

# RECLAMATION

*Managing Water in the West*

## **Understanding Incentives and Disincentives for Conflict Prevention and Mitigation: A Case Study Examination of the Bureau of Reclamation's Implementation of the Water 2025 Initiative**

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## **Disclaimer:**

The findings and conclusions in this report are those of the author(s) and do not necessarily represent the views of Reclamation.

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# 1 Executive Summary

The research presented in this report grew out of a collaborative effort between the Bureau of Reclamation and Oregon State University that seeks to develop a set of specialized tools and teaching modules for Bureau of Reclamation water managers. The goal of the partnership is to help Reclamation detect, prevent, and mitigate water-related conflicts, as well as to foster collaboration. This case study serves as a companion document to the study of incentives and disincentives for conflict prevention and mitigation in the Bureau of Reclamation (see report titled, “An Investigation of Incentives and Disincentives for Conflict Prevention and Mitigation in the Bureau of Reclamation’s Water Management”). It examines how those various incentives and disincentives influenced decision making in Reclamation during early implementation of the Water 2025 Initiative (Water 2025). The case study uses the Institutional Analysis and Development (IAD) framework to explain what incentives and disincentives for conflict mitigation and prevention influenced the initial implementation of the Water 2025 Initiative. To limit the scope to a manageable amount of material, the study focused on the first two years of program implementation.

The Department of the Interior (DOI) issued an order creating the Water 2025 Initiative in 2003 with a two-fold purpose. First, it sought to provide a basis for engaging the public in discussions about water management in the western U.S. and then pursue decisions that avoided water supply crises. Second, it proposed a framework for identifying problems and developing a plan for how DOI and Reclamation could engage stakeholders, states, tribes, local governments, and the private sector.

The primary means by which Reclamation initially implemented Water 2025 was through the Challenge Grants Program, in which Reclamation awards 50/50 cost share grants through a competitive process. These grants are available to local government, municipal and private irrigation districts, water associations, and tribes. Particular emphasis was placed on projects focused on increasing efficient water use and creating water markets (Bureau of Reclamation, 2005; Department of the Interior & Bureau of Reclamation, 2003).

In the initial work of Reclamation’s Water 2025 a number of the incentives and disincentives identified in the surveys and focus groups are present. The IAD framework illustrates how these factors are represented in the attributes of the community and the rules-in-use that shape the action arena where the actor, Reclamation, makes decisions. In regard to Reclamation’s decision of how to initially implement Water 2025, a number of the incentives and disincentives identified in the surveys and focus groups may explain the

implementation of the program. Reclamation's organizational culture, particularly its engineering and supply driven focus, provide a possible explanation of the technology and water conservation heavy efforts. One of the express goals of Water 2025 was to avoid future water crises and conflicts, and by funding that program funding was available for those efforts and may have served as an incentive for pursuing conflict prevention and mitigation. This contradicts what Ogren and Wolf (2012) found in their survey of Reclamation employees. In this case funding was available for conflict prevention and mitigation, while the employees surveyed stated that conflict prevention and mitigation efforts are often not pursued due to a lack of funds.

The decentralized nature of the Water 2025 Program, demonstrated in how the project goals were pursued by delegating the efforts to irrigation districts through grants, fits in with the character of the agency that was so heavily influenced by decentralization in the 1990s. The engineering and technical culture is seen in how the program is very focused on technical solutions and does not emphasize collaboration and efforts focused on increasing institutional capacity as overtly as the technical improvements resulting in increased water use efficiency and conservation. This emphasis on technical solutions is based on the assumption that water shortages translate into conflict and does not consider the role of institutional capacity in the relationship between water scarcity and conflict. That being said, these projects could also be considered the low hanging fruit the agency wanted to address with targeted funds available for distribution by Reclamation. Also in the early implementation of the program the link between conflict and institutional capacity was just being published.

In this case study the issue of funding or the perception of where funding is allocated impacted the outcome of the decision. This is to be expected as the abundance or lack of resources can often dictate whether or not an action can be taken. As seen in the Water 2025 case study, Reclamation is often restrained in how it can spend the appropriated funding allocated to it by Congress. In this case, funding was often directly allocated to particular projects by Congress and Reclamation did not have discretion in where to allocate funds. At the same time, through this program conflict prevention and mitigation are pursued since funding was available. From this one can learn that if Reclamation wants to continue to incentivize conflict prevention and mitigation it must request funding from Congress to specifically pursue such efforts and/or find ways to incorporate prevention and mitigation into the funding currently authorized by Congress.

## 2 Introduction

In light of the conflict experienced in the Middle Rio Grande and other basins, such as the Klamath Basin, the DOI and Reclamation saw the need to act in order to prevent similar conflicts from occurring in other basins and projects (Quimby & Harlow, 2003). Faced with aging infrastructure, reduced funding from Congress, and future water shortages, DOI established the Water 2025, initiative geared towards conflict prevention and proactive water management. This initiative sought to provide a foundation for how Reclamation and the United States Geologic Survey (USGS) could engage the public on water management issues and address potential crises proactively. It also provided a framework and tools for the Bureau, its partners, and stakeholders to identify potential problems, brainstorm solutions, and develop a plan to address the issue (Department of Interior & Bureau of Reclamation, 2003; Quimby, 2003). This case study explores at how Reclamation initially implemented Water 2025 which ultimately became the WaterSMART Program (WaterSMART).

### 2.1 Background

As it prepares to manage and deliver water, as well as generate hydropower in the western United States, Reclamation recognizes that it is in its best interest to promote proactive conflict prevention/mitigation and cooperation (Bureau of Reclamation, 2006; National Research Council, 2006). These efforts will allow Reclamation to accomplish its mission to “manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public” with greater efficiency and at reduced costs due to decreased project delays and litigation actions (“Bureau of Reclamation: About Us,” 2010). This raises the question: is Reclamation currently promoting conflict prevention/mitigation and collaborative programs, as it intends?

This report is part of a larger collaborative effort between Reclamation and Oregon State University (OSU) that seeks to develop a set of specialized tools and teaching modules for Bureau of Reclamation water managers. These tools will aid Reclamation in detecting, preventing and mitigating water-related conflicts, and to foster collaboration. This case study serves as a companion document to the study of incentives and disincentives for conflict prevention and mitigation in the Bureau of Reclamation (see report titled, “An Investigation of Incentives and Disincentives for Conflict Prevention and Mitigation in the Bureau of Reclamation’s Water Management”). While that report identified incentives and disincentives, this case study examines how those factors influenced decision making in Reclamation in the case of the Middle Rio Grande silvery minnow. A

short summary of the previous report's findings are presented below to provide context for the case study at hand.

## **2.2 Inventory of Incentives and Disincentives**

Researchers at Oregon State University (OSU) investigated the incentives and disincentives for conflict prevention and mitigation in Reclamation's water management (Brown et al., 2009; Ogren and Wolf, 2012). Those studies queried Reclamation employees through surveys and focus groups to determine what incentives and disincentives exist in the agency. In the inventory done by Ogren and Wolf (2012), 21 Reclamation employees participated in the survey and focus groups at two conflict management courses in Sacramento, California and Boise, Idaho.

The two dominant disincentives for conflict prevention (and to some extent mitigation) were identified: a lack of resources and Reclamation's organizational culture (specifically its reliance on crisis management, water delivery tunnel vision, and being slow to change). The two are linked in a cyclical fashion. In the view of the study participants the reactive culture in Reclamation leads to a lack of resources for more proactive initiatives as resources were reallocated to conflict mitigation from conflict prevention. Without proactive efforts geared toward conflict prevention, conflicts will continue to arise and consume time, money, and human resources. Other disincentives identified include a lack of forward planning, the existence of an acceptable bandwidth or level of conflict, a perception that conflict is unavoidable or entrenched, politics, and limits on acceptable actions associated with the legal authorization of Reclamation projects. Fewer incentives for conflict prevention and mitigation were identified, but include pressure from higher management, the promotion of collaboration within the Bureau, and a desire to avoid litigation (Ogren and Wolf, 2012; see Table 1 for a summary).

**Table 1. Summary of incentives and disincentives identified (Ogren and Wolf, 2012)**

	<b>Incentives</b>	<b>Disincentives</b>
<b>Conflict Prevention</b>	<ul style="list-style-type: none"> <li>• Pressure from higher management</li> <li>• Promotion of collaboration with others outside of Reclamation</li> <li>• Desire to avoid litigation</li> </ul>	<ul style="list-style-type: none"> <li>• Reclamation culture (i.e., crisis-driven, water delivery focused, slow to change)</li> <li>• Limited availability of funding, time, and staff</li> <li>• Reallocation of financial resources (i.e., from projects with prevention efforts to projects with conflict)</li> <li>• Reallocation of other resources (i.e., from projects with prevention efforts to projects with conflict)</li> <li>• Politics</li> <li>• Acceptable bandwidth of conflict</li> <li>• Perception that conflict is unavoidable or entrenched in all projects</li> </ul>
<b>Conflict Mitigation</b>	<ul style="list-style-type: none"> <li>• Allocation of financial resources</li> <li>• Allocation of human resources</li> <li>• Pressure from higher management</li> <li>• Pressure from outside Reclamation (e.g., Congress or stakeholders)</li> <li>• Desire to resolve ongoing litigation</li> </ul>	<ul style="list-style-type: none"> <li>• Reclamation culture (i.e., crisis-driven, water delivery focused, slow to change)</li> <li>• Discomfort associated with actions needed and lack of skills to pursue those actions</li> <li>• Limited availability of funding, time, and staff</li> </ul>
<b>General</b>	<ul style="list-style-type: none"> <li>• Trust/relationships created from collaboration, conflict prevention, and conflict mitigation efforts</li> </ul>	<ul style="list-style-type: none"> <li>• Legal authorization and other legal constraints</li> <li>• Lack of strong leadership</li> </ul>

While the identification of incentives and disincentives are important for helping Reclamation promote conflict prevention and mitigation, it is also critical to explore how these factors influence decision making. With a list of incentives and disincentives gathered from a survey and focus groups of Reclamation employees, the next step in answering the question above is to examine how those incentives and disincentives factor into Reclamation decision making. This report focuses on completing this second step through a case study employing the Institutional Analysis and Development (IAD) framework.

This case study aims to provide insight into how incentives and disincentives for conflict prevention and mitigation factor into Reclamation decision making. That is, the incentives and disincentives listed above are used to explain why Reclamation made its decisions regarding the protection of the Middle Rio Grande silvery minnow. It will also serve to explain the varying degrees of conflict and cooperation.

The IAD framework is applied to a case study of Reclamation decision making at the policy level. Specifically, this report seeks to answer the research question: Within the IAD framework, what incentives and disincentives for conflict prevention and mitigation influence Reclamation (the actor) and its decision making regarding the endangered Middle Rio Grande silvery minnow?

To address this research question, first the framework and theory which will be used for the analysis of the policy—the IAD framework and the theory of institutional rational choice—are described. Next an overview of the policy—from agenda setting through policy implementation—is provided. This includes both a description of the actual policy as well as background on the Endangered Species Act of 1973 (ESA) and Reclamation. Then the policy is analyzed describing and discussing the physical conditions, attributes of the community, rules-in-use, action arena, patterns of interactions, and outcomes as outlined by the IAD framework.

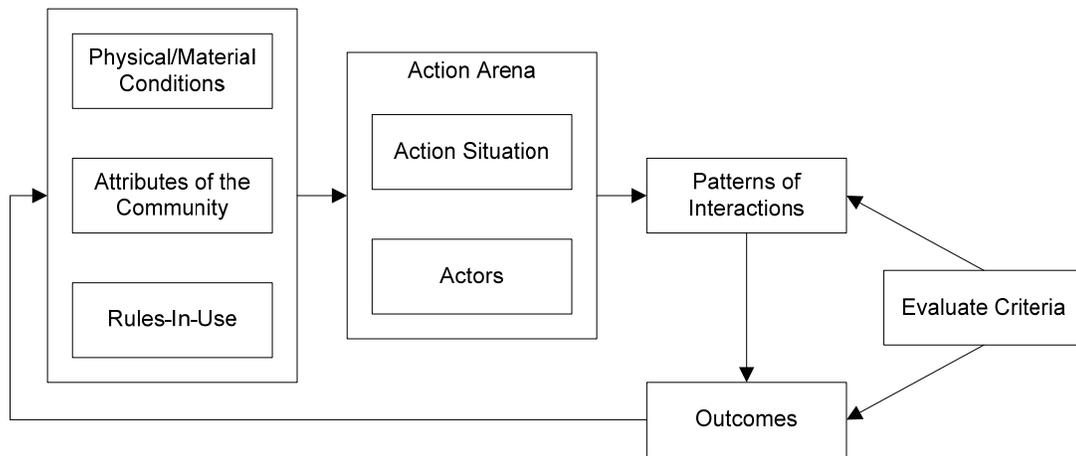
## **3 Analytical Framework**

The fields of public policy and public administration, through the IAD framework and institutional rational choice theory, provide a theory and framework for analyzing how different incentives and disincentives factor into Reclamation’s decision making. The IAD framework provides a means by which to identify the elements of a policy and relationships between those elements in an effort to better understand and explain policy processes and outcomes. The theory of institutional rational choice is used as the underlying theory to identify which elements of the framework offer an explanation for the policy outcomes. The following subsections provide a description of the framework and theory used to analyze the policy subject of this study.

### **3.1 Institutional Analysis and Development Framework**

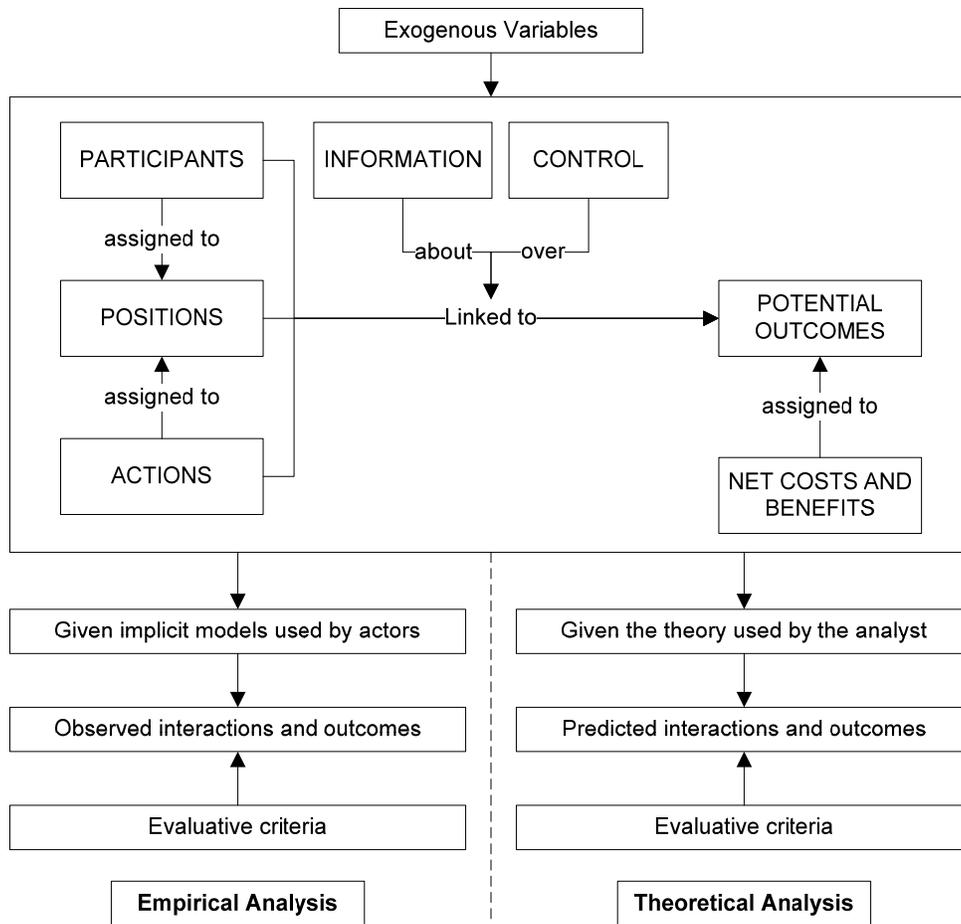
The beginnings of what would become the IAD framework were first published in 1982 and sought to provide a structured way to determine how institutions (both formal organizations and informal rules and norms) affect the incentives confronted by individuals and their resultant behavior and actions (Sabatier, 2007). After two decades of further development, the IAD framework provides a means by which to answer the question of how incentives and disincentives impact decisions within Reclamation concerning conflict prevention and mitigation.

The IAD Framework is a general systems theory approach to understanding policy processes (McGinnis, 2011). It is a multi-tier conceptual map. While in theory the framework can serve to offer predictions of what may happen, it is much better used for “clarifying what to think about when we are observing a phenomenon having to do with people’s resources and (literal) lives in the workday world” (Blomquist & deLeon, 2011, pp. 1–2). The following paragraphs provide a brief description of each of the components of framework (Figure 1).



**Figure 1. IAD Framework (Sabatier, 2007)**

The primary focus of the IAD framework’s analysis of policy is the action arena, which is comprised of the action situation and actor. Seven clusters of variables are used to characterize an action situation in the IAD Framework: 1) participants, 2) positions, 3) outcomes, 4) action-outcome linkages, 5) the control exercised by participants, 6) information, and 7) the costs and benefits of the outcomes (Figure 2). The actor is an individual or a group of individuals acting as one and their actions are their behaviors. Reclamation has been selected as the actor that is analyzed in this case study. For analysis of behaviors, such as those demonstrated by Reclamation in the Middle Rio Grande basin, a theory or model must be used as a foundation for four necessary assumptions: 1) resources held by the actors, 2) value actors assigned to actions and the state of the world, 3) method by which actors “acquire, process, retain, and use knowledge and information,” and 4) the way an actor chooses a course of action (Sabatier, 2007). In this study, the theory of institutional rational choice is used (see section 3.2 for an explanation of this theory).



**Figure 2. Internal components of the action situation (Ostrom, 2005)**

The IAD framework posits that a number of factors influence the action arena as independent variables, including: the physical and material conditions present, the attributes of the community, and the rules-in-use. Physical and material conditions serve as constraints on what is physically possible. The process of taking into account the physical and material conditions includes how the world in which the policy is being developed, adopted, and implemented impacts the possible actions, outcomes, and information available.

Attributes of the community that influence the action arena include the norms of behavior generally accepted in the community, the level of common understanding shared among actors, the extent of homogeneity in the preferences of those in the community, and the distribution of resources among those impacted by the policy (Sabatier, 2007). This group of attributes is often called the “culture” of the community. The attributes of the community provide structure to the action arena along with the rules-in-use.

Rules-in-use guide the behavior of actors in the arena and order their relationships with one another. Rules-in-use are not limited to formal rules, but include informal institutions, which are “shared concepts used by humans in

repetitive situations organized by rules, norms, and strategies” (Sabatier, 2007). Those informal institutions are defined as follows:

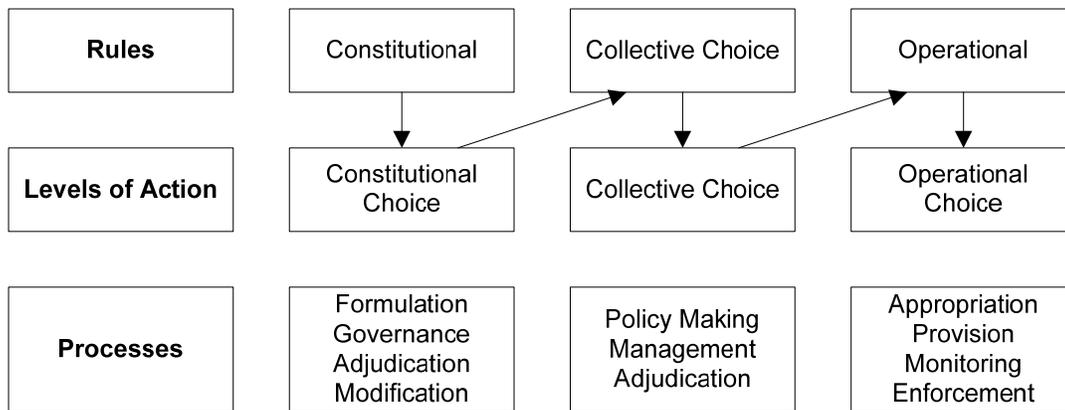
- *Rules* – “shared understandings that certain actions in particular situations must, must not, or may be undertaken and that sanctions will be taken against those who do not conform” (Ostrom, 1998, p. 1)
- *Norms* – “internal valuations that an individual associates with an action or choice, often learned through interactions with others” (Ostrom, 1998, p. 1)
- *Strategies* – “regularized plans that individuals make within the structure of incentives produced by rules, norms, and expectations of the likely behavior of others in a situation affected by relevant physical and material conditions” (Sabatier, 2007, p. 23)
- *Heuristics* – “rules of thumb that are learned over time through experiences, which may also influence the actions and decisions of individuals” (Ostrom, 1998, p. 1)

Ostrom presents three levels of rules: *operational rules* (which directly affect day-to-day decisions made by the participants in any setting), *collective choice rules* (which affect operational activities by dictating who is eligible and which rules are to be used in changing the operational rules), and *constitutional choice rules* (which affect operational activities also by dictating who is eligible as well as the rules to be used in crafting the set of collective choice rules). While emphasizing the importance of rules, Ostrom notes in her article that anticipated consequences (and rational choice) also influence decision making (Sabatier, 2007). All three levels of rules are touched on and altered in the debate over the silvery minnow and Reclamation discretion over project water, but this case study focuses on collective choice rules. The incentives and disincentives identified in the previous chapter serve as rules-in-use and attributes of the community and are the focus of the analysis in this case study.

Partnered with these different levels of rules, the IAD framework can be used to analyze three different tiers of decision making (Figure 3):

- *Constitutional* – decisions are made regarding the rules of policy making including who is eligible to participate in the policy making process
- *Policy or Collective Choice* – decisions are made within the constraints of collective choice rules
- *Operational* – decisions are made based on incentives present and result in outcomes with direct impact on the world (Sabatier, 2007)

This case study evaluates a problem in the collective choice tier.



**Figure 3. Levels of actions and outcomes (Hardy & Koontz, 2009)**

What results from the action arena are the patterns of interactions between the action situation and actor(s) as well the outcomes (Figure 1). Those patterns of interactions and outcomes can then be analyzed using a number of evaluative criteria, such as economic efficiency, fiscal equity, redistributive equity, accountability, conformance to general morality, and adaptability (Sabatier, 2007). Ostrom argues that in addition to analyzing outcomes, an analyst can make predictions on what outcomes may result (Sabatier, 2007). However, Blomquist and deLeon (2011) disagree and state the real value of the framework is its explanatory (versus predictive) ability. This study utilizes the explanatory power of the IAD framework to analyze Reclamation policies and their associated decision-making processes.

Based on the disincentives and incentives for conflict prevention and mitigation listed in Table 1 from the inventory study of incentives and disincentives each can be categorized as either an attribute of the community or rule-in-use (Tables 2 and 3). This information is used later in the case study (section 5.4) to explain Reclamation decision making regarding the implementation of the Water 2025 Initiative.

**Table 2. Incentives and disincentives for conflict prevention as attributes of the community and rules-in-use**

	<b>Incentives</b>	<b>Disincentives</b>
<b>Attributes of the Community</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Reclamation culture (i.e., crisis-driven, water delivery focused, slow to change)</li> <li>• Limited availability of funding, time, and staff</li> <li>• Reallocation of financial resources (i.e., from projects with prevention efforts to projects with conflict)</li> <li>• Reallocation of other resources (i.e., from projects with prevention efforts to projects with conflict)</li> </ul>
<b>Rules – In-Use</b>	<ul style="list-style-type: none"> <li>• Pressure from higher management</li> <li>• Promotion of collaboration with others outside of Reclamation</li> <li>• Desire to avoid litigation</li> <li>• Trust/relationships created from collaboration, conflict prevention, and conflict mitigation efforts</li> </ul>	<ul style="list-style-type: none"> <li>• Politics</li> <li>• Acceptable bandwidth of conflict</li> <li>• Perception that conflict is unavoidable or entrenched in all projects</li> <li>• Legal authorization and other legal constraints</li> <li>• Lack of strong leadership</li> </ul>

**Table 3. Incentives and disincentives for conflict mitigation as attributes of the community and rules-in-use**

	<b>Incentives</b>	<b>Disincentives</b>
<b>Attributes of the Community</b>	<ul style="list-style-type: none"> <li>• Allocation of financial resources</li> <li>• Allocation of human resources</li> </ul>	<ul style="list-style-type: none"> <li>• Reclamation culture (i.e., crisis-driven, water delivery focused, slow to change)</li> <li>• Limited availability of funding, time, and staff</li> </ul>
<b>Rules – In-Use</b>	<ul style="list-style-type: none"> <li>• Pressure from higher management</li> <li>• Pressure from outside Reclamation (e.g., Congress or stakeholders)</li> <li>• Desire to resolve ongoing litigation</li> <li>• Trust/relationships created from collaboration, conflict prevention, and conflict mitigation efforts</li> </ul>	<ul style="list-style-type: none"> <li>• Discomfort associated with actions needed and lack of skills to pursue those actions</li> <li>• Legal authorization and other legal constraints</li> <li>• Lack of strong leadership</li> </ul>

### 3.2 Institutional Rational Choice

Public administration offers institutional rational choice (IRC) as a theory that can be employed in the IAD framework when analyzing what factors influence decisions and actions in the action arena. The use of the theory is necessitated by the IAD framework in that it is needed to make assumptions about how actors behave and act in a certain way. IRC is based on rational choice theory, which argues that individuals (or actors) pursue actions and outcomes that maximize their own utility; however, it seeks to expand upon that idea offering that institutions influence and guide individuals to act in a way that benefits the

collective. In this sense individuals make decisions with bounded rationality. Through heuristics, norms, rules, and strategies which structure the interactions of individuals, institutions, both formal and informal, can direct individuals to make decisions and choose actions which benefit the collective group (Sabatier, 2007; Smith & Frederickson, 2003). IRC theory argues that institutions influence the actions and choices of individuals by structuring the interactions and choices of individuals, affecting the alternatives available, or by providing information and enforcement mechanisms that reduce uncertainty about the corresponding behavior of others and allow gains from exchange (Ostrom, 2011; Sabatier, 2007; Smith & Frederickson, 2003).

Hall and Taylor (1996) identify four key features of IRC. First, IRC is based on three assumptions: actors have a fixed set of preferences, the actors will behave in a way that will allow them to attain those preferred outcomes (maximize them so to speak), and this behavior and action is strategic and done with extensive calculations. Second, politics is a series of collective action dilemmas. Third, rational choice institutionalism emphasizes the role of strategic interaction in how actors make decisions. Finally, institutions are created in order to realize certain values that can be identified by looking at the function of an institution (Hall & Taylor, 1996).

## **4 Policy Background and Overview**

Two pieces of information are presented below to provide context for the analysis conducted in this case study. First, a brief explanation of how Reclamation fits into the Department of Interior is provided. Second, a narrative history of the initiative is laid out before the analysis of Reclamation's decision making is conducted.

### **4.1. Organizational Context**

The Bureau of Reclamation, an agency of the United States Department of Interior (DOI), was established in 1902 through the Reclamation Act. When first formed, Reclamation's mission was to serve as a water developer in the western United States, helping to promote economic activity through its various projects, including dams, canals, and power plants. Over time that mission has changed. Today, the role of Reclamation is that of a water manager, rather than its original role as a water developer (Bowersox, 2000). The formal mission of the federal agency is to "manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public" (Bureau of Reclamation, 2010).

Reclamation is one agency tasked with water management in the 17 western states. In this case the Water 2025 Initiative (and later the WaterSMART Program) is a DOI program implemented through the Bureau of Reclamation and USGS. In many ways the Water 2025 Initiative was targeted more for Reclamation as the program is limited to the 17 western states in which Reclamation has authority and focuses heavily on conserving water supply, a key issue for Reclamation (Department of Interior & Bureau of Reclamation, 2003). Reclamation receives its mandate through the Reclamation Act of 1902 and each project typically receives direct authorization through Congress (Bureau of Reclamation, 2012a; “Bureau of Reclamation: About Us,” 2010; Larsen, 2012). However, as an agency within DOI, Reclamation also follows secretarial orders issued by the Secretary of Interior.

## **4.2 From Water 2025 to WaterSMART – Evolution of the Policy**

In the spring of 2003, DOI issued an order creating the Water 2025 Initiative. The purpose of the initiative was twofold (Department of Interior & Bureau of Reclamation, 2003; Quimby, 2003). First it sought to provide a basis for engaging the public in discussions about water management in the US west in order to pursue decisions that avoided water supply crises. Second, it proposed a framework for identifying problems and developing a plan for how DOI and Reclamation could engage stakeholders, states, tribes, local governments, and the private sector. The program was founded on five realities that drive water conflict, six principles which would guide future action, and four tools for proactively managing water (Table 4) (Bureau of Reclamation, 2005; Department of Interior & Bureau of Reclamation, 2003).

**Table 4. Realities, principles, and tools of Water 2025 (Bureau of Reclamation, 2005; Department of Interior & Bureau of Reclamation, 2003)**

Realities	<ol style="list-style-type: none"> <li>1. Explosive population growth in areas of the West where water is already scarce</li> <li>2. Water shortages occur frequently in the West</li> <li>3. Over-allocated watersheds can cause crisis and conflict</li> <li>4. Water facilities are aging</li> <li>5. Crisis management is not effective in dealing with water conflict</li> </ol>
Principles	<ol style="list-style-type: none"> <li>1. Recognize and respect state, tribal, and federal water rights, contracts, and interstate compacts or decrees of the United States Supreme Court that allocate the right to use water</li> <li>2. Maintain and modernize existing water facilities so they will continue to provide water and power</li> <li>3. Enhance water conservation, use efficiency, and resource monitoring to allow existing water supplies to be used more effectively</li> <li>4. Use collaborative approaches and market based transfers to minimize conflicts</li> <li>5. Improve water treatment technology, such as desalination, to help increase water supply</li> <li>6. Existing water supply infrastructure can provide additional benefits for existing and emerging needs for water</li> </ol>
Tools	<ol style="list-style-type: none"> <li>1. Conservation, efficiency, markets</li> <li>2. Collaboration</li> <li>3. Technology</li> <li>4. Remove institutional barriers and increase interagency cooperation</li> </ol>

The overall goal of Water 2025 was to launch local, collaborative efforts, stretch water supplies to meet growing demand, and resolve water conflicts among states, tribes, farmers, and environmental groups that have lasted for decades (Department of Interior & Bureau of Reclamation, 2003). More specifically DOI identified five goals:

1. Facilitate a cooperative, forward-looking focus on water short areas of the West
2. Help to stretch or increase water supplies to satisfy the demands of growing populations, protect environmental needs, and strengthen regional, tribal, and local economies
3. Provide added environmental benefits to many watersheds, rivers, and streams
4. Minimize water crises in critical watersheds by improving the environment and addressing the effects of future droughts on important local and tribal economies
5. Provide a balanced, practical approach to water management for the next century (Department of Interior & Bureau of Reclamation, 2003, p. 26)

Following the launch of the program at a kickoff meeting, DOI, Reclamation, and USGS hosted nine other consulting sessions in order to discuss

how to prevent water supply crises through the new initiative. More than 3,000 people participated in the sessions and several themes emerged from the meeting including the desire to maintain open communication and cooperation between all parties as the program moves forward and the desire to keep decision making at a local level (Bureau of Reclamation, 2005). Region specific themes also emerged at these consulting sessions (Table 5). DOI and its partners determined that while there was no consensus on the best path forward for this program and the specific solutions it should pursue, all groups were supportive of the new initiative (Bureau of Reclamation, 2005).

**Table 5. Themes from select consulting sessions regarding Water 2025 Initiative (Bureau of Reclamation, 2005)**

City	Theme
Sacramento, CA	<ul style="list-style-type: none"> <li>• Desire to maintain existing Reclamation water storage</li> <li>• Need for additional water storage (voiced by farmers, ranchers, irrigators, and municipalities)</li> <li>• Opposition to any new storage and support for conservation and redirection of water usage (voiced by environmental community)</li> <li>• Concern over transfer of water rights</li> </ul>
Salt Lake City, UT	<ul style="list-style-type: none"> <li>• Cited example of Bonneville Unit Pilot Project as an example of successful collaboration</li> <li>• Understanding that conservation, education, and improved technology are important to addressing potential water shortages</li> </ul>
Albuquerque, NM	<ul style="list-style-type: none"> <li>• Call to prioritize who received limited water resources</li> <li>• Need to address Endangered Species Act issues</li> </ul>
Boise, ID	<ul style="list-style-type: none"> <li>• Need to complete adjudication process</li> </ul>
Billings, MT	<ul style="list-style-type: none"> <li>• Need for a level playing field</li> <li>• Need for collaboration to manage water in a way that benefits all</li> </ul>
Austin, TX	<ul style="list-style-type: none"> <li>• Water policy should focus on supply, efficiency, and innovative financing tools</li> </ul>
Denver, CO	<ul style="list-style-type: none"> <li>• Need to use a scientific approach when addressing issues of water supply and conflict prevention</li> </ul>

The primary means by which Reclamation initially implemented Water 2025 was through the Challenge Grants Program. Through this program Reclamation awards 50/50 cost share grants through a competitive process to projects that pursue creation or implementation of one of the four tools identified in the initiative. These grants are available to local government, municipal and private irrigation districts, water associations, and tribes. Particular emphasis was placed on projects focused on increasing efficient water use and creating water markets (Bureau of Reclamation, 2005; Department of Interior & Bureau of Reclamation, 2003). Success for each project is evaluated based on several performance measures:

- Conserved water contributes toward established or new water markets or banks

- Amount of water conserved , measured, managed and tracked through new water measurement/management technologies versus total water delivered
- Reasonableness of costs for benefits gained
- Number of non-Reclamation partners
- Demonstrates innovative approach to water conservation and management
- Demonstrates stakeholder involvement and acceptance and is like to result in reduced conflict through contributions to collaborative efforts (Bureau of Reclamation, 2005, p. 13)

The Title XVI Water Reclamation and Reuse Program was folded into Water 2025 and served as the research arm of the program, focusing on desalination technology (Limbaugh, 2006).

Later a second challenge grant program was opened to state governments (McCracken, 2005). Since the initiative first started it has evolved into the WaterSMART Program in which SMART stands for Sustain and Manage America's Resources for Tomorrow. Within Reclamation WaterSMART has three components: WaterSMART grants (formerly the Water 2025 Challenge Grants), Title XVI Water Reclamation and Reuse Program, and Basin Studies (Limbaugh, 2006). In addition to this Reclamation projects are also stored on the DOI WaterSMART Online Clearinghouse (Bureau of Reclamation, 2012b). USGS also implements its own WaterSMART initiatives (Bureau of Reclamation, 2005).

## 5 Analysis

Due to the limited availability of information on the program and to manage the scope of this case study, the focus of this analysis is on Reclamation's initial implementation of Water 2025 from 2003 through 2004. As in the previous case study all components of the IAD framework will be addressed but the primary focus is on the factors that structure the action arena and how the incentives and disincentives for conflict prevention and mitigation within the agency factor into decisions of how the program was implemented.

### 5.1 The Action Arena: Evaluating the Action Situation and Actor

Participants in the launch and initial implementation of the Water 2025 program include DOI, Reclamation, USGS, irrigators and irrigation districts, farmers, environmental groups, ranchers, local governments, water suppliers, tribes, and states. All expressed support for the program, however they could not

agree on all that should be included in the program or what technical solutions were best for preventing a water supply crisis (Department of Interior & Bureau of Reclamation, 2003; Quimby, 2003; Quimby & Harlow, 2003). In this analysis Reclamation is considered the actor, faced with the decision of how it would pursue conflict prevention and mitigation through Water 2025.

The allowable actions for Reclamation to take on implementing this program, are based on the six principles of the program (Table 4). How Reclamation can pursue these actions, however, is limited to determining which projects to fund through the Challenge Grants Program as that is what they had the funding to do.<sup>1</sup> The structure of the action arena is such that Reclamation can only act within the mandate and funds given to it by Congress. Even further, with Water 2025, Reclamation can only allocate funding not directed through specific Congressional earmarks (Bureau of Reclamation, 2005). Despite this limitation, in choosing which projects to fund, Reclamation can choose which principles to prioritize in funding and choose to award grants to projects focused on conflict prevention or conflict mitigation.

The benefits of each of the principles are outlined in Table 6. The overall benefit of each principle is to avoid a water supply crisis as well as prevent and mitigate conflict. The cost of funding a project focusing on one principle is that it may limit the funding available to address another principle. Increased efficiency has additional possible costs associated with the groundwater recharge often associated with inefficient water delivery systems as well as similarly associated changes in water availability downstream due to increased efficiency (if all water is used it does not enter river downstream for use by others).

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<sup>1</sup> Over time the options have expanded in regards to the scope of the types of projects funded under the WaterSMART program (e.g., the Basin Studies and Title XVI projects).

**Table 6. Qualitative benefits of six principles (Bureau of Reclamation, 2005; Department of Interior & Bureau of Reclamation, 2003)**

#	Principle	Benefits
1	Recognize and respect state, tribal, and federal water rights, contracts, and interstate compacts or decrees of the United States Supreme Court that allocate the right to use water	<ul style="list-style-type: none"> <li>• Reduce conflict</li> <li>• Build trust among parties</li> <li>• Avoid potential lawsuits</li> </ul>
2	Maintain and modernize existing water facilities so they will continue to provide water and power	<ul style="list-style-type: none"> <li>• Reduce risk of loss of power production</li> <li>• Avoid costly facility failures</li> <li>• Increase amount of water available for delivery</li> </ul>
3	Enhance water conservation, use efficiency, and resource monitoring to allow existing water supplies to be used more effectively	<ul style="list-style-type: none"> <li>• Increase amount of water available for delivery</li> <li>• Reduce likelihood of water shortages</li> </ul>
4	Use collaborative approaches and market based transfers to minimize conflicts	<ul style="list-style-type: none"> <li>• Increase likelihood of consensus on solution or approach to water management</li> <li>• Build trust among parties</li> </ul>
5	Improve water treatment technology, such as desalination, to help increase water supply	<ul style="list-style-type: none"> <li>• Increase amount of water available</li> <li>• Develop cheaper treatment technology</li> <li>• Spur economic growth from new innovations and markets</li> </ul>
6	Existing water supply infrastructure can provide additional benefits for existing and emerging needs for water	<ul style="list-style-type: none"> <li>• Utilize prior investments in infrastructure</li> <li>• Avoid environmental costs often associated with constructing new infrastructure (e.g., loss of habitat due to construction of new storage space)</li> </ul>

## 5.2 Patterns of Interactions

In this case study the patterns of interactions is based on two annual funding cycles. Each year Congress allocated a certain amount of funding to Reclamation for Water 2025 through the federal budget process (Bureau of Reclamation, 2005, 2012a; Larsen, 2012). The allocation includes some provisions that dictate which funds are earmarked for specific projects. Reclamation then uses the remaining funds for the grant cycle in which it accepts proposals for two year projects, reviews them, and determines which to fund. Each grant that is funded is given 24 months to be completed and is then reviewed using the performance measures previously mentioned (Bureau of Reclamation, 2005).

## 5.3 Outcomes

In the first year (FY 2004) the Reclamation Water 2025 Initiative was allocated \$8.4 million in funding. About half of those funds were directed by Congress to particular projects (Table 7). The rest of the funding, approximately

\$4.2 million, was distributed to 19 projects in 10 states (Table 23) (Bureau of Reclamation, 2005). An additional \$4.2 million was allocated to desalination research until the Title XVI program (Limbaugh, 2006). The following fiscal year \$4.7 was directly allocated through Congressional earmarks and \$10 million was administered through competitive grants to 43 projects in 13 states (Bureau of Reclamation, 2005). Sixteen pilot, research, and demonstration projects for water purification (primarily desalination) were also funded in FY 2005 (Limbaugh, 2006). Reclamation also launched the Water 2025 Challenge Grant Program for Western States through which it provided a total of \$1 million to 6 state projects. From FY2004 through FY2009 \$74 million in funding was distributed to 167 projects (Bureau of Reclamation, 2005).

**Table 7. Earmarked Water 2025 funding (Bureau of Reclamation, 2005; Limbaugh, 2006)**

<b>Recipient</b>	<b>Location</b>	<b>Project Description/Goals</b>	<b>FY2004</b>	<b>FY2005</b>
Middle Rio Grande Conservancy District	New Mexico	Increase efficiency of water conveyance, reduce seepage and evaporation losses and improve water management through automation of river diversions, canal flow controls and waste ways, lining of delivery canals, and installation of new gages	\$1,750,000	\$1,700,000
Desert Research Institute	17 Western States	Conduct water chemistry analysis and develop application protocols for use of polyacrylamide Quantify water efficiency, quantity, and environmental factors to Truckee River through automated checking Determine baseline conditions for sediment transport in the Las Vegas Wash and tributaries that flow into Lake Mead	\$1,000,000	\$2,000,000
Ohio View Consortium	Ohio	Develop advanced remote science technologies (e.g., those that would improve ability to estimate snow water equivalents and evapotranspiration losses)	\$1,000,000	\$1,000,000
Total			\$3,750,000	\$4,700,000

**Table 8. FY2004 Challenge Grant recipients<sup>2</sup> (Bureau of Reclamation, 2005; Cross & Hower, 2004; Cross & Wolfe, 2004; Keys, 2004a, 2004b; Quimby & Harlow, 2004)**

Grant Recipient	Project Location	Project Description	Water 2025 Principles						Total cost	Water 2025 Contribution
			1	2	3	4	5	6		
Gila Gravity Main Canal Board	Yuma, AZ	Complete canal system improvements to improve efficiency, restore canal capacity, and conserve water through sealing canals and installing a Supervisory Control and Data Acquisition System (SCADA)	/	X	X				\$2,207,775	\$284,000
Yuma County Water Users Association	Yuma, AZ	Expand a SCADA system and put in a new water accounting and tracking system Reconstruct and modernize key diversions	/	X	X				\$615,552	\$246,221
Calleguas Municipal Water District	Thousand Oaks, CA	Improve distribution and encourage efficiency through the installation of an automated monitoring system and implement new rate structures	/	X	X				\$3,395,442	\$300,000
Contra Costa Water District	Concord, CA	Install pipe to protect drinking water from saline groundwater seepage and improve overall water quality	/	X	X				\$9,132,716	\$200,000
Imperial Irrigation District	El Centro, CA	Improve monitoring of water delivery and efficiency through installation of four flow meters	/		X				\$230,452	\$115,226
Stevinson Water District	Merced, CA	Replace open canals with pipe to increase measurements, improve system responsiveness, improve delivery flexibility, and reduce operational spillage	/	X	X				\$1,556,500	\$300,000
Mancos Water Conservancy District	Mancos, CO	Test different canal lining material for effectiveness in preventing seepage	/		X				\$41,082	\$19,338
Lower South Platte Water Conservancy District	Colorado	Reimburse and install flow measuring devices for recharge facilities, ditch diversions, and large-scale wells	/		X				\$1,129,079	\$300,000

<sup>2</sup> Descriptions of the six principles are provided in Table 4. The first principle (recognize and respect state, tribal, and federal water rights, contracts, and interstate compacts or decrees of the United States Supreme Court that allocate the right to use water) is assumed to be part of every project and is not coded in the table. The sixth principle (existing water supply infrastructure can provide additional benefits for existing and emerging needs for water) is also not coded because it was not able to be determined if projects recognized the value of existing water supplies as intended by the principle. It may be noted that the fifth principle seems under-represented in the projects funded. This may be due to the fact that other funding was specifically available and allocated to projects focused on developing technologies such as desalination.

Grant Recipient	Project Location	Project Description	Water 2025 Principles						Total cost	Water 2025 Contribution
			1	2	3	4	5	6		
Paradise Valley Irrigation District	Chinook, MT	Replace a canal with a pressurized pipeline system to reduce water loss and extend water availability in dry seasons	/	X	X				\$524,215	\$262,107
San Juan River Dineh Water Users, Inc.	Shiprock, NM	Convert ditches to underground pipeline systems to improve equitable water distribution, improve efficiency, reduce water demand as well as operation and maintenance costs	/	X	X				\$751,000	\$200,000
Truckee Carson Irrigation District and City of Fernly	Nevada	Install remote controlled gate and telemetry to improve control of a Gilpin Spill structure and reduce the amount of extra water diverted from Truckee River	/	X	X				\$300,000	\$150,000
Central Oregon Irrigation District	Bend, OR	Establish a pilot water bank	/			X			\$588,750	\$233,750
Famers Irrigation District	Hood River, OR	Replace open canals with pipe to conserve water	/	X	X				\$6,382,973	\$300,000
Medford Irrigation District	Medford, OR	Replace open canals with pipe to conserve water and reduce maintenance costs Remove three fish passage barriers	/	X	X				\$602,032	\$300,000
Harlingen Irrigation District	Harlingen, TX	Install on-farm delivery site meters in order to improve water measurement and increase efficiency of delivery	/		X				\$602,500	\$300,000
Emery Water Conservancy District	Castle Dale, UT	Install remote controls at three dams and automate diversions on four creeks Install measuring weirs, form an online irrigation advisory program, and upgrade weather stations	/	X	X				\$535,520	\$257,910
Provo Water Users Association	Pleasant Grove, UT	Meter, control, and screen diversion structure and canal improvements	/	X	X				\$426,203	\$150,000
Springville Irrigation District	Springville, UT	Replace an open later with pipes and construct a new diversion structure and install measuring system to reduce water loss	/	X	X				\$58,000	\$29,000
Casper-Alcova Irrigation District	Casper, WY	Replace canal with pipes and install new flow measurement devices, valves, and headgates to promote efficiency	/	X	X				\$502,189	\$232,215
Total								\$29,581,980	\$4,179,767	

In addition to the Challenge Grants, DOI established Interagency Drought Action teams which served as a partnership between DOI and USDA and their affiliated agencies. These teams were formed from a MOU signed in order to improve the speed of the two departments' responses to droughts. In 2004-2005 two teams were designated to work with Washington and Idaho to respond to an ongoing drought. Reclamation participated in these teams but DOI led the effort (Keys, 2005b). Reclamation also has other drought response programs and drought-related collaborations under different programs outside of Water 2025 (Limbaugh, 2006).

## **5.4 Influencing the Action Arena and Actor**

This section explores how physical conditions, attributes of the community, and rules-in-use, shaped the action situation and provided various incentives and disincentives for the Reclamation in its decision making. The attributes of the community and rules-in-use function as the informal institutions driving Reclamation decision making regarding early implementation of Water 2025.

### **5.4.1 Physical Conditions**

The realities presented as justification for Water 2025 represent some of the physical conditions that influenced DOI and Reclamation's decision. These conditions include high population growth in areas with scarce water resources, a history of frequent water shortages throughout the US West, over-allocated rivers, and aging water infrastructure. In this case these physical conditions are considered by DOI and Reclamation as factors that necessitate pursuing conflict prevention and mitigation. During the early implementation of the initiative a large part of the US West was experiencing a severe drought, which elevated the need for increased conservation and efficiency in the mind of Reclamation as it tried to meet demand with a reduced supply.

### **5.4.2 Attributes of the Community**

Two aspects of Reclamation's organizational culture offer insight into how Water 2025 was implemented as a program within Reclamation. Reclamation's decentralized structure and organizational culture contributed to outcomes described above. These two were identified as disincentives for conflict prevention and mitigation in the previous chapter. However, here instead of hindering conflict prevention and mitigation it shapes Reclamation's approach to the two actions.

One aspect of Reclamation's culture that provides context for understanding how the Water 2025 Initiative was implemented is the focus on technical engineering solutions to increase water supply. Most of the projects funded through the Challenge Grants (both for local governments and tribes and then state governments) are for modernizing infrastructure or installing

technology for improved efficiency and conservation. Likewise the desalination research is focused on technical solutions.

While in theory the concepts of collaboration, breaking down interagency institutional barriers, and recognizing all parties interest in water are all incorporated into each of the Challenge Grants the lack of direct focus on these issues makes sense in light of the fact that Reclamation is an engineering agency. The fact that one of the primary historical purposes of Reclamation is water supply also sheds light on the why the initial focus of the program would be on water conservation and efficiency. In many of the hearings in front of congressional committees regarding Water 2025 the emphasis would be on the number of acre feet conserved and how it was considered an increase in supply for future use in the west during times of drought or to address the growing population in the region (Bach, 2005; Keys, 2005a; Limbaugh, 2006). In the focus groups this focus on supply was also discussed. It was mentioned by a couple of participants that the first purpose of the agency is to meet supply commitments at all costs and that everything else, including conflict prevention and mitigation, comes second. The Water 2025 Initiative, however, takes the approach that the two are linked. Conflict prevention and mitigation are both needed to meet future water demand. In the implementation of the program then, increasing efficiency, conservation, and supply through technology or modernized infrastructure were viewed as conflict prevention and mitigation.

The importance and prevalence of decentralization discussed in the previous studies of Reclamation culture and decision making is also present in this case study. Then Secretary of Interior Gale Norton noted on multiple occasions that “Water 2025 is not about imposing solutions from Washington. Rather, initiative is founded on the principle that the states, tribes, and local governments should have the leading role in meeting our future water challenges” (Greenwood & Quimby, 2004). This decentralized approach was reiterated in remarks by Reclamation Commissioner John Keys (Keys, 2004a; 2004b; 2005a; 2005b). Another recurring theme in the discussion about the program was the concept of federal-local partnerships as a way to leverage scarce federal dollars (Bureau of Reclamation, 2005; Keys, 2005a; Limbaugh, 2006; Quimby & Harlow, 2003). In this we see that decentralization is still part of the culture since the efforts to incorporate New Public Management into Reclamation in the 1990s.

A key piece of the formation of Water 2025 was the acknowledgement that crisis management was not an effective means of water management or the prevention/mitigation of conflict. Once the pitfalls of crisis management were realized, a program was implemented to try to change that mentality and have DOI, Reclamation included, be more proactive in its management of water in the western US. This is a departure from the culture of crisis management noted by the participants of the focus groups. Based on the results of the surveys and focus groups, a crisis management driven culture still seems to exist within the agency. A possible explanation for this is that Water 2025 is a single program in a large

agency and, while proactive, conflict prevention may be the focus of that initiative, the larger culture of Reclamation may still focus on conflict mitigation. The funding allocated for Water 2025 is for groups outside of Reclamation. It does not address the lack of resources within the agency focused on conflict prevention or an effort to avoid conflict management across Reclamation.

### **5.4.3 Rules-In-Use**

This program and Reclamation's implementation of it demonstrate how some of the factors identified in Chapter 2 factor into Reclamation decision making. It also provides evidence that speaks against what was discovered in the survey and focus groups. Water 2025 illustrates how the promotion of collaboration and pressure from higher management or others outside Reclamation incentivizes conflict prevention and mitigation within Reclamation. Factors in this case study which either do not support what was found in Chapter 2 or present an unclear picture of whether a factor is an incentive or disincentive include availability of funding, limits due to congressional authorization, and the amount of forward planning or thinking about conflict prevention done by Reclamation. This case study also identifies an additional rule-in-use not discussed in the previous chapter. Thus, the incentives and disincentives provide some insight into part of the implementation of Water 2025 but do not explain it completely.

This program is an example of how collaboration is promoted within Reclamation. One of the goals of the initiative was collaboration and collaboration was cited as one of the primary tools to be employed by Reclamation in its implementation of the program. However, as noted by the employees surveyed, little guidance is given on what collaboration means and how collaboration is to occur.

The norm of pressure from higher management and/or pressure from outside Reclamation is also seen in this case study. DOI is a department driven initiative that Reclamation was required to take on. Reclamation was also required to include certain directly funded projects in Water 2025. In these two ways Reclamation was pressured into pursuing conflict prevention by higher management and Congress.

A number of the incentives and disincentives for conflict prevention identified in the previous chapter are not evident in this case study or are not as clearly delineated as an incentive or disincentive for conflict prevention and mitigation. These factors include the availability of funding/resources, authorization limits, and a lack of forward planning. In regards to funding, the Water 2025 Initiative demonstrates that money is allocated to conflict prevention and conflict mitigation—which speaks against what the survey and focus group participants said. They presented a lack of resources as a rule-in-use that Reclamation employees were generally aware of and due to the limited availability of funds they are unable to choose to pursue conflict prevention. Yet this program demonstrates that millions of dollars are being allocated specifically

to a project for the purpose of conflict prevention and mitigation. It is important to note that these funds are not actually used by Reclamation for its own programs but rather distributed to other entities, such as irrigation districts and states. The use of the funds to improve conservation, efficiency, and technology benefits Reclamation, but the goal of the funding is to empower others to take action to prevent or mitigate conflict, rather than fund Reclamation prevention or mitigation efforts.

The limitation on funding is in part explained by the discussion of limitations on authorization discussed by the focus groups. Reclamation funding and projects may also pursue actions within the scope of the authorization received from Congress for that funding or project. This limits the actions Reclamation can pursue, and according to the focus groups it limits their ability to take on work that would prevent conflict or mitigate it. Even in the allocation of funds for the Challenge Grants, Congress limited what Reclamation could distribute. In the first year almost half of the funds were directly allocated by Congress instead of given to Reclamation for its own allocation. In this first year, the non-research based entity/project that received the most funding was the MRGCD which received \$1.75 million in funds directly from Congress. This is also a conflict mitigation effort versus a prevention effort, and provides support for the anecdotal evidence presented by the survey and focus group participants who claim that conflict mitigation receives more funding in Reclamation than conflict prevention.

Water 2025 both supports and opposes the focus group assertion that a lack of forward thinking and planning served as a disincentive for conflict prevention. On one hand the Water 2025 Initiative demonstrates forward planning. It was a forward thinking mindset that identified the need to act proactively to prevent future water supply crises. At the same time in the implementation of the program there appears to be limited planning. Some planning occurred in the review of the Challenge Grant proposals. Reclamation's approach to direct funds to projects that have the greatest impact is an example of how it is planning for the future. Yet the program does not seem to take time to look at the bigger picture. Instead of collaborative discussion on what each area needs and Reclamation reaching out to stakeholders, it waits for stakeholders to collaborate on their own and submit a grant proposal. This once again speaks to the role of decentralization in Reclamation's implementation of the program discussed previously. So in sum, Reclamation does demonstrate some forward thinking behavior when it comes to water conflict but it may be restricted due the size of the agency and the decentralization and fragmentation of the organization.

This case study presents another rule-in-use not identified in the focus groups and surveys—the idea of securing water supplies as a means for conflict prevention or mitigation. This scientific/technology focused solution fits within the character of Reclamation as an engineer heavy, infrastructure-focused agency. A core mission of Reclamation is to supply water and it is logical that if it is

perceived that conflict is driven by water shortage a way to prevent conflict is to increase water efficiency and supply. The pursuit of conservation and efficiency on the part of Reclamation is admirable and in many ways necessary. However, it is based on the assumption that water shortages translate into conflict and does not consider the role of institutional capacity in the relationship between water scarcity and conflict. This omission is understandable as Water 2025 was launched just as studies about institutional capacity and conflict risk were being published. In the time since the discovery of the link between institutional capacity and conflict, Reclamation has funded research and initiated a program to investigate how to increase its institutional capacity, including this study and the larger collaborative effort it is a part of.

## **6 Discussion**

### **6.1 Summary of Findings**

The intent of this case study was to use the IAD framework to explain what incentives and disincentives for conflict mitigation and prevention influenced the initial implementation of the Water 2025 Initiative. This case study provides an example of analysis of decision making at the operational level. To limit the scope to a manageable amount of material, the study focused on the first couple years of the implementation of the program.

In the initial work of Reclamation's Water 2025 a number of the incentives and disincentives identified in the surveys and focus groups are represented. The IAD framework illustrates how these factors are represented in the attributes of the community and the rules-in-use that shape the action arena where the actor, Reclamation, makes decisions. These factors include Reclamation's organizational culture, availability of funding and the authorization limitations that often accompany it, the promotion of collaboration, and Reclamation planning. Some of the factors support what was found in the inventory of incentives and disincentives in 2011 and others provide evidence in opposition to what the survey and focus group participants discussed.

The decentralized nature of the Water 2025 Program fits in with the character of the agency that was so heavily influenced by decentralization in the 1990s. At this point in Reclamation's history the engineering and technical culture is seen in how the program is very focused on technical solutions and does not emphasize collaboration and efforts focused on increasing institutional capacity as overtly as the technical improvements resulting in increased water use efficiency and conservation. This emphasis on technical solutions is based on the assumption that water shortages translate into conflict and does not consider the role of institutional capacity in the relationship between water scarcity and conflict. That

being said, these projects could also be considered the low hanging fruit the agency wanted to address with targeted funds available for distribution by Reclamation. Also in the early implementation of the program the link between conflict and institutional capacity was just being published. More recent grants may focus more on increasing institutional capacity as opposed to solely conserving water.

These conclusions are preliminary and a more thorough analysis as well as an analysis over the life of the program is needed to confirm these findings. For example, with the understanding that basins with high institutional capacity experience less conflict over water, a next step in research for understanding the implementation of Water 2025 (now WaterSMART) and how it has prepared the American West to deal with limited water supply would be to evaluate the projects to see how they increased institutional capacity and consider that factor in the WaterSMART grant proposal review. A longitudinal study of what types of projects are awarded grants would also reveal any trends and confirm or disprove the idea that the money typically goes to technical fixes. This also would allow Reclamation to confirm that it is funding projects with the greatest impact or determine if part of the certain areas or projects are going unfunded because there is no local group applying for a grant (which would be an example of an area lacking institutional capacity).

In this case study the issue of funding or the perception of where funding is allocated impacted the outcome of the decision. This is to be expected as the abundance or lack of resources can often dictate whether or not an action can be taken. As seen in the Water 2025 case study, Reclamation is often restrained in how it can spend the funding allocated to it. Conflict prevention and mitigation is pursued when funding was available, or more specifically when it was allocated to conflict prevention and mitigation efforts. If Reclamation wants to continue to incentivize conflict prevention and mitigation (prioritizing prevention over mitigation, but preferring both to inaction) it must request funding from Congress to do so and or find ways to incorporate prevention and mitigation into the funding currently authorized by Congress.

The perception of a lack of resources available for conflict prevention and the reallocation of funding from prevention to mitigation reported by study participants may only be a perception rather than a reality within Reclamation. It is important to Reclamation to investigate this in order to demonstrate that the relationship does not exist and remove the disincentive for Reclamation employees or address the disincentive if it does exist.

Additional case studies looking at the individual projects in the Water 2025/WaterSMART Program would provide an opportunity to evaluate the success of the program, to see if the larger program provided the proper incentive to regional, area, and local offices to use the framework to pursue conflict prevention. A review of the grants funded over the past eight years would also

help identify trends and help Reclamation determine if it is increasing its institutional capacity and ability to prevent and mitigate conflict as it manages water in the US West.

## 6.2 Limitations of Analysis

Caveats associated with the theories used in this study should be considered when reading this study. This work is based on institutional rational choice and the IAD framework. Thus the assumptions incorporated into these theories are also used in this study. For example, it is assumed (and confirmed through the results) that both personal motivators as well as influence from elected officials (as seen in the principal agent theory and theories of bureaucratic control) can serve as incentives and disincentives.

Use of the IAD framework and IRC also limit this study in that they incorporate some unrealistic assumptions such as actors working with full information and that actors will act rationally. Bounded rationality of Reclamation employees is assumed in the use of IRC and the IAD framework in this case study. However, there is little evidence that actors do act rationally and pursue actions and outcomes that maximize their own utility. In these case studies, conflict prevention is the rational choice as it would decrease tension between Reclamation, its stakeholders, and others it interacts with and would also save money by avoiding lawsuits. However, conflict prevention was often not pursued. Both IRC and the IAD framework admit that institutions influence and guide individuals to act in a way that benefits the collective. This provides a possible explanation of what happened in these case studies and tempers criticisms associated with assuming rationality, however, it does not fully address the issue.

In addition, this case study provides only a glimpse into why Reclamation was involved with conflict prevention and conflict mitigation. While the factors discussed in this chapter may explain Reclamation's decisions and actions, it is important to note that these conclusions are based on the information available. To confirm the actual drivers for these specific actions, one would need to interview/survey the decision makers at Reclamation who worked on the silvery minnow lawsuit, participated in the formation of the MRGESCP. It is also important to note that this research is not claiming to explain every facet of the decisions in each case study. The incentives and disincentives offer one possible explanation of certain aspects of the decision/action being analyzed.

Another limitation of the case study is the fact that the analysis focuses on events from a decade ago while the incentives and disincentives used in the analysis are from employees working in 2011. While many of the employees have been working at Reclamation more than 10 years this study does assume that the incentives and disincentives have not changed extensively since the early 2000s. The basis for this assumption is the fact that many of the incentives and

disincentives identified in this study were also identified in previous reports on Reclamation culture and decision making in 2004 and 2006 (Bureau of Reclamation, 2004; National Research Council, 2006).

## 7 Conclusion

The IAD framework offers some insight into how these incentives and disincentives factored into Reclamation's decision on how to implement the Water 2025 Initiative. As attributes of the community and rules-in-use, incentives and disincentives such as organizational culture, funding availability, the desire to avoid litigation, the promotion of collaboration within the agency, a lack of planning effort offered a possible explanation of why Reclamation chose to act as it did. In regards to Reclamation's decision of how to initially implement Water 2025 a number of the incentives and disincentives identified in the surveys and focus groups may explain the implementation of the program. Reclamation's organizational culture, particularly its engineering and supply driven focus provide a possible explanation of the technology and water conservation heavy efforts. Other factors that one would expect to hinder conflict prevention and mitigation based on Ogren and Wolf's (2012) previous research are not evident. These factors include the availability of funding and a lack of Reclamation planning.

## 8 References

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