



# Advancing the Climate-Biodiversity-Health Nexus Social Justice, Scale, and Applications

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## 1. The Climate-Biodiversity-Health Nexus

Making progress toward sustainable and resilient communities requires systems-based, integrated approaches to planning and policy, as sustainability issues are complex and consist of multiple interconnected ecological, social, behavioural, economic, political, and cultural challenges. A number of frameworks have been developed to facilitate and guide integrated planning and policy, such as nexuses frameworks. These frameworks are designed to show the interrelationships of the challenges, and include the water-energy-food nexus<sup>1</sup> and its variations, such as the water-energy-food-climate nexus, water-energy-food-health nexus, water-energy-food-environment nexus, and others. These nexuses have the potential to support integrated sustainability planning and practices; however, they have also been criticized for their ambiguity, lack of clear application, and how they are framed in terms of resource scarcity.<sup>2</sup>

The climate-biodiversity-health (CBH) nexus<sup>3</sup> was developed in response to the criticisms of the water-energy-food frameworks. The CBH nexus holds three distinct advantages as a tool for supporting local sustainability planning and policy:

**First**, it is a goals-oriented framework that stimulates thinking about how local strategies and plans may align or conflict with objectives related to climate change mitigation and adaptation, biodiversity conservation and habitat protection/regeneration, and the mental and physical health of community members. With an orientation toward local goals and objectives, the framework is less ambiguous with respect to its potential applications to practice and policy.

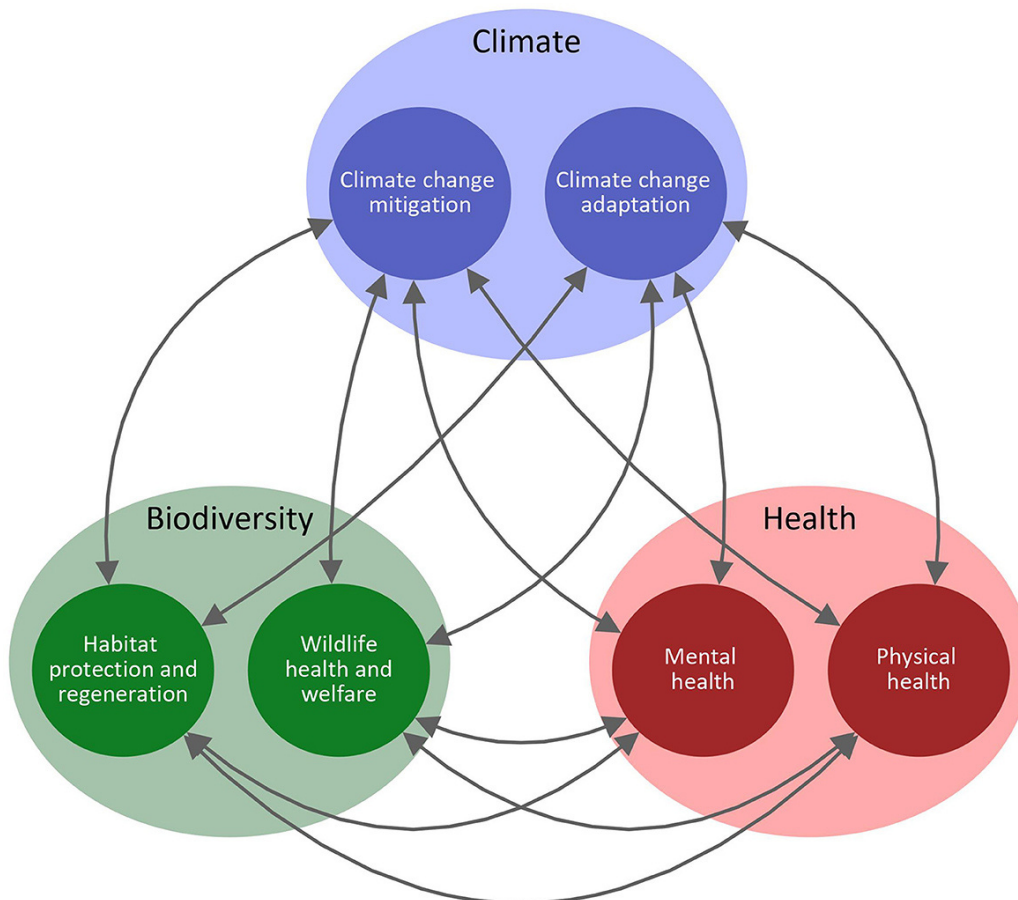
**Second**, the framework captures two of the most pressing sustainability issues of the modern day: climate change and biodiversity loss. It is critical that communities recognize and work toward addressing these issues to make progress toward sustainability and resilience.

**Third**, the three domains of the CBH nexus are highly interconnected with respect to both issues (i.e., climate change, biodiversity loss, declining community health) and strategies (i.e., climate action, biodiversity conservation, improving community health). Supporting this argument are the outcomes of a joint workshop between the Intergovernmental Panel on Climate Change and Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services,<sup>4</sup> which include recommendations to implement approaches that achieve co-benefits among climate action, biodiversity, and human wellbeing.

The CBH nexus is a potentially valuable framework for facilitating integrated planning and policy. However, as a relatively new framework, it has limitations and areas where it can be further developed, conceptualized, and understood. Three such areas include its:

1. value in terms of integrating social justice into planning;
2. ability to handle different scales of planning, and
3. possible applications to local planning and governance.

These areas are of particular interest (respectively) due to calls from scholars to ensure that planning is (1) inclusive of social justice and equity considerations,<sup>5</sup> (2) integrated across multiple jurisdictions levels of government,<sup>6</sup> and (3) supported by frameworks that provide clear methods for applying integrated thinking to practice.<sup>7</sup> Accordingly, a workshop was held that explored and further developed the CBH nexus concept and framework with respect to considerations around social justice, scale, and applications, and this report presents the activities and outcomes of the workshop. The workshop is part of a larger research effort, the Climate-Biodiversity-Health Nexus project, and more details on the research can be found on the project website: [www.triaslab.ca/cbh-nexus](http://www.triaslab.ca/cbh-nexus)



**Figure 1. The climate-biodiversity-health (CBH) nexus**

Taken from Newell, R. (2023). The climate-biodiversity-health nexus: A framework for integrated community sustainability planning in the Anthropocene. *Frontiers in Climate*, 5, 1177025. <https://doi.org/10.3389/fclim.2023.1177025>

## 2. The Workshop

The workshop involved a group of scholars and researchers from Royal Roads University and the University of Victoria, who collectively represent a range of knowledge in sustainability issues and diverse experience in academic, practitioner, and government work. The workshop was held online in April 2023, and it ran for three hours. Workshop activities were facilitated by the CoLabS platform,<sup>8</sup> which is a tool for facilitating online engagement and collaboration around sustainability issues.

The workshop began with a presentation on the CBH nexus and the research project that developed the experimental framework. Then, workshop participants entered the CoLabS platform, where a schedule of workshop activities and buttons for entering virtual 'activity rooms' were displayed. The activity rooms centred on three different areas examined in the workshop to further develop and explore the CBH nexus concept and framework: (1) social justice, (2) scale, and (3) applications. Each room contained an interactive version of the nexus framework, questions to stimulate workshop activities and discussion, and a virtual working table. A screenshot of the platform can be seen in Figure 2.

The workshop attendees visited each activity room as a group, and they began addressing the questions by posting ideas and comments using the virtual working tables. This was followed by group discussions, where the attendees expanded on and responded to the ideas shared through the working table activities. The working table activities and group discussions were guided by the following questions and prompts.

### Social justice

- Is social justice a lens to understand the CBH-nexus? Or, is justice a nested outcome?
- What justice sub-domains could be useful in building out a J+CBH nexus? For example, distributive and procedural justice may be potential categories.
- Can you think of ways that minimizing/reducing injustices can be incorporated into the CBH-nexus and its sub-domains? As a goal-oriented approach, the nexus may leave out critical tradeoffs. Justice is often framed as a utopian project that ignores existing inequities and does not offer a justice-doing to get to justice-visions.

### Scale

- Are there appropriate scales for which we can apply and not apply the framework?
- Can this be applied to temporal scale (as well as spatial scales)?
- Do the components change/differ at different scales?
- How do we capture inter-scalar interactions?

## Applications

- How can this be applied in research, particularly studies that are designed to produce useful knowledge?
- How can it be applied in practice, planning, and policy? How can it be applied to inform integrated design and implementation?
- Who can use the framework, and how would they use it? For example, this may be used by different levels of government, different sectors, etc.

**The Climate-Biodiversity-Health Nexus**

Legend  
- - - - - Opposite

- Is social justice a lens to understand the CBH-nexus? Or, is it a nested outcome?
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- Can you think of ways that minimizing/reducing injustices can be incorporated into the CBH-nexus and its sub-domains? As a goal-oriented approach, the nexus may leave out critical tradeoffs. Justice is often framed as a utopic project that ignores existing inequities and does not offer a justice-doing to get to justice-visions.

Robert Newell + 4 · 7mo

**CBH and Social Justice**  
Use the '+' button to add a post, and click the three dots to open options for connecting posts.

**Adding health equity**

cdc.gov

Justice, Equity, Diversity, and Inclusion in Climate Adaptation Planning

Thinking about justice... equity, diversity and inclusion (EDI frameworks used extensively in local governments) and GBA+ analysis in the health field. Could 'health equity' be added under the health component for consideration?

For example, as described here: <https://www.cdc.gov>

**Justice as overarching umbrella**

J(CBH) as a way of having justice as a core criterion, rather than an add-on. It suggests that both the outcomes are just, the ways of doing are just, and that the systems are just.

**Social justice as a lens**

The nexus framework could be reconfigured to include separate justice domain, or it could look at the intersection (for instance) of health justice, biodiversity justice, and climate justice.

**What is biodiversity justice?**

- Examples Indigenous communities in the North and issues with protected areas and Indigenous
- Bharadwa, B., Jones, A., Fifield, J. and Sutcliffe, S., 2022. Biodiversity & justice. *British Actuarial Journal*, 27, p.e13.

**Components of Justice**

My own work focusses on just transitions. Defining a 'just outcome' becomes challenging as justice is evaluated differently by different individuals and groups. Justice or equity is conceived in distributive, procedural and recognitional terms (and others... informational etc.). Understanding this is fundamental to public policy because it defines the parameters for success. When it comes to sustainability transitions, distributive justice is concerned with how different groups benefit or experience impacts from the changes required; recognitional justice identifies interest groups

Thank you for participating in our workshop!

Chat (1)

Figure 2. The CoLabS activity room centred on scale

### 3. The Workshop Outcomes

The sections below summarize outcomes from the workshop, synthesizing ideas from both the working table posts and group discussions. Note that the workshop was an exploratory exercise. Accordingly, its outcomes do not provide prescriptive usages for the CBH nexus framework, rather they serve to stimulate thinking about the possibilities and challenges for the future development and evolution of the framework.

#### 3.1 The Nexus and Social Justice

Adding a social justice component to the CBH nexus has value due to how climate change and biodiversity loss often impact marginalized communities and vulnerable groups more acutely and are risk multipliers in terms of health inequities. Two options exist for adding a justice component to the framework. One option would be to reframe the CBH nexus to explore the intersections between climate justice, health justice, and biodiversity justice, resulting in (for example) a (CBH)J framework. This approach would involve using a justice lens to change the identity and focus of the three CBH domains to emphasize health (in)equity, climate (in)justice, and environmental (in)justice or biodiversity (in)justice. Another option would be to reconfigure the framework to include justice as a separate domain. When employing this approach, it would be valuable to include justice as a core criterion rather than an add-on, for instance, developing a JCBH nexus framework rather than a CBH+J framework.

Conceptual challenges exist when taking the (CBH)J approach. While health justice and climate justice are clearly defined concepts that have been explored extensively in scholarly literature, biodiversity justice is less so. Nonetheless, biodiversity justice remains a key consideration for human health and wellbeing, particularly for certain communities to maintain their ability to live on the land and eat traditional diets. In addition, the mental health connection to nature and the concept of biophilia are key considerations for the nexus, as the loss of biodiversity and urban greenness play a role in mental health and wellbeing. Examining such issues using a social justice and equity lens can reveal important insights related to environmental justice about how certain groups and communities experience greater degrees of and/or are more severely impacted by these losses.

Given that the concept of biodiversity justice has not been extensively explored in the literature, the related concept of ecological justice could instead serve as a component of a modified framework. Ecological justice is a useful concept for integrated planning due to how it captures social-ecological systems and speaks to how nature should have rights like those of humans. It can be a mechanism for challenging human exceptionalism and logics of domination over nature.



Ecological justice recognizes the importance of balancing the needs of ecosystems and the environment with those of the economy and society. For example, is a park expansion or development planned for only affluent neighbourhoods and without providing ecological connectivity, or is it planned for areas that lack greenspace access and habitat?

Applying a justice lens to the CBH nexus framework is challenging due to how justice is defined differently by different groups and communities. The pursuit of justice outcomes in planning can involve paternalistic or saviour-like approaches that do not empower individuals and nature. For example, park planning and management programs frequently involve top-down approaches that can deny the rights of both people and nature. Often, planners and managers impose worldviews, knowledges, or practices on others without actually recognizing the values and beliefs that underlie these worldviews, knowledges, and practices. It is particularly important to avoid this issue when working in the context of Indigenous knowledge, which has historically been marginalized or ignored in favour of dominant worldviews. For example, a visual depiction of First Nations Perspective on Health and Wellness developed by the First Nations Health Authority<sup>9</sup> identifies spiritual connection to land as a key element of health and wellness.

Addressing the issues above requires recognizing that justice is not just about outcomes, and it also includes considerations around the processes to achieve outcomes (i.e., procedural justice), as well as the recognition of informational and epistemic factors that underlie these processes (i.e., recognitional justice). Accordingly, when designing and applying planning frameworks to make progress toward social justice, it is important to identify not just the desired outcomes of a planning process, but also the way that we arrive at the outcome. Relatedly, a common criticism of liberal theories of justice are that they are utopian. They pursue/describe an ideal state and just society; however, a lack of clarity exists around the practical aspects of transitioning to such a state from contemporary structural and systemic inequities and their historical lineages. For a JCBH framework to have practical value, it must include temporal, spatial, and relational considerations and markers of progress (process-related and material).

### **3.2 The Nexus and Scale**

The CBH nexus framework can be applied at local, regional, and national scales to show relationships among issues and strategies at these scales. Using the CBH nexus to map systems relationships at these various scales could reveal interesting differences in how drivers and impacts of sustainability challenges operate at various scales.

However, when applying the nexus at various scales, it is important to determine how ‘scale’ is defined and characterized. Scale can be defined through administrative boundaries (e.g., local governments, regional districts, regional health authorities, provincial governments, federal governments), environmental geography (e.g., watersheds, airsheds), and/or human-centred perspectives (e.g., individuals, communities, populations). In addition, scale has a temporal component; thus, it is also important to understand the timescales in which the CBH nexus is applied (e.g., short-term, medium-term, long-term).

As a goals-oriented framework, it would be useful to harmonize the CBH nexus and its applications with large-scale sustainability frameworks, such as the United Nations Sustainable Development Goals or One Planet, One Health. However, it is also important to recognize the dangers of rigidly linking to and fixating on a particular set of goals, as this prevents a reevaluation and redesign goals as new sustainability issues emerge and evolve. Therefore, although the goal-oriented features of the CBH framework is useful for aligning with other goals-oriented frameworks across scales of governance, it also may lead to ignoring key considerations and new frameworks that emerge in a dynamic and uncertain world.

From a governance perspective, harmonizing frameworks across scales can become complicated and challenging due to the different spheres of control and influence within local, regional, provincial, and federal governments and political boundaries. The implementation of the One Planet framework by the District of Saanich, British Columbia, is a good example of the challenges associated with such vertical integration. Organizations in Saanich are attempting to apply the One Planet framework in their activities, while also attempting to fit their efforts within the broader context of the Capital Regional District, as well as larger-scale efforts such as the United Nations Sustainable Development Goals.

Other challenges associated with applying the CBH nexus at multiple scales relate to the place-based nature of community sustainability efforts. The effectiveness of community sustainability plans and strategies is place- and context-dependent, and there is no ‘one size fits all’ approach to sustainability. This suggests that there are limits to scaling up the application of the CBH framework, particularly if the purpose of the framework is to support communities in their planning and policy efforts. Additionally, a focus on larger institutional scales can result in tensions with justice orientations and outcomes, as the needs of different community members and groups are not well captured at these larger scales. Thus, it is possible that the local scale is a useful target, or at least a useful ‘starting point’, for applying the CBH nexus.

### 3.3 Applications of the Nexus

The CBH nexus has multiple applications, particularly for local governments. The framework can be used to support an expanded Health in All Policies (HiAP) approach, that is, a CBHiAP approach. It can be applied to examine current local policies and community plans (e.g., Official Community Plans, Integrated Community Sustainability Plans) to identify co-benefits, trade-offs, and gaps with respect to sustainability objectives. In addition, the framework can be used by different departments in a local government to better understand the broader impact of their individual mandates.

The CBH nexus can also be used as a teaching tool for current and future practitioners by facilitating their thinking around integrated approaches to planning, urban design, implementation, and evaluation. For example, the CBH framework provides a means for engaging those working in the local planning and health domains to think about how their work and mandates are connected. To improve its educational and practical value, the CBH nexus should be accompanied with an instructional toolkit that provides interdisciplinary understanding about (for example) the built environment and its connections to various fields in ways that effectively communicate across disciplinary silos and their respective terminologies. Such toolkits can build upon previous work, such as the Healthy Built Environment Linkages Toolkit.<sup>10</sup> Without resources that provide common language and concepts, there will always be reliance on translators who can bridge knowledge and language gaps to make sense of the information for others.

When using the CBH nexus in practice, it is important to consider the unique perspectives and needs of stakeholders. This requires connecting with the stakeholders and understanding their priorities to create tailored approaches for each group. By doing so, we can ensure that the strategies we develop are effective and meet the needs of all stakeholders involved. Accordingly, applied researchers and government actors should apply the nexus using participatory approaches that involve co-developing knowledge, plans, and strategies that are most appropriate for a community and place.

When using the CBH nexus for participatory research, it is valuable to view academic institutions as co-producers of knowledge, skills, and tools, rather than the holders of knowledge. Such perspectives can result in planning tools and revised/modified frameworks that emerge from their collaborative usage, rather than having planning tools that are rigid, static, and inflexible. This requires a change in thinking about how to approach policy and planning research and practice through dynamic, evolving approaches, as opposed to prescriptive approaches.

The CBH nexus can serve as a useful lens for better understanding and addressing complex issues in that it can be used to examine how different interventions contribute to successes, failures, and identify gaps. Such knowledge is invaluable for informing how to design and redesign interventions to address said issues. It is also instructive in showing the intersections between the issues, thereby avoiding unanticipated negative interventions. However, the CBH lens can also be used in an overly simplistic manner, such as to create checklists for new developments that provide little in the way of meaningful implementation of integrated strategies and policies. It is important to recognize that the integrated planning benefits from applying a CBH nexus lens are not guaranteed, and its application may reproduce similar outcomes to what we currently observe in planning systems, without much value added.

#### **4. Conclusions**

This report discusses the outcomes of a workshop that explored ways of further developing and advancing the CBH nexus framework and concept with respect to social justice, scale, and applications. The intention of the workshop was not to redesign the CBH nexus and develop a new framework, rather to stimulate thinking around opportunities and issues related to evolving and applying the framework. Researchers and practitioners are encouraged to explore, build upon, and further develop the ideas produced through this report in their own work. It is ultimately through such exploration and experimentation of these types of ideas, concepts, and frameworks that local governments, researchers, practitioners, and stakeholders will develop, adapt, and apply the best tools for supporting progress toward sustainable, resilient, and just communities.

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