 45, 60). One of the reviewed articles addresses commons in cyber space, where Lucke et al. (2019) (48) states that sharing economy on online platforms enhances the possibilities for mobilizing collectiveness and climate action. It has been shown how powerful mobilizations for collective action against climate change has been created and nurtured through social media (18, 32, 41), such as the movement 'Fridays for Future'. In this way, so called "digital commons" can provide arenas for collectiveness and social capital that goes beyond geographical boundaries and cultural and political indifference (41, 48). In this present era of glocalization, cultural and identity-based contents of knowledge pave the way for an increasing number of commons that take place on digital platforms, indicating possibilities of also developing digital CCCs.

4.2 | External factors

The article sample in the literature review shows that the availability of external support often plays an important role in commons (3, 11, 16, 39, 53, 58, 65, 76, 82), which is an important finding in relation to the development of CCCs. External support refers to financial aid, but can also include political and social backing, such as court appeals, meetings with government officials and also demonstrations (5, 27, 35, 68, 61, 70). For instance, Sumner (2009) (70) identifies demonstration as an event, usually held in public, where people gather to express a shared opinion or show support for a cause. They emphasize how political and social support is of great benefit for demonstrations as it can provide additional resources and help ensure larger numbers of people in attendance. Some believe that economic external aid is significant to succeed and even is necessary for the successful development of commons (4, 7, 15, 42, 65). Others reject the involvement of external actors, and discard financial aid (22, 36, 56, 61, 74). Nonetheless, increased external support enables individuals to act as citizens, rather than as consumers, thus enhancing collectiveness and broadening the commons impact also beyond the local context (10, 13, 14, 60, 81).

Several articles highlight the risks of external interferences, stressing cautiousness to potential challenges, such as inequalities and dependency concerned with commons (7, 9, 11, 30, 55, 77). For instance, some believe that political connection and high income among the participants increase chances to obtain external funding (9, 12, 35, 71, 74). Here it is appropriate to reflect upon the possibility of poverty traps, as the abilities to gain support might cause isolation and enhances vulnerability among those already exposed. Further, results reveal that some urban commons may lack the resources required and thus depend on foreign aid for their maintenance (16, 24, 31, 65, 73).

Consequently, and as review results indicate, associations that have received unsolicited funds or through donations had implemented relatively fewer adaptation strategies and low initiative to adapt and instead tend to rely upon a continued flow of future funds and donations (12, 15, 17, 43, 79). Therefore, external support could also crowd-out intrinsic motivation, which was highlighted by Cowen and Delmotte (2020) (22). In such cases, both self-determination and self-esteem become weakened (22). On the other hand, external interventions may intensify or crowd-in intrinsic motivation if the individuals concerned perceive such external support as supportive (7, 30, 54, 72). Here self-esteem is fostered, and individuals feel empowered agency to act, thus enhancing self-determination (5, 16, 43, 74, 81).

5 | DISCUSSION

Colding et al. (2022) describe CCCs as community-based commons that instigate climate action, where communities are mobilizing collectively to act against climate change. In this article, based on a

systematic literature review, we have undertaken a content analysis of the scientific articles that include the concepts community, climate, and commons. We have identified two main themes and four sub-themes with content of crucial importance for the further conceptualization and development of CCCs. The main findings are summarized in Table 3.

Suffice it to say, the organizational governance structure is a key prerequisite in collective action for mitigation and adaptation of the climate changes and, thus, an essential aspect of a CCCs. The content analysis of the reviewed articles reveals that commons can benefit from, being disadvantaged by, or consist of combination of top-down and bottom-up organizational governance structures. Moreover, it is important to recognize that there exists little empirical evidence regarding the actual value of citizen involvement in practice (Wamsler et al., 2020). Our review results rather display the potential that CCCs have for climate mitigation and adaptation by addressing it as a community activity.

However, when it comes to community-based initiatives and mobilization, most of articles emphasize bottom-up approaches. Community mobilization is a key prerequisite in collective action for mitigation and adaptation of the climate changes and, thus, an essential aspect of a CCCs. Suffice to say, it seems that what is desirable for the successful establishment and longevity of CCCs is a diagnostic approach that matches contextual local, regional, and state institutions as well as ecological and socioeconomic conditions to identify the best working democratic governance. For instance, a CCCs can be enhanced by transparent, decentralized decision-making processes but may require a strong and coordinating leadership. Within the community work discourse the three main forms of community work have been identified as collaborative local development, the more

TABLE 3 Summary of results from the content analysis of the reviewed articles.

Main themes	Sub-themes and key content				
Internal factors	Organizational structure	Opposing beliefs whether a common should be governed top-down or bottom-up (17, 21, 45, 69, 71)	Bottom-up are too challenging for a collective initiative in a common (5, 13, 15, 28, 47, 53, 74)	Communities can achieve sustainable resource use through cooperative self-governance (7, 28, 34, 35, 62, 63, 64)	Decentralized management with a hierarchical leader (15, 16, 39, 48, 59, 65, 77, 82)
	Boundaries and rules	Set sanctions when a rule is broken (14, 29, 47, 65, 77, 81)	Smaller groups where members know each other is better than a bigger group (14, 29, 47, 65, 77, 81)	Define who is included in the commons, to avoid free-riders (26, 28, 34, 47, 64, 75, 77)	Risks of inequalities and exclusions when rules and boundaries are too static (28)
	Social capital and collective identity	Close social networks among the members can foster social capital and collective identity. Social capital fosters a shared vision (8, 14, 40, 65)	Trust among participants is crucial for developing social capital and achieve the goals (2, 9, 14, 17, 48, 49, 82)	A collective identity inserts political rights and improve one's well-being and promotes a healthy life (19, 22, 28, 48, 72)	Creating a place to meet; physical place or digital (3, 5, 13, 14, 18, 20, 22, 25, 32, 38, 40, 42, 45, 49, 52, 54, 77,)
External factors	Economic, social, political support	Challenges of inequalities and dependency concerned with commons (13, 15, 17, 22, 24, 31, 43, 54, 55, 56, 69, 72, 77, 81)	External aid is emphasized as being significant to succeed (15, 42)	Condemn state-led interferences while at the same time welcome financial aid to support the commons (49, 69, 77)	Received unsolicited funds or a donation had implemented relatively fewer adaptation strategies (15, 17)

top-down social planning, and bottom-up social mobilization (Rothman, 1995; Sjöberg & Turunen, 2022). The organizational structure of CCCs might then vary depending on the aim and what kind of community work is undertaken. As we have previously shown in the conceptual framework, fundamental aspects of community work are to create dialog, trust, and relationships as well as to support participation, commitment, and democratic influence, which are aspects found to be important in the content analysis of the reviewed literature. It is therefore key to consider these aspects in the organizational structure when establishing CCCs.

As highlighted herein, an important organizational issue for the successful development of commons is leadership. The research field on community work has shown that identifying key actors is crucial, for example when it comes to leadership (Folke et al., 1998; Healy, 2005; Rubin & Rubin, 2008). Community mobilization for climate action against ongoing climate changes calls for what has been labeled a 'transformational leader' (Burns, 1978; Hay, 2010; Kura, 2016). The strength of the leader contributes positively to the follower's responsiveness, and a leader should lead by example according to Burns (1978). Furthermore, the importance of charismatic and motivational leadership to inspire members is encapsulated in the concept of a transformational leader, emphasizing the need for positive, localized change and responses, while providing a role model for high ethical behavior, pride, respect, and trust (Kura, 2016; Pinkerton, 1998). Accordingly, when developing a CCCs, a transformative leader can play a crucial role for external interferences and to enhance collective identity, belonging, social capital, motivation, trust, and support that are emphasized within the community discourse (Adams, 2008; Berkes et al., 2003; Fook, 2016; Popple, 2015; Sjöberg et al., 2015). Redundancy in leadership (e.g., replacement of a charismatic leader) is also important to account for in reference to the commons (Berkes et al., 2003).

Undoubtedly, the reviewed literature, as well as this article, echoes Elinor Ostrom's discoveries regarding governance, rules-in-use, and boundaries of the commons, building on people's capacity for collective action and the eight 'design principles' of stable local common-pool resource management. For a notion of sharing of either housing, mobility, food, work, land, waste, technology, finance, and/or governance to occur in a CCCs, a set of rules and boundaries need to exist to avoid free riders and to prevent overuse. To identify barriers and challenges and at the same time promote active participation and democratic influence in decision making processes are, as shown in the conceptual framework, key aspects for successfully working commons which are also stressed in the community work discourse (Adams, 2008; Stepney & Popple, 2008).

Social capital and collective identity are an important theme of the commons as our literature review suggests—aspects that are also fundamental in community work (Eriksson et al., 2021). Social capital and collective identity seem to be key for the development of CCCs in order to coordinate people's behavior and to make people comply with the boundaries and rules, as well as for enhancing the development of a shared vision. Fostering social capital requires members to trust each other and cooperate. CCCs might in this sense enable a

person's feelings of control over one's life and build meaningful relation with nature, and therefore could bring about changes in the individuals' attitudes and behavior. The content analysis of the reviewed articles also shows that participating in commons can have mental health benefits through active involvement in a community. In addition, participating in a commons can improve a person's physical well-being through working physically in nature (Colding, Giusti, et al., 2020).

The results from the review suggest that external factors and actors can have an important supportive role to play and contribute to the development of CCCs. However, caution should be raised towards factors that lead to unequal abilities to gain political and financial support, and the risk of too strong dependency on financial actors. As shown in this review such external dependence may decrease the intrinsic motivation of members in a community. Hence, and as results of this study indicate, a CCCs can flourish at times with external support but can also be successful without the interferences of external aid.

Finally, as CCCs can impact the environment and ongoing climate changes they also seem to have the potential to affect other issues of concern in a community. In the conceptual framework, we considered that spreading information, knowledge and creating awareness is part of the core of community work. This can contribute to CCCs by enhancing the awareness of and likelihood to assert political rights and implement more democratic governing systems within a community. CCCs should therefore be seen holistically. Our review suggests that community gardens and food or farmers' markets, for example, can help combat poverty and build resilience against food insecurity in times of distress, contributing to economic re-development, and autonomy for communities and their members. Hence, CCCs can be incessantly subjected to change and should therefore be viewed as dynamic and nonlinear platforms for adaptation to continual social and ecological change affecting society. To be resilient, such CCCs need to depend on continual learning and should allow for the self-organization identified in the literature review (Berkes et al., 2003).

Within community work it is stressed that the work needs to start and take place in the life world of the concerned actors. Joint capacity building and collective empowerment for sustainable development is at the heart of community work, especially in the social mobilization form (Adams, 2008; Dominelli, 2012; Fook, 2016; Sjöberg et al., 2015). The connection between CCCs and mobilization should not be considered a "virtuous circle" in the sense of some automatic reinforcement dynamic between ability to collectively manage at the one hand, and collectively mobilize, contest, and defend on the other. Instead, these two forms of collective action show a non-linear relationship, which can vary across space and time. Another dynamic relation central to the evolving perspective of CCCs is the recognition that social and natural systems are interrelated, and therefore the problems of one cannot be addressed without considering the consequences for the other (Folke et al., 1998). Therefore, CCCs potentially have a critical role to play in influencing the surrounding neighborhoods in which it is located, by encouraging the acknowledgement of critical environmental issues that affect the whole community. In this

regard, CCCs would ideally be continuously modified by both external (e.g., changing climatic and ecological conditions or integration into mainstream society) and internal factors (e.g., personal desires or changing perceptions).

6 | CONCLUSION

This study has contributed to further develop the concept of CCCs and to identify key features for the successful establishment of CCCs. We conclude that community climate commons can be defined as community-based commons that form the basis for mobilization and collective action against ongoing climate change. In relation to such a definition, this study has identified several key elements for the practical development and functioning of CCCs:

1. Democratic organization and governance with transformative leadership
2. Based on smaller-sized membership groups with clear boundaries and existing rules-in-use for participation
3. Access to and creating organizational structures, meeting places, social capital, collective identity and social cohesion
4. Dependence on external political and social support and sometimes on financial support.

The governance of a CCCs requires a decentralized organizational structure, with a transformational leader that among others can enhance several central tenets for well-functioning groups and communities. However, the role of transformational leadership demands further studies in relation to commons, due to the lack of current research on the topic. We have, however, identified the importance of social capital, trust, and collective identity combined with suitable boundaries and rules-in-use in a CCCs, and that CCCs can have positive impacts on individuals', groups', communities', and nations' well-being. When examining the complexity of external interferences and support within a CCCs, we have here touched upon the relation a CCCs may have to the market, which calls for future research to address and elaborate on this aspect. Forthcoming studies may explore how local and global markets related to for example a commodified food supply chain, can affect the motivations of the members in a CCCs, thus questioning whether the relationship that for example a decentralized bottom-up arranged CCCs has to the laissez-faire market is a paradox.

We view the concept of CCCs as a significant complement to climate research, particularly in emphasizing bottom-up social mobilization for active participation and collective action. In conclusion, this review and content analysis has provided some key rationales for that CCCs could play an increasingly important role for humans to engage in and more collectively act against ongoing climate change caused by human activities. The contemporary climate crisis requires the aspiration to meet our current needs without compromising the ability of future generations to meet their own needs. Technical solutions and macro-level policies are of course necessary and crucial measures to

act against the climate crisis. However, these measures are currently insufficient for reaching the stipulated climate targets that the Paris Agreement rests upon, namely, to keep global average temperature well below 2°C above pre-industrial levels (Wunderling et al., 2022). They need to be complemented by action based on a more decentralized, local and community level (Colding, Barthel, & Samuelsson, 2020). In this decisive situation we believe that CCCs can significantly contribute with innovative approaches to adaptation and mitigation of climate change and have potential to play an important role in fostering collective mobilization for climate action.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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