

<p>CECW-P Engineer Circular 1105-2-219</p>	<p>Department of the Army U.S. Army Corps of Engineers Washington, DC 20314-1000</p>	<p>EC 1105-2-219 01 October 2000</p>
	<p>EXPIRES 30 SEPTEMBER 2002</p> <p>Planning</p> <p>COST ALLOCATION FOR MULTIPURPOSE PROJECTS INCLUDING ECOSYSTEM RESTORATION</p>	
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DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, D.C. 20314-1000

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Planning

COST ALLOCATION FOR MULTIPURPOSE PROJECTS INCLUDING ECOSYSTEM
RESTORATION

1. Purpose. The purpose of this Circular is to provide policy and procedures for the allocation of costs for multipurpose projects that include ecosystem restoration as a project purpose.

2. Applicability. This circular applies to all HQUSACE elements, major subordinate commands and district commands having Civil Works responsibilities.

3. Distribution Statement. Approved for public release, distribution is unlimited.

4. References.

a. ER 1105-2-100, Planning Guidance Notebook

b. Cost Effectiveness Analysis for Environmental Planning, Nine Easy Steps, Institute of Water Resources

5. Background. ER 1105-2-100, Appendix E, Section IX, Paragraph E-63 describes the requirements and procedures for the allocation of costs among the purposes served by a multipurpose project. Cost allocation is required to distribute costs equitably among project purposes and to derive reimbursement and/or cost sharing requirements for costs incurred for each purpose. Cost allocation is not required in the case of single purpose National Economic Development (NED) or National Ecosystem Restoration (NER) projects that produce incidental NED or NER outputs to another purpose or in the case of modifications to existing projects where all the incremental costs are allocated to the added purpose.

a. Separable Costs Remaining Benefits Method. The separable costs-remaining benefits method (SCRB) was adopted by interagency agreement in March 1954 as the preferred method for allocating costs of multipurpose projects. ER 1105-2-100 specifies the SCRБ method as the standard for allocating costs of Corps multipurpose projects among the various purposes served. Under this method, each project purpose is assigned its separable cost and a share of joint costs. Separable costs are defined as the cost of the multipurpose project with all purposes included less the cost of the project with each purpose omitted. Separable costs include the direct or specific costs of physically identifiable facilities serving only one purpose plus all added costs of increased size of structures and changes in design for a particular purpose over that required for

all other purposes. Joint costs are defined as total project cost less total separable costs. Joint costs are assigned in the same proportion as remaining benefits for a purpose are of total remaining benefits. Remaining benefits are defined as purpose-specific benefits less purpose-specific separable costs. An example calculation of separable and joint costs is provided in Table 1 below and in Table E-43 of ER 1105-2-100. Paragraphs E-63f(4) and (5) of ER 1105-2-100 provides guidance on costs to be included and excluded in a cost allocation analysis.

TABLE 1 EXAMPLE CALCULATION OF SEPARABLE AND JOINT COSTS (\$ Million)	
Total Multiple Purpose Project Cost	50
Without Purpose X Cost	44
Without Purpose Y Cost	38
Separable Cost to:	
Purpose X (\$50 less \$44)	6
Purpose Y (\$50 less \$38)	12
Total Separable	18
Joint Costs (\$50 less \$18)	32

b. Problems in Application to Multipurpose Projects that Include Ecosystem Restoration. A key feature of the SCRB method is the reliance on monetary measures of project benefits as the basis for allocating joint costs. For multipurpose projects in which each project output underlying plan formulation is valued in monetary terms, the SCRB method provides a straightforward and transparent way to allocate joint costs among project purposes. When projects are formulated in part to serve non-monetary outputs, such as ecosystem restoration projects, the benefits information necessary to implement this cost allocation method is not fully available. This EC describes the procedures for cost allocation for multipurpose projects involving non-monetary restoration outputs.

6. Alternative Cost as a Proxy for Ecosystem Restoration Benefits. ER 1105-2-100, page E-249, paragraph E-63i(23) states, “The amount of project benefits used as a basis for the allocation of joint costs to any purpose is limited by the costs of providing equivalent services from the most likely economically feasible source available in the area to be served”. This “alternative cost” limitation on the measure of benefits used to estimate remaining benefits when applying the SCRB procedure provides an acceptable approach to the cost allocation problem posed by non-monetary outputs. (Note: Alternative cost as a proxy for output benefits shall be used exclusively for cost allocation purposes and not for the evaluation of alternative plans. The procedures described in ER 1105-2-100, Appendix E shall be used for evaluation purposes.) For purposes of cost allocation, it will be assumed that the alternative cost represents the willingness

to pay for the restoration alternative. Since it is not possible to reliably estimate the monetary value of ecosystem restoration outputs, it is reasonable to assume that the value will be at least equal to the willingness to pay for an alternative least cost restoration plan. This assumption is critical for the use of the procedures presented herein. The least cost alternative restoration plan identified for this analysis must meet the following criteria:

- Produce the same level (amount) of non-monetary output as would be provided by the multipurpose project;
- Be cost effective when compared to other single purpose ecosystem restoration plans, but not necessarily more cost effective than the multipurpose plan; and,
- Be a dissimilar project, if in the same location, or a project in a different location. The least cost alternative plan must not be a similar project (i.e., a project with the same features as the multipurpose project but formulated solely for ecosystem restoration) in the same location.

7. Selection of Least Cost Alternative Plan. The cost effectiveness analysis conducted to help in the formulation and evaluation of plans provides the information needed to identify the least cost alternative plan for cost allocation purposes. In step 4 of the cost effectiveness analysis, as described in Cost Effectiveness Analysis for Environmental Planning: Nine Easy Steps (IWR, 1994), economically inefficient solutions are eliminated from the analysis. Economically inefficient solutions are those that produce the same level of output at a higher cost. The least cost alternative plan should be selected from this array of solutions. Table 2 provides an example of the results of step 4 of the cost effectiveness analysis. If the recommended plan produces 8 units of outputs, it would be reasonable to assume that the least cost alternative option would be the plan that produces the same level of output (8 units) at a cost of \$15,000 (Plan 10, if it meets the requirements specified in paragraph 6). A basic assumption for this analysis is that the non-monetary output would be demanded at the alternative project cost in the absence of the proposed multipurpose project. This assumption is important to validate the use of the alternative project cost as a measure of the “willingness to pay” for the restoration outputs.

	OUTPUTS (HU)	COSTS (\$)
Plan 1	0	0
Plan 2	2	3000
Plan 3	2	6000
Plan 4	4	8000
Plan 5	4	9000
Plan 6	5	6000
Plan 7	5	11000
Plan 8	5	12000
Plan 9	8	14000
Plan 10	8	15000

8. Costs Included in the Allocation. Costs to be allocated include total construction costs, costs of land, easements, rights-of-way, relocations and disposal sites (LERRD), interest during construction, operation and maintenance costs (including repair, replacement and rehabilitation costs), mitigation costs, monitoring costs and adaptive management costs. Mitigation is not a project purpose thus the cost of mitigation measures are integral to the costs of associated project purposes for which the mitigation is required. Other considerations related to project costs are discussed in ER 1105-2-100, Appendix E, paragraph E-63f(3) to (6) and are applicable, as appropriate, to cost allocations involving ecosystem restoration.

9. Example of Cost Allocation. Table 3 shows an example of the calculations for estimating the percentages to allocate joint costs. Benefits and costs are expressed in annual terms in order to determine the percentage of costs allocable to each project purpose. These percentages are then applied to total joint cost estimates to determine total cost allocated to each purpose. The calculations must be made and shown separately for investment costs, OMRR&R costs, monitoring costs and adaptive management costs, as applicable, to define appropriate cost sharing responsibilities.

TABLE 3 EXAMPLE COST ALLOCATION			
	Cost/Benefits (Annual Dollars, unless otherwise noted)		
	NED Purpose	Ecosystem Restoration	Total
Average Annual Benefits	1,930,000	Non-monetary estimate	
Least Cost Alternative Plan	2,940,000	5,350,000	
Limited Benefits (Lesser of average annual benefits and alternative plan costs)	1,930,000	5,350,000	
Separable costs	1,500,000	3,900,000	
Remaining Benefits: Amount (Limited benefits less separable costs)	430,000	1,450,000	1,880,000
Percent	22.9	77.1	

10. Addition of Ecosystem Restoration to an Existing Project. All incremental costs associated with the addition of ecosystem restoration to an existing project shall be allocated to that purpose. In addition, a recommendation shall be made for HQUSACE approval as to how all purposes should share in the joint-use costs of the original plan, if applicable, considering comparative benefit accruals over the new period of analysis. Paragraph 6-185 of ER 1105-2-100 provides additional guidance on this matter. If the addition of ecosystem restoration has no significant effects on other project purposes, and the general scope of the existing project is not altered, a cost allocation is not required. This determination shall be made in coordination with the corresponding MSC and HQUSACE. Reallocations of storage in existing reservoirs also require the allocation of costs to ecosystem restoration.

11. Flood Mitigation and Riverine Restoration Projects. Section 212 of the Water Resources Development Act of 1999 authorizes the Corps to construct projects to reduce flood hazards and restore the natural functions and values of rivers. The SCRB method and the procedures

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described herein are applicable to this type of projects. The key question to ask to determine separable and joint costs is: what measures are required to produce the same level of outputs if a project for each purpose were built separately? Proper and thorough formulation of plans with each purpose omitted is critical to the cost allocation process. Once this is accomplished, the procedures as described herein shall be followed to determine the total allocation of costs.

12. Implementation. This guidance is effective immediately. Districts and divisions should inform CECW-PG of any problems with the implementation of this guidance.

FOR THE COMMANDER:


ALFRED H. FOXX
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Executive Director of Civil Works