Chapter 6
Summary and Next Steps

6 Summary and Next Steps

The *Moving Forward* effort was initiated upon completion of the Colorado River Basin Water Supply and Demand Study (Basin Study) for the purpose of advancing critical next investigations and identifying opportunities and potential actions that have broad-based support to address challenges related to projected water imbalances and provide a wide range of benefits for the Colorado River Basin (Basin).

Phase 1 of the *Moving Forward* effort was comprised of three multi-stakeholder workgroups that represent a wide range of interests working to identify opportunities to enhance water use efficiency in the municipal and industrial (M&I) and agricultural sectors and promote and enhance environmental and recreational flows. The Phase 1 Report describes the activities and outcomes of the workgroups during the approximately 18-month Phase 1 effort. The objective of each workgroup was as follows:

- **M&I Water Conservation and Reuse Workgroup:** document trends in M&I water conservation and reuse in areas that receive Colorado River water, identify opportunities and challenges for expanding M&I water conservation and reuse programs to address projected future imbalances and to enhance the resiliency of the system.
- **Agricultural Water Conservation, Productivity, and Transfers Workgroup:** document trends in agricultural conservation and transfers of Colorado River water, identify opportunities and challenges for expanding agricultural conservation to address projected future imbalances and enhance overall resiliency.
- **Environmental and Recreational Flows Workgroup:** identify ideas for potential future voluntary, non-regulatory solutions that protect or improve ecological and recreational resources while supporting other management goals to achieve integrated solutions that benefit multiple uses, both consumptive and non-consumptive, including hydropower.

In accomplishing these objectives, the workgroups reviewed current and historical information to gain a collective understanding of both the successes and challenges associated with efforts currently underway. The workgroups also reviewed future planned efforts. From this information the workgroups identified opportunities and potential actions to expand successful programs or implement new programs in the future.

Several overarching themes related to water use, water management, and resource stewardship emerged from workgroup discussions, as reflected in Chapters 3 through 5 of this Report. While these themes were discussed separately amongst the workgroups and from differing perspectives, the following were discussed by two or more of the workgroups:

- Increase water use efficiency – Make the best use of supplies available for municipal, industrial, and agricultural purposes including aligning the management of these supplies with flows that provide environmental and recreational values where possible.
- Reduce system losses – Identify and reduce conveyance and distribution system losses. Minimizing such losses can reduce costs and increase water conservation, revenue, and water availability for other uses.
- Maximize reuse of supplies – Reuse supplies more than once, especially outside of the hydrologic Basin.
- Enhance environmental and recreational values – Recognize opportunities where improved water management could enhance the environmental and recreational values.
- Recognize existing benefits – Recognize existing benefits related to urban, agricultural, environmental, recreational, and hydropower uses and find integrated solutions that continue to benefit a range of uses.

6.1 Summary of Workgroup Key Messages and Outcomes

Each of the workgroups highlighted statements in their chapters to further the understanding of the roles of M&I or agricultural water use efficiency and environmental and recreational flows in building adaptable and resilient solutions to address potential future supply/demand imbalances. Several of those statements have commonalities across workgroups which are discussed below.

First, the workgroup's assessment of efforts underway made clear that much progress has already been made in M&I and agricultural water conservation, as well as protecting and enhancing environmental and recreational resources. For example, due in part to the efforts of water managers, and federal and state programs, per capita water use has decreased by 11 to 38 percent since 1990 and by 10 to 26 percent since 2000 in the major metropolitan areas that receive Colorado River water, leading to substantially reduced demand for water. It is estimated that over 2 million acre-feet per year of water has been saved from M&I water conservation and reuse efforts over the past two decades. In the agricultural sector, water use has remained relatively constant over the past two decades. Water use efficiency efforts in this sector have contributed to significant improvements in productivity (for example, greater yield per acre-foot of applied water) and in some cases, for example in California, have helped buffer potential shortfalls in urban water needs. At the same time, meaningful and significant steps have been taken to protect or improve ecological and recreational resources in a number of locations.

Second, building on past successes, water managers are accelerating efforts to increase water use efficiency and reuse. A review of the documented water conservation programs with numeric per capita targets suggests that over 700 thousand acre-feet per year (KAFY) of additional water conservation is planned by 2030, and an additional 400 KAFY of water reuse is planned. This will be a substantial contribution to meeting the imbalance projected by the Basin Study. In many regions, conservation and reuse may not result in substantial reductions in diversions of Colorado River water because conservation and reuse are typically used to meet future growth or offset/delay the need for additional water supplies. Similarly, improvements in efficiency in the agricultural sector will likely continue the trend of increased productivity. Water managers have been and will continue to adapt to uncertain future conditions, and will accelerate or expand programs in response to the unfolding Basin-wide conditions. However, it is likely that future water use efficiency actions will become increasingly more expensive and difficult as the least expensive and easier actions are implemented.

Third, there are no Basin-wide, silver bullet solutions for water use efficiency or protecting environmental and recreational resources. Solutions are often site-specific and in many regions, it is difficult to attribute all of the water savings to water use efficiency or reuse efforts. Other factors such as changes in hydrologic conditions, economic conditions and end-user behavior have contributed to recent water savings in the M&I and agricultural sectors. The Basin is diverse in terms of climate, location and types of irrigated agriculture, location of metropolitan areas, maturity of water conservation efforts, species needs, recreational opportunities, and other factors. Efforts that are effective and relevant in one location may not be as effective or acceptable in another. Improvements in water use efficiency and solutions to enhance ecological and recreational resources are dependent on local conditions and will vary regionally.

6.2 Summary of Opportunities and Potential Future Actions

Each of the workgroups explored opportunities and potential future actions which could help improve the long-term sustainability of the Basin resources and improve the resiliency of regions dependent on Colorado River water. The opportunities were developed to reflect the areas of greatest potential benefit, and the workgroups identified potential future actions to advance the opportunities. Several commonalities emerged from the individual sets of opportunities and actions identified by each workgroup. The groupings below were developed in an attempt to highlight these commonalities.

- ***Funding and Incentives:*** Each workgroup included an opportunity related to the development of sources of continuous, sustainable funding. Additionally, pursuing funding and technical assistance opportunities that leverage funds from

multiple sources was encouraged. Such sources and opportunities could lead to more rapid, effective, and creative implementation of water use efficiency measures, reuse, and environmental and recreational flow projects. For example, programs such as the Natural Resources Conservation Service's (NRCS) Regional Conservation Partnership Program or Reclamation's WaterSMART Program where the NRCS or Reclamation, respectively, provides cost-share funding for conservation projects are and should continue to be utilized in the Basin. Further, sustainable and innovative funding programs would help ensure that sufficient and stable revenue streams are available over the long-term to accomplish a program's goals and to implement desired projects.

- ***Resources, Data, and Tools:*** Each workgroup recognized the importance of scientific research, reporting, data management, monitoring, and tool development in effectively and efficiently implementing water conservation programs and mechanisms to improving environmental and recreational resources. These items are critical to quantifying benefits and tradeoffs, evaluating cost-effectiveness, and facilitating information sharing. Directing and providing resources to assist districts to develop water management plans where such plans do not exist, compiling and regularly updating a Basin-wide database of available best practices and funding sources, and encouraging water providers to develop standard methods to quantify, monitor, and evaluate water conservation measures are a few examples of the many actions identified in pursuit of this opportunity.
- ***Outreach and Partnerships:*** Whether implementing a water conservation program or a project to improve ecological and recreational resources, these efforts are more effectively implemented with improved stakeholder understanding of the project's goals and constraints, broader stakeholder involvement, and stakeholder commitment to the project. Outreach and partnerships facilitate this understanding and encourage involvement and can lead to enhanced stakeholder commitment and the design of more innovative programs that have broad support. Additionally, outreach and partnerships may increase the availability of funding sources.
- ***Coordination and Integration:*** Water management in the Basin is complex. The complexities stem from the challenges associated with balancing competing needs such as deliveries for M&I and agricultural purposes, hydropower generation, and environmental protection. Each workgroup recognized the importance of facilitating cross-program coordination and information exchange to improve the outcomes and focus of resources. Specifically in the M&I sector, increased integration of water conservation and energy-efficiency programs was suggested. Among all workgroups, increased integration with watershed management and land use planning efforts was recognized.
- ***Infrastructure Improvements:*** Improved conveyance and distribution infrastructure and metering devices can reduce losses, reduce operation and maintenance costs, and facilitate other water-efficient investments. These activities provide significant opportunities to both the M&I and agricultural sectors. Both these workgroups identified potential actions to pursue funding measures to replace aging infrastructure, implement enhanced metering capabilities, and expand reuse. Infrastructure improvements can also yield ecological benefits by, for example, decreasing salinity levels.
- ***Flexible Water Management:*** Opportunities related to creating additional flexibility in water management were identified by both the Agricultural and Environmental and Recreational Flows Workgroups. Specifically, the expansion of existing or the addition of new programs such as water banking, exchanges, and transfers was identified as activities to enhance flexible water management. Flexible water management was identified as having the potential to be a useful tool in building water supply resiliency for agricultural users in the Basin in addition to facilitating multi-purpose solutions. The Environmental and Recreational Flows Workgroup found that the establishment of market-based mechanisms for such programs (e.g. water banking) has the potential to further promote multi-purpose

solutions, for example incentivizing water conservation activities in regions where flow improvements are needed to provide environmental and recreational benefits.

It was recognized that the applicability of such programs are dependent upon physical location and state and federal water law and will need to be vetted in consideration of local economies and related factors. However, such mechanisms are considered to have the potential to offer increased flexibility through partnership opportunities and could produce concurrent environmental and recreational benefits, while meeting water supply needs.

6.3 *Moving Forward* Next Steps

The *Moving Forward* effort builds upon and enhances the inclusive stakeholder process established during the Basin Study with an ultimate goal of identifying and implementing actionable steps to address projected water supply and demand imbalances that have broad-based support and provide a wide-range of benefits.

The Phase 1 Report completes Phase 1 of the *Moving Forward* effort. An outcome of this phase was a list of opportunities and potential future actions, compiled by each workgroup, which could help improve the long-term sustainability of Basin resources and improve the resiliency of regions dependent on Colorado River water. In Phase 2, which will commence in 2015, the Coordination Team, with input from the workgroups, will integrate and synthesize the Phase 1 opportunities and potential future actions identified by the workgroups and identify several proposed pilot projects. The goal of Phase 2 is the implementation of the proposed pilot projects. The structure of Phase 2 will be determined based on the nature of the pilot projects; however, the collaborative and inclusive approach demonstrated in the Basin Study and Phase 1 will be maintained. Additionally, it is the hope of the participants of the *Moving Forward* effort that the Phase 1 opportunities and potential future actions will be considered and undertaken by willing funding partners and interested stakeholders outside the *Moving Forward* effort.