

Department of the Interior Departmental Manual

Effective Date: 12/08/2023

Series: Public Lands

Part 600: Public Land Policy

Chapter 7: Nature-based Solutions

Originating Bureau/Office: Office of Policy Analysis

600 DM 7

7.1 Purpose. This chapter establishes Department of the Interior (Department) policy on nature-based solutions (NBS) and provides overarching guidance for consistent NBS delivery and implementation principles.

7.2 Scope.

- A. This chapter applies to the Department and its component Bureaus and Offices.
- B. This chapter does not affect the applicability of any existing authorities or regulations.
- C. This chapter does not apply to the Office of the Inspector General.

7.3 Definitions.

A. Adaptive Management - a process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity (abbreviated from 522 DM 1).

B. Climate Change Adaptation – in human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects (526 DM 1).

C. Climate Security – the physical, economic, or societal approaches to climate change that sustain or improve political, social, or physical security, especially as it relates to reliable access to water, air, food, a low-pollution environment, infrastructure, and energy resources.

12/08/2023 #5155

New

D. Co-benefits - the cumulative positive impacts on human well-being, ecosystems, and biodiversity resulting from NBS implementation. NBS co-benefits can include, but are not limited to, increases in: carbon sequestration and avoided greenhouse gas emissions, improvement in air quality, habitat resilience, biodiversity, species protection, food and fiber production, infrastructure protection, cultural-resource protection, climate security, environmental quality, improvement in water quality and availability, human health, recreational or commercial wildlife/fisheries, increases in native plants, insects including insect pollinators, soil health, carbon and nutrient cycling, flood mitigation, and groundwater recharge.

E. Environmental Justice – the fair treatment and meaningful involvement of all people regardless of income, race, color, gender, national origin, Tribal affiliation, or disability, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

F. Equity – the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment.

G. Green Infrastructure (GI) – a built or engineered solution that uses natural or living materials for its construction. Sometimes referred to as natural infrastructure.

H. Gray Infrastructure – a built or engineered solution that utilizes human-made or anthropogenic materials for its construction. Sometimes referred to as hard infrastructure, often utilizing concrete, steel, or other non-natural construction materials.

I. Indigenous Knowledge (IK) – for the purposes of this chapter, a body of observations, oral and written knowledges, innovations, technologies, practices, and beliefs developed by Indigenous Peoples through interactions and experiences with the environment. They are applied to phenomena across biological, physical, social, cultural, and spiritual systems. IK can be developed over millennia, continue to develop, and include understanding based on evidence acquired through direct contact with the environment and long-term experiences, as well as extensive observations, lessons, and skills passed from generation to generation (abbreviated from 301 DM 7).

J. Nature-based Solutions (NBS) – actions that incorporate natural features and processes to protect, conserve, restore, sustainably use, and manage natural or modified ecosystems to address socio-environmental challenges while providing measurable co-benefits.

K. Natural Climate Solutions– a subset of nature-based solutions that store carbon and/or avoid greenhouse gas emissions while providing additional co-benefits.

L. Natural Infrastructure - an area or system that is either naturally occurring or naturalized and then intentionally managed (e.g., forests, floodplains, and wetlands) to deliver co-benefits. Sometimes referred to as GI or a type of GI.

M. Resilience - The ability of socio-ecological systems to remain functioning and productive when subjected to one or more stressors or disturbances.

7.4 **Background.** Nature-based solutions use or mimic natural features or processes to improve biodiversity, strengthen resilience for disaster and hazard-risk management, support climate adaptation, and address carbon management to offset greenhouse gas emissions, while also benefitting both people and nature. NBS can include existing natural systems, GI, or green-gray infrastructure. NBS are integral to the Department's mission and are already being implemented through activities including, but not limited to, managing habitat, land and water conservation, ecosystem restoration activities, prescribed fire and fuels treatment, and other efforts that support the mission of the Department. Implementing NBS in a coordinated, systemic, and collaborative manner will optimize delivery and maximize co-benefits for people and nature.

7.5 **Policy.** It is the policy of the Department to implement NBS to the maximum extent practicable and as permitted by law. The goal of this policy is to address challenges facing the Nation while we protect, sustainably manage, restore, and enhance managed natural, cultural, and infrastructure resources and assets, thereby providing measurable co-benefits. Bureaus and Offices will incorporate principles of NBS into policies, plans, guidance documents, agreements, and other instruments for the management or co-stewardship of resources under the Department's jurisdiction. The Department is committed to high-return NBS investments that facilitate cross-bureau collaboration, leverage partnerships, improve climate security, include IK wherever appropriate, and apply evidence-based approaches to measure, monitor, report, and verify the effectiveness, efficiency, and equitability of NBS implementation.

7.6 **Principles.** The following principles should be used to guide the design, implementation, and monitoring of NBS and shall, to the maximum extent practicable and as authorized by law, be used when implementing the policy in section 7.5:

A. Prioritize NBS - Bureaus and Offices should use their authorities to prioritize and integrate NBS, either solely or in combination with gray infrastructure, wherever practicable, unless alternatives are demonstrated to be more beneficial when the full range of co-benefits and lifecycle costs are considered.

B. Benefit people and nature - Bureaus and Offices should demonstrate how NBS measurably maximize benefits to both people and nature when designing and implementing NBS.

C. Interweave equity - Bureaus and Offices should intentionally focus on equity and environmental justice in the design and implementation of NBS to ensure that existing inequities are not exacerbated, and, where practicable, are reversed.

D. Use evidence - Bureaus and Offices should ensure that the design and implementation of NBS is grounded in the best available evidence, science, and knowledge sources.

E. Continually improve - Bureaus and Offices should continually improve in their design and implementation of NBS, which will require continuous learning, monitoring, and adaptive management approaches.

F. Leverage collaborations - Bureaus and Offices should coordinate or, where appropriate, consult with Federal, Tribal, regional, state, local, non-governmental, and private partners to advance NBS, using existing expertise, resources, and shared investments when practicable.

7.7 Implementation. To ensure effective, efficient, and equitable implementation and monitoring of the policy in section 7.5 and alignment with the principles outlined in section 7.6, the Department and its Bureaus and Offices should integrate NBS wherever practicable, including by:

A. Prioritizing NBS:

(1) Bureaus and Offices should evaluate NBS alternatives for existing and future projects, programs, activities, and proposals in their decision-making processes.

(2) Bureaus and Offices are strongly encouraged to prioritize restoration, environmental and hazard mitigation, climate security, and adaptation activities that involve NBS.

(3) Bureaus and Offices are strongly encouraged to prioritize NBS in design, retrofitting, rebuilding post-disaster, addressing substantial damage, and managing Department real property by expanding existing NBS implementation and choosing existing natural systems or GI options, wherever practicable and lifecycle cost effective, over gray infrastructure. Gray infrastructure should be used only after exploring NBS alternatives.

(4) Bureaus and Offices are encouraged to consider, prior to implementation, the anticipated economic, environmental, and social costs, and opportunities for a high return on investment in evaluating such benefits and costs.

(5) Bureaus and Offices should apply existing processes to NBS implementation with potential environmental impacts, to the extent relevant. Examples of these processes include environmental reviews and consultations on impacts to species or habitat or permitting procedures that span across the Federal government.

B. Benefitting both people and nature:

(1) Bureaus and Offices should identify and estimate the expected co-benefits for the defined geography and time scale of new and existing NBS projects, programs, and activities.

(2) Bureaus and Offices should design and implement NBS in a coordinated

and collaborative manner to optimize delivery and maximize co-benefits.

(3) Bureaus and Offices are encouraged to develop monitoring and evaluation frameworks to assess and verify effectiveness of NBS using standard, quantitative indicators, where feasible, to consistently report on resource condition and trends at relevant scales, aligning, where possible, with metrics defined through the emerging Federal system of environmental-economic statistics.

(4) Bureaus and Offices are strongly encouraged to ensure that NBS delivery advances climate adaptation and resilience potential and long-term sustainability to prepare for climate-change threats effectively and efficiently, consistent with 523 DM 1 *Climate Change Adaptation*.

C. Focusing on equity and environmental justice:

(1) Bureaus and Offices should implement NBS in a manner that does not exclude or discriminate, nor has adverse disproportionate impacts to, communities of color, low-income communities, people with disabilities, Indigenous Peoples, or Tribal Nations.

(2) Bureaus and Offices should incorporate equity and environmental justice principles in the NBS feasibility, siting, design, and delivery process by meaningfully engaging with relevant communities, whenever possible.

(3) Bureaus and Offices should advance fair and equitably distributed NBS co-benefits that promote transparency, participation, and partnerships; proactively engage with diverse partners and stakeholders; and include co-stewardship with Tribes, Territories, and Native Hawaiian communities, where possible, in accordance with 502 DM 1 *Collaborative and Cooperative Stewardship with Tribes and the Native Hawaiian Community – Policy and Responsibilities*, 512 DM 5 *Procedures for Consultation with Indian Tribes*, and 512 DM 7 *Procedures for Consultation with Alaska Native Claims Settlement Act Corporations*.

(4) Bureaus and Offices are strongly encouraged to prioritize the implementation of NBS in communities experiencing or at risk of experiencing disproportionately adverse environmental and climate-change impacts, as consistent with 525 DM 1, *Environmental Justice Implementation Policy*.

(5) Bureaus and Offices should evaluate NBS proposals, projects, and programs in terms of their equitable co-benefits to all relevant populations.

D. Using best available evidence:

(1) Bureaus and Offices are strongly encouraged to use the best available evidence to support the design and implementation of NBS. In instances where no prior Indigenous Knowledge, local knowledge, scientific knowledge, or other evidence exists, new and innovative NBS strategies should be considered by experts in relevant disciplines.

(2) Bureaus and Offices should ensure that NBS implementation considers long-term sustainability and resilience to future environmental change, including risks, impacts, uncertainties, and vulnerabilities under climate futures projected by relevant climate models, consistent with 526 DM 1, *Applying Climate Change Science*.

(3) Bureaus and Offices should include IK, whenever appropriate, as one of the many important bodies of knowledge that contributes to the scientific, technical, social, economic, cultural, and political advancements of the United States and to the collective understanding of the natural world, consistent with 301 DM 7, *Departmental Responsibilities for Consideration and Inclusion of Indigenous Knowledge in Departmental Actions and Scientific Research*.

E. Continually improving:

(1) Bureaus and Offices should strive to continually improve NBS design and implementation by broadening NBS applications, incorporating new knowledge, and maintaining sound environmental practices.

(2) Bureaus and Offices should assess the effectiveness, efficiency, and equity of NBS actions by using adaptive management methods, where applicable, consistent with 522 DM 1, *Adaptive Management Implementation Policy*.

(3) Bureaus and Offices should promote sound environmental practices by monitoring environmental compliance of NBS implementation activities and identifying and assigning environmental compliance responsibility.

F. Leveraging collaboration:

(1) Bureaus and Offices are strongly encouraged to develop coordinated cross-Bureau activities, relationships, partnerships, coalitions, or other arrangements that advance NBS. This may include, as authorized, convening groups, financial support, providing support for staff to engage, or other means.

(2) Bureaus and Offices are strongly encouraged to coordinate or, where appropriate, consult with other Federal agencies, Tribal, Territorial, regional, state, local, non-governmental, international, and private partners to advance NBS, where practicable, building upon existing projects and programs while leveraging existing human and capital resources.

(3) Bureaus and Offices should use landscape-level approaches, where possible, to implement NBS, identify NBS alternatives, and manage resources under the Department's authority, consistent with 604 DM 1, *Implementing Landscape-Level Approaches to Resource Management*.

(4) Bureaus and Offices are encouraged to support community and regional planning to the maximum extent possible, seeking region-specific NBS approaches tailored to the needs of individual communities.

12/08/23 #5155

New

(5) Bureaus and Offices should pursue collaborative engagement with partners to ensure successful NBS implementation or determine alternatives and maximize co-benefits.

(6) Bureaus and Offices are encouraged to establish communications and evidence sharing approaches across the Department and its partners to expand operational NBS competencies and innovation.

7.8 Responsibilities.

A. The Assistant Secretary - Policy, Management and Budget.

(1) Oversee the Department's implementation of this policy and provide staff support to monitor implementation of the policy and coordinate budgets and practices that support NBS.

(2) Establish a Nature Based Solutions Working Group (NBSWG) and designate a chair for the NBSWG.

B. Assistant Secretaries. Ensure that their subordinate Bureaus and Offices comply with the policy in this chapter.

C. The Office of Policy Analysis (PPA).

(1) Serve as the lead office for revising this policy when warranted by changes in technical information, Federal statutes, regulations, Department policy, or other conditions. Any Bureau or Office can initiate changes by contacting the PPA.

(2) Solicit and consider the views of all interested Bureaus and Offices when the Department contemplates changes to this policy. In recommending revisions to this chapter, Bureaus and Offices will provide the PPA with appropriate supporting information.

(3) When requested, provide technical assistance and guidance to Bureaus and Offices for understanding and implementing this policy.

D. Heads of Bureaus and Offices.

(1) Ensure that their organizations comply with this policy; report on the progress made in implementing this policy to their respective Assistant Secretary and the NBSWG; and communicate the requirements of this policy effectively to partners.

(2) Develop appropriate Bureau or Office policy and guidance to address NBS as it relates to Bureau- and Office-specific missions and legislation. This includes identifying Bureau and Office programs and funding with a nexus to NBS.

(3) Review and update existing decision-making processes and management

plans to allow for integration of the core principles identified in section 7.6 of this policy.

(4) Provide technical support for Departmental reviews of NBS activities and associated policies when requested.

(5) Ensure that staff in NBS-related positions have the appropriate training and resources necessary to ensure a successful implementation of this policy.

(6) Designate a staff coordinator responsible (with such duties reflected in their employee performance appraisal plan and position description) for advancing NBS as outlined in section 7.7 of this policy, establishing an internal NBS network of practitioners within the Bureau or Office, and representing the Bureau or Office on the NBSWG.

(7) Work with the NBSWG to develop resources, such as guidance and planning tools that assist Bureaus and Offices to implement NBS. Resources may include development of NBS and decision-support tools that incorporate climate change adaptation, resilience, and mitigation strategies.

E. The NBS Working Group (NBSWG). The NBSWG includes representatives of the following Bureaus and Offices: Bureau of Indian Affairs, Bureau of Land Management, Bureau of Ocean Energy Management, Bureau of Reclamation, Bureau of Safety and Environmental Enforcement, National Park Service, Office of Environmental Policy and Compliance, Office of Policy Analysis, Office of Surface Mining Reclamation and Enforcement, U.S. Fish and Wildlife Service, and U.S. Geological Survey. Heads of other Bureaus and Offices are encouraged, but not required, to appoint a representative to the NBSWG. The responsibilities of the NBSWG include:

(1) Maintaining a charter, as needed, to direct the operations of the NBSWG.

(2) Providing communication, coordination, and biennial reporting of NBS activities across the Department including updating technical guidance, coordinating training and technical assistance, and supporting capacity building by:

(a) Synthesizing and integrating new NBS research, best practices, case studies on NBS, decision science, and climate adaptation, resilience, and mitigation into NBS guidance and trainings including but not limited to identifying priority habitats and geographies and appropriate tools for NBS implementation.

(b) Developing NBS reporting metrics for Bureaus and Offices, collecting existing reporting data and collating the data with new monitoring metrics to determine consistent reporting data and metrics, resulting in a cohesive reporting strategy based on data linkages. Such activity will facilitate data sharing, data reporting, and identification of lessons learned within and across Bureaus, Offices, and among Federal and other partners, Indigenous Peoples, and other collaborators (as discussed in 301 DM 7).

(c) Reporting on the application of this policy as it relates to Bureau-

and Office-specific missions and authorities, consistent with existing Departmental processes, including strategic planning and learning, evidence-building activities, performance metrics and monitoring, risk identification, and portfolio management.

(d) Developing strategies to promote Bureau or Office engagement and investment in the implementation of NBS.

(e) Facilitating interaction with Bureaus, Offices, and cross-Bureau programs (e.g., Office of Wildland Fire) implementing NBS activities and other appropriate working groups, to provide updates and foster information exchange.

7.9 Legal Effect. This policy is intended to improve the internal management of the Department. It does not create any right or benefit, substantive or procedural, enforceable at law or in equity by any person against the United States, its agencies, its officers or employees, or any other person.