Grounding Nature-based Solutions in Justice

Policy Brief - July 2025

This policy brief offers municipal and regional actors practical insights and actionable recommendations on how to position justice at the center of Nature-based Solutions (NbS) processes, from idea to implementation, to achieve climate resilience.

Key messages

Recognise that NbS do not per se deliver justice
- NbS can reinforce inequalities, benefitting privileged communities, excluding marginalized groups and intensifying socio-economic disparities such as gentrification.
- Justice needs to be explicitly included as a primary objective throughout NbS planning, designing, implementation and a criteria for evaluation.

Identify drivers of injustice
- Understanding existing inequalities and what creates injustice in a given context and beyond it is essential. With a better grasp of the drivers of injustice, it would be possible to implement interventions to overcome and transform these drivers.
- The twelve drivers of injustice identified across the model regions in the ARCADIA project highlight systemic issues in domains such as governance, funding, planning and participation. Addressing these issues is a necessary first step towards implementing justice in and through NbS.

Consider justice as a process not an outcome
- Justice needs to be viewed as a basis for NbS decision-making processes rather than a side effect.
- Justice needs to be systematically considered in governance frameworks & financing mechanisms, physical & spatial planning, co-creation and community engagement.

Introduction

NbS are inspired and supported by nature to build climate resilience and can play a key role in shaping sustainable futures for cities and regions by contributing to green-blue infrastructure (GBI) and adapting to and mitigating climate change and responding to biodiversity loss. At the same time, NbS aim to address various social, ecological and economic challenges as well, often referred to as generating co-benefits.

While NbS offer a mix of co-benefits, if not designed and implemented properly, they can create inequalities or exacerbate existing ones, contributing to exclusion and gentrification, or benefiting some privileged groups. Furthermore, human needs are interconnected with those of nature. Hence, nature-based transformations of environments need to safeguard life and aim to improve the living conditions for both nature and humans.

NbS can significantly contribute to achieving several of the Sustainable Development Goals (SDGs). The European Commission (EC) has incorporated NbS (and GBI) into its missions and key regulations to foster a greener, healthier, inclusive, and resilient Europe. In this regard, developing just and equitable NbS that prevent the uneven burden of climate change and leave no one behind is crucial. In the Arcadia project, which focuses on transformative climate resilience through NbS, we examined how five European regions interpret the relationship between justice and NbS within the context of climate adaptation.

Drivers of injustice in NbS decision-making processes

Based on a literature review and case studies of the five model regions, via focus group dialogues, we identified various challenges in the NbS decision-making processes that contribute to unfairness and create/enhance inequalities. We refer to these as the **12 drivers** of injustice, indicating the necessity of addressing diverse groups of issues:

● Conceptual and foundational vagueness

● Historical-contextual sensitivity

● Structural, institutional, and regulatory barriers

● Resource, knowledge, and implementation limits

● Communication, inclusion, and trust constraints

1.

Ambiguity of what justice means particularly in the context of NBS

When there is no clear and common understanding of NbS and Justice, it leads to mixed goals and conflicts in decisions, plans, and implementation.

2.

Lack of financing NbS and existing economic inequality

Limited funding hinders larger and more diverse beneficiaries of NbS and negatively impacts marginalized and low-income communities. Financial constraints make decision-makers prioritize short-term or incomplete initiatives.

3.

Overlooking historical physical, political and social context

Parameters such as historical land use designations, socio-political decisions, and power structures shape current vulnerabilities and perceptions of NBS. Acknowledging and addressing historical injustices and rooted inequities are essential to breaking the cycle of inequality and paving the way for a faster, more equitable future.

4.

Inconsistent planning processes (and design)

Fragmented, rigid, or outdated planning systems obstruct the prioritization of NbS in spatial and physical plans and equitable and fair integration of NbS into urban and regional landscapes and infrastructures. A lack of consistent planning can create gaps, exclusions, and uneven distribution.

5.

Ineffective governance systems and power dynamics

Rigid decision-making processes can result in inconsistent policies and exclude necessary competencies and important voices, especially from local communities and marginalized groups. Top-down governance approaches can reinforce existing inequalities and overlook local needs. As a result, certain groups may dominate discussions and decision-making, focusing only on specific decisions and benefits.

6.

Insufficient assessing, monitoring and sharing knowledge

The lack of robust assessment frameworks and inadequate quantitative and qualitative data limit adaptive learning and the improvement of NbS. Without sufficient monitoring and opportunities for learning, practitioners miss chances to identify and address injustices and vulnerabilities related to climate risks and adaptation measures.

7.

Incoherent legislation and regulation

Firm and fragmented legal systems hinder the flexible and efficient employment of NbS. Current regulatory barriers may obstruct the innovative and just implementation of NbS projects. Achieving effective NbS requires changes to these regulations, making them more adaptable and feasible to execute in a timely manner.

8.

Lack of NbS pilot projects and living labs

The lack of experimental and collaborative projects limits opportunities to effectively test capacities and refine NbS that prioritize inclusiveness and justice. Without pilot projects, we do not gain enough hands-on experience to learn from and update our knowledge and standards for fair NbS processes and outcomes.

9.

Lack of dialogue and meaningful communication approaches

Ineffective communication and a lack of meaningful stakeholder dialogue undermine transparency (regarding the required processes and their pros and cons) and hinder the development of a common understanding among all parties involved. The absence of effective communication leads to the failure to acknowledge all types of understanding, needs and expectations, resulting in inefficient prioritization. This also increases resistance and misunderstandings toward innovative NbS.

10.

Lack of community involvement and trust

Limited or superficial community participation leads to mistrust and low acceptance of NbS. Meaningful community involvement is important to ensure that NbS projects are valid and reflect local needs, values, and priorities. It is essential for the community to have genuine opportunities to pursue and implement changes that suit them. Deep engagement fosters a sense of stewardship and care for NbS, and building lasting community support leads to more sustainable NbS.

11.

Resistance to paradigm shifts toward human-nature harmony

Many policy frameworks traditionally focus on technical or human-centered views. This perspective can lead to overlooking the complex connections within social and ecological systems, prioritizing humans over nature, and disregarding the overall importance of life, which, if threatened, would impact every species. Transforming this viewpoint is essential to create space for nature, enabling a deeper understanding of and commitment to achieving a sustainable relationship between humans and nature.

12.

Justice gaps in sustainability frameworks

It is crucial to prioritize justice, define and incorporate justice criteria into sustainability and climate resilience frameworks, and situate NbS within them. These frameworks should ensure that all interventions, including NbS, aimed at enhancing sustainability and climate resilience address situations of injustice and support vulnerable groups.

Justice as a process-oriented approach

The process-oriented approach to justice calls for effective, adaptable, context-specific NbS processes that ensure fair participation, the recognition of diverse perspectives, vulnerabilities and needs, and the fair distribution of benefits, burdens and costs.

Distributional Justice

involves the equitable sharing of benefits and problems arising from NbS, ensuring that no particular social group bears negative impacts. It addresses potential inequalities such as green gentrification, where NbS may intensify socio-economic disparities by favouring certain groups. Achieving distributional justice requires tools like GIS, vulnerability mapping, and impact analyses to equitably distribute resources and resilience benefits.

Example (of distributional injustice): A new urban park could raise property values nearby, potentially resulting in gentrification and the displacement of long-term, low-income residents.

Procedural Justice

emphasizes fair, transparent, and inclusive decision-making processes, ensuring meaningful participation of stakeholders, particularly marginalized groups, in planning NbS. It involves participatory planning, stakeholder analysis, and co-creation processes, empowering communities to influence decisions affecting their environment and livelihoods. Procedural justice ensures that decisions about NbS reflect diverse perspectives and values, fostering consensus, resolving conflicts, and building long-term trust.

Example (of procedural injustice): NbS project consultations with local communities could be planned only symbolically, without leading to effective and necessary decisions, or meetings can occur during working hours, excluding participation from working-class and marginalized communities.
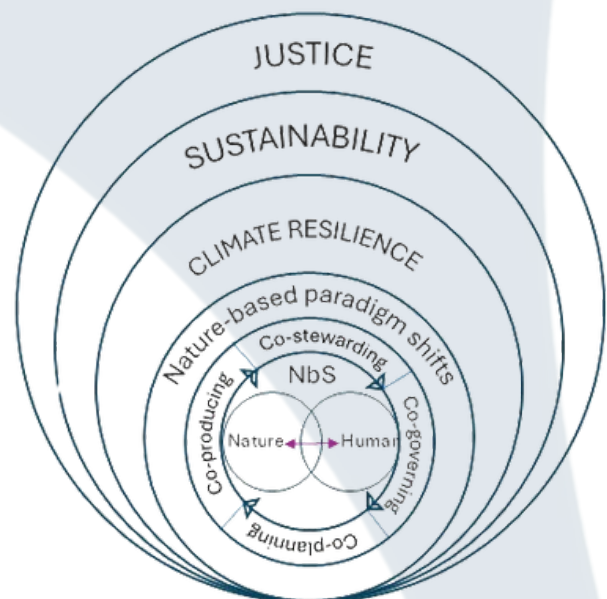
Recognitional Justice

focuses on acknowledging and respecting the socio-materiality and cultural forms, knowledge, and specific needs of marginalized and vulnerable (human-nonhuman) groups within NbS processes. It emphasizes recognizing inequalities that contribute to underrepresentation and vulnerability. This requires methods such as cultural mapping and community-driven approaches to underscore links and relationships and recognition of diverse voices, facilitating NbS initiatives that nurture supportive and enabling community relationships.

Example (of recognitional injustice): Urban greening projects could eliminate informal settlements or shared spaces that are crucial for marginalized groups, overlooking the value of those places.

Furthermore, fundamental changes in dominant perspectives, norms and practices are required. NbS need to be decided, implemented and scaled up based on Multispecies Justice, considering humans and nature as interconnected, as well as Restorative Justice, addressing past injustices and harms, and Intergenerational Justice, protecting the rights and resources of future generations.

This diagram presents a conceptual framework for applying the justice lens as a common view for creating consistency in sustainability, climate resilience and NbS. It also highlights the need for a significant nature-based paradigm shift that does not prioritize humans over nature. It furthermore highlights the need for collaboration in various forms of co-governance, co-planning (and design), co-production (of monitoring, validation, and knowledge), and co-stewardship as essential to promoting and delivering justice in NbS processes.

Situating NbS in the context of addressing paradigm shifts.
Note: This diagram reflects emerging conceptualization and is subject to change.

4

Recommendations for policymakers in cities and regions

Implementing inclusive and just NbS demands conscious actions and commitments from regional and municipal actors. Here are some recommendations for implementing justice in the processes of NbS tackling different but overlapping groups of barriers.

Conceptual and foundational vagueness

Drivers
- Ambiguity of what justice means particularly in the context of NBS
- Resistance to paradigm shifts toward human-nature harmony
- Justice gaps in sustainability frameworks.

Areas for policy improvement
- Define and position justice as a central value in NbS.
- Go beyond only 'us' and leave no beings behind by adopting a multispecies and intergenerational perspective.
- Repair sustainability and climate resilience frameworks to ensure justice is not only addressed symbolically.

Sample of guiding questions to address
1. How is justice defined and delivered in our NbS visions, policies and strategies? Who/what might be left out?
2. Do our conceptual and practical agendas reflect interdependence between social and ecological systems and consider more than human needs?
3. What dominant paradigms are guiding our work, and what are their implications for just and equitable NbS?

Historical-contextual sensitivity

Drivers
Overlooking historical physical, political and social context

Areas for policy improvement
- Include historical injustices in NbS decision-making processes and policies.
- Do not replicate the same NbS in other contexts. No strategy is suitable for different conditions and situations.
- Promote restorative and place-based justice processes.

Sample of guiding questions to address
1. What historical forces shape today's inequalities, and by what means are they linked to the current and future impacts of NbS on the local context?
2. Are NbS strategies tailored to the local socio-ecological-political context and indigenous communities?
3. How can NbS address the overlooked past harms and injustices that have occurred in this context and beyond?

Structural, institutional and regulatory barriers

Drivers
- Inconsistent planning processes (and design)
- Ineffective governance systems and power dynamics
- Incoherent legislation and regulation

Areas for policy improvement
- Enhance decentralised decision-making processes and make NbS processes adaptive and responsive to diverse input and knowledge.
- Incorporate justice criteria into planning regulations and legal frameworks to ensure that NbS (just like other approaches) are targeted to promote justice.
- Improve horizontal, vertical, bottom-up, and top-down balance across all scales, territories, and scopes of governance.

Sample of guiding questions to address
1. Who holds the power and decides the NbS decision-making process? Are governance structures adaptive and flexible enough to respond to local needs and emerging issues?
2. How are the distributional, procedural, and recognitional dimensions of justice addressed in local, urban, rural, and regional planning? Do they respond to multispecies, restorative, and intergenerational justice?
3. Do regulatory frameworks enable or constrain inclusive and fair NbS? Do we need a specific legal body (i.e., regional facilitators) for better legislative coherence?

Resource, knowledge and implementation limits

Drivers
- Lack of financing NbS and existing economic inequality
- Insufficient assessing, monitoring and sharing knowledge
- Lack of NbS pilot projects and living labs

Areas for policy improvement
- Develop and apply justice criteria for funding NbS, ensuring the projects' alignment with various contextual and transboundary justice objectives.
- Facilitate long-term evaluation, monitoring, adaptive learning, and the reproduction of knowledge.
- Establish inclusive NbS pilot projects and funding mechanisms that ensure 'no one is left behind.'

Sample of guiding questions to address
1. Is justice a condition for NbS funding? How can we better integrate justice criteria into NbS funding mechanisms that enhance public-private-community partnerships?
2. Do the indicators in our monitoring systems capture social and ecological connectedness and fairness? How can we ensure continuous learning and the inclusion of local knowledge in our reflections and course corrections?
3. How can we facilitate pilot NbS projects focused on justice, rather than treating justice as an add-on? How can we scale up successful just practices and apply lessons learned from unsuccessful ones to inform future actions?

Communication, inclusion and trust constraints

Drivers
- Lack of dialogue and meaningful communication approaches
- Lack of community involvement and trust

Areas for policy improvement
- Facilitate and implement efficient participatory processes that ensure real effects in decision-making.
- Apply communication strategies that culturally fit the context and are centered on care.
- Establish platforms for active and continuous dialogues that enhance long-term trust and engagement.

Sample of guiding questions to address
1. Who is excluded from the decision-making? Are communities, especially marginalized ones, engaged beyond information and consultation? Is this engagement sustained and happening at the preliminary stages?
2. Is there a feedback mechanism to adapt decisions based on local input?
3. How can we ensure meaningful engagement, transparency, and accountability?

> By embedding these considerations within transformative change, NbS can go beyond being only considered technical solutions and become tools for creating just and sustainable cities and regions.
> Systemic and justice-oriented integration of NbS can contribute to climate resilience that facilitates transformative change and addresses the needs of the most vulnerable groups while fostering a future where human and nature are deeply interconnected.

Source: Mottaghi, M., McCormick, K., Bastanzi, G., Colucci, M., De Notaris, C., Mozzi, M., Taddeo, S., Coninx, I., Koenis, M., de Vries, S., Soleymani, M., Bickle, M., Cipriano, P. (2025). Principles for Just and Equitable Nature-based Solutions and Green-blue Infrastructure https://www.arcadia-adaptation.eu/index.php/the-project/deliverables/

www.arcadia-adaptation.eu @arcadia-adaptation arcadia_project@art.er.it