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Alternative Scenarios for Future Infrastructure Management

INTRODUCTON

The committee considered a broad range of alternative scenarios as it contemplated Reclamation's future responsibility and its organization for construction and infrastructure management. They ranged from scenarios that dramatically expanded Reclamation's mission to scenarios that eliminated the bureau and redistributed its responsibilities to other existing agencies. Because the alternatives at the extreme ends of the spectrum were deemed to be improbable, they were not analyzed further. The committee agreed on three scenarios it believes will provoke productive thought and be of maximum assistance to Reclamation and the Department of the Interior. They are considered feasible, consistent with national trends and stakeholder interests, and responsive to the trends as identified and described in this report. These scenarios do not predict future requirements nor are they recommendations of the committee—they are only intended to stimulate discussion.

Reclamation has recognized and taken steps to adapt its tasks as it changes from water resource development to water resource management. This change has turned Reclamation from a construction and capital-oriented organization into an operations and maintenance organization that requires determining the appropriate balance and borders between centralized policy and decentralized operations. The following scenarios describe how these trends might affect the way Reclamation constructs and maintains facilities to deliver power and water.

The trends discussed in the previous chapters that had particular influence on the development of the scenarios are these:

- The O&M workload is growing and is expected to continue to grow.
- The major construction workload is diminishing, and the source and kind of new construction activity are uncertain.
- The construction workload will be driven by dam safety considerations, environmental mitigation and restoration projects, small projects incident to maintenance and operations, larger rehabilitation, repair, and modernization projects, and new construction to satisfy American Indian water rights.
- Current federal policy, embraced by officials of all political parties, will continue to encourage the transfer of field execution activities, to the extent possible, from government employees to contractors.
- In response to their requests, water users will be increasingly responsible for transferred works, but with Reclamation guidance and technical assistance. Water districts and other users will be free to accomplish more of the design and construction incident to O&M.
- Water users will be required to provide an increasing proportion of O&M financing, and as facilities age, rehabilitation and repair will become larger components of the budget.

The current line organization flowing from the commissioner to the regional director to the area manager appears simple, efficient, and responsive to mission demands. This organization is considered a given in all of the scenarios. The provision of technical and administrative services from a central organization is also responsive; however, the size of the central service organization relative to that of the line organization service units is likely to change along with their roles. Though the basic organization remains intact, the number of personnel at each level and the knowledge, skills, and abilities to complete the assigned tasks vary dramatically from scenario to scenario.

Scenarios 2 and 3 could occur concurrently with Scenario 1. For a single project, Scenarios 2 and 3 are mutually exclusive, but they could be occurring concurrently on different projects.

SCENARIO 1: CENTRALLY LOCATED PROJECT MANAGEMENT ORGANIZATION

Construction projects other than minor projects that are undertaken by area or regional offices are executed by a centrally located construction

project management organization. Minor projects are defined as the commissioner may direct according to cost (e.g., less than \$5 million) and/or complexity and risk. The regional office remains the owner of the project, but this scenario is based on a reduction in the number of major projects, making it impractical to maintain the necessary competencies at the regional level. As the owner, the region plays a significant role in early planning activities to define the project scope, but control is shifted to a central organization as the project progresses. This scenario also assumes that outsourcing of design services will increase to the point where it is the predominant means of implementing projects. The central organization provides project management services, thus overseeing design and construction activities. Unit personnel, while based at a central location, are deployed as needed to field locations to execute the construction task. Upon completion, the construction unit transfers ownership responsibilities for O&M to the assigned organization.

Reclamation recognizes the growing predominance of O&M tasks and responsibilities and the diminishing importance of but continuing need for a viable construction capability. There is an obligation to maintain a broadly based field organization for stakeholder interaction and support and for water and power contract oversight and administration. The existing organization of regional and area offices is well suited to the execution of O&M tasks, including minor construction projects.

Scenario 1 implies the following organizational characteristics:

- Project management and construction expertise for major construction projects will be concentrated in a centrally located unit and largely stripped from the existing organization.
- The central project management unit will include personnel with skills and qualifications to serve as contracting officers; to oversee design provided by the regional offices, by TSC, or by contract; to supervise contract or construction activities in the field; and to ensure integration of user needs as determined by line organization managers. The unit will perform all of the functions of a smart buyer—that is, it will ensure proper project scoping; selection of an appropriate project execution strategy and contractors; and administration of the contracts on behalf of Reclamation and will conduct quality assurance activities.
- The central project management unit, consisting of a more or less fixed number of highly qualified specialists, will continue to charge the costs of services to projects but may also require nonproject funding support to maintain its core competencies. The unit will be augmented by contract consultants during periods of heavy workload.

SCENARIO 2: OUTSOURCED OPERATIONS AND MAINTENANCE

Outsourcing of essentially nongovernmental functions increases to the point where Reclamation accomplishes all of its field O&M tasks by contract except those determined to be inherently the government's responsibility. The O&M for major hydroelectric plants and dams that pose the most significant risks is likely to continue to be a Reclamation function, but with increasing support services by contractors. The bureau retains a line regional and area structure to execute and administer contracts, to interact with stakeholders and water and power contract partners, and to discharge governmental responsibilities of ownership.

This scenario is consistent with current government-wide goals of increasing the outsourcing of nongovernmental functions. It opens up opportunities for local entities to perform many O&M functions on their own projects. Having motivated providers in charge would presumably result in reduced costs. It allows greater stakeholder involvement in ongoing operations while reducing the need for Reclamation employee involvement.

Scenario 2 implies the following organizational characteristics:

- Only Reclamation's nongovernmental functions may be outsourced. Reclamation can compete with private organizations for O&M contracts, but the competitive sourcing process makes it difficult for government-provided operations to be reinstated after they have been shifted to contractors. Water district partners are free to choose their preferred method of executing the program elements for which they are responsible.
- Reclamation staff will learn to be smart buyers, and procurement and contract oversight and administration specialists will be trained.
- More emphasis will be placed on developing standards and guidelines necessary to facilitate contract scoping and identify mandatory procedures.

SCENARIO 3: FEDERAL FUNDING AND LOCAL EXECUTION

This scenario further reduces Reclamation's direct involvement in the management of assets. Under it, Reclamation administers its O&M program by distributing federal funds to the irrigation and power users in response to project needs. The users are held responsible for project O&M in conformity with Reclamation standards and guidelines, which are de-

signed to ensure maximum flexibility within the bounds of essential public health and safety interests.

Reclamation retains responsibility for essential governmental policy and oversight, necessitating close and continuing communication and interaction between the recipients of funds and Reclamation officials. The emphasis is on Reclamation exercising an oversight function to assure that its standards and guidelines are respected by water and power users.

Scenario 3 implies the following organizational characteristics:

- Reclamation personnel skills will change from direct involvement in task execution to administration of a federal funds program in support of what had traditionally been Reclamation responsibilities. Reclamation's efforts will include needs validation, priority determination, defense of appropriations requests, and program oversight to assure faithful application of resources.
- In spite of fundamental program administrative changes, Reclamation will retain responsibility for stakeholder interaction and communications.

CONCLUSION

The scenarios described above are not predictions about the future. They are based on current trends which are taken to a logical, but not necessarily probable, conclusion. They are not the only scenarios that could have been developed. These three scenarios are all based on Reclamation having an organizational structure that is the same as or very close to its current structure. Other scenarios could be based on other organizational forms (e.g., regional offices that operate as independent organizations or a strong central administration without regional offices) and could be applied to the same basic concepts with different results.

Irrespective of which models are implemented in the future, Reclamation will continue to have responsibility for program and project planning as stewards of water and land resources in the West. This responsibility will require continuing assessment of the existing water management infrastructure, new physical and operational systems, and the need to evaluate and prioritize among all of them. A recent review of USACE water resources planning (NRC, 2004) recommended a portfolio planning process that considers issues such as the operational benefits that may be realized when investment in a new project results in increased value of the water infrastructure. A number of principles are stated that, if followed, could guide the planning process. Adopting a similar approach could prove beneficial in any of the three scenarios.

The committee considers these scenarios as a starting point. This re-

port would not have been possible without extensive input from Reclamation managers, but much more is needed to make scenario planning an effective management tool for the bureau. More extensive and active participation of Reclamation personnel in scenario development will help managers break away from current assumptions, disclosing the possible threats and opportunities that may have been missed. Active scenario planning can also disclose possible implications of current events and policy decisions and help to create boundary objects to help bring together divergent ideas and opinions in the bureau.

The three scenarios presented here are just a starting point insofar as additional input from Reclamation managers is needed to determine what the bureau will need to do to succeed in each of these possible futures. Exponential increases in technology are hastening the rate of change in management of government agencies. Reclamation, like other agencies, needs to be able to recognize future requirements so that it can be prepared to meet them. The continued involvement of Reclamation managers in scenario planning can follow up on what this report has begun by identifying emerging patterns of factors that shape the bureau's mission, extrapolating the past into the future, identifying cycles and patterns that differentiate the past from the future, and using their knowledge of the goals and motivations of all stakeholders to synthesize future actions.

REFERENCE

National Research Council (NRC). 2004. *Review Procedures for Water Resources Project Planning*. Washington, D.C.: The National Academies Press.