

NATURAL SOLUTIONS INITIATIVE

PUTTING NATURE BACK INTO NATURE-BASED SOLUTIONS

DECEMBER 2023

SFU

ACT

Action on
Climate Team

NSI SUMMARY, V. 1



ACT'S NATURAL SOLUTIONS INITIATIVE

VISION:

The Natural Solutions Initiative (NSI) aims to mobilize nature-based solutions (NbS) as crucial opportunities in the transition toward just, low carbon resilient, and sustainable communities and regions.

MISSION:

The goal of the NSI is to co-create and advance a cohesive and systemic framework-for-action that optimizes the benefits of NbS for both people and nature in a rapidly changing climate.

ACT – Action on Climate Team at Simon Fraser University is a state-of-the-art research-to-practice hub for climate change and sustainability solutions. We work across sectors to mobilize relevant knowledge for practice. We do this by advancing public and private sector partnerships, coordinating and co-creating leading-edge research for practice, mobilizing policy relevant knowledge to help us all go further faster on climate and sustainability action.

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Simon Fraser University
respectfully acknowledges
xwməθkwəyəm (Musqueam),
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kwikwəłəm (Kwikwetlem),
Qayqayt, Kwantlen, Semiahmoo
and Tsawwassen peoples on whose
traditional territories our three
campuses reside.

PARTNERSHIP ETHOS

ACT understands that both research and climate action, including nature-based solutions, can be colonizing in concept and implementation. ACT researchers seek to build both awareness of, and accountability to, this reality by adhering to the Truth and Reconciliation Calls to Action and the United Nations Declaration on the Rights of Indigenous Peoples. ACT is advancing the NSI Framework-for-Action to align with and prioritize Indigenous rights and systemic transformation, in particular at the watershed and territorial scales.¹ We aim to learn from Indigenous partners, recognizing that building trust and partnership will be an iterative, ongoing process. ACT will evaluate our work and seek feedback periodically, communicate and collaborate with Indigenous leaders, and keep learning from and refining our adaptive research process.



1. WHY THE NSI?

1.1 PUTTING NATURE BACK INTO NATURE-BASED SOLUTIONS

BOX 1: DEFINITION OF NATURE-BASED SOLUTIONS

In 2021, the United Nations Environmental Assembly (UNEA), comprised of 193 Member States, defined nature-based solutions (NbS) as “actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits.”²

The Natural Solutions Initiative (NSI) is putting nature back into NbS by advancing NbS planning, implementation and projects that are cohesive and systemic across a bioregion (i.e., watershed).³

When NbS projects are designed strategically and connected to one another, they can have synergistic effects and cumulative benefits for both human and natural ecosystems.⁴ However, many communities are developing NbS on a project-by-project basis, without an overarching plan to coordinate them. As a result, NbS are often fragmented across sectors

(e.g., public and private), landscapes (e.g., urban and natural) and jurisdictions (e.g., neighbouring municipalities).

In addition, these projects tend to focus solely on enhancing the ecosystem services that are useful for communities while failing to capture other values and potential benefits, such as biodiversity

and cultural values. Consequently, many NbS projects emphasize ecosystem services (e.g., stormwater management, heat alleviation, and flood mitigation), without accounting for results for overall ecological processes (e.g., water flows and habitat connectivity), Indigenous values, knowledges and worldviews, and, until recently, projected climate impacts on ecosystems and NbS over time.

The NSI aims to catalyze a shift from this siloed, project-based approach to a more **cohesive and systemic framework-for-action** across diverse scales within a watershed. This process includes NbS planning that incorporates a range of values relating to climate action, biodiversity, Indigenous knowledges and leadership, sustainable service

delivery, and health, equity, and justice, optimizing co-benefits, identifying trade-offs, and ensuring that NbS policy, planning, and project decisions are guided by the primary goal of advancing watershed health and resilience. Figure 1 depicts the NSI Framework-for-Action aimed at advancing cohesive and systemic NbS across scales and over time, and mobilizing NbS that advance the health and resilience of this interconnected system.

The underlying ethos of the NSI is that natural and human systems are interdependent. Emphasizing the resilience of ecological processes, including biodiversity, under a rapidly changing climate is the best adaptation strategy to advance low carbon resilience and sustainable communities.⁵

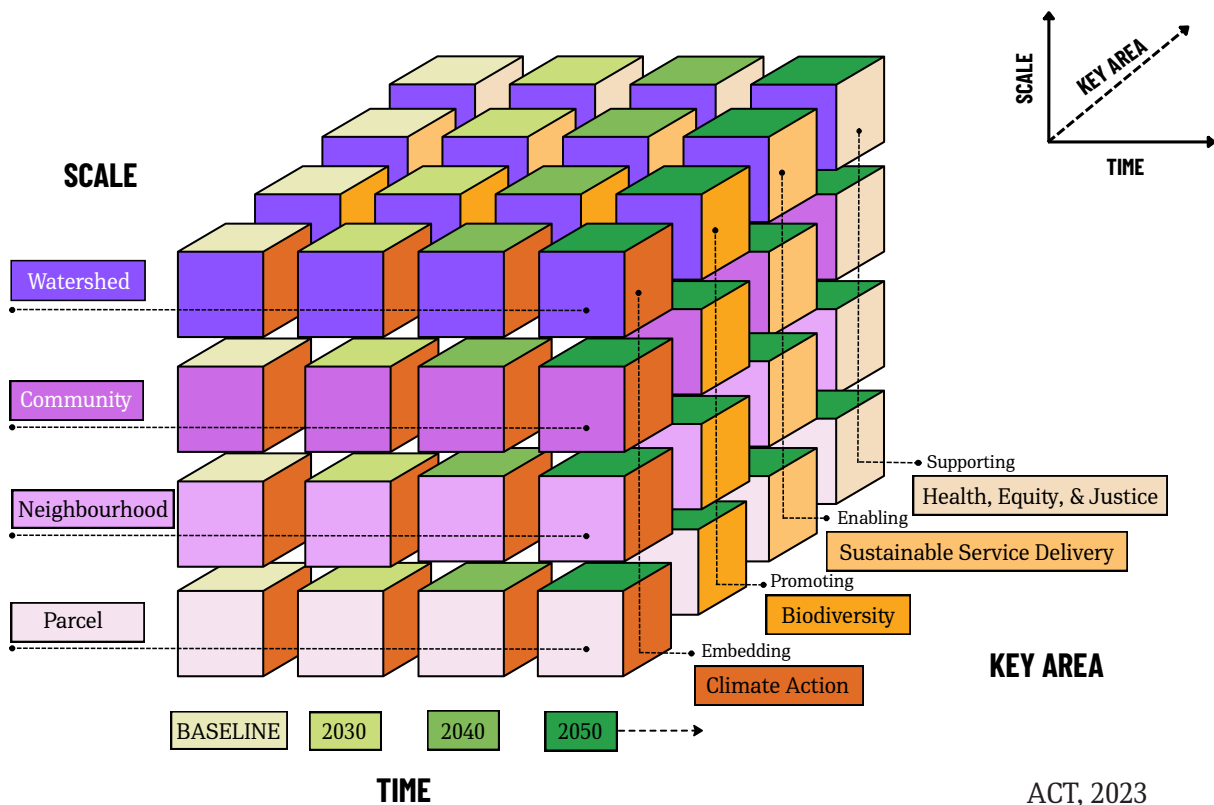


Figure 1: ACT's NSI Framework-for-Action. Cohesive NbS need to be considered across four scales of action (y-axis), evaluated over time (x-axis), and designed to optimize benefits and minimize trade-offs across four key areas (z-axis). We recognize that this diagram is based on mechanistic settler concepts for the sake of synthesizing and operationalizing NbS. Indigenous knowledges are needed to inform broader, more holistic understandings of people and community relations with the natural world.



1.2 WHY THE WATERSHED SCALE?

A bioregion is a “geographic unit defined through watersheds, ecoregions, hard physical boundaries and the cultures that stem within them. Bioregion is short for ‘bio-cultural region’ and are geographically based areas defined by a physical trait; land or soil composition, watershed, climate, flora, and fauna; as well as the cultural traits of the inhabitants that live within them, and act upon them.”³

Recognizing a watershed as a bioregion, defined by the natural flow of water, is crucial for a cohesive and systemic NbS approach. It encourages an integrated perspective that considers not only physical geography, but also the **ecological processes and ecosystem services** that define the unique character of the area. Implementing NbS to support **watershed health and resilience** is a strategic approach to addressing current and projected climate impacts and risks, as the watershed is the scale at which multiple climate hazards occur, and both sudden events (e.g., extreme weather) and cumulative impacts (e.g., sea level rise) will be felt.

Understanding Indigenous knowledges and reconnecting with nature can provide valuable insights for NbS planning and practices. For instance, collaborating with Indigenous partners to identify hazards, vulnerabilities, and risks in the watershed supports the co-creation needed to promote biodiversity, and protect and build resilience in the ecosystems upon which human and non-human communities depend. Implementing

NbS at the watershed scale is not just an opportunity to build meaningful partnerships with Indigenous peoples to move forward in a proactive and good way, but a necessity outlined in the United Nations Declaration on the Rights of Indigenous Peoples to co-govern nature, improving biodiversity and enhancing resilience in natural and human systems.

While NbS planning and practice are gaining traction in local and regional governments in the form of natural assets (e.g., forests and wetlands) and blue-green infrastructure (e.g., bioswales and green roofs) that provide ecosystem services such as water conveyance, stormwater and flood management, and heat management more cost-effectively,⁶ few NbS projects are being planned in alignment with climate action, biodiversity, and overall equitable community and land-use planning.⁷ Fewer still are authentically partnering with relevant Indigenous communities to better advance their values, knowledges, and worldviews.

Implementing NbS within the boundaries of the bioregion and traditional territories, expanding beyond political jurisdiction, can spur collaborative solutions-building, and new forms of decision-making and co-governance. By evaluating climate risks and implementing responses at the watershed scale, decision-makers can access a wider suite of options than are typically available for a local, regional or Indigenous government working in isolation.



2. THE NSI OPPORTUNITY

2.1 CO-CREATING A COHESIVE AND SYSTEMIC FRAMEWORK FOR NBS ACTION

In 2022, ACT initiated the NSI to address a problematic trend in NbS action relating to diverse and disconnected disciplinary and practitioner approaches, ad hoc planning of NbS projects, and narrow applications that do not capture the multiple ecological and community benefits of NbS.

ACT aligned with leading NbS researchers and practitioners to co-create the **NSI Framework-for-Action**, with the goal to optimize NbS benefits for people and nature. Currently, we are working with diverse case study partners to apply and evaluate the framework in practice across four scales of action.

The NSI Framework-for-Action addresses three current challenges in NbS planning and practice. Table 1 below summarizes these three commonly identified challenges, the NSI opportunities for addressing those challenges, and the NSI approaches for achieving systemic change. The NSI Framework-for-Action aims to:

1. **Build coherence using three nested approaches;**
2. **Promote cohesion across four scales of NbS action; and**
3. **Advance systemic NbS across five key areas.**

Table 1: The NSI Opportunity: Overcoming Three NbS Challenges.

NBS CHALLENGE	NSI OPPORTUNITY	ACT'S NSI APPROACH
Disconnected NbS terms and approaches	Build coherence using three nested approaches	Stabilize NbS nomenclature and build coherence by promoting three nested NbS approaches in support of broader watershed health and resilience - ecosystem-based management, natural asset management, and blue-green infrastructure strategies.
Ad hoc project-based NbS planning that does not account for the broader watershed ecosystem and ecological processes	Promote cohesion across four scales of NbS action	Develop knowledge and increase awareness about the cumulative and synergistic effects of NbS across watershed, community, neighbourhood, and parcel scales to coordinate NbS projects, understand trade-offs, and optimize co-benefits.
Narrow applications of NbS projects that underestimate and fail to optimize co-benefits	Advance systemic NbS across five key areas	Mobilize multifunctional NbS that address five key areas: 1) climate action; 2) biodiversity; 3) Indigenous knowledges and leadership; 4) sustainable service delivery; and 5) health, equity and justice. This will improve understanding of synergies and trade-offs, enhance monetary and non-monetary benefits, and prevent contradictions and/or unintended consequences in NbS action.



2.2 BUILDING COHERENCE USING THREE NESTED APPROACHES

NbS come in many forms. It is unsurprising that there is a corresponding variety of approaches and terms used to describe them. These include: natural infrastructure; green infrastructure; conservation, protection, and restoration of ecosystems; nature-positive approaches; green design; low impact development; nature-based climate solutions; natural asset management; parks; green spaces; green resilience; hybrid and/or enhanced engineering or biomimicry solutions.

The goal of the NSI framework is to bring coherence to these terms and approaches to facilitate the cross-disciplinary and cross-sectoral work that is required in order to advance systemic and cohesive NbS.

The NSI organizes these various NbS approaches around three interdependent approaches that have

caused confusions across disciplines and sectors: **ecosystem-based management** (emphasizes ecosystem health), **natural asset management** (emphasizes protection and restoration of natural areas to enhance services), and **blue-green infrastructure strategies** (emphasizes green design and engineering). See Box 2 for more detail about these three nested approaches.

When aligned, these three approaches can provide coherence in NbS planning and practice, and advance the health and resilience of ecological processes at the watershed scale.

BOX 2: ALIGNING THREE NESTED NBS APPROACHES

1. ECOSYSTEM-BASED MANAGEMENT

Ecosystem-based management involves establishing baseline conditions and ecosystem thresholds, monitoring changes in conditions, and engaging in adaptive management to ensure healthy and functioning ecosystems at the watershed scale. The goal is to support biodiversity and ecological integrity by monitoring and assessing impacts on ecological processes under rapidly changing land-use and climate conditions. Indigenous knowledges are crucial for informing the assessment of baseline conditions, by monitoring culturally-based ecosystem indicators (e.g., animal migration, medicinal plants, etc.) and identifying management opportunities (e.g., traditional burning) that enhance watershed health and resilience over time.

Approach: Employ an ecosystem-based management approach, centring Indigenous knowledges and territorial stewardship, to anticipate and respond to projected climate vulnerabilities and risks at the watershed scale.

2. NATURAL ASSET MANAGEMENT

Natural asset management protects, restores, and sustainably manages natural areas and processes. Natural assets are the stock of natural areas and features that maintain their original form (e.g., old-growth forests), are minimally modified (e.g., sustainably managed forestry or wetlands with controlled intake), or have been restored to their original form (e.g., a restored urban stream).

Approach: Undertake natural asset management, by integrating natural assets into asset management decisions and land-use planning.

3. BLUE-GREEN INFRASTRUCTURE STRATEGIES

Blue-green infrastructure comprises human-made systems that include hybrid assets utilizing natural and living features (e.g., urban trees, parks, and regenerative agriculture) and engineered assets mimicking natural processes (e.g., rain barrels storing water). These assets support and enhance ecological processes and ecosystem services.

Approach: Adopt strategies, such as design standards, engineering guidelines, and bylaw changes, to support hybrid and engineered solutions that enhance ecological processes under rapidly changing climate conditions.

When implemented without an overarching plan, NbS approaches tend to be narrow and service-based in application. Ecosystem-based management in support of watershed health and resilience requires an understanding of system baselines and thresholds. Inclusive knowledge formation and management with place-based Indigenous knowledges and leaders, is foundational for developing NbS approaches that support overall watershed health and resilience for ecosystems and communities over time. This lays a foundation of data and knowledge formation at the watershed scale that is fundamental for creating coherence across natural asset and blue-green infrastructure approaches and goals.

In this model, NbS align in support of underlying ecological processes, sustaining the ecosystem services upon which our communities and

economies depend.

Figure 2 below depicts how natural asset and blue-green infrastructure approaches reside on a spectrum, from natural and restored assets, to hybrid and engineered assets, and the interdependencies between them when they are guided by ecosystem-based management approaches. A watershed or bioregional approach spurs collaborative opportunities to plan for optimal NbS strategies and shared management for implementation.

Shifting attentions at first from political jurisdictional boundaries to watersheds provides a crucial opportunity to prepare for the impacts of climate change in a more coordinated, holistic manner.⁸ It also catalyzes the need to explore innovative forms of watershed scale co-governance with Indigenous partners.

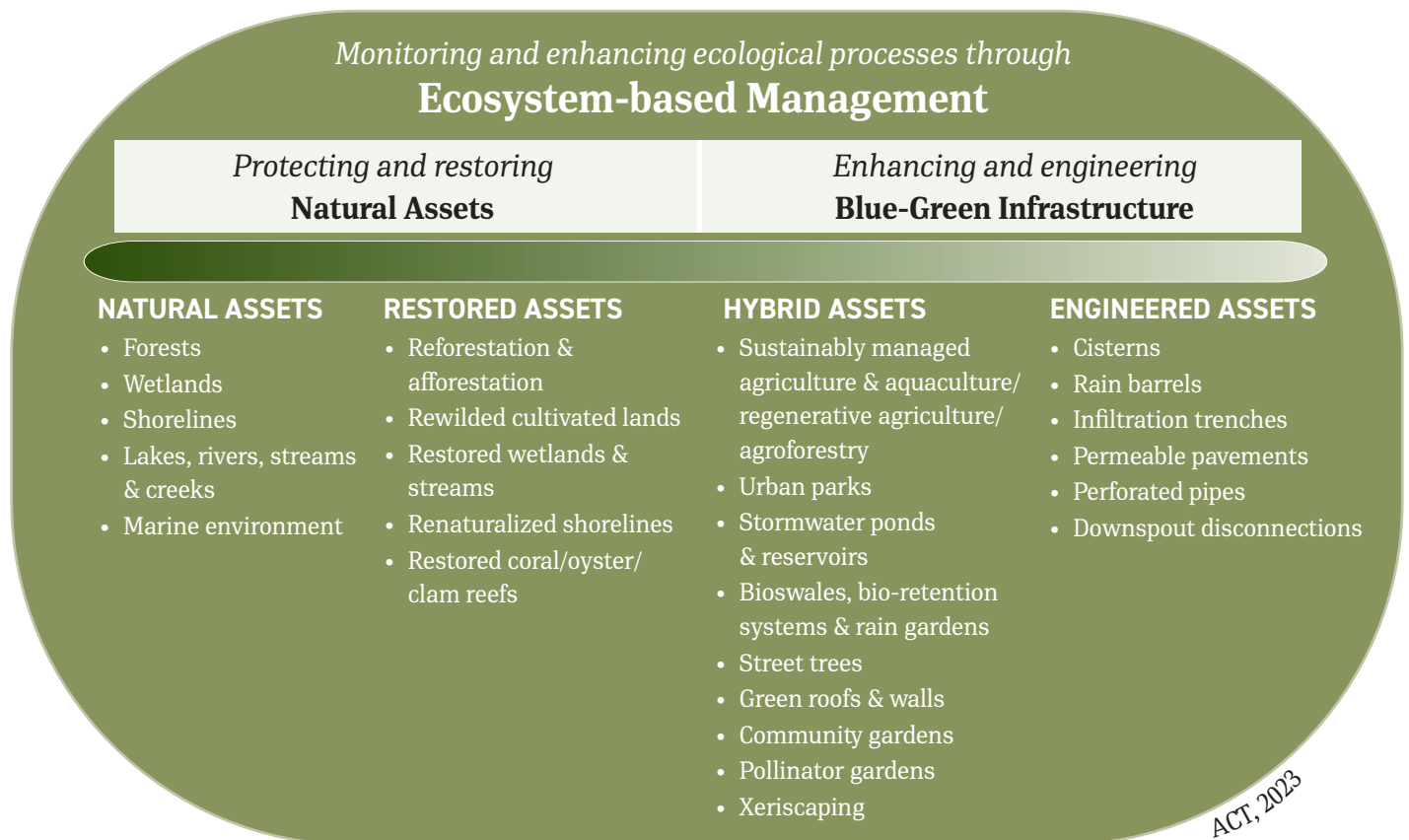


Figure 2: Three nested NbS approaches for adaptively managing watershed health & resilience. Ecosystem-based management approaches at the watershed scale provide foundational ecosystem baselines and thresholds that natural asset and blue-green infrastructure approaches need to integrate to ensure coherence.⁸



2.3 PROMOTING COHESION ACROSS FOUR SCALES OF NBS ACTION

Across the globe, NbS projects are being implemented at different scales. While some NbS practices are based on multi-lateral arrangements (e.g., Québec and California's Linked Cap-and-Trade program) or national policies (e.g., Canadian federal conservation programs), the NSI is focused on NbS at regional and local scales that have direct ecosystem and community benefits. Specifically, the NSI investigates NbS that are being implemented at the **watershed, neighbourhood, community and parcel scales**, and how to bring

cohesion to NbS projects and plans both within communities and across watersheds. See Box 3 for more details regarding these four scales. Using the three approaches described above, the NSI aims to ensure cohesion across four scales of NbS action in support of watershed health and resilience over time, starting with baseline ecological data and key indicators of health and resilience at the watershed scale.

BOX 3: FOUR SCALES IN THE NSI FRAMEWORK-FOR-ACTION

The NSI Framework-for-Action emphasizes the interdependencies of NbS plans, programs and projects across four scales of action.

1. WATERSHED SCALE

A watershed is a type of bioregion,³ also known as an ecological region, that is connected by a distinct hydrological cycle. To understand and track the overall health and resilience of the watershed, it is important to establish priority data collection methods, assess baseline ecological conditions, monitor/project climate trends, and identify thresholds, vulnerabilities, and risks. When viewed at this scale, each NbS project becomes part of the larger, interdependent ecological system that is connected by water flows, aquatic and terrestrial functions, and other ecological processes. By considering this scale during NbS planning, practitioners will be able to gather the data, trends, and interdependencies that will help to inform the prioritization of NbS projects. The watershed scale not only offers opportunities for co-creating and co-governing NbS, but also facilitates collaboration with Indigenous Peoples and encompasses a range of natural and urban landscapes.

2. COMMUNITY SCALE

Natural asset management (protecting, restoring, and sustainably managing natural areas), and blue-green infrastructure strategies (utilizing and/or mimicking natural processes to support and enhance ecological processes and ecosystem services) are most commonly applied at the community scale. It is important to align these approaches to enhance ecological processes and ecosystem services across all areas of planning, including in land-use, asset management, public health and safety, and the built environment planning (e.g., through bylaw changes).

3. NEIGHBOURHOOD SCALE

Each neighbourhood is geographically bounded with site-specific conditions and issues. Local governments and relevant organizations can work together to strategically implement NbS in neighbourhoods to address contextual issues related to hazards and risks such as flooding, wildfires, or landslides, and risks to infrastructure, populations, and ecosystems. These projects need to be designed to relieve burdens on community infrastructure (e.g., excess stormwater or urban heat islands), promote equity (e.g., equitable access to nature and ecosystem services) and support ecological processes (e.g., landscape connectivity or groundwater recharge).

4. PARCEL SCALE

At the parcel scale, NbS can be implemented to address the concerns for a particular site (e.g., stormwater runoff). When designing NbS at this scale, developers and property owners need to be considering lifecycle costs of infrastructure and incentives for protecting and restoring natural assets. Blue-green infrastructure can support in minimizing risks, damage costs, and losses to property owners over time. Moreover, NbS practice on private land can be pivotal in supporting healthy and resilient ecological processes (e.g., natural water cycles, ecological corridors, and biodiversity).

Figure 3 below depicts the diverse NbS activities being applied across four scales. It is an abbreviated depiction of a broad review of scholarship and practice, and showcases the interdependencies between scales and the need for more cohesive NbS planning to support and enhance **ecological processes and ecosystem services** across scales.

Ensuring that baseline ecological data and key indicators of health and resilience at the watershed scale are the foundation of NbS planning and practice helps to ensure that NbS are being applied across scales in a way that supports nature and, by proxy, the communities that benefit from a functioning and healthy ecosystem.

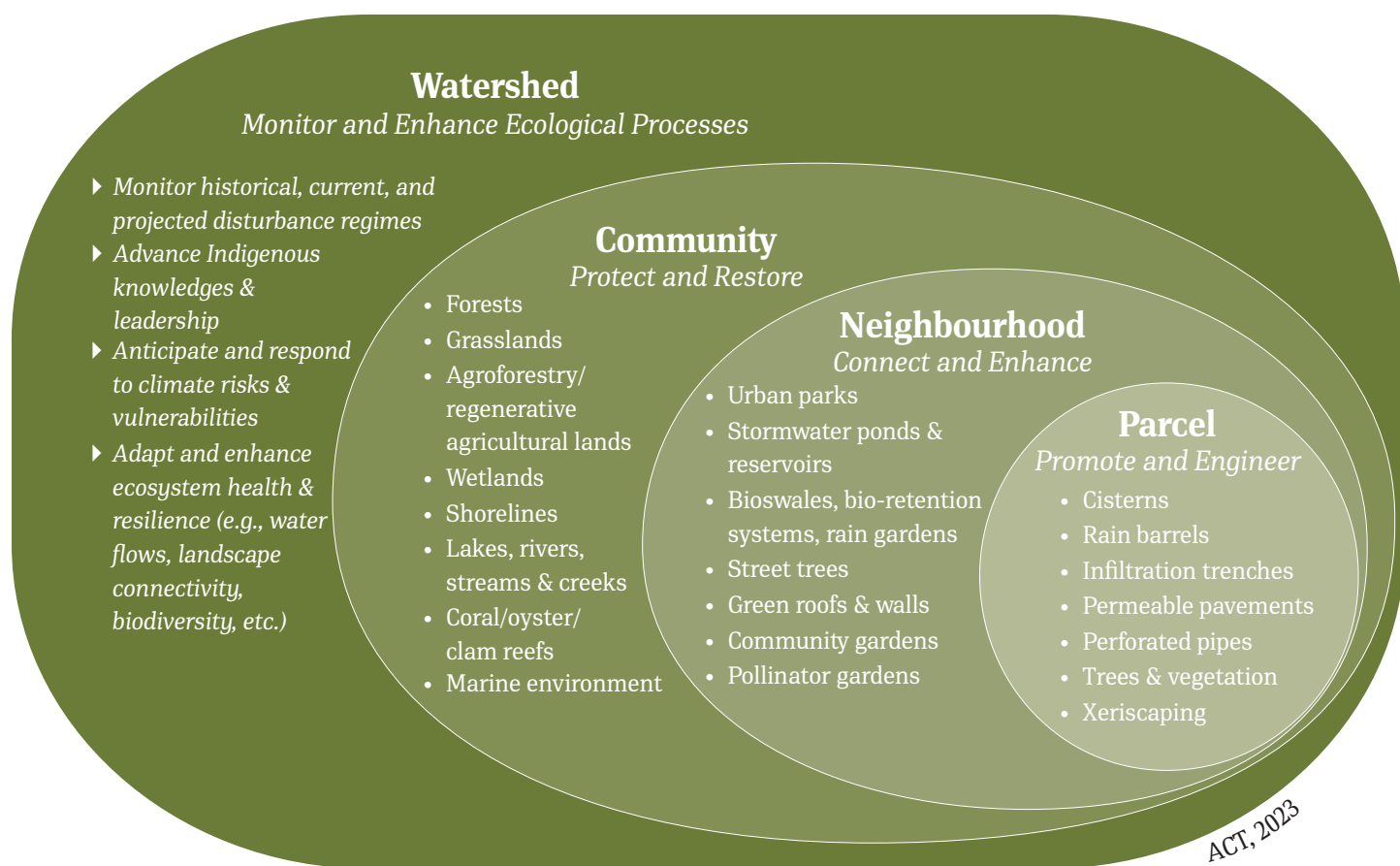


Figure 3: NbS opportunities across four scales. NbS projects are being applied across four scales of action. Ensuring these applications support ecological processes and diverse ecosystem services within the watershed helps to promote coherence across scales.



2.4 ADVANCING SYSTEMIC NBS ACROSS FIVE KEY AREAS

Natural systems and NbS cross many disciplines (e.g., ecology, conservation biology, natural resource management, community and social planning, engineering) and are impacted by diverse issues (e.g., development and encroachment, climate changes, Indigenous territorial rights, etc.). While the pace of NbS implementation has been accelerating, projects are being designed to achieve specific, often singular objectives, minimizing the multi-solving potential of NbS to address numerous societal challenges.

An extensive review of scholarship and practice demonstrates how NbS are being applied to advance five key areas: **climate action (both adaptation and mitigation), biodiversity, Indigenous knowledges and leadership, sustainable service delivery, and health, equity, and justice.**

The NSI assumption is that NbS planning is a crucial climate action strategy, with a suite of approaches and tools, that can be used to address key societal challenges simultaneously. Viewing NbS in this way encourages collaboration across disciplines and sectors to consider synergies and expand opportunities to optimize NbS values and valuations, and to document trade-offs and barriers in a more transparent manner. This more systemic approach to NbS planning could be used to streamline metrics and monitoring protocols in practice, and lead to innovative governance and financing. The NSI aims to support the development of more systemic planning in practice, that accounts for and addresses synergies and trade-offs across NbS goals and objectives. Five key areas where NbS are being applied are:

The NSI framework showcases five key areas that, when considered in the planning phase, can help to optimize NbS. Doing so is expected to provide more systemic value and benefits to people and nature.

1. EMBEDDING CLIMATE ACTION

Integrating projected climate changes and impacts into the development of NbS is important for two reasons: first, to identify how and where NbS approaches can minimize risks and vulnerabilities to hazards such as heat and flood (e.g., soft-armouring along shorelines, planting shade trees, etc.); second, to better understand the resilience of natural systems and NbS strategies under a rapidly changing climate. In addition, the protection and restoration of natural areas is considered to be one of the highest-impact emissions reduction strategies in both the short and long-term, alongside integration of renewable energy systems.⁵

Linking local actions and efforts to the 2022 United Nations Framework Convention on Climate Change Conference of the Parties 26.

2. PROMOTING BIODIVERSITY

Climate change is negatively impacting watersheds and ecological processes, accelerating biodiversity loss and species decline. NbS must be used to enhance the health of species, habitats, and functions within watersheds, ensuring connectivity across scales, and supporting resilience over time.

Linking local actions and efforts to the 2022 United Nations Convention on Biological Diversity Conference of the Parties 15.

3. CENTRING INDIGENOUS KNOWLEDGES & LEADERSHIP

Indigenous peoples have stewarded the land and species for time immemorial, creating sophisticated place-based worldviews, ecological knowledge systems, and cultural practices. Centring Indigenous knowledges and leadership in identifying key risks and vulnerabilities, and important NbS opportunities, can play a crucial role in advancing innovative co-governance arrangements that support the health and resilience of watersheds (e.g., co-existence with

nature, cultural burning practices, biodiversity improvement and culturally integral species, natural water cycle improvement, etc.).

Linking local efforts to the 2007 United Nations Declaration on the Rights of Indigenous Peoples, the 2019 British Columbia's Declaration on the Rights of Indigenous Peoples Act, and the 2021 Government of Canada's United Nations Declaration on the Rights of Indigenous Peoples Act.

4. ENABLING SUSTAINABLE SERVICE DELIVERY

Natural assets and blue-green infrastructure approaches are used to complement engineered infrastructure, bolstering ecosystem services and levels of service, while also lowering construction, operational, and maintenance costs (as compared to engineered solutions) over time. Including climate projections ensures that the valuations of NbS appreciate and are resilient over their lifecycle under climate changes.

Linking local actions to the 2019 International Standards Organization 1408 - Environmental Management, and 2023 International Standards Organization 14054 – Natural Capital Accounting for Organizations, supports alignments with the 2017 Task Force on Climate-Related Financial Disclosures, the 2021 Task Force on Nature-Related Financial Disclosures and sustainability-related financial disclosures from the International Sustainability Standards Board.

5. SUPPORTING HEALTH, EQUITY & JUSTICE

With every NbS project, it is important to consider how it can support equitable, healthy, and resilient communities. For example, protecting our most vulnerable and exposed populations by using NbS to minimize the impacts of heat and flood, and improve air quality and well-being.

Linking local actions to the 2030 Agenda for Sustainable Development, 2015 Sustainable Development Goals (2,6,8,9,10,11,13,14,15), and the 2022 United Nations Commission for Social Development.



3. NSI NEXT STEPS

3.1 ADVANCING COHESIVE AND SYSTEMIC NBS

The three NSI opportunities described above develop the foundations needed to plan and implement more cohesive and systemic NbS. These three opportunities are:

- **Building coherence by stabilizing NbS nomenclature using three nested NbS approaches** - ecosystem-based management to support watershed health and resilience, natural assets, and blue-green infrastructure.
- **Promoting cohesion across four scales of NbS action** - watershed, community, neighbourhood and parcel, to develop knowledge and awareness of the cumulative and synergistic effects of NbS.
- **Advancing systemic NbS by promoting the multiple values of NbS, and understanding trade-offs, across five key areas:** 1) climate action; 2) biodiversity; 3) Indigenous knowledges and leadership; 4) sustainable service delivery; and 5) health, equity and justice.

The NSI aims to advance more systemic NbS, identifying synergies and trade-offs across diverse areas, to promote the multiple values associated with protecting and restoring nature and shifting toward nature-positive approaches.

ACT is partnering with Indigenous, local government, and public and private sector partners to apply the NSI Framework-for-Action. Our goal is to work with cross-sectoral and interdisciplinary partners at different scales to co-create, implement, and evaluate NbS that multi-solve across diverse goals and objectives. We aim to continually advance best practices and scholarship, mobilizing learning about opportunities and barriers to plan, implement, and accelerate cohesive and systemic NbS, for the benefit of people and the planet.

NSI RESEARCH-TO-PRACTICE ACTION PHASES

With the goals of the NSI in mind, ACT's work will proceed in three phases:

- **PHASE 1 (2021-2023):**
Co-develop a Framework-for-Action with leading researchers and practitioners across scales to multi-solve diverse key areas, build upon best practices and identify trade-offs.
- **PHASE 2 (2023-ONGOING):**
Partner with Indigenous, local government, and public and private sector actors and organizations to tailor, co-create, and evaluate NbS across four scales of action.
- **PHASE 3 (2023-ONGOING):**
Mobilize learning throughout the research process, identifying important values, metrics, and indicators, best practice approaches, and key opportunities to advance and scale NbS.

NSI will mobilize resources, tools, and case studies to increase learning about opportunities, trade-offs, and barriers in planning and implementing cohesive and systemic NbS.



4. GET INVOLVED

ACT invites collaboration and partnership from national, regional and local organizations to build a community of practice aimed at applying the NSI Framework-for-Action. The goal is to promote cohesive and systemic NbS to address the multiple challenges that ecosystems and communities are facing now and into future, and to advance knowledge that builds resilience and sustainability for people and nature.

By working collaboratively, we can catalyze learning and innovation, and advance best practices. We encourage interested parties to [sign up to our newsletter](#) and/or email us at actinfo@sfu.ca.

5. NSI RESOURCES — IN PROGRESS

This section highlights NSI progress to date, and showcases key resources that are under development, with the aim of supporting cohesive and systemic NbS planning-to-implementation for practitioners and decision-makers to drive nature-positive change.

NBS DATABASE

ACT has been working on developing a NbS database that comprises a comprehensive set of resources, including an annotated bibliography covering NbS scholarship and best practices across a wide range of issues, sectors, and scales. We are continuing to refine and expand this database, with the goal of establishing an open-access platform to make this foundational work accessible to diverse audiences.

NBS STRATEGY FRAMEWORK

The framework presents a curated menu of strategies for NbS planning and practice organized across four scales of action: watershed, community, neighbourhood, and parcel. Derived from successful practices across North America, it highlights key success factors, indicators, and best practices across the five key areas of the NSI. Decision-makers can utilize this framework to enhance NbS planning, drawing on key strategies and indicators while tailoring approaches to support broader ecosystem health and resilience.

NBS PLANNING-TO-IMPLEMENTATION ROADMAP

This roadmap provides guidance on how to build inclusive and just processes in NbS planning. Co-creating cohesive and systemic NbS requires considerations of power dynamics - who is included and who is not, in project framing, planning, and implementation. Drawing insights from an analysis of 22 traditional and emerging planning processes, such as rational comprehensive planning, climate adaptation planning, and equity and advocacy planning, the roadmap provides step-by-step guidance for building an inclusive NbS planning-to-implementation process that incorporates diverse values and knowledge stakeholders.

NBS INDICATOR PLAYBOOK

This playbook is intended to help practitioners identify relevant, reliable, measurable, and aligned indicators to consider and plan for systemic NbS goals. This document is developed based on an evaluation of NbS indicators used in scholarship and practice. In the early stages of NbS planning and/or policy development, the playbook can help determine most relevant indicators for specific contexts. This can support in identifying strategic priorities across key areas, optimizing NbS policy and planning aligned with those indicators and goals, as well as measuring the performance and effectiveness of NbS over time.

ENDNOTES

¹ RAD Network (2023). *Envisioning and Catalyzing the Indigenous-led Conservation Economy: A Publication of the RAD (Restore, Assert and Defend) Network*. Restore, Assert and Defend Network. <https://metcalfoundation.com/wp-content/uploads/2023/05/RAD-Visioning-Document-FINAL.pdf>

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CONTACT US

Please engage with us about our Natural Solutions Initiative, and anything else you would like to discuss with ACT – Action on Climate Team.

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