CRITICAL THINK PIECE
TEAM FOUR-SIGHT
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Incentive-Based Cost Sharing: Encouraging Sponsors to Further Invest in Sustainable Solutions and Significant Projects

I. Purpose

This Critical Think Piece provides a conceptual look at the positive and negative aspects of implementing an incentive-based approach to cost sharing for the U.S. Army Corps of Engineers (Corps) Civil Works Program. This initiative would provide financial incentives for non-Federal sponsors to invest in sustainable solutions to water resources problems and to propose projects with local, regional and national significance. Incentive-based cost sharing would also allow limited Federal resources to be further focused in areas that provide the greatest benefit to the nation.

II. History

The role of the Federal government and the Corps in solving the nation's water resources problems has evolved with changes in national perspectives and priorities. Initially the Corps Civil Works program focused primarily on the development of a national navigation system and, beginning in the 1920s, focused on flood control as well. Most navigation and flood control projects were funded entirely through Federal expenditures. The Water Resources Development Act of 1986 (WRDA 86) changed the role of the Federal government by mandating the sharing of construction costs and, for the first time, required non-Federal cash contributions for Civil Works projects. This landmark legislation brought about fundamental changes in the way the Corps conducts its Civil Works program. WRDA 86 changed how new projects are studied and established a framework that promotes partnering between the Federal government and non-Federal entities. Subsequent legislation has further encouraged local interests to become more active stakeholders.

III. Problem

The establishment of cost sharing has realized many benefits including a reduction in the Federal burden per project, an increase in the total number of collaborative water resources projects, a greater role for sponsors in project planning, and stronger partnerships between the Corps and non-Federal sponsors. In the twenty years that have passed since the adoption of cost sharing; however, some shortcomings of the policy have been revealed:

- Predetermined cost sharing does not acknowledge projects with national, regional or local significance. There is little incentive for sponsors to bring forward significant projects that have inherent value to the nation.

- Non-Federal sponsors often have limited resources and in most cases projects are too costly and cannot be realized without Federal participation. Due to predetermined cost sharing and the requirement that non-Federal investment is normally only creditable after the execution of the Project Cooperation Agreement (PCA), sponsors are often forced to save their resources in order to provide the required match to Federal investment. These requirements often delay solutions to time-sensitive water resources problems, which could have been initiated and addressed with non-Federal funds.
- Predetermined cost sharing fails to credit sponsors for investing in sustainable solutions that may not fall within Corps authority, but are complementary to its mission. Current policy provides few incentives for non-Federal sponsors to take the initiative to invest their resources into programs, plans and regulations that are compatible with Corps missions and provide more sustainable Federal projects.
- The current evaluation procedure for justifying and recommending projects for implementation does not credit non-Federal sponsors who use their resources in advance of Federal participation. By including all non-Federal actions in the without-project condition, sponsors are penalized for taking action to solve their water resources problems on their own.

IV. Precedent

At least two Federal precedents serve as examples for rewarding non-Federal sponsors that demonstrate good planning:

- Under Federal Emergency Management Agency (FEMA) Community Rating System (CRS), communities that undertake floodplain activities beyond the requirements of the National Flood Insurance Program (NFIP) are rewarded with reduced flood insurance premiums.
- Under Natural Resources Conservation Service (NRCS) Conservation Reserve Program (CRP), farmers that convert highly erodible cropland or other environmentally sensitive areas to natural vegetative cover are rewarded with annual rental payments to offset their loss in agricultural income.

The Corps has an opportunity to create consistency among Federal agencies by establishing a similar program that rewards non-Federal sponsors who provide projects, resources and programs which further Corps water resources missions.

V. Approach

The following cost sharing approach outlines financial incentives for non-Federal sponsors who are proactive in providing collaborative solutions to water resources problems. A reduction in the non-Federal cost share would be determined by evaluating attributes of a given project against established criteria and metrics. Reductions would be taken from existing cost sharing ratios for the Implementation phase of applicable business lines. Existing cost sharing ratios for the Feasibility and Design phases of a project would not be impacted.

Proposed criteria would be organized into three general categories: *Significance*, *Investment*, and *Sustainability* (SIS). A standardized set of criteria and metrics would be established for each SIS category and business line.

- The *Significance* category would consist of a set of criteria to assess the local, regional, and national importance of a project. Examples of possible significance criteria include existence of threatened/endangered species, evidence of cultural resources, presence of historic structures, existence of critical habitat and proximity to critical facilities. Non-Federal sponsors that propose projects involving nationally significant resources would receive a greater cost share reduction than those composed of regionally or locally significant resources.
- The *Investment* category would consist of a set of criteria to credit a non-Federal sponsor for their expenditures on project features implemented between the initiation of the Reconnaissance phase to the execution of a PCA. Creditable investments would be similar to lands, easements, rights of way, relocations and disposal areas (LERRDs) in that they would be included in total project costs and applied as part of the sponsor's contribution to the project. Since it would be difficult to determine prior conditions to assess creditable benefits, the Reconnaissance phase would serve as the starting point to avoid crediting non-Federal sponsors for past investments. However, a non-Federal sponsor could be credited for enhancing or improving upon a past investment as part of the Federal project. Investments would include any project feature or measure that is implemented by the non-Federal sponsor compatible with the recommended Federal plan. Investment credits would be determined with study cost estimates and the Corps would require an official appraisal of each investment following implementation to determine the final non-Federal sponsor credit and to ensure that project features were constructed as proposed.
- The *Sustainability* category would consist of a set of criteria to assess those features that the Corps may not be able to directly implement or enforce, but which are compatible with and may improve the long-term benefits and performance of the proposed project. Potential examples of

sustainability criteria include non-Federal implementation of setback and zoning ordinances, investment in renewable energy sources, creation of watershed or stormwater management plans and the use of environmentally sensitive pesticide programs. Because implementation of sustainable practices would ultimately help reduce residual risks to the human and natural environment, non-Federal sponsors who have implemented sustainable programs could receive a cost share reduction for each qualifying project attribute.

VI. Criteria

The backbone of the incentive-based cost sharing approach is the use of clear, simple and measurable criteria to evaluate and reward sponsors who propose projects that protect significant areas and who invest in sustainable solutions. Potential SIS criteria for four major business lines are presented below. These criteria are not meant to be a complete list, as other criteria may also qualify. Once a final, programmatic list has been approved, metrics associated with each criterion would need to be developed to determine the financial incentives the non-Federal sponsor would receive. The metrics would be universal to avoid bias among non-Federal sponsors.

A. Coastal Storm Damage Reduction (CSDR)

Coastal storm damage reduction projects are some of the most controversial projects within the Corps Civil Works business lines. Coastal areas are being developed and their protection using Federal resources is sometimes questioned. As an example, current evaluation procedures can actually reward poor land-use planning by justifying projects based on economic damages reduced. Coastal areas with the greatest potential for damages also have the greatest potential for benefits; therefore, it is easier to justify Federal investment for these areas. However, if the common goal is to reduce flood damage to coastal communities, rewarding sustainable land-use planning practices aimed at avoiding potential flood damages such as instituting setbacks through zoning or rigorous building permit requirements would provide an incentive for conscientious development.

Table 1: SIS Criteria for Coastal Storm Damage Reduction

Significance (S)	Investment (I)	Sustainability (S)
o Protects recognized natural coastal areas (coral reefs, barrier islands, wetlands) o Protects recognized cultural resources o Protects critical facilities	o FEMA CRS rating o Evacuation plan o Warning system o Acquisitions o Flood risk mapping o Beach nourishment	o Setbacks / easements o Zoning restrictions for repetitive flood loss areas o Strict building permits o Acquisition planning o Dune protection o Wetland restoration o Best Management Practices (BMPs)

B. Flood Risk Management (FRM)

Over the past century, Federal involvement in flood risk management has grown as a result of increased flood damages across the nation. While local governments are responsible for zoning and land use planning decisions that direct floodplain and coastal development, the Federal government can influence their flood risk management decisions by providing incentives for investing in sustainable solutions. The Corps could also provide an incentive for non-Federal sponsors to propose projects that would protect critical facilities, such as hospitals, that have significance to regional health care needs. As others have proposed, the Corps could provide additional incentives for communities to invest in floodplain activities beyond the requirements of the NFIP by rewarding non-Federal sponsors according to levels set in FEMA's CRS program. Non-Federal sponsors who exercise sustainable practices by developing a comprehensive watershed management plan or by using Low Impact Development (LID) approaches to their stormwater management needs should be rewarded. These types of efforts show foresight and long-range planning by integrating the environment with civil infrastructure needs.

Table 2: SIS Criteria for Flood Risk Management

Significance (S)	Investment (I)	Sustainability (S)
○ Protects recognized natural areas ○ Protects recognized cultural resources ○ Protects critical facilities	○ FEMA CRS class ○ Evacuation plan ○ Warning system ○ Acquisitions ○ Flood risk mapping	○ Setbacks / easements ○ Zoning restrictions ○ Strict Building permits ○ Levee / dam safety programs ○ Watershed management plans ○ Low Impact Development ○ Smart Growth ○ Wetland restoration ○ BMPs

C. Navigation (NAV)

Applying the incentive-based approach to navigation projects will be more challenging because of the competitive nature of port operations. Land-side improvements are conducted as part of operating the facility and are integral to the livelihood of the non-Federal sponsor. Nonetheless, the navigation business line presents an opportunity to implement Corps Environmental Operating Principles (EOPs) and have some impact on land-side planning. As an example, the Corps could provide incentives for non-Federal sponsors to invest in sustainable improvements such as minimizing impervious surfaces at their facilities to decrease the burden on stormwater management infrastructure and reduce impacts from runoff. Similarly, a terminal that invests in cranes that use low emission technologies could be rewarded as these improvements would decrease air pollution and increase the long-term environmental sustainability of the area. Federal investment could be concentrated within a recognized significant catchement area by providing incentives for facilities that serve a broad hinterland.

Table 3: SIS Criteria for Navigation

Significance (S)	Investment (I)	Sustainability (S)
o Market share o Hinterland o Critical facilities	o Land side access improvements o Beneficial use of dredged material	o Renewable energy sources o Stormwater management plans o “Green” infrastructure o Comprehensive traffic / land use planning o Regional Sediment Management (RSM) o BMPs

D. Ecosystem Restoration (ER)

The national policy and Federal interest in implementing ecosystem restoration projects has expanded in recent years given the focus on environmental issues such as global warming, natural resource shortages, rapid population growth and unprecedented loss of wildlife diversity as well as the substantial fiscal consequences associated with addressing these problems. A variety of significance criteria is used to determine funding priority within the Corps ecosystem restoration business line, as outlined in the current Corps budget guidance; however, under existing policy, non-Federal sponsors are not given credit based on these same significance criteria. Many non-Federal sponsors have the expertise and ability to implement a variety of project features that have environmental restoration value such as emergent wetlands, grasslands or riparian forests. The greatest potential for non-Federal sponsors to provide additional benefits to environmental restoration projects is through implementation of compatible ordinances, plans and programs that improve sustainability of project features throughout the project life. One example would be the use of zoning ordinances to protect high quality wildlife habitat that is adjacent to a proposed restoration project. Low-use herbicide and pesticide programs could also be established to reduce negative impacts to project components. Implementation of these types of sustainability criteria would also provide quality of life benefits to the public and nation by improving water quality, protecting sensitive habitat and preserving resources for future generations.

Table 4: SIS Criteria for Ecosystem Restoration

Significance (S)	Investment (I)	Sustainability (S)
o Threatened and Endangered species (T&E) o Critical habitat o Essential ecological function	o Erosion control measures o Habitat improvements o Mitigation banking	o Zoning for at-risk habitat o Water harvesting o “Green” programs o Water quality/quantity plans o Watershed management plans o Educational amenities o Research potential o BMPs

VII. Process

To standardize implementation of the SIS criteria and establish non-Federal cost share reductions, the ARRIVE process is proposed. This process consists of six steps that start at the initiation of the Reconnaissance phase and would be completed with execution of a PCA:

(1) **Assess existing project attributes using established SIS criteria.** In this step, past non-Federal investments and sustainability actions would be identified to determine if these items could be improved upon through the proposed project. This phase would also determine whether project attributes fall within established *Significance* criteria.

(2) **Recommend additional creditable non-Federal actions.** Throughout the planning and design phases, the Corps and non-Federal sponsor would determine if any additional investments or sustainability actions could be implemented using non-Federal resources prior to execution of the PCA.

(3) **Rate attributes against established SIS metrics.** Applicable project attributes and features included in the recommended plan would be rated against standardized metrics. This step would contain two separate sub-steps: First, the preliminary cost share reductions would be determined based upon attributes that fit the *Significance* and *Sustainability* categories. For example, an area that contains a nationally significant endangered species might receive a 2% cost share reduction whereas an area with a regionally significant endangered species might only receive a 1% cost share reduction. Second, an estimate of potential credits would be determined for recommended actions taken by the non-Federal sponsor prior to the execution of the PCA. These recommended actions would fit under the *Investment* and *Sustainability* categories and the associated investment credits would be in line with initial study cost estimates. The credit for non-Federal investments would be similar to up-front work-in-kind in that they would be included in the total project costs and applied as part of the non-Federal contribution to the Project.

(4) **Implement recommended actions by the non-Federal sponsor.** In this step, additional investments and sustainability actions recommended by the Corps could be implemented by the non-Federal sponsor.

(5) **Verify that creditable actions were implemented properly**. The Corps would verify that actions were completed in accordance with agreed upon standards and conduct an official appraisal of the investments to determine whether non-Federal expenditures were in line with initial study cost estimates.

(6) **Establish the final cost sharing ratio for project partners.** Based upon the preliminary cost share reductions and creditable actions implemented by the non-Federal sponsor, a final cost sharing ratio would be calculated and documented in the PCA. No further credit, incentives or cost share changes would be permitted following approval and execution of the PCA.

VIII. Benefits

Through implementation of the SIS approach and ARRIVE process, non-Federal sponsors would have greater incentive to propose projects with significant national, regional and local resources; to maximize local investment in project features; and to implement programs, plans and ordinances that increase long-term project sustainability. Projects that maximize these incentives could prove mutually beneficial for all parties and ultimately provide the greatest value to the nation.

Benefits to the non-Federal sponsor would include:

- The potential to obtain more favorable cost sharing ratios,
- Greater flexibility in meeting required cost share ratios,
- Increased involvement in the reconnaissance and planning phases of the project,
- Credit for significant resources that are not traditionally assigned a monetary value,
- Credit for investing in sustainable solutions, and
- Completion of time sensitive project features through crediting investment actions prior to receipt of Federal funds.

Benefits to the Federal government would include:

- Increased collaboration with the non-Federal sponsor on solving water resources problems,
- Increased likelihood that the non-Federal sponsor would bring forward projects that involve significant resources,
- Potential for more holistic and comprehensive projects, and
- Non-Federal implementation of plans, ordinances and programs that improve sustainability of project features over the life of the project.

Benefits to the nation would include:

- Increased likelihood that significant resources would be protected or restored,
- Increased implementation of sustainable features that provide quality of life benefits such as improved water quality and increased air quality, and
- Realization of benefits earlier in the development of a project.

IX. Potential Concerns

A. Legality

There are at least two potential areas of concern with respect to the legality of this proposal. As a Federal entity, the Corps has limited jurisdiction over land use decisions. As a result, the Corps relies on non-Federal sponsors to establish and enforce land use mandates and existing laws. Incentive-based cost sharing would provide the Federal government with greater influence over local policies by crediting communities that undertake actions that improve the Corps initiative, which may or may not be overstepping the Federal mandate. Related to this concern is the potential that the types of actions considered in this briefing may not meet Constitutional requirements. The FEMA and NRCS precedents should be studied as models since they were implemented successfully.

B. Federal Budget

There is concern on how this process would impact the Federal budget and the limited pool of financial resources that are allocated to the Corps each fiscal year. The potential exists to increase Federal expenditures by rewarding non-Federal sponsors with cost share reductions. Yet, by providing incentives for investing in sustainable solutions, the opportunity exists to shift some of the responsibility for addressing water resources problems to appropriate non-Federal levels of government. The implementation of incentive-based cost sharing could possibly increase non-Federal demand for Civil Works program resources, resulting in the need for additional Federal funds. However, as a result of these incentives, increased non-Federal investment in sustainable development should reduce the need for Federal expenditures over time.

C. Sponsor Resource Limitations

Many of the actions that non-Federal sponsors could undertake require both financial and intellectual resources. There is a concern that implementing an incentive-based approach could inherently become biased towards non-Federal sponsors with higher potential for investments. Sponsors with fewer resources at their disposal would still be able to obtain credit through criteria in the *Significance* category, but may be limited in potential credits in the *Investment* and *Sustainability* categories.

D. Misuse and Abuse

With any new policy there is a potential for unintentional misuse and even intentional abuse. This concern may be minimized by establishing a standardized process that includes detailed implementation guidance that is easily understood by all partners.

E. *Enforcement and Monitoring*

The Corps needs to be able to ensure that any actions undertaken by the non-Federal sponsor related to a reduction in cost sharing are undertaken in accordance with established project standards. This concern applies throughout the entire project life and would require extended enforcement and monitoring capabilities by the Corps. Likewise, Corps appraisal mechanisms would need to be established to assess the monetary value of non-Federal investments and ensure that their value continues throughout the life of the project.

X. Recommendation

Further study is recommended to address the potential concerns outlined above, to assess potential budgetary issues and to refine the SIS categories and criteria. Establishment of the metrics used to determine non-Federal cost share reductions associated with each SIS criterion would also need to be conducted in a follow-up study.

In addition, the Corps should conduct a pilot program that contains projects in each proposed business line, to determine the level of acceptance from potential non-Federal sponsors, project stakeholders, the public and cooperating resource agencies, all of which have a vested interest in the Corps Civil Works program. These pilot studies would help identify and address potential strengths and weaknesses associated with the SIS approach and ARRIVE process.

Following successful completion of the detailed study and pilot program the Corps would undertake any necessary revisions and proceed with a recommendation for Congressional approval and authorization of the incentive-based cost sharing in WRDA.