POLICY BRIEF

Blue-Green Infrastructure to Capture Co-Benefits and Build Community Resilience in Global Cities

2025

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Accelerating Climate Action and the Just Energy Transition

Abstract

Integrating Nature-based Solutions (NbS) into urban infrastructure planning is critical to address the increasing impacts of climate risk, biodiversity loss, and threats to human health and wellbeing. Agriculture, Forestry, and Other Land Use (AFOLU) are among the largest emitters due to rapid urbanisation, accounting for 24% of greenhouse gas emissions and further exacerbating extreme events that pose significant threats to existing infrastructure and vulnerable communities in global cities. This situation underscores the urgent need for NbS as an innovative solution to adapt and mitigate disparities caused by climate change. NbS with Blue-Green Infrastructure (BGI) – combining blue (water bodies) and green (vegetation) infrastructures – can reduce runoff, manage water sustainably, and address urban heat. NbS can contribute 37% of the climate mitigation needed by 2030, and provide co-benefits to address land degradation and biodiversity loss.

G20 countries play a key role in promoting NbS, with previous presidencies and T20 policy briefs advocating for its scaling up. Multilateral organisations such as UNFCCC, UNEP, and IPCC also promote their integration into infrastructure projects for climate resilience and sustainable development. However, implementing BGI still faces challenges, such as funding gaps, standard variations, limited cross-sector collaboration, and inadequate consideration of local characteristics, especially in Global South cities. The G20 is encouraged to lead the mainstreaming of BGI. Firstly, develop BGI standards that can be replicated into national and city regulations and aligned with global frameworks. Secondly, innovative financing, such as green bonds and co-financing systems, should be mobilised, with a focus on vulnerable developing countries. Thirdly, platforms for community engagement should be built to share good practices and ensure BGI projects are developed with local communities, integrate traditional knowledge, and meet their socio-economic needs. Lastly, collaborative governance should be built with robust stakeholder engagement and connectivity across countries, and sectors should be promoted with a watershed governance approach to ensure equitable implementation and address transboundary climate issues. By prioritising BGI, the G20 can demonstrate the tangible benefits of NbS for people and the planet, provide co-benefits, and create resilient cities and communities.

Keywords: Blue-Green Infrastructure, Climate Resilience, Community Resilience, Global Cities, G20, Urban Infrastructure

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Diagnosis

The Transformative Role of Blue-Green Infrastructure (BGI) in Cities to Address the Triple Planetary Crisis

Humanity's main interlinked issues are climate change, biodiversity loss, and pollution. Agriculture, forestry, and other land use (AFOLU) contribute 24% of global emissions, exacerbating these challenges.[1] Coordinated efforts are essential to limit warming to 1.5°C, cut 43% of energy emissions by 2030, and achieve net-zero emissions by 2050.[2] At the same time, vulnerable communities and urban systems are disproportionately affected by extreme weather and rising sea levels, underscoring the need for transformative solutions.

Nature-based Solutions (NbS) – an umbrella concept for ecosystem-based approaches – are projected to contribute 37% of climate mitigation by 2030[3]. As one pathway for transformative change, NbS that relies on BGI is the key to addressing societal challenges while benefitting biodiversity and wellbeing.[4] BGI establishes an interconnected network of blue-green spaces, such as parks and wetlands, to manage water sustainably, reduce urban heat and pollution, and enhance ecosystem services (ES), including water purification, climate regulation, and recreational opportunities. These efforts also provide co-benefits, such as restoring biodiversity, habitat connectivity, and community livelihood.[5]

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[1] Warren, Brittaney. 2020. "G20 Governance of Climate Change through Nature-Based Solutions." https://www.global-solutions-initiative.org/press-news/g20-governance-of-climate-change-through-nature-based-solutions-g20-research-group-brittaney-warren/.

[2] United Nations. 2022. "UN Climate Report: It's 'Now or Never' to Limit Global Warming to 1.5 Degrees." https://news.un.org/en/story/2022/04/1115452.

[3] Warren, Brittaney. 2020. "G20 Governance of Climate Change through Nature-Based Solutions." https://www.global-solutions-initiative.org/press-news/g20-governance-of-climate-change-through-nature-based-solutions-g20-research-group-brittaney-warren/.

[4] Donati, Giulia F.A., Janine Bolliger, Achilleas Psomas, Max Maurer, and Peter M. Bach. 2022. "Reconciling Cities with Nature: Identifying Local Blue-Green Infrastructure Interventions for Regional Biodiversity Enhancement." *Journal of Environmental Management* 316 (August):115254. https://doi.org/10.1016/j.jenvman.2022.115254.

[5] Corgo, João, Sara Santos Cruz, and Paulo Conceição. 2024. "Nature-Based Solutions in Spatial Planning and Policies for Climate Change Adaptation: A Literature Review." *Ambio*, July. https://doi.org/10.1007/s13280-024-02052-1.

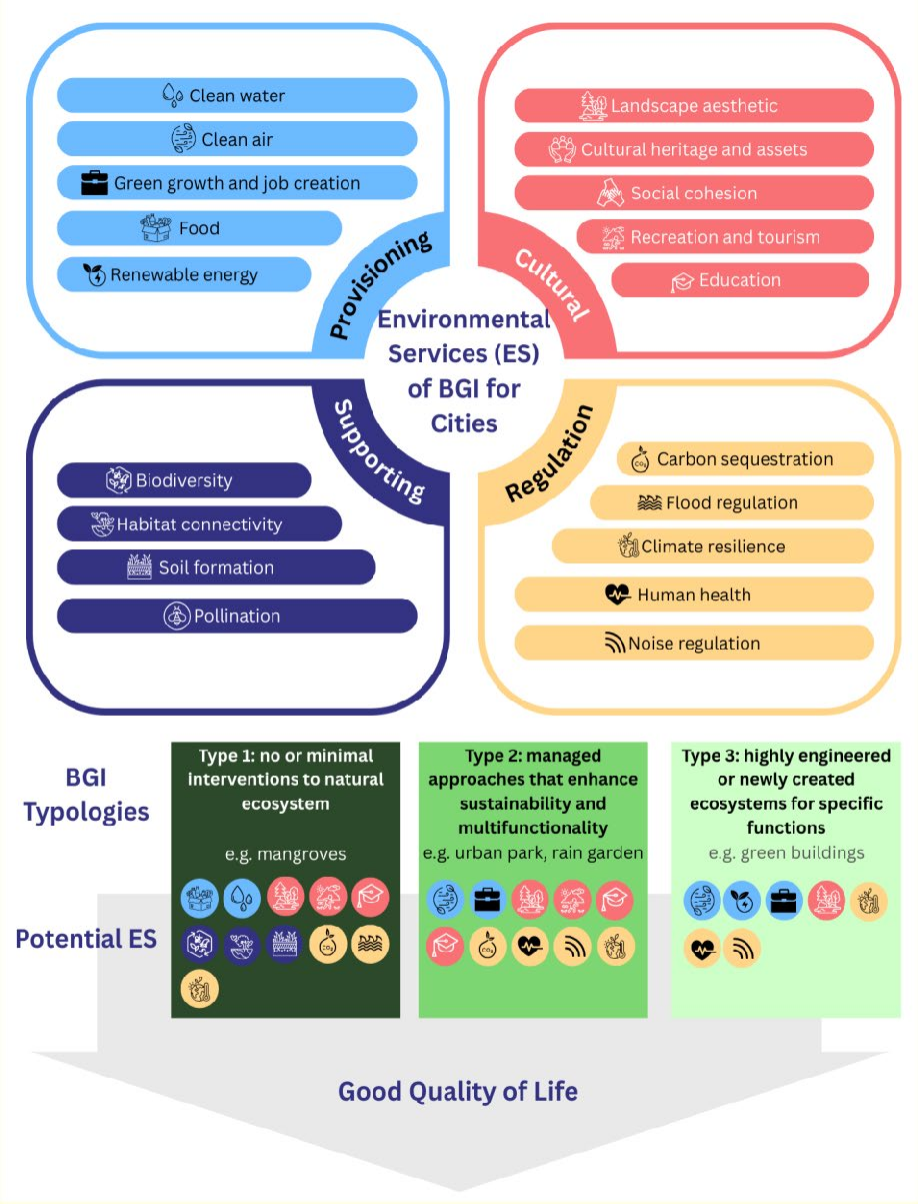

Figure 1. Potential ES of BGI for Cities [6,7,8]

[6] Lechner, Alex M., Rachel L. Gomes, Lucelia Rodrigues, Matthew J. Ashfold, Sivathass Bannir Selvam, Ee Phin Wong, Christopher M. Raymond, et al. 2020. "Challenges and Considerations of Applying Nature-Based Solutions in Low- and Middle-Income Countries in Southeast and East Asia." *Blue-Green Systems* 2 (1): 331–51. https://doi.org/10.2166/bgs.2020.014.

[7] Brauman, Kate A., Lucas A. Garibaldi, Stephen Polasky, Yildiz Aumeeruddy-Thomas, Pedro H. S. Brancalion, Fabrice DeClerck, Ute Jacob, et al. 2020. "Global Trends in Nature's Contributions to People." *Proceedings of the National Academy of Sciences* 117 (51): 32799–805. https://doi.org/10.1073/pnas.2010473117.

[8] Pereira, Paulo, Caichun Yin, and Ting Hua. 2023. "Nature-Based Solutions, Ecosystem Services, Disservices, and Impacts on Well-Being in Urban Environments." *Current Opinion in Environmental Science & Health* 33 (June): 100465. https://doi.org/10.1016/j.coesh.2023.100465.

BGI covers the spectrum from minimally intervened ecosystems to highly engineered systems, with each type delivering different ES tailored to the function and context (see Figure 1). Listed below are examples of countries that have implemented BGI, and each provides different ES and co-benefits.

Table 1. BGI Best Practices across the G20 Countries[9,10,11,12,13,14]

Country	Type	Function	ES	Co-benefit
China	Sponge cities - Type 3 (City-wide)	Reduce runoff, protect downstream water quality, and replenish groundwater.	Climate resilience, flood regulation, and clean water.	Urban heat mitigation and enhanced public health.
Canada	Wildlife overpasses - Type 3 (Regional)	Enable wildlife crossing.	Habitat connectivity and biodiversity.	Road safety, decreased wildlife-vehicle collisions, and genetic diversity preservation.
India	Rain garden-Begumpet Flyover - Type 2 (Site)	Revitalise stormwater drain ecosystems.	Flood regulation and clean water.	Urban aesthetics, recreational value, and support urban agriculture.
Indonesia	Building with Nature - Type 1 (Regional)	Mangrove rehabilitation and flood mitigation using natural fence-like structures.	Biodiversity, soil formation, and flood regulation.	Carbon sequestration, coastal erosion protection, and sustainable livelihood.

[9] Chan, Faith Ka Shun, James A. Griffiths, David Higgitt, Shuyang Xu, Fangfang Zhu, Yu-Ting Tang, Yuyao Xu, and Colin R. Thorne. 2018. "'Sponge City' in China—A Breakthrough of Planning and Flood Risk Management in the Urban Context." Land Use Policy 76 (July): 772–78. https://doi.org/10.1016/j.landusepol.2018.03.005.

[10] Chikhi, Faiza, Chuangcheng Li, Qunfeng Ji, and Xilin Zhou. 2023. "Review of Sponge City Implementation in China: Performance and Policy." *Water Science & Technology*, October. https://doi.org/10.2166/wst.2023.312.

[11] Edwards, Hannah A., Eleonore Lebeuf-Taylor, Michela Busana, and John Paczkowski. 2022. "Road Mitigation Structures Reduce the Number of Reported Wildlife-vehicle Collisions in the Bow Valley, Alberta, Canada." *Conservation Science and Practice* 4 (9). https://doi.org/10.1111/csp2.12778.

[12] Urban Nature Atlas. 2021. "Rain Garden underneath Begumpet Flyover." 2021. https://una.city/nbs/hyderabad/rain-garden-underneath-begumpet-flyover.

[13] United Nations. n.d. "Building with Nature in Indonesia." Accessed March 27, 2025. https://www.decadeonrestoration.org/building-nature-indonesia.

[14] ASEAN. 2022. "Study on Nature-Based Solutions (NbS) in ASEAN." https://asean.org/wp-content/uploads/2022/10/2023_Study-on-Nature-based-Solutions-NbS-in-ASEAN_Adopted.pdf#page=32.11.

As urbanisation and resource consumption intensify, these interventions offer a pathway to balance ecological integrity with economic growth and human wellbeing.

Elevating NbS: Synergising BGI within the G20 Context

The G20's 2025 agenda strongly aligns with utilising BGI to accelerate urban resilience and the goals of the Sendai Framework. Past G20 declarations – from Bali 2022 (Ecosystem-based Approaches (EbA) for mitigation[15]) to New Delhi 2023 (forest carbon sinks[16]) and Rio 2024 (NbS financing mechanism[17]) – have consistently advocated scaling up NbS for climate action. Yet, the previous T20 focused more on rural ecosystems,[18,19] leaving critical gaps in urban implementation, particularly in Global South cities. G20 nations must champion ecosystem protection, conservation, restoration, rehabilitation, sustainable management, and novel solutions in urban environments – underpinned by local knowledge.[20]

[15] Government of Indonesia. 2022. "G20 BALI LEADERS' DECLARATION." https://g20.org/wp-content/uploads/2024/09/2022-11-16-g20-declaration-data.pdf.

[16] Government of India. 2023. "G20 New Delhi Leaders' Declaration." https://www.mea.gov.in/Images/CPV/G20-New-Delhi-Leaders-Declaration.pdf.

[17] Government of Brasil. 2024. "G20 Rio de Janeiro Leaders' Declaration." https://www.gov.br/planalto/pt-br/media/18-11-2024-declaracao-de-lideres-g20.pdf.

[18] Stephenson, Matthew, and Brittaney Warren. 2024. "Nurturing Innovative Investment in Nature: Nine Recommendations Across Finance and Facilitation." https://t20brasil.org/media/documentos/arquivos/TF02_ST_03_Nurturing_innovativ66d8a6a984b37.pdf.

[19] Kirton, John, and Brittaney Warren. 2022. "Nature-Based Solutions for Climate Change." https://www.t20indonesia.org/wp-content/uploads/2022/10/TF3_-Nature-Based-Solutions-For-Climate-Change.pdf.

[20] Dickson, Barney, and Charlotte Hicks. 2023. "Nature-Based Solutions and the G20." https://ris.org.in/Others/G20digest/arti-6.pdf.

Key Challenges in BGI Implementation

Lack of standardised guidelines

Unlike traditional grey infrastructure, which follows well-established engineering codes and regulatory frameworks, BGI often operates under diverse definitions and methodologies.[27] Different interpretations of BGI among stakeholders have led to inconsistent frameworks, complicating project planning, design, and assessment. This inconsistency creates barriers to funding and policy integration as feasibility and effectiveness are unclear.

Financial and institutional capacity barriers

Addressing environmental challenges through NbS requires closing an estimated funding shortfall of $4.1 trillion by 2050.[21] It demands long-term, high-risk investments.[22] NbS projects are still predominantly funded by public sources, contributing 82% ($165 billion) of annual investments, with private sector contributions at only 18% ($ 35 billion).[23] Thus, medium- to long-term investment in BGI is challenging for developing countries due to limited financing options and institutional capacity.

Land constraints

Large-scale BGI faces high upfront costs, exacerbated by rising urban land values. The World Bank estimates that more than half of the global population

[21] UNEP. 2022. "Nature-Based Solutions: Opportunities and Challenges for Scaling Up." https://www.unep.org/resources/report/nature-based-solutions-opportunities-and-challenges-scaling.

[22] EIB. 2023. "Investing in nature-based solutions: State of play and way forward for public and private financial measures in Europe. European Investment Bank." https://data.europa.eu/doi/10.2867/031133

[23] Raalte, D. van, and N. Ranger. 2023. "Financing NatureBased Solutions for Adaptation at Scale: Learning from Specialised Investment Managers and Nature Funds." https://www.eci.ox.ac.uk/sites/default/files/2023-12/Financing_NbS_for_Adaptation-GCAOxford2023-finalv2.pdf#page=10&zoom=100,68,721.

(over 4.4 billion) reside in urban areas, projected to reach 70% by 2050 rapidly.[24] Urban growth increases demand for sustainable solutions, potentially increasing BGI projects. However, BGI approaches (eg, urban forests) can be difficult to implement, as allocating land away from profit-generating uses presents significant challenges.[25]

Lack of cross-sector collaboration

BGI implementations require the involvement of various stakeholders (health, education, and others), yet siloed operations hinder cohesive strategies.[26,27] Its long-term success hinges on private sector support and community engagement.[28,29] Without shared responsibility, the impact remains limited. For example, in the UK, fragmented collaboration hampers BGI implementation.[30] Local authorities perceive BGI as costly due to the difficulty of measuring benefits (eg, urban cooling and air quality), while developers undervalue returns.

[24] World Bank. 2025. "Urban Development." 2025. https://www.worldbank.org/en/topic/urbandevelopment/overview#:~:text=Today%2C%20more%20than%20half%20of%20the%20world%27s,are%20engines%20of%20economic%20growth%20and%20development.

[25] Duffaut, Chloé, Nathalie Frascaria-Lacoste, and Pierre-Antoine Versini. 2022. "Barriers and Levers for the Implantation of Sustainable Nature-Based Solutions in Cities: Insights from France." *Sustainability* 14 (16): 9975. https://doi.org/10.3390/su14169975.

[26] Nilon, Charles H., Myla F. J. Aronson, Sarel S. Cilliers, Cynnamon Dobbs, Lauren J. Frazee, Mark A. Goddard, Karen M. O'Neill, et al. 2017. "Planning for the Future of Urban Biodiversity: A Global Review of City-Scale Initiatives." *BioScience* 67 (4): 332–42. https://doi.org/10.1093/biosci/bix012.

[27] Willems, Jannes J., Lizet Kuitert, and Arwin van Buuren. 2023. "Policy Integration in Urban Living Labs: Delivering Multi-functional Blue-green Infrastructure in Antwerp, Dordrecht, and Gothenburg." *Environmental Policy and Governance* 33 (3): 258–71. https://doi.org/10.1002/eet.2028.

[28] Staddon, Chad, Laura de Vito, Adriana Zuniga-Teran, Yolandi Schoeman, Aimee Hart, and Giles Booth. 2017. "Contributions of Green Infrastructure to Enhancing Urban Resilience." https://resilienceshift.org/wp-content/uploads/2017/10/043_Contributions-of-Green-Infrastructure-to-Enhancing-Urban-Resilience.pdf.

[29] Kuitert, Lizet, and Arwin van Buuren. 2022. "Delivering Blue-Green Infrastructure: Innovation Pathways for Integrating Multiple Values." *Frontiers in Sustainable Cities* 4 (July). https://doi.org/10.3389/frsc.2022.885951.

[30] Brown, Kathryn, and Ana Mijic. 2019. "Integrating Green and Blue Spaces into Our Cities: Making It Happen." https://www.imperial.ac.uk/media/imperial-college/grantham-institute/public/publications/briefing-papers/Integrating-green-and-blue-spaces-into-our-cities---Making-it-happen-.pdf.

Diversity in the local contexts

BGI implementation often varies depending on local climatic conditions and community needs. In Southeast Asia, high rainfall and intense climate events demand water storage[31] and flood-focused[32] BGI, unlike drier subtropical countries.[33] Biopore became an example of BGI intervention in cities, which considered the local climate and residents' need for a good infiltration medium like in Semarang, Indonesia.[34] Different treatments and community approaches in managing BGI implementation were also required in some lake-centric cities in India due to their unique blue infrastructure landscape and diverse socio-cultural characteristics.[35]

Recommendations

Recommendation 1: Develop Replicable BGI Standards

To ensure the effective implementation of BGI in G20 countries, developing guidelines that can be adapted and aligned with global frameworks is imperative. The Kunming-Montreal Global Biodiversity Framework,[36] the Gandhinagar Implementation Roadmap,[37] the Intergovernmental Science-Policy Platform

[31] Eckart, Kyle, Zach McPhee, and Tirupati Bolisetti. 2017. "Performance and Implementation of Low Impact Development – A Review." *Science of The Total Environment* 607–608 (December): 413–32. https://doi.org/10.1016/j.scitotenv.2017.06.254.

[32] ICSI. 2025. "Engineering Action on Climate, Innovation, and Resilience." 2025. https://sustainability-coalition.org/.

[33] Beck, Hylke E., Niklaus E. Zimmermann, Tim R. McVicar, Noemi Vergopolan, Alexis Berg, and Eric F. Wood. 2018. "Present and Future Köppen-Geiger Climate Classification Maps at 1-Km Resolution." *Scientific Data* 5 (1): 180214. https://doi.org/10.1038/sdata.2018.214.

[34] Drosou, Nafsika, Robby Soetanto, Ferry Hermawan, Ksenia Chmutina, Lee Bosher, and Jati Utomo Dwi Hatmoko. 2019. "Key Factors Influencing Wider Adoption of Blue-Green Infrastructure in Developing Cities." *Water (Switzerland)* 11 (6). https://doi.org/10.3390/w11061234.

[35] Chowdhury, Koushik, Sukanya Basu, Malay Pramanik, and Tobias Plieninger. 2025. "Blue Infrastructure as Nature-Based Solutions for Urban Sustainability: Evaluating Local Perceptions from Four Indian Megacities." *Nature-Based Solutions* 7 (June): 100211. https://doi.org/10.1016/j.nbsj.2025.100211.

[36] UNEP. 2022. "Kunming-Montreal Global Biodiversity Framework." https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf.

[37] MoEFCC. 2023. . ". Gandhinagar Implementation Roadmap (GIR) and Gandhinagar Information Platform (GIP)." New Delhi. https://g20.utoronto.ca/2023/G20_ECSWG-GIR_GIP_for_Global_Land_Initiative.pdf.

on Biodiversity and Ecosystem Services (IPBES) Nexus Assessment,[38] and the IUCN Global Standard for NbS[39] can be a basis for integrating BGI into global cities. These guidelines should include clear definitions, typologies, procedures, and monitoring and evaluation mechanisms. In addition, integrating the BGI standard into national and city-level regulations is essential to ensure that BGI is implemented with the correct principles, adapted to the local context, and effectively supports functions such as disaster risk management and biodiversity.

Recommendation 2: Mobilise Innovative Financing

It is crucial to increase private sector involvement by leveraging green bonds, public-private partnerships, and co-financing mechanisms to scale up BGI investment. A notable example is Cape Town, which became the first city in Africa to issue a green bond – valued at ZAR 1 billion (approximately $74 million at the time) – to support investments in climate-resilient infrastructure. Cities need to explore funding opportunities from climate and development funds, such as the Green Climate Fund (GCF), the Green Environment Facility (GEF), the World Bank, and other donor sources.

To advance BGI development, funding must also prioritise vulnerable developing countries that face disproportionate climate risks. G20 countries can build on the Global Blended Finance Alliance (GBFA) initiative launched during Indonesia's G20 Presidency. This initiative focuses on enhancing blended finance for sustainable infrastructure in developing countries, serving as a model for a dedicated urban BGI investment platform. Optimising these funds requires targeted investments in capacity building, community engagement through citizen science, and policy integration. These efforts ensure long-term

[38] IPBES (2024). Summary for Policymakers of the Thematic Assessment Report on the Interlinkages among Biodiversity, Water, Food and Health of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES secretariat, Bonn, Germany. https://doi.org/10.5281/zenodo.13850289

[39] IUCN. 2020. *Guidance for Using the IUCN Global Standard for Nature-Based Solutions: First Editions*. IUCN, International Union for Conservation of Nature. https://doi.org/10.2305/IUCN.CH.2020.09.en.

sustainability not only in building the BGI physical infrastructure but also in maintaining and maximising its impact.[40] This approach strengthens resilience, supports ES, improves livelihoods, and advances inclusive and sustainable development while ensuring more effective use of financial resources.

Recommendation 3: Ensure Community Engagement

For the cities to successfully implement BGI, it is critical to prioritise community engagement through the co-creation of inclusive platforms that empower local participation in planning and decision-making processes.[41] This involves integrating traditional knowledge and practices (Figure 2), which often have valuable insights into sustainable land and water management, while meeting the socio-economic needs of diverse communities.[42] For example, the Green Coast initiative restored mangroves along coastlines affected by the 2004 Indian Tsunami – utilising local knowledge and participation – to protect communities and livelihoods from climate impacts.[43]

[40] Sauermann, Henry, Katrin Vohland, Vyron Antoniou, Bálint Balázs, Claudia Göbel, Kostas Karatzas, Peter Mooney, et al. 2020. "Citizen Science and Sustainability Transitions." *Research Policy* 49 (5): 103978. https://doi.org/10.1016/j.respol.2020.103978.

[41] Ziervogel, Gina, Johan Enqvist, Luke Metelerkamp, and John van Breda. 2022. "Supporting Transformative Climate Adaptation: Community-Level Capacity Building and Knowledge Co-Creation in South Africa." *Climate Policy* 22 (5): 607–22. https://doi.org/10.1080/14693062.2020.1863180.

[42] Sagala, Saut, Danang Azhari, Medhiansyah Putra, Belia Ega Avila, and Indah Salsabiela. 2023. "Local Knowledge's Roles for Nature-Based Solutions as Flood Risk Management." In *Handbook of Flood Risk Management and Community Action*, 24–35. London: Routledge. https://doi.org/10.1201/9781003315247-4.

[43] UNEP. 2019. "Ecosystem-Based Adaptation (EbA) Good Practice Case Studies." http://www.unep-iemp.org/file/2021/03/15/16157881181 57.pdf.

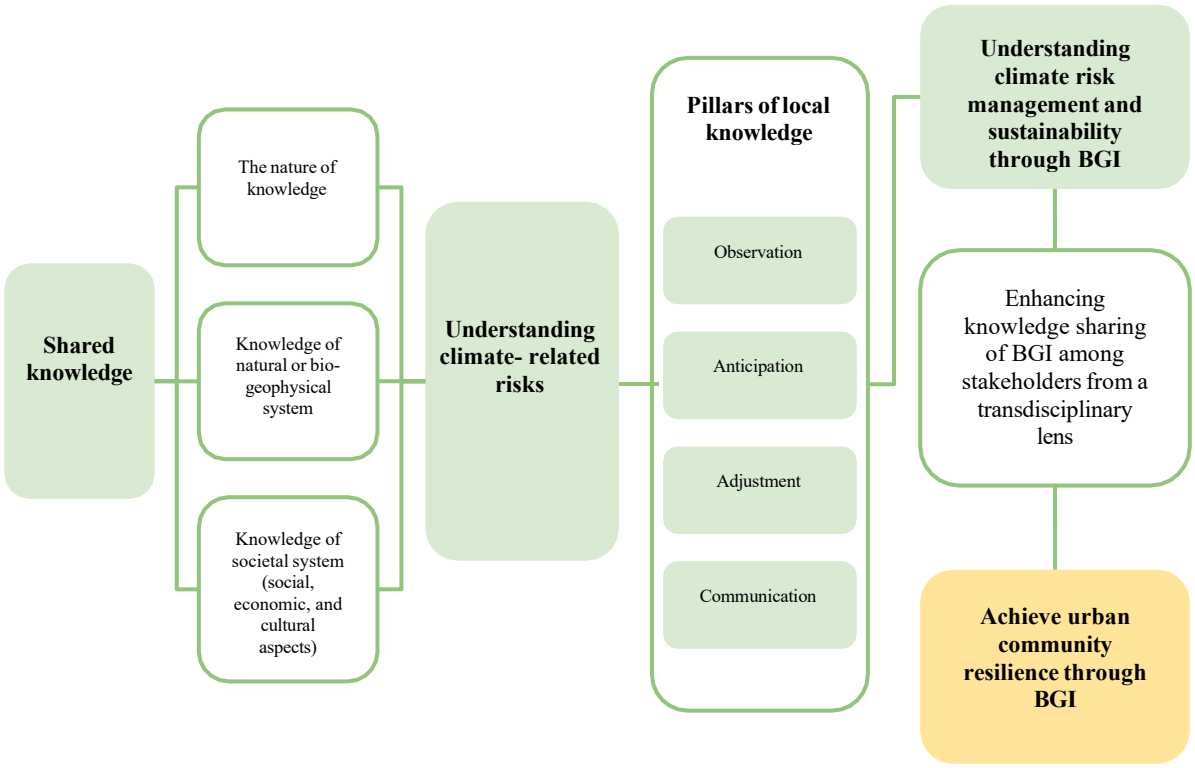

Figure 2. Integration of Local Knowledge on BGI for Community Resilience[44,45,46,47,48]

By encouraging participatory collaboration between and within G20 countries, including marginalised and vulnerable groups, cities can ensure that BGI projects

[44] Sagala, Saut, Danang Azhari, Medhiansyah Putra, Belia Ega Avila, and Indah Salsabiela. 2023. "Local Knowledge's Roles for Nature-Based Solutions as Flood Risk Management." In *Handbook of Flood Risk Management and Community Action*, 24–35. London: Routledge. https://doi.org/10.1201/9781003315247-4.

[45] Kamarulzaman, Nitty Hirawaty, Selvakkumar A/L K.N. Vaiappuri, Nor Atiah Ismail, and Md Azree Othuman Mydin. 2016. "LOCAL KNOWLEDGE OF FLOOD PREPAREDNESS: CURRENT PHENOMENA TO FUTURE ACTION." *Jurnal Teknologi* 78 (5). https://doi.org/10.11113/jt.v78.8246.

[46] d'Hont, Floortje M., and Jill H. Slinger. 2022. "Including Local Knowledge in Coastal Policy Innovation: Comparing Three Dutch Case Studies." *Local Environment* 27 (7): 897–914. https://doi.org/10.1080/13549839.2022.2084722.

[47] Drosou, Nafsika, Robby Soetanto, Ferry Hermawan, Ksenia Chmutina, Lee Bosher, and Jati Utomo Dwi Hatmoko. 2019. "Key Factors Influencing Wider Adoption of Blue-Green Infrastructure in Developing Cities." *Water (Switzerland)* 11 (6). https://doi.org/10.3390/w11061234.

[48] Thorne, C.R., E.C. Lawson, C. Ozawa, S.L. Hamlin, and L.A. Smith. 2018. "Overcoming Uncertainty and Barriers to Adoption of Blue-Green Infrastructure for Urban Flood Risk Management." *Journal of Flood Risk Management* 11 (S2). https://doi.org/10.1111/jfr3.12218.

are environmentally effective, socially equitable, culturally relevant, and urban-adaptive to achieve community resilience.

Recommendation 4: Foster Collaborative Governance and Regional Connectivity

In the face of increasing climate challenges, collaborative governance is essential to ensure the equitable and effective implementation of BGI. This approach requires cross-border and cross-sector partnerships, robust knowledge-sharing mechanisms, and integrated eco-region management.[49] As many cities in G20 countries share transboundary river basins (eg, the Danube River in Europe and the La Plata Basin in South America), adapting watershed-based management from the upstream to the downstream among cities and countries is crucial.

Addressing shared climate risks in river basin management, regional flood resilience, and connecting ecosystems requires collaboration between cities and regions in G20 countries. This underscores the importance of facilitating transboundary cooperation and regional connectivity of BGIs.[50] For example, Bekasi City, Indonesia, is highly vulnerable to flooding due to upstream activities. As an urban fringe with large commuters to Jakarta, the city exhibits strong socio-economic and environmental ties to the metropolitan area. Cross-jurisdictional watershed governance and integrated planning are critical to ensuring equitable BGI benefits and resilience beyond administrative boundaries. As major economic powerhouses, G20 countries must lead by example in implementing collaborative management that transcends political and geographical boundaries.

[49] Moradi, Amir, and Saeed Rahmati. 2023. "Ecoregional Planning: An Overview of Concepts and Approaches." *Current Urban Studies* 11 (04): 682–707. https://doi.org/10.4236/cus.2023.114035.

[50] Ibid.

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