

Reclamation Manual

Directives and Standards

Subject:	Water and Related Resources Appraisal and Special Studies
Purpose:	To provide the basic requirements and framework for conducting water and related resource appraisal and special studies. The benefits include improved consistency in the content and quality of appraisal studies and reports prepared by the Bureau of Reclamation.
Authority:	Reclamation Act of June 17, 1902 (ch. 1093, 32 Stat. 388, 43 U.S.C. 372, et seq.), and acts amendatory thereof and supplementary thereto.
Approving Official:	Director, Mission Assurance and Protection Organization (MAPO)
Contact:	Reclamation Law Administration Division (84-55000)

1. **Introduction.** Appraisal studies are used to determine the nature of water and related resource problems and needs, formulate and assess preliminary alternatives to address the problems, establish whether there is a Reclamation interest in working with partners to pursue a solution, and identify potential project beneficiaries. If a Reclamation interest exists and one or more viable alternatives are identified, then a completed appraisal report may recommend a feasibility study of a new Reclamation project or modification of an existing project. Special studies have a similar level of detail as appraisal studies but are for informational purposes only. This Reclamation Manual (RM) Directive and Standard (D&S) establishes the purpose, procedure, and products of appraisal studies and special studies.
2. **Applicability.** This D&S applies to all Reclamation employees involved in the performance, evaluation, or approval of water and related resources appraisal and special studies prepared or funded by Reclamation. Reclamation program-specific D&S will take precedence over this D&S. This D&S does not apply to:
 - A. Non-water resource planning related activities, including, but not limited to, security and emergency management.
 - B. Planning activities carried out under WaterSMART; those activities are subject to program-specific content and review requirements, including the requirements set forth in RM D&Ss, *Drought Response Program* (WTR 10-01), *Basin Studies* (WTR 13-01), and *Title XVI Water Reclamation and Reuse Program Feasibility Study Review Process* (WTR 11-01).
 - C. Planning activities carried out under the Dam Safety Program. Those activities are subject to program-specific requirements, including the requirements set forth in RM D&Ss, *Bureau of Reclamation Dam Safety Program* (FAC 06-01), *Safety of Dams Modification Reports for Submission to the Congress* (FAC 06-03), *Submittal of Safety of Dams Modification Projects with Field Costs of Less than \$20,000,000* (FAC 06-04), and the *Dam Safety Project Management Guidelines*.

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3. **Process Requirements.** The following requirements will be met before an appraisal or special study can commence.
- A. **Initiation.** Studies require a written request from the cost-share partner(s) and a response letter, as follows:
- (1) Studies will be initiated only when a written request from a cost-share partner is received by either the regional director, regional planning officer, or area manager. The request will fully describe the water and related resources problem or deficiency and identify the potential Reclamation interest.
 - (2) Reclamation will respond to the request through written correspondence within 60 calendar days. When analyzing the request, the receiving official will consider whether funding and staff resources are available for the study. Questions concerning the appropriateness of Reclamation participation in a study will be resolved by the regional director. The response letter will either approve or deny the request, or provide a timeline for a determination to be made. If a request is approved, the response letter will identify a Reclamation point of contact, and the immediate next steps to initiate the study. If a request is denied, the response letter will refer the local sponsor to other Reclamation or Federal programs that may be better suited to provide assistance, if applicable.
- B. **Cost Sharing.** Study costs will be shared with a cost-share partner(s).
- (1) A cost-share agreement negotiated between Reclamation and the cost-share partner(s) will be signed before commencing a study. Federal costs will be limited to no more than 50 percent of total study costs.¹ Reclamation funds from the General Planning Activities program may be used to fund the Federal share of a study in accordance with RM D&S, *General Planning Activities* (CMP 09-05).
 - (2) Costs and in-kind services will be accounted for in accordance with *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (2 CFR 200). Non-Federal cost-sharing contributions will be in the form of in-kind services, cash payments, or a combination of the two. Non-Federal cost-share contributions expended before the start of the study will not be credited towards the study, unless otherwise stated in the cost-share agreement.
- C. **Study Management.** Once a request is approved, the regional director will assign a study manager responsible for the preparation of the study. The study manager will:

¹ Except for when the cost-share partner is an Indian Tribe. Cost-sharing with Indian Tribes will be negotiated on a case-by-case basis.

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- (1) Produce a cost estimate (budget) and schedule to complete the study. The schedule will include anticipated start and finish dates for all major milestones, activities, and deliverables. The budget will include all estimated costs associated with completing the study.
 - (2) Develop a project management plan (PMP) in accordance with RM D&S, *Project Management* (CMP 07-01), and track study costs, and progress. The PMP will include a schedule, budget, and responsibility distribution for the study agreed to by the study manager, cost-share partners, and the Reclamation sponsor.
 - (3) Identify and coordinate with other Federal agencies, state, local, and tribal governments, non-governmental organizations, civic groups, and other interested stakeholders, as appropriate.
 - (4) Ensure that public involvement occurs during the study process, including holding initial public outreach meetings and considering public feedback on acceptability of alternatives.²
 - (5) Maintain records of the non-Federal partner's contributions for cost-sharing purposes and review the contributions of the non-Federal partner to verify applicability and value of in-kind services.
 - (6) Compile all records of Federal and non-Federal contributions with supporting information immediately after the conclusion of the study.
 - (7) Ensure all records generated and maintained by this D&S conform with RM D&S, *Information Management* (RCD 05-01).
4. **Special Studies.** Special studies are planning studies generally undertaken with non-Federal partner(s) to address specific problems or opportunities in which there is Reclamation interest or expertise. The purpose of a special study is for Reclamation to obtain more information about a resource, problem, or need related to an existing situation, or resource management problem. The key difference between appraisal studies and special studies is that special studies will not lead to Federal actions requiring Congressional authorization, including actions that would typically require a Congressionally-authorized feasibility study, nor will special studies recommend continuing to a feasibility study.³ The final product of a special study is determined by the identified need, its intended audience, and its purpose. The final product will be transmitted to the appropriate director for review and approval. The director or area manager will transmit the approved final product to the cost-share partner(s). Policy review is not required.

² See RM Policy, *Public Involvement in Bureau of Reclamation Activities* (CMP P03), and D&S, *Public Involvement in Reclamation Activities* (CMP 04-01), for more information on public involvement requirements.

³ If a special study recommends conducting a feasibility study, then it will be deemed an appraisal study and all the requirements described in Paragraph 5 below will apply.

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5. **Appraisal Studies.** An appraisal study is required before a feasibility study unless an equivalent analysis has been completed. An appraisal study will define the problem, needs, project area, participants, proposed solution(s), and any obstacles that might preclude Reclamation or the cost-share partner's participation.
- A. **Analytical Requirements.** Appraisal studies will include the following:
- (1) **Description of Problems and Needs.** A description of the water-related resources problem or deficiency, including the potential impacts resulting from not addressing or resolving the problem. The description will address the significance of the problem and its impact on all relevant water resources.⁴
 - (2) **Opportunities.** A description of any identified opportunities. Opportunities may consist of developing new water sources or managing existing ones differently, rehabilitation measures, system upgrades, conservation measures, or combinations of the above.
 - (3) **Potential Benefits.** A description of potential benefit categories, such as water supply, hydropower, etc., as well as potential beneficiaries.
 - (4) **Alternatives.** An analysis of potential alternative solutions for the water resources problem or deficiency, including non-structural alternatives and a without-action alternative. Alternatives may be different scales, routes, operational plans, or implementation strategies. Although not required for appraisal studies, value planning may be used as a tool to identify potential alternatives (see RM D&S, *Reclamation Value Program* (CMP 06-01)).
 - (a) **Analysis of Alternatives.** Alternatives will be analyzed to ensure that they can potentially fully or incrementally resolve the water resources problem. Alternatives will be presented and analyzed in a comparable level of detail, and will be formulated to address acceptability, efficiency, effectiveness, and completeness as described in the *Principles, Requirements and Guidelines for Water and Land Related Resources Implementation Studies*. For each alternative, the analysis will include the following:
 - (i) A description of each alternative covering all structural and nonstructural elements.
 - (ii) An assessment of the ability of potential water supplies and rights to meet the demand for water, including required improvements to existing infrastructure or changes in operations of existing infrastructure.

⁴ Relevant water resources include waters managed for irrigation, domestic, municipal, or industrial water supplies, as well as those affecting fish and wildlife systems, either managed or unmanaged.

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- (iii) An estimate of annual operating, maintenance, and replacement costs.
 - (iv) A description of any known sources of risks and uncertainties that have the potential to affect the viability of the alternative.
 - (v) An estimate of economic benefits. Economic analyses may contain simplifying assumptions or use a benefits-transfer method to determine appraisal-level economic benefits. Benefits may be quantified, unquantified, monetized, or non-monetized.⁵ The study will address how assumptions used in the economic analysis affect the uncertainty of benefit estimates.
 - (vi) An analysis of potential impacts to environmental and cultural resources, and any other social effects of the alternatives that may affect the potential for further study and project implementation. For water storage alternatives, an appraisal-level assessment of risks and downstream consequences will be included in the analysis. The environmental and cultural analysis may be based on literature reviews, desk audits, records searches, or site visits. Alternatives analyzed will include a range that may be acceptable to stakeholders and will seek to avoid or minimize adverse impacts to the environment or cultural resources.
 - (vii) A description of expected National Environmental Policy Act (NEPA) requirements, environmental and cultural mitigation, and permitting requirements.
 - (viii) Any available narratives, maps, sketches, concept designs, photographs, cost estimates, or other supporting information.
- (b) **Alternative Viability.** To recommend that Reclamation conduct a feasibility study, the appraisal study must identify at least one viable alternative. If no viable alternative is identified, then the study will not recommend advancing to the feasibility phase. An alternative is considered viable if both (i) and (ii) below are met:
- (i) The appraisal study provides evidence that it is likely to address the water and related resources problem or deficiency and planning objectives.
 - (ii) There are no expected obstacles that would prevent the alternative from being implemented or would preclude Reclamation or the cost-share

⁵ Economic benefit estimation methods are discussed in the DOI ASP (707 DM 1).

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partner's participation. Obstacles may relate to engineering, economics, environmental, cultural resources, or other technical areas.

- (iii) Where questions arise regarding an alternative's viability, the regional director is responsible for a final determination.

B. Level of Effort Required for Appraisal Studies.

- (1) **Data Collection.** Appraisal studies primarily use existing data and information but may involve collecting new information when necessary. Source data will be cited. Appraisal studies will use primary census data or state-published data when available. Site-specific data gathered through investigations and field surveys will be used to eliminate uneconomical alternative plans or features and to analyze major construction cost drivers.
- (2) **Appraisal-level Designs.** Appraisal-level designs and layouts of major features will be developed to evaluate and compare alternatives, support preparation of cost estimates, and determine technical viability of an alternative. Appraisal-level designs will also be used to define problems and uncertainties to be investigated during the feasibility design phase. The level of effort of design data collection will be limited to the minimum level of data necessary to support an appraisal-level design and cost estimate. Data collected for appraisal studies are not typically of sufficient detail to support feasibility-level designs. An appraisal design report will present the essential features of the structural alternatives that were analyzed. The appraisal design report will include appraisal design figures to depict general facility layouts. The appraisal design report will be included as part of the appraisal report.
- (3) **Cost Estimating.** All cost estimates for structural alternatives will be prepared at the appraisal-level in accordance with RM Policy, *Cost Estimating* (FAC P09), and D&Ss *Cost Estimating* (FAC 09-01), *Construction Cost Estimates and Project Cost Estimates* (FAC 09-02), and *Representation and Referencing of Cost Estimates in Bureau of Reclamation Documents Used for Planning, Design and Construction* (FAC 09-03). Appraisal cost estimates are used in an appraisal study as an aid in comparing relative costs of alternatives, and for determining whether more detailed investigations of potential project alternatives are economically justified. Appraisal-level cost estimates are not suitable for requesting project authorization or construction appropriations from Congress.

- C. **Findings and Recommendation.** The study manager will be responsible for preparing the appraisal report (see template in Appendix A). The appraisal report will summarize the results of the study, identify if there is a Reclamation interest and a viable alternative, and recommend whether the appraisal study should progress to a feasibility study. If the appraisal report recommends proceeding with a feasibility study, it will specify items to be analyzed at the feasibility-level. If the appraisal study is terminated or deferred prior to reaching a level of analysis sufficient to support making a

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recommendation on whether to proceed with a feasibility study, a concluding statement will be included in the appraisal report. The concluding statement will document study activities completed to date and explain why the study is concluding.

- D. **Feasibility Plan of Study.** When a feasibility study is recommended, the appraisal report will include a draft Plan of Study (POS) for a potential feasibility study, as defined in RM D&S, *Water and Related Resources Feasibility Studies* (CMP 09-02). The draft POS will include specific study tasks and how each task will be carried out, including who is responsible, the approach, and schedule.
- E. **Review.** Appraisal studies are subject to regional and Policy reviews as follows.
- (1) **Regional Director Review and Approval.** The regional director will ensure that the report is technically adequate, conforms to Federal law, this D&S, and all other applicable RM and Departmental Manual (DM) releases.
 - (a) The study manager will transmit the final appraisal report to the regional director for review and approval.
 - (b) If applicable, the study manager will work with Reclamation staff, cost-share partners and stakeholders identified through public outreach consistent with Paragraph 3.C.(4). of this D&S to correct any deficiencies identified in the review.
 - (c) If the regional director approves the final appraisal report findings and the appraisal study recommends pursuing a feasibility study, the regional director will transmit the final appraisal report and an approval memorandum to the MAPO Director for review and concurrence. Documentation of the completed technical review will be submitted with the appraisal report, when it is submitted for Policy review.
 - (d) If the regional director does not approve the final appraisal report findings, the study will be terminated, deferred, or undergo further appraisal analysis.
 - (2) **Policy Review.** The MAPO Director will ensure that the appraisal report and supporting documentation comply with all RM and DM releases. The MAPO Director will select a policy reviewer to work with the study manager to correct any deficiencies identified during policy review. Policy review findings will not limit the scope of the Policy Compliance Review during any subsequent feasibility study, per CMP 09-02. The MAPO Director will transmit a memorandum to the Regional Director stating whether the MAPO Director concurs with the findings and recommendations of the appraisal report.

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- (3) **Transmit Approved Appraisal Report to Cost-Share Partner(s).** After completion of the reviews, the regional director will consider the findings from Policy review and transmit the final approved appraisal report to the cost-share partner(s).

6. Definitions.

- A. **Appraisal Design Report.** An appendix to the appraisal report that identifies the technical and cost investigations completed for structural alternatives analyzed during the study.
- B. **Appraisal-Level.** The level of analysis and data collection needed to initially determine the nature of water and related resource problems and needs in a particular area, formulate and assess preliminary alternatives, determine Reclamation interest, and recommend subsequent actions. Appraisal-level costs are defined in FAC 09-01.
- C. **Appraisal Report.** A report that documents the results and findings of an appraisal study and recommends that Reclamation either conduct a feasibility study (see Appendix A for required components) or conclude the investigation.
- D. **Appraisal Study.** An initial planning investigation performed to determine the nature of water and related resource problems and needs in a particular area, formulate and assess preliminary alternatives, determine Reclamation interest, and recommend subsequent actions. Appraisal studies are based primarily on existing data.
- E. **Cost-Share Partner(s).** Entity that shares in the cost and responsibilities of a study or project. Cost-share partners are generally non-Federal entities; however, in some cases, there may be one or more Federal cost-share partners.
- F. **Feasibility Study.** An evaluation of the technical, economic, and financial feasibility of a proposed alternative based on detailed investigations requiring the acquisition of primary data and including an assessment of environmental impacts as required by the NEPA. The feasibility study will provide the basis for making recommendations to Congress about whether a proposed alternative will be authorized for implementation and Federal funding.
- G. **Non-structural Alternatives.** Solutions that alter the use of existing infrastructure. Non-structural alternatives include, but are not limited to, water and energy conservation, alternative sources of water supply and energy production, innovative technologies and approaches, and source water protection.
- H. **Reclamation Interest.** The determination that the proposed action is consistent with Reclamation mission areas and standing authorities, which allow for participation in water and related resources development projects.

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- I. **Special Study.** A technical investigation similar to an appraisal study but may be broader in scope for the analysis of a critical or unique problem related to a particular existing situation, or resource management issue.
 - J. **Without-action Alternative.** The without-action alternative is a future scenario in which none of the alternatives identified are implemented. This alternative will include ongoing operation and maintenance efforts and planned improvements using available data and reliable estimates on future uncertainty. In a feasibility study, this alternative is referred to as the No Action Alternative, in compliance with NEPA. Such compliance is not performed in an appraisal study, and the term without-action is used instead.
7. **Review Period.** The originating office will review this release every 4 years.

RECLAMATION MANUAL TRANSMITTAL SHEET

Effective Date: _____

Release No. _____

Ensure all employees needing this information are provided a copy of this release.

Reclamation Manual Release Number and Subject

Summary of Changes

NOTE: This Reclamation Manual release applies to all Reclamation employees. When an exclusive bargaining unit exists, changes to this release may be subject to the provisions of collective bargaining agreements.

Filing instructions

Remove Sheets

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All Reclamation Manual releases are available at <http://www.usbr.gov/recman/>

Filed by: _____

Date: _____