

*KUN
Lower Repub Study*

Attachment 1

NKAO, Reclamation, February 13, 2004

Feasibility studies

What are feasibility studies?

The purpose of a feasibility study is to identify, evaluate and recommend to decision makers an appropriate coordinated and implementable solution to the identified water resource problems and opportunities. Feasibility reports (Planning Report/NEPA document) document the feasibility study and provide the basis for a decision on construction authorization of a project. These reports can be submitted to Congress for authorization and appropriation for implementing the recommended plan after a review by Reclamation, DOI and OMB.

What do feasibility reports contain?

The Planning Report/NEPA document provides a complete presentation of study results and findings so that readers can reach independent conclusions regarding reasonableness of recommendations; indicates compliance with applicable statutes, executive orders and policies; and provides a sound and documented basis for decision makers at all levels to judge the recommended solution.

The Planning Report/NEPA document provides enough detail so decision-makers know the projects's costs what potential risks are involved, what benefits the completed project would provide, and potential beneficiaries that may be available to repay the project costs. If this plan complies with all requirements and there is a project sponsor, Reclamation or the sponsor will forward it to Congress with a recommendation for authorization and funding. See sample table of contents.

How do we conduct feasibility studies?

Interdisciplinary planning teams cycle through an iterative 6-step process to formulate plans for achieving the planning objectives and for avoiding the constraints. The feasibility study is conducted pursuant to the "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" (P&G) of the U.S. Water Resources Council. The P&G define the Federal objective of water and related resources planning is to contribute to national economic development consistent with protecting the Nation's environment. A plan that reasonably maximizes net national economic development benefits, consistent with the Federal objective, is to be formulated and is identified as the national economic development (NED) plan.

Alternative plans which contribute to the Federal objective are systematically formulated in consideration of four criteria: completeness (accounts for all necessary investments or other actions), effectiveness (extent in meeting the planning objectives/alleviating the problems), efficiency (cost-effectiveness) and acceptability (by state, local entities and the public and compatibility with laws, regulations and policies).

The engineering and related technical aspects of the feasibility study are developed to the level that will provide a reliable project schedule and cost estimate which will support the appropriation ceiling to be established by the authorizing legislation. The data gathered to develop feasibility estimates is therefore confined to the minimum reasonably required to support this level of detail with reasonable contingency factors and is not of sufficient detail to support final specifications design. Design occurs after a project is authorized for construction

General features: Feasibility studies require authorization from Congress. Feasibility studies are usually conducted after an appraisal study has found that Reclamation has a role and that there is a viable alternative.

Budget: Each feasibility study is funded through its own line item in Reclamation's budget. Feasibility studies typically require 50/50 cost sharing with a non-Federal partner. If the project is authorized and constructed, the Federal portion of the feasibility study may be considered a recoverable project cost.

Feasibility Study

SAMPLE-TABLE OF CONTENTS

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* Required for NEPA compliance

Attachment 2

Feasibility Study Process – Gjerde

6 STEPS

IDENTIFY PROBLEMS AND OPPORTUNITIES

INVENTORY AND FORECAST CRITICAL RESOURCES

FORMULATE ALTERNATIVE PLANS

EVALUATE ALTERNATIVE PLANS

COMPARE ALTERNATIVE PLANS

IDENTIFY A PREFERRED PLAN & DOCUMENT IN A PR/NEPA DOCUMENT

1. Identify Problems and Opportunities

Develop clear statements which serve as a mission statement for the Federal/non-Federal partnership.

These become the focal point for stakeholders – “this is why we are undertaking this study.”

Then develop planning objectives and constraints statements for each of the problems and opportunities. Planning objectives guide efforts to solve the problems and achieve the opportunities and they reflect priorities and preferences of the States/ Reclamation/other participating groups

The study team will use this information to formulate plans to identify specific ways to achieve planning objectives within constraints, e.g., solve the problems and take advantage of the opportunities

What are the major problems, opportunities, planning objectives (do good) and constraints (don't do bad) for this study?

Background: Supreme Court Stipulations

“...improve the ability to utilize the water supply below Hardy...on the mainstem”

“take actions to minimize the bypass flows at Superior-Courtland Diversion Dam”

“...undertake...a system operations study...revisit the five-year running average”

“undertake a study...of the impacts of non-Federal reservoirs and land terracing on the virgin water supply”

How do we handle these as planning objectives?

Possibilities:

Problem 1: Water right holders junior to MDS are restricted/cut-off.
Objective 1: Augment flows in the Republican River below Hardy during the irrigation season to allow junior appropriators to irrigate.
Constraint 1: No decrease in water supplies to existing water rights holders.

Problem 2: Water supply shortages to Bostwick Division (BD).
Objective 2: Increase water supply to BD.
Objective 3: Increase BD water utilization efficiency.
Constraint 2:

Problem 3: States need flexibility in complying with Settlement
Objective 3:
Constraint 3:

Opportunity 1: Improve water quality.
Objective 4: Restore more natural water quality below Hardy.
Constraint 4: Meet state water quality standards.

(complete this list of statements and document which Stipulations are/aren't covered by objectives)

Problem 1:

Objective 1:

Objective 2:

Constraint 1:

Problem 2:

Objective 3:

Constraint 2:

Opportunity 1:

Objective 4:

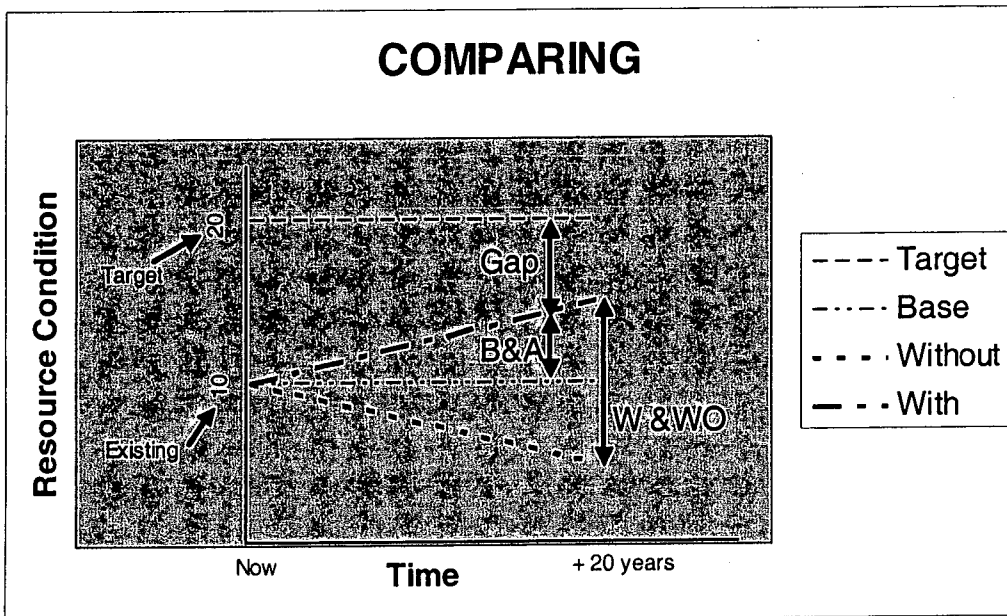
Constraint 3:

2. Inventory and Forecast Critical Resources

Define the 'without project condition' (aka 'no action' in NEPA) for critical resources (physical, economic, social, etc.) quantitatively and qualitatively.

Describe the project area's future if there is no Federal/Reclamation action taken to solve the problems at hand to provide the basis from which alternative plans are formulated and impacts assessed. P&G require a with and without comparison.

Inventory and forecast physical data (land resources, geohydrology, **hydrology**, water quality, environment) and socioeconomic data (institutions, demographic, social, economic, financial, legal, social publics, recreation).



What might cause the situation to change at say, 2040?

Considerations for Discussion:

Might there be future actions to decrease depletions to the River due to groundwater pumping and hence increase inflows to Harlan?

What O&M-type activities might BD reasonably have accomplished by then?

How does the Stipulation's (1) system operation study/revising 5-year average, (2) minimize Superior-Courtland bypass flows and impacts of non-Federal reservoirs and (3) land terracing affect the without project condition, especially hydrology?

HYDROLOGY – what factors are likely to drive changes in the future?

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Attachment 3

Hydrology Notes/Issues- Phillips

Potential issues for feasibility-level model:

1. Ability to track daily occurrences when flows below MDS triggers and consequent need for daily model.
2. What would the trigger levels be.
3. Provide augmentation, and to what degree, to meet MDS flow requirements.
4. Allow for multiple ownership pools in Lovewell Reservoir.
5. Simulate conveyance of Lovewell storage to off-stream storage site.
6. Quantify available natural runoff at off-stream sites.
7. Establish future conditions for water supply. Are '93-level flows adequate, adjustments to reservoir capacity for future sedimentation , adjustments to reach gains for potential administrative regulation of consumptive use to meet compact allocations?
8. Ability to evaluate impacts to water rights from Harlan Lake down to and inclusive of Milford Reservoir, and their impacts to Lovewell storage and MDS augmentation.
9. Evaluate impacts to private water users below Superior-Courtland Diversion Dam when providing increased Courtland Canal diversions.
10. Is there a need to determine surface water and groundwater interaction below Harlan, and seepage impacts along conveyance systems?
11. Is the ability to simulate return flows from diversions needed?
12. Compact compliance, MDS storage and use?
13. New Water rights, MDS storage, irrigation storage, Filing?
14. Impacts to Milford Reservoir water supply?

-Review of existing model capabilities.

-Modification of existing model or develop new model?

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