



Institute for Resilient Infrastructure Systems
UNIVERSITY OF GEORGIA

Ms. Stacey M. Jensen
Acting Director for Policy and Legislation
Office of the Assistant Secretary of the Army (Civil Works)
108 Army Pentagon
Washington, D.C. 20310-0108

Submitted via regulations.gov

Re: Docket No. COE-2023-0005 – Comments regarding proposed changes to 33 C.F.R. Part 234

Dear Ms. Jensen,

Thank you for the opportunity to comment on the US Army Corps of Engineers' ("the Corps") proposed rule to establish Agency Specific Procedures (ASPs) for implementing the Principles, Requirements, and Guidelines for water resources investments.

University of Georgia's Institute for Resilient Infrastructure Systems (IRIS) is working toward a more equitable, resilient future by convening interdisciplinary teams to develop innovative ways to combine natural and conventional infrastructure. As such, we are committed to maximizing the use of nature-based solutions to address water resources development needs and to deliver economic, environmental, and social benefits for local communities and beyond. Nature-based solutions provide the flexibility and dynamism needed to address short-term extreme weather events and long-term climate change impacts that affect water resources projects.

IRIS is a founding member of the Network for Engineering With Nature (N-EWN, <https://n-ewn.org>). In preparing these comments, we have consulted with IRIS affiliates from within the University of Georgia, as well as private and non-profit N-EWN partner organizations.

Comments in Support of the Proposal

We welcome and applaud the proposed ASPs because they expand the Corps' policy to consider and maximize *net public benefits*, which includes the array of economic, environmental, and social benefits with both quantifiable and unquantifiable effects. Specifically,

- We support the Corps' decision to codify the ASPs in the Code of Federal Regulations. Doing so aligns with good government principles of consistency, predictability, transparency, and accountability.
- We support the guiding principles of promoting environmental justice, avoiding harm to floodplains and improving floodplain resilience, and protecting and restoring ecosystems and their functions.
- We support the new requirement that, at a minimum, the final array of alternatives must include both a nonstructural alternative and a nature-based solution alternative. We also strongly

support the requirement that nonstructural measures and nature-based solutions be considered as part of all other alternatives to create hybrid gray-green solutions.

- We support the shift to an expansive and inclusive benefit-cost analysis policy that includes environmental, social, and economic impacts and that provides value in terms of qualitative, non-monetized assessments and quantified, monetized assessments.
- We support the added emphasis on intentional, iterative, and equitable engagement with affected communities, especially those facing present or historical environmental injustices and marginalization from the decision-making process.

We encourage the Corps to finalize these rules expeditiously, with support for district staff to immediately implement as many provisions as possible for any given project, program, or study. Below, we respond to the Corps' requests for input on specific aspects of the proposed rule, drawing on the vast expertise of our colleagues at both IRIS and N-EWN.

Comments with Recommended Changes to Proposed Regulatory Text

Definitions, § 234.2

The definition of "effectiveness" (proposed § 234.2(d)) may not adequately address the challenges of a changing climate or the importance of designing civil works projects to promote resilience. The proposed definition also seems inconsistent with other aspects of the ASPs because it focuses heavily on "specified" problems and opportunities. In contrast, many other aspects of the ASPs emphasize the importance of planning for a world defined by risk and uncertainty.

By incorporating the concept of resilience (as defined using our recommendation below) into the definition of "effectiveness," the regulations would ensure that the initial formulation and subsequent elimination of alternatives involves considering how a project might help a community prepare, adapt, and recover from adverse impacts. We believe those considerations will ensure more thoughtful analysis of potential nature-based solutions.

Recommendation, § 234.2(d): Revise the definition of effectiveness to read: "The extent to which an alternative demonstrates resilience in alleviating~~alleviates~~ the specified problems and in achieving~~achieves~~ the specified opportunities."

The definition of "resilience" (proposed § 234.2(o)) is narrower than is used in many other contexts, including the Biden Administration's 2023 National Climate Resilience Framework and the Office of Management and Budget's memo on climate resilience and implementation guidance for the Disaster Resiliency Planning Act (M-24-03). In those sources and most other contexts, the definition of resilience includes the concepts of preparation, adaptation, and recovery. The proposed regulations would benefit from consistency with Biden Administration policy.

Recommendation, § 234.2(d): Revise the definition of resilience to read: "The capacity of an ecosystem or community to prepare for threats and hazards, adapt to changing conditions, and withstand and recover rapidly from adverse conditions and disruptions~~respond to changes,~~ including those driven by climate changes."

Evaluation Framework - Economic, Environmental, and Social Effects, § 234.7(b)(1)

An important policy described in the preamble is not clearly articulated in the proposed regulatory text. The preamble clarifies that qualitative information should “be given similar consideration” as monetized or otherwise quantified information (89 FR 12087). An addition to the proposed regulatory text would provide more clarity on the co-equal consideration of different types of information.

Recommendation, § 234.7(b)(1): Revise the language in the third paragraph of § 234.7(b)(1) read: “...The relevant monetary, quantitative, and descriptive information will be considered fully in the analysis, and qualitative information used when it is not possible to provide quantified or monetized information should be given similar consideration in the analysis.”

Evaluation Framework - Best Available Actionable Science and Commensurate Level of Detail, § 234.7(c)

The proposed regulations include Indigenous Knowledge as a type of best available actionable science; however, the Corps should also consider additional types of first-hand and long-term knowledge gained from local communities. Such place-based knowledge is typically garnered from communities that maintain historical practices; have multi-generational roots in the same place; and tend to be involved in subsistence-based economies. This type of knowledge is significant but may be excluded from the specific term “Indigenous Knowledge.”

Recommendation, § 234.7(c): Add to the existing text: “... shall use the best available actionable science, to include Indigenous Knowledge and other place-based knowledge, data, analytical techniques...”

Evaluation Framework - Nonstructural and Nature-Based Solutions, § 234.7(h)

The proposed regulations include unhelpful caveats to the consideration of nonstructural and nature-based solution alternatives. The proposed text states that “the use of natural systems, ecosystem processes, and nature-based solutions shall be considered, *where feasible and consistent with the purpose of the water resources study*” (emphasis added). These two caveats are unnecessary. First, every alternative that goes into the final array – including the required nonstructural and nature-based solution alternatives – will be analyzed under the criteria of completeness, effectiveness, efficiency, and acceptability (per proposed § 234.9(b)) and will also be subject to full consideration of costs and benefits (per proposed § 234.9(c)). Feasibility and consistency with project purpose will be addressed through these requirements. Second, including these caveats for only nonstructural and nature-based solutions could discourage creative thinking around project designs to implement the principles of Engineering With Nature (EWN).

Recommendation, § 234.7(h): Revise the text to read: “...In the development of alternatives, the use of natural systems, ecosystem processes, and nature-based solutions shall be considered; ~~where feasible and consistent with the purpose of the water resources study.~~ ...”

Evaluation Framework - Biodiversity, proposed addition to § 234.7

Biodiversity plays an important role in the delivery of ecosystem functions and services and enhances the resilience of those functions in the face of disruptive forces. We believe the ASPs’ evaluation framework should include a more explicit call for project development teams to analyze the effects of

project alternatives on biodiversity, with a goal of enhancing biodiversity wherever possible.¹ Doing so would be consistent with the stated policy that the Corps intends to “develop alternatives that first seek to *improve* environmental conditions” (emphasis added, 89 FR 12080).

Recommendation, § 234.7: Add a new paragraph, either at 234.7(m) or by replacing 234.7(g) and renaming paragraphs as (g)-(l) as (h)-(m), to read: “*Biodiversity: Biodiversity shall be considered in alternative designs. Consideration shall be given to ways in which alternative designs may enhance biodiversity.*”

If this language is added to the final regulations, we encourage the Corps, in the preamble text, to note the importance of linking local biodiversity impacts with broader national and international biodiversity conservation needs. The preamble text could encourage analysis that connects project alternatives’ biodiversity effects with species and habitat conservation plans established under the Endangered Species Act, for instance, as well as broader goals like those defined in the United Nations’ Sustainable Development Goal 15 and Aichi Biodiversity Targets (notwithstanding the fact that the US is not a signatory to the UN Convention on Biodiversity). Local and indigenous cultural needs, regional conservation and restoration priorities, and ecological history should be considered, as should the best available actionable science on future ecosystem structure and function driven by ongoing landscape and climate change.

Final Array of Alternatives, § 234.8

For the list of required alternatives in the final array, the proposed regulations again add unnecessary caveats to the nonstructural and nature-based solution alternatives that could result in those alternatives not being listed in practice. For both, the proposed text states that the alternative should only be listed “if one exists” that is “feasible” and “effective.”

These are three caveats that are not applied to the other four required alternatives. Consistency, then, is one reason to eliminate the caveats from § 234.8(a)(2) and (3). It is also important to eliminate those caveats to encourage the kind of forward and expansive thinking that could vastly accelerate the practice of EWN. That is, if project teams are encouraged to develop alternatives that are entirely nonstructural and nature-based, they will be doing the kind of creative work that produces meaningful change in practice over time.

Recommendation, § 234.8(a)(2): Revise the text to read: “A nonstructural alternative: ~~An alternative, if one exists, that can effectively address the problem through the feasible use of nonstructural approaches.~~”

Recommendation, § 234.8(a)(3): Revise the text to read: “A nature-based solution alternative: ~~An alternative, if one exists, that can effectively address the problem through the feasible use of nature-based solutions (including natural systems and ecosystem processes).~~”

¹ van Rees et al., “Reimagining infrastructure for a biodiverse future,” 120 PNAS e2214334120 (2023), available at <https://www.pnas.org/doi/10.1073/pnas.2214334120>.

Evaluate Effects of Alternatives - Consideration of benefits and costs, § 234.9(c)

The proposed rule contains an inconsistency in the language regarding when the effects of a proposed investment should be quantified and monetized. This inconsistency surfaces internally in this section as well as in other sections of the proposed rule and is likely to lead to confusion. Proposed § 234.9(c) requires quantification and monetization “where practicable” and qualitative descriptions “when monetization or quantification is not possible.” Elsewhere, quantification and monetization are required “where possible” (e.g., § 234.7(b)(1)).

Consistent use of the term “possible” will reduce confusion. The term “possible” also establishes a policy that encourages constant improvement in the methods and techniques used for benefit-cost analysis within the Corps’ Civil Works program. This progression may lead to more costs and benefits being assessed using comparable units (dollar figures) and thus simplify the decision-making process. Moreover, we note that the ASPs’ broader policies of undertaking “appropriate levels of analysis” (proposed § 234.5(b)) and using “best available actionable science” (proposed § 234.7(c)) will ensure that project teams do not waste time or effort on monetization or quantification of effects that are best described qualitatively with current techniques.

The proposed regulations also contain a footnote referencing the White House Office of Management and Budget’s Circulars A-4 and A-94. We agree that it is important that the Corps not “reinvent the wheel.” We urge the Corps to continue its engagement with and learning from the National Science and Technology Council’s Subcommittee on Frontiers of Benefit-Cost Analysis, which is advancing techniques for quantifying and monetizing the effects of federal actions.²

Recommendation, § 234.9(c): Revise the text to read: “...The analysis will evaluate the economic benefits and costs, environmental benefits and costs, and social benefits and costs of alternatives, regardless of how they are included (monetized, quantified or described). To the extent ~~practicable~~ possible, such costs and benefits must be quantified in a scientifically valid and acceptable way, and such quantified costs shall be monetized where ~~practicable~~ possible. When monetization or quantification is not possible, costs and benefits must be described in sufficient detail to enable the decision-maker to understand the importance and magnitude of potential changes.”

Select the Recommended Plan, § 234.11

The proposed regulatory text could be improved by more clearly stating that a structured approach should be used when selecting a recommended plan. The preamble text in the notice of proposed rulemaking describes the value of multi-criteria decision analysis (MCDA), structured decision making (SDM), Robust Decision-making (RDM), and other frameworks for an agency “facing a multi-dimensional problem with complex tradeoffs between monetary and non-monetary outputs and quantitative and qualitative data.” (89 FR 12092).

² See, Executive Office of the President, National Science and Technology Council, “Advancing the Frontiers of Benefit-Cost Analysis: Federal Priorities and Directions for Future Research” (Dec. 2023), *available at* <https://www.whitehouse.gov/wp-content/uploads/2023/12/FINAL-SFBCA-Annual-Report-2023.pdf>.

We support the proposed regulatory text at § 234.11(a)(1) insofar as it requires selecting a recommended plan based on assessing tradeoffs, considering monetized and non-monetized effects, and requiring transparency regarding various aspects of the decision. We believe it could be improved by more explicitly encouraging the development and use of structured decision-making tools like those referenced in the preamble text.

Recommendation, § 234.11(a)(1): Revise the text to read: “Plan selection will require decision-makers to use a structured process to assess tradeoffs and to consider the extent of both monetized and non-monetized effects. The basis for selection of the recommended plan should be fully reported and documented in a transparent manner, including the process, criteria, and considerations used.”

If this language is adopted, we note that district staff will need resources and time to develop appropriate methods. The proposed language provides enough flexibility to experiment with and improve methods over time. That time and resource commitment is important. It will provide opportunities to be intentional about exploring new approaches, tools, and methods for integrating information obtained during the planning process in a way that meets the practical needs of decision-makers; about learning from that exploration; and about incorporating that learning into future guidance over time.

Compare Alternatives - Decisions among tradeoffs, §234.10(b)

Throughout the proposed regulations, the Corps emphasizes the importance of environmental justice as a guiding principle, the inclusion of a variety of actionable science such as Indigenous Knowledge, and the value of collaboration with a wide range of affected communities and stakeholders. However, in making decisions among tradeoffs, the proposed regulations undermine this position by granting the Corps unilateral decision-making power. Section 234.10(b) reads: “Based on the available analytical information, the Corps would use its *professional judgment* in making its recommendations on decisions among tradeoffs.” Instead, the Corps should be directed to consider the values and input of stakeholders, the affected community, and the non-federal project sponsors, which the proposed regulations mandate the Corps to gather. The professional judgment of the Corps alone should not determine the ultimate distribution of economic, environmental, and social benefits.

Recommendation, § 234.10(b): Revise the text to read: “Based on the available analytical information and the values and input of stakeholders and the affected community, the Corps ~~would use its professional judgment in making~~ would make its recommendations on decisions among tradeoffs.”

Conclusion

As researchers and practitioners who believe in the dynamic risk-reduction benefits that nature-based solutions provide, we strongly support the Corps’ shift to treating equally the environmental, social, and economic benefits of federal water resources investments. However, the Corps faces a significant challenge in developing the procedures, technical means, and resources to implement this rule. We strongly encourage the Corps to develop and widely communicate plans to address this challenge and

to invite interested parties to collaborate by sharing ideas, knowledge, practices, and tools that support implementing this proposed rule.

IRIS would welcome the opportunity to share the knowledge and expertise of our partners from N-EWN and the broader academic and practitioner community to support the Corps' efforts to identify and advance methods for implementing the final regulations. For example, an interdisciplinary team of researchers from N-EWN has described the pursuit of equity in water resources development in terms of three key pathways: recognitional, procedural, and distributional. These pathways are reflected in the proposed ASPs; however, the specifics for achieving them are missing. Similarly, IRIS and N-EWN researchers are exploring the best methods and practices for evaluating net public benefits using a more inclusive, holistic benefit-cost analysis and integrating those practices with MCDA. We look forward to the opportunity to continue working with the Corps on specifying and refining the tools and methods for implementing the final ASPs.

Thank you very much for the opportunity to comment on this proposed rule-making. For any questions about these comments, please contact Matthew Shutz at mshutz@uga.edu.

Sincerely,

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