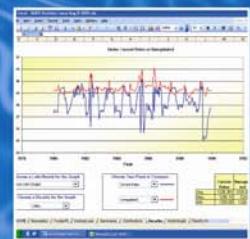


Shared Vision Planning

April 2010

Computer-Aided Dispute Resolution 2nd Workshop Summary and Strategic Plan

2010-R-5



US Army Corps
of Engineers®

IWR

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The Institute for Water Resources (IWR) is a Corps of Engineers Field Operating Activity located within the Washington D.C. National Capital Region (NCR), in Alexandria, Virginia, and with several satellite centers across the U.S. IWR was created in 1969 to analyze and anticipate changing water resources management conditions, and to develop planning methods and analytical tools to address economic, social, institutional, and environmental needs in water resources planning and policy. Since its inception, IWR has been a leader in the development of strategies, methods, and models for planning and executing water resources programs.

IWR strives to improve the performance of the Corps water resources program by examining water resources problems and offering practical solutions through a wide variety of technology transfer mechanisms. In addition to hosting and leading Corps participation in national forums, these include the production of white papers, reports, workshops, training courses, guidance and manuals of practice; the development of new planning, socio-economic, and risk-based decision-support methodologies, improved hydrologic engineering methods and software tools; and the management of national waterborne commerce statistics and other Civil Works information systems. IWR serves as the Corps expertise center for integrated water resources planning and management; hydrologic engineering; collaborative planning and environmental conflict resolution; and waterborne commerce data and marine transportation systems.

The Institute's Hydrologic Engineering Center (HEC), located in Davis, CA specializes in the development, documentation, training, and application of hydrologic engineering and hydrologic models. IWR's Navigation Data Center (NDC) and its Waterborne Commerce Statistical Center (WCSC) in New Orleans, LA, is the Corps data collection organization for waterborne commerce, vessel characteristics, port facilities, dredging information, and information on navigation locks. The Institute's newest center is the Dam Safety Risk Management Center (RMC).

Other enterprise centers at the Institute's NCR office include the International Center for Integrated Water Resources Management (ICIWaRM), which is a distributed, intergovernmental center established in partnership with various Universities and non-Government organizations; and the Conflict Resolution and Public Participation Center (CPC) which includes a focus on both alternative dispute resolution processes (ADR) and the integration of public participation techniques with decision support and technical modeling – Computer Assisted Dispute Resolution (CADRe) – such as manifested in the technique known as Shared Vision Planning (SVP). The Institute plays a prominent role within a number of the Corps technical Communities of Practice (CoP), including the CoP's for Planning; Economics; Operations and Regulatory; Hydrologic, Hydraulics & Coastal Engineering; Environmental; and Strategic Planning.

For further information on the Institute's Conflict Resolution and Public Participation Center and CADRe-related activities please contact Dr. Hal Cardwell, 703-428-9071 or via e-mail at: hal.e.cardwell@usace.army.mil, and, for ADR or citizen participation activities, please contact Dr. Jerry Delli Priscoli, 703-428-6372, or at: jerome.dellipriscoli@usace.army.mil.

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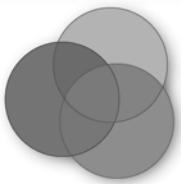
CADRe09: 2nd Workshop on Computer-Aided Dispute Resolution

October 20-21, 2009
EPA Region 8 Offices, Denver, Colorado



Workshop Summary and Strategic Plan

Prepared by Mark Lorie, Resolution Planning



Shared Vision Planning

The Shared Vision Planning program at the Institute for Water Resources (IWR) uses an innovative, collaborative approach to solve water resources management issues. It integrates traditional water resources planning methods, structured public participation, and collaborative computer modeling into a multifaceted planning process. This program is unique because it emphasizes public involvement in water resources management and the use of collectively developed computer models along with tried-and-true Corps planning principles.

Shared Vision Planning aims to improve the economic, environmental and social outcomes of water management decisions. By involving stakeholders throughout the planning process, the Shared Vision Planning process can facilitate a common understanding of a natural resource system and help stakeholders reach a management consensus that satisfies multiple interests. Shared Vision Planning allows IWR scientists to work directly with stakeholders to find acceptable solutions to issues surrounding the management of water resources.

Collaborating for Improved Water Resources Management

Through its Shared Vision Planning Program, IWR is applying the principles of public involvement and collaborative computer modeling to a series of water resources management case studies across the United States. Analyses, documents, and an enhanced web presence are being developed to impart the method and lessons of Shared Vision Planning to the wider planning community. Occasionally, the program publishes workshop summaries in order to advance the state of the art, but the views expressed in these publications do not necessarily reflect those of the Institute for Water Resources or the Army Corps of Engineers. All of these initiatives are designed to help planners and stakeholders use a collaborative approach to natural resources management.

By recognizing the importance of multiple stakeholder interests and the value of innovative technological support, Shared Vision Planning can make a positive impact on the current and future management of our nation's water resources. The Shared Vision Planning Program at IWR is developing partnerships with other organizations to more effectively implement this approach. The Program has already helped numerous stakeholders in previous projects to find acceptable water management solutions, and IWR looks forward to the continued spread and success of this planning approach.

For further information on the Shared Vision Planning program, please contact Hal Cardwell, 703-428-9071, Hal.E.Cardwell@usace.army.mil.

To learn more, please visit the Shared Vision Planning web site:
www.svp.iwr.usace.army.mil

IWR Shared Vision Planning Publication Series

This following report is part of IWR's Shared Vision Planning publication series. Publications in this series serve two primary purposes: (1) To provide general information about what Shared Vision Planning is and recommendations on how best to apply it, and (2) To document case studies and research to advance the field. This report serves primarily the second purpose and follows the first CADRe workshop report (Stephenson et al. 2007). The other publications in this series are categorized as the following:

Guidance on Applying Tools and Leading Processes

For those looking for basic information about what Shared Vision Planning is, as well as guidance on how to conduct a Shared Vision Planning process, IWR has available:

Creighton, J. 2010. A Guide to Conducting a Shared Vision Planning Process. IWR Report 09-R-6. *A complete manual for those who are leading the process.*

Cardwell, H., Langsdale, S. and Stephenson, K. 2009. A Shared Vision Planning Primer. IWR Report 08-R-02. *Introduces the reader to the three pillars of Shared Vision Planning, and how it can help address current challenges in water resources decision making today.*

Lorie, M. 2006. A short guide to interactive decision support tools using Microsoft Excel. IWR Report 06-R-02. *A primer that describes how Excel can support a collaborative modeling process.*

Case Studies and Research to Advance the Field

Michaud, W. 2009. Performance Measures to Assess the Benefits of Shared Vision Planning and Other Collaborative Modeling Processes. IWR Report 09-R-7.

Creighton J. and Langsdale, S. 2009. Analysis of Process Issues in Shared Vision Planning Case Studies. IWR Report 09-R-05. *Summarizes process documentation in Shared Vision Planning cases to date, and provides guidance for future case study authors.*

Stephenson, K., Shabman, L., Langsdale, S., and Cardwell, H. 2007. Computer Aided Dispute Resolution: Proceedings from the CADRe Workshop. IWR Report 07-R-6. *A definitional paper, eight case studies, and documentation of working group efforts.*

Imwiko, A., Kiefer, J.C., Werick, W.J., Cardwell, H.E., and Lorie, M.A. 2007. Literature Review of Computer Aided Collaborative Decision Making. IWR Report 2007-R-01. *An annotated bibliography for 52 case studies that used a computer model in a collaborative decision making process.*

Lorie, M. 2006. Shared Vision Planning Applied to Regulatory Decisions. IWR White Paper, dated July 31, 2006. *Discusses Shared Vision Planning and its relation to the Corps' regulatory role under Section 404 of the Clean Water Act.*

All of the above reports were published by IWR and are available at:
www.sharedvisionplanning.us or www.iwr.usace.army.mil/inside.

Additional materials have been developed, including conference proceedings papers, journal articles, fact sheets, and brochures, some of which are also available at www.sharedvisionplanning.us.

Relationship to the ADR Publication Series

This series parallels documents published by the Conflict Resolution and Public Participation Center of Expertise (CPC) at IWR, of which the Shared Vision Planning program is a part. Most notably is the Alternative Dispute Resolution (ADR) series that includes newly updated reports on Techniques, Case Studies, and White Papers.

Future Work

The above documents lay the foundation for contributions to other work that is currently in progress by the Shared Vision Planning program. Documents in process include:

- A book on Computer Aided Dispute Resolution that builds on the 2007 Proceedings (Expected 2010)
- A Best Practices for Collaborative Modeling monograph, being generated through an ASCE Environmental Water Resources Institute Task Committee (Expected 2011)
- As a companion to Michaud (2009; IWR Report 09-R-7), A guide to reporting Collaborative Modeling survey data, with an emphasis on how to synthesize the results of the survey.

The completed publications in this series to date all focus on the use of Shared Vision Planning; however, the new Conflict Resolution and Public Participation Center of Expertise, of which the Shared Vision Planning program is a part, is also considering the use of other technical tools to support Environmental Conflict Resolution processes. Therefore, future reports produced by the Center may address a wider array of tools.

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Executive Summary

On October 20-21, 2009, the U.S. Army Corps of Engineers' Institute for Water Resources (IWR), Sandia National Labs (Sandia), the U.S. Institute for Environmental Conflict Resolution (USIECR), and Region 8 of the Environmental Protection Agency sponsored a workshop focused on Computer-Aided Dispute Resolution (CADRe). The primary objective of the CADRe09 workshop was to develop and begin executing a strategic plan for improving CADRe methods and promoting the use of CADRe for water resources problems.

The first day of the workshop involved a number of presentations and panel sessions to set the stage for the collaborative process of identifying priority action areas and setting objectives for next steps on these action areas. The action plans are intended to advance CADRe methods and the community of practice in order to meet the biggest water management challenges of the future.

Overall, six topics were selected for breakout discussions and further action:

Strategic Topic #1: Apprenticeship and Internship Program

Purpose: Ensuring that there are sufficient professionals trained in leading CADRe

Strategic Topic #2: Evaluation criteria

Purpose: Providing tools for evaluating and adjusting on-going CADRe process, for learning from past processes, and for communicating the risks and benefits of CADRe.

Strategic Topic#3: Online tool for building community of practice

Purpose: To develop a dynamic online space for the community of practice that will allow professionals to exchange valuable experiences and information, and that will expand and strengthen the community

Strategic Topic #4: CADRe and Integrated Water Resources Management

Purpose: To expand CADRe into the international community and, specifically, for use in efforts related to IWRM

Strategic Topic #5: Agency and Political Buy-In for CADRe

Purpose: To help CADRe become a more accepted and sought-after method for conducting water management studies

Strategic Topic #6: Identity, Naming, and Branding

Purpose: Selecting a name that better reflects the methods (now complete) and refining the community's identity

These topics and discussions from the 2009 workshop provide a guide for future research and development activities. The Institute for Water Resources, Sandia National Labs, and the U.S. Institute for Environmental Conflict Resolution will need to determine how to keep the community organized, engaged and funded to pursue the strategies and actions identified at the workshop.

*The last topic, in particular, struck a chord with the workshop participants and has already led to follow-up actions and decisions: **what do we call our method and our community?** Various “brand names” have been around for a number years (e.g., Shared Vision Planning, Cooperative Modeling). CADRe was conceived in 2006 as a generic, umbrella name that would encompass all of the various methods. While the acronym CADRe has slowly become the standard name, not all members of the community are supportive of the name. One breakout group at the workshop tackled this topic and their recommendations led to an intensive discussion about this community’s identity—i.e., the essential features of who we are and what we do. The discussion was fruitful and was continued over the ensuing two months using web communication tools and conference calls. At the end of this process, in December 2009, the community decided to adopt a new name and a brief identity statement.*

*The new generic, umbrella name is **collaborative modeling for decision support**. The group agreed that this name accurately captures the essence of our work and encompasses the various brand names out there. This report uses the term CADRe, since it is a report of an event using that name. However, it is recommended that the term CADRe be retired and **collaborative modeling for decision support** be used exclusively from this point forward.*

*In addition, the group adopted this identity statement: **Integrating collaborative modeling with participatory processes to inform natural resource management decisions.***

These decisions can be seen as a start. The workshop discussion about the community’s identity revealed that there are differences in the methods and differences in views of how they should be applied. Instead of glossing over these differences, they should be investigated further so that we can identify the best of what is available and determine the situations in which certain methods and techniques are most appropriate. This is the logical next step to the naming and identity debate.

Key recommendations for next steps:

- *Begin using the term **collaborative modeling for decision support**, or CMDS, instead of CADRe, in reports, websites, and other products.*
- *Begin using the newly adopted identity statement in conjunction with the new name to help make clearer what this community does.*
- *Organize conference calls on each of the action areas identified at the workshop to organize and solidify a formal committee for each action area and chart next steps.*
- *Determine funds and other resources that may be available from each sponsor agency to support the work recommended in this Strategic Plan.*

- *Maintain this plan as a living document to help guide IWR, Sandia, USIECR and community activities over the coming years.*
- *Capitalize on the momentum of the naming and identity debate by initiating more detailed identity and methodological studies of the various CADRe methods.*

Introduction

On October 20-21, 2009, the U.S. Army Corps of Engineers' Institute for Water Resources (IWR), Sandia National Labs (Sandia), and the U.S. Institute for Environmental Conflict Resolution (USIECR) sponsored a workshop focused on Computer-Aided Dispute Resolution (CADRe). **The primary objective of the CADRe09 workshop was to develop and begin executing a strategic plan for improving CADRe methods and promoting the use of CADRe for water resources problems.** CADRe09 was the second such workshop; a similar event was held in 2007.

The exact definition of CADRe is fluid and still evolving, but it can be generalized as a collection of methods that integrate two broad areas of practice: 1) decision-support computer modeling, and 2) collaboration or negotiation with stakeholders, decision makers and experts. Key themes include intensive collaboration among experts, stakeholders and decision-makers through a decision-making process; the use of one or more comprehensive computer tools to develop, evaluate and compare potential solutions to the given problem; and, ultimately, identifying and implementing good solutions that balance multiple objectives. CADRe has generally focused on water resources planning and management, but these methods could be applied to other resource issues. A number of CADRe methods have been developed and used in water resources problems around the country over the last couple of decades, including *Shared Vision Planning* by IWR, *Cooperative Modeling* by Sandia (Cockerill, 2006), and *Mediated Modeling*, originally described in Van den Belt (2004). In general, these methods draw on techniques from planning, engineering, systems analysis, public participation and dispute resolution.

A detailed description of CADRe and the impetus for the 2007 workshop can be found in Stephenson and Shabman (2007). Additional readings for background on CADRe, specific methodologies, and case studies can be found in the bibliography at the end of this report.

Brief Summary of CADRe07

The 2007 CADRe workshop brought together 53 individuals from six federal agencies, three national laboratories, state governments, river commissions, universities, non-profit organizations and the private sector. The participants included engineers, hydrologists, planners, facilitators, mediators, and other experts. The agenda consisted of several panel sessions, a number of case-study presentations and group discussions to chart next steps.¹

Since it was the first gathering of this community, the workshop began with presentations and a panel session to define CADRe and present some background on the methods. Len Shabman and Kurt Stephenson started with a presentation based on their paper cited above. Then three CADRe pioneers—Rick Palmer, Dan Sheer and Bill Werick—gave presentations on their

¹ Presentation slides are available at: www.computeraideddisputeresolution.us/workshop2009agd.cfm

approaches to CADRe. These presentations defined the breadth of CADRe methods and their history. The workshop then turned to case studies to expose participants to the different types of CADRe applications around the country. The case study presentations included:

- A Comparison of CADRe Processes: Perspectives from the Gila, Rio Grande and Willamette.
Vincent Tidwell, Principle Member of the Technical Staff, Sandia National Laboratories
- Use of Modeling to Facilitate Interstate Collaboration on the Lower Susquehanna River.
Thomas W. Beauduy, Deputy Director, and Andrew D. Dehoff, Director of Planning and Operations, Susquehanna River Basin Commission
- Role of Modeling in the Development of Interim Guidelines for the Operation of Lake Powell and Lake Mead.
Carly Jerla, Hydraulic Engineer/Bureau of Reclamation – Lower Colorado Region
- Climate Change and Water Planning in the Northwest.
Richard Palmer, Chair of Civil and Environmental Engineering, University of Massachusetts
- Incorporating Modeling into Decision-Making for a Comprehensive Aquifer Management Plan – A Facilitator’s Observations on Idaho’s Eastern Snake Plain.
Diane Tate, Program Manager, CDR Associates
- Solving Urban Watershed Problems in Los Angeles through the Use of Collaborative Planning.
Dan Rodrigo, Associate Partner, CDM
- Changing the Rules for Regulating Lake Ontario Levels.
Bill Werick, Werick Creative Solutions
- Drought Preparedness in Northern California – People, Practices, Principles and Perceptions.
Ane Deister, Vice President, Executive Management and Water Sustainability, Brown and Caldwell (formerly, General Manager, El Dorado Irrigation District)

The case studies demonstrated clear similarities in how different water planners and managers were combining computer modeling and collaborative processes to improve decisions. But we also saw some differences between the various approaches, raising questions about when and how to use particular methods and techniques. For example, there were differences in the level of stakeholder participation in the design and development of the decision-support computer models. We also saw differences in the types of models used.

The second day of the workshop started with two panel sessions. The first was focused on “process challenges of CADRe” and included two experienced mediators and two experienced modelers discussing how to merge their practices to create effective CADRe processes. The

second panel brought forth agency perspectives on CADRe, including the Corps, USGS, FERC and the Interstate Council on Water Policy.

The workshop concluded with brainstorming sessions, group breakouts and a full group discussion to identify future challenges for CADRe. Six specific challenges were identified and discussed:

- Neutrality and objectivity in CADRe processes
- Integrating CADRe into NEPA
- Education and Training in CADRe
- Community Building and Outreach – developing a CADRe Wiki
- CADRe software and models
- Research Needs

More detail on the discussion and conclusions reached about each of these topics can be found in the 2007 workshop proceedings (see link in the bibliography). These challenges have helped guide follow-up activities at IWR and other agencies.

Accomplishments since CADRe07

IWR, Sandia, and USIECR have been engaged in a number of activities since the CADRe 2007 workshop. These include:

- *The Shared Vision Planning Primer* – a short summary of the Shared Vision Planning approach and key elements for implementation in water resources studies;
- *How to Conduct a Shared Vision Planning Process* – a more detailed documentation of the steps and techniques of shared vision planning, largely based on interviews with three CADRe pioneers, Rick Palmer, Dan Sheer and Bill Werick;
- A CADRe Monograph – a collection of research papers focused a variety of topics, many of which were identified at the CADRe07 workshop. Topics include the history of Shared Vision Planning, issues in training and education, the differing perspectives among modelers and mediators;
- Performance Measures to Address Benefits of Collaborative Modeling – an effort to develop formal measures of the benefits of engaging stakeholders in a CADRe process, particularly focused on the benefits of the collaborative computer modeling component;
- Best Practices for CADRe—a committee organized under the American Society of Civil Engineers is developing a set of best practices for conducting CADRe processes (anticipated 2010).

Also, while not focused solely on CADRe, USIECR held a Strategic Planning workshop on Technology and Environmental Conflict Resolution on May 6-8, 2009. The workshop considered CADRe methods in addition to other technological tools and their use in a broad set of environmental conflict resolution activities, not solely water management. The workshop

included organizing a national steering committee that includes many from the CADRe community to continue work on a variety of areas. The USIECR national conference included a technology and environmental conflict resolution track in 2008 and will again include this track in 2010.

There has also been a lot of work on new and on-going CADRe applications. CADRe applications that have started or continued since the 2007 workshop include:

- The Connecticut River – a study to identify strategies for re-operating reservoirs on the Connecticut River to better support ecological functions; partnership between The Nature Conservancy and the Corps;
- International Upper Great Lakes Study – five year, \$15 million effort with two purposes: to investigate why Lake Huron levels are low, and to find better rules for regulating Lake Superior levels. Shared vision planning is being used for the Lake Superior part of the study. Funded and led by the International Joint Commission;
- Halligan-Seaman Reservoirs Shared Vision Planning -- developing ecological flow management strategies for two proposed water supply reservoirs on the North Fork Cache la Poudre River in Northern Colorado; partnership between the cities of Greeley and Fort Collins and The Nature Conservancy along with other environmental agencies and NGOs; initiated as a U.S. Army Corps of Engineers pilot effort with the Western States Water Council;
- Water Resources Management in Peru – using Shared Vision Planning to develop regional water resources management plans in Peru; partnership between Peruvian Government, the World Bank, the Interamerican Development Bank and IWR;
- James River Study—an initial pilot study of the potential to implement Shared Vision Planning for developing regional water supply management plans in the James River basin in Virginia. Partnership between the Corps and Virginia Department of Environmental Quality;
- Collaborative Modeling to Support the 2004 Arizona Water Settlements Act—developing interactive water supply model to engage stakeholders and decision makers in developing plans for utilizing the water and funds made available through the 2004 Arizona Water Settlements Act; partnership between Sandia, the New Mexico Interstate Stream Commission and the Southwest New Mexico Water Planning Group;
- Operating Reservoirs on the North Fork of the Potomac River—Shared Vision Planning to develop new ways of operating reservoirs to better balance between water quality, water supply, fisheries, and recreational needs; partnership between the Interstate Commission on the Potomac River Basin and the Corps;
- Shared Vision Planning for the California State Water Plan—Using Shared Vision Planning to encourage stakeholder involvement in development of the State water Plan; partnership between IWR and the California Department of Water Resources.

Overview and Purpose of CADRe09

CADRe09 reconvened the community to solidify its identity and chart a path forward with the development of the strategic plan. The format was similar to the workshop in 2007, but with greater emphasis on group brainstorming, breakout sessions and discussions. The purpose of the work sessions was simple: to begin developing the strategic plan. The goal was to identify specific task areas and to organize the community into workgroups that could work on these tasks over the next one to two years. The ensuing work might include research reports, demonstration projects, workshops, or whatever is needed to pursue the objectives identified during the workshop. Some of this work is well under way as of the writing of this report.

Congresswoman Betsy Markey (Colorado, 4th District) was invited to the workshop but was unable to attend because Congress was in session at the time. Congresswoman Markey (Colorado, 4th District) has an on-going Shared Vision Planning effort in her district. She and her staff expressed interest in the workshop and discussed key issues in advance with workshop organizers. The Congresswoman provided a video greeting that was shown during the workshop.

There were several goals driving the presentations and sessions on day one of the workshop (the workshop agenda can be found in Appendix I and a list of attendees in Appendix II). Some presentations were intended to raise big picture issues for CADRe and some were intended to define the state of the art of CADRe—i.e., what do we know and what are we missing?

After introductory presentations and statements, the workshop turned to a presentation by Bill Werick posing some of the grand challenges in water management in the coming decades. [Werick's presentation](#) was an amalgam of answers from a number of water management experts to the following question:

Imagine it's the year 2030 and imagine water being managed in the U.S. about as well as we can expect in a large, complicated democracy. Imagine that water is used efficiently for the purposes that are most valuable to the public, including economic services and environmental restoration or conservation. Imagine stalemates and disputes at a minimum.

How did this happen? In your view, what were the key and necessary changes that allowed water management in the U.S. to progress so much in 20 years?

Responses were received from the following experts

- The late M. Gordon “Reds” Wolman, B. Howard Griswold Professor of Geography and International Affairs, The Johns Hopkins University;
- Jay Lund, Director of the Center for Watershed Sciences and Ray B. Krone Professor of Environmental Engineering, University of California at Davis;

- Doug Cuthbert, Retired from Environment Canada and Chair of the Halton-Hamilton Source Protection Committee within the Ontario Drinking Water Source Protection Program;
- Kai Lee, Conservation and Science Program Officer and Manager, David and Lucile Packard Foundation;
- Doug Kenney, Senior Research Associate at the Natural Resources Law Center, University of Colorado;
- Gary Wockner, Director, Save the Poudre Coalition;
- Bill Lord, Professor Emeritus, University of Arizona;
- Len Shabman, Resident Scholar, Resources for the Future.

Werick gleaned several key themes from the responses and presented them. Many of these ideas were repeated by a number of the experts. Many made the point that the work of the CADRe community was necessary but far from sufficient for good water management. They pointed out that in a democracy, the management and use of water is a political issue, and CADRe methods can at best resolve factual disputes, whereas disputes arising from self-interest and differences in fundamental values are arguably more important. To the extent that better CADRe methods could improve water management outcomes, the experts who responded said that the following things would have to happen (sources in parentheses):

1. *There would have to be a redistribution of power toward people/organizations trying to protect water and the environment (Wockner);*
2. *Disasters related to water would probably have to occur in order to shake the status quo (Lund, Lee, Lord);*
3. *We would need to have more proactive, quality analysis that is well-publicized so it can be ready to use when crisis brings the necessary political attention (Lund);*
4. *Basin organizations with management and decision authority will have to be implemented (Cuthbert);*
5. *We will need to see political cooperation between Republicans and Democrats beyond pork-barrel spending (Lee);*
6. *A more realistic assessment of infrastructure needs, amounting to a renegotiation of the value proposition of government (Lee);*
7. *Better function in decision-support links among government and non-government organizations (Lee);*
8. *Shift from a supply-management focus to a demand-management focus (Kenney);*
9. *Real pricing of water reflecting its scarcity and public value (Kenney, Wockner);*
10. *Mitigate losses to make change more palatable to those defending the status quo (Kenney);*

- 11. Improve public education and awareness so that water development officials and defenders of the status quo are not the only ones framing the debate (Kenney);*
- 12. Diagnose and treat gridlock in water decisions (Shabman);*
- 13. Abandon focus on non-structural solutions (Shabman);*
- 14. Abandon risky places (e.g., New Orleans, Shabman);*
- 15. Abandon idea of returning to natural conditions; we will need a more honest and competent debate about environmental objectives and values and we will need to measure outcomes (Shabman);*
- 16. Integrate water quality and water quantity management (Wolman).*

Several conclusions were drawn from the input of these experts. First, many of the things that will need to change to improve water management are well outside the scope of the CADRe community, but they can still inform our efforts. While we may not want to wish for disaster to strike, Werick argued that the occurrence of disaster provides a window of opportunity to make change. This community should be ready for those opportunities. And regardless of whether change comes because of disaster or some other precipitant, there will still be complicated technical issues to work on and conflict to manage before good solutions to water problems can be identified and implemented. Bill Lord and others agreed that this community will not be the agents of change. Kai Lee noted that improving decision-making methods is the only element of all of these grand challenges that is within the control of the CADRe community and that it is “necessary, but far from sufficient.” It is gloomy, but there is an important lesson for our community—*improved decision-making methods will always be necessary.*

Based on this input, Werick proposed that there are three response levels. The first rests squarely within the CADRe community—the need to continue improving the methods and training new people so that practitioners and their tools are plentiful and ready when opportunity arises. Further, Werick highlighted a product of the CADRe community that is often overlooked—the learning and discovery that takes place among the various water managers, environmental advocates and other individuals who take part in CADRe processes. These people are like “sleeper cells” with all the tools and knowledge needed to solve problems when opportunities arise. But the challenge is that people move and change positions, so we have to find ways to sustain these capable communities.

The second response level is within agencies. How can government agencies be encouraged to demand and use better ways of making decisions and solving problems? It is not at all clear how to do this, but Gerry Galloway’s presentation on institutions and a subsequent breakout group discussion helped formulate some ideas.

The final response level is societal. The public is largely ignorant of water problems and because of this there is little incentive for politicians to make difficult decisions to solve them. Werick proposed staging virtual disasters for different audiences (from high school up to the

adult general public) to inform people how natural resources are managed and how failures can arise.

The presentation generated a significant amount of discussion. Several key themes from the presentation and discussion came up repeatedly throughout the workshop. Not everybody agreed with the conclusion that it will take disaster to inspire necessary changes, but there was a lot of interest in viewing disaster as an opportunity. To seize such opportunities, the community must improve training and education to ensure that the next generation of CADRe practitioners is ready. This came up a lot during group brainstorming and became the focus of one of the breakout groups on Day 2 (the breakout groups are summarized below). Other related topics came up as well. It will be important to generate demand for CADRe among water management agencies. To do this, the community needs better ways to measure and communicate the benefits of CADRe.

Finally, the idea of “sleeper cells” – groups of managers, modelers and stakeholders who are familiar with the benefits of CADRe because of their involvement in a process—was discussed repeatedly. Creation of the knowledgeable groups will have to occur through education, training, successful implementation of CADRe, and continued outreach to water management agencies.

Panel Session and Presentations

The workshop then turned to a panel session with four experts. The session started with individual [presentations by each panelist](#) and included some discussion among the panelists about each topic.

- Gail Bingham, RESOLVE
[*A Mediators Perspective on Success in CADRe*](#)
- Gerry Galloway, University of Maryland
[*Institutional Challenges in CADRe*](#)
- Rick Palmer, University of Massachusetts
[*Shared Vision Planning and Climate Change*](#)
- Bill Werick, Werick Creative Solutions.
[*Best Practices for Collaborative Modeling*](#)

This same panel reconvened in the afternoon to review and discuss three case studies presented by three speakers. The case studies were:

- [The Columbia River Treaty Review](#), Elizabeth Bourget, the Institute for Water Resources
- [East Snake Plain Aquifer Management Plan Implementation](#), Jonathan Bartsch, CDR
- [Water Management in Peru](#), Karen Price Rios, National Water Authority of Peru

Each speaker was asked to cover general background and themes specific to CADRe, such as the potential role of computer models, the political and institutional setting, the decision-makers, and potential conflict. They were asked to consider these questions in preparing their presentation:

1. How could a CADRe approach improve water management if it lived up to expectations?
2. Would the CADRe process be overridden by another process (lawsuits, lobbying)?
3. What issues about open disclosure could weaken the CADRe approach?
4. Would CADRe be able to address the real issues that will drive decisions in this case, or are other issues driving the ultimate decisions?
5. What are the practical concerns (money, time, talent, etc.) that would have to be resolved for CADRe to work in this case?

After the case study presentations, the expert panel reconvened to discuss these current/future cases and the implications for the future of CADRe.

After the case study presentations and panel discussion, the workshop turned to brief presentations on some of the most interesting strategic activities that have begun since CADRe 2007.

- [Issues in Training and Education](#), Megan Wiley-River, Hydrologics, Inc;

- [USIECR Workshop on Technology and Conflict Resolution](#), Colleen Whitaker, US Institute for Environmental Conflict Resolution;
- Performance measures for collaborative modeling, Stacy Langsdale, IWR
- Assessment of State Level Water Planning, A Study by U.S. Army Corps of Engineers Headquarters, Eva Opitz, CDM
- [How to Conduct a Shared Vision Planning Process](#), (IWR Process guide), Jim Creighton

The presentations and discussions of Day 1 were meant to define the state of the art of CADRe and look forward to future challenges in water management so that CADRe methods and implementation strategies can be tailored to be meeting these challenges. A number of questions come up when thinking about the future of CADRe:

1. Are CADRe methods well-suited to the water management issues of tomorrow, such as climate change, questions about dam removal, supplying water to growing urban areas, and restoring degraded ecosystems?
2. Are certain approaches better suited to certain problems? How will we know?
3. How can we continue to better define and document CADRe methods?
4. Do we have enough people capable of leading or working on CADRe processes? If not, how will we train new practitioners?
5. What are the appropriate roles for modelers and facilitators in a CADRe process?
6. How should we define success and how can we measure or assess it?
7. Are the nation's water managers sufficiently aware of CADRe? Do they see potential benefits in CADRe? What about specific interest groups such as environmental NGOs and industry groups (AWWA, Chambers of Commerce)?
8. Are policy changes needed to make CADRe more widely used and more effective?
9. Do we use the right computer tools in CADRe methods?
10. How should this community interact in the future? Additional workshops? A larger conference?

The participants were asked to consider these issues and propose next steps through a series of brainstorming sessions, breakout groups, and full group discussions to begin formulating a strategic plan.

Developing the Strategic Plan

The goal on the second day was to outline a strategic plan for CADRe and to organize the community into task committees to execute the strategy. The second day of the workshop consisted entirely of brainstorming, breakout sessions for workgroups, and full group discussion.

Strategy Session #1 provided an opportunity to brainstorm about potential issues this community needs to work on. All participants were asked to spend some time writing down ideas they would like to suggest. Then small groups were formed to discuss potential ideas and whittle them down to a limited set of 5 or 6 ideas for each group. The full group reconvened and began sharing and listing potential topics that we would want to work on as a community. The ideas were listed on easel paper on the wall. After some discussion, some of the ideas were combined or eliminated and the group arrived at a final set of 19 potential topics:

1. Develop an online space for collaboration and engagement for the CADRe community of practice; this might include regular webinars, discussion forums, document sharing and collaboration, voting and other features.
2. Identify opportunities to gain political buy-in for CADRe
3. Internationalize the connection between CADRe and Integrated Water Resources Management (IWRM)
4. Develop and implement evaluation criteria for assessing CADRe processes
5. Develop a training package for potential stakeholders in CADRe processes
6. Convene skill-sharing and building workshops for modelers and process professionals
7. Promote horizontal integration of various modeling communities
8. Develop a mechanism for formal feedback from CADRe community on the evolving *Best Practices for Collaborative Modeling*
9. Resolve the naming/branding issue for shared vision planning and CADRe; clarify our identity and focus on the central theme of what we do
10. Develop formal training for non-governmental and governmental sector “sleeper cells” who will increase demand for CADRe processes
11. Promote agency/political buy-in for CADRe processes
12. Develop innovative tools for displaying complex information to stakeholders
13. Strategize for targeting use of CADRe for high profile water problems (e.g., the Columbia River Treaty Review)
14. Develop educational documentaries on CADRe for widespread use
15. Develop formal apprenticeship/internship programs for CADRe practitioners
16. Training for US Army Corps of Engineers Districts and more general institutional outreach for disseminating CADRe
17. Educate NEPA (National Environmental Policy Act) practitioners on CADRe tools for generating alternatives
18. Expand the CADRe toolbox by developing new materials and references (such as the IWR Collaborative Planning Toolkit, CADRe situational assessment)

19. Examine the diffusion of innovation literature to inform the community's strategic planning process

To identify a limited set of topics for the breakout session, a *Dot Democracy* voting method was used. Each participant was given three stickers with which to vote by affixing their stickers to the easel paper on the wall. The votes were tallied and the results discussed to make sure there was broad agreement on the resulting six topics. The topics selected for breakout discussions and the volunteer group leaders are listed below.

1. Develop formal apprenticeship/internship programs for CADRe practitioners (Megan Wiley Rivera).
2. Develop and implement evaluation criteria for assessing CADRe processes (Bill Michaud).
3. Develop an online space for collaboration and engagement for the CADRe community of practice (Mark Lorie).
4. Internationalize the connection between CADRe and Integrated Water Resources Management (IWRM) (Vince Tidwell).
5. Promote agency/political buy-in for CADRe processes (Linda Manning).
6. Resolve the naming/branding issue for shared vision planning and CADRe; clarify our identity and focus on the central theme of what we do (Lisa Bourget).

Strategy Session #2 consisted of a breakout group for each topic. Participants were asked to join one breakout group discussion. The breakout groups were asked to address the following questions/issues for their topic:

- Clearly define the issue and describe why it is important for CADRe;
- Establish preliminary objectives for what the committee will do over the next one to two years;
- Begin to scope a work plan to address the objectives, including how the committee will communicate after the workshop (conference calls, website, email list etc);
- Make potential recommendations to IWR, Sandia, USIECR, EPA or other organizations for future work;
- Define the financial and/or material support needed by the committee to begin its work.

Strategy Session #3 consisted of reports from breakout groups and full group discussion. Each topic is summarized below, including the report back from each breakout group and a summary of the ensuing discussion of each topic.

The reports shown below are meant as a starting point for future work. Much work is under way and there is more to come.

Strategic Topic #1: Apprenticeship & Internship Program

Original report from breakout group

Participants:

- Megan Wiley Rivera, Hydrologics, Inc
- Jordan Henk, The Redlands Institute

Apprenticeships

Apprenticeships for students and mid-career professionals are likely the most effective means for preparing the next generation of CADRe practitioners. The first step in fostering these opportunities is to make connections between those engaged in CADRe processes and those interested in apprenticeships. This will be done through the on-line forum in development (see Topic #3), with new posting going out in email updates.

These apprenticeships could be paid (either by the organization conducting the CADRe process or the employer of the apprentice), unpaid, or for payment (if seen as an education opportunity, the CADRe-conducting group would need to develop curriculum to supplement the CADRe experience). The group discussed such supporting curricula, which could lead to a certification. We also discussed the possibility of existing academic programs, such as MUSIC at MIT, administering the program.

Next step: Megan Wiley Rivera will coordinate with the on-line forum group (Topic #3) to include apprenticeship connections.

Educational Programs for Mid-career Professionals

In addition to apprenticeships, we discussed possible formats for in-depth educational programs for mid-career professionals. It was suggested that we collect the names and/or positions of desirable candidates for such training, and survey them to see what formats would facilitate their participation (e.g. distance learning; intensive, on-site experience; series of workshops; masters programs; etc.).

Next step: Megan Wiley Rivera will request that Mark Lorie send out a request to workshop participants to collect these names/positions. She will then prepare a very short survey and administer it.

Circuit Rider Program

Another idea to simultaneously educate future CADRe practitioners and improve the practice is a “circuit rider program,” in which a “wisdom counsel” of leading CADRe practitioners would be available to consult with groups considering or engaged in

Strategic Topic #1: Apprenticeship & Internship Program

CADRe processes. Interested students and professionals could “tag-along” to also benefit from the assessments of the counsel.

The nature of their engagement includes the following options:

1. One-time on-site review
2. Virtual communication
3. Feedback on submitting documents
4. As advisors/consultants

Such a panel would help those considering a CADRe process decide whether or not to pursue it, and if so, how to initiate and design the process to address their situation. We hope that in the future there will be mandates to consider the use of CADRe. Such mandates could come through the courts, agency leadership, or political direction. Certainly groups will continue to consider CADRe even without such mandates. The panel would also be valuable at the start or during processes.

This is not unlike “reachback,” a structured referral process used by the Department of Defense (DoD) and possibly other agencies. For example, when natural resource managers at DoD installations need a specific bit of expert knowledge or skills, they can navigate the system to find the DoD expert on the given topic. On-the-ground managers “reach back” to experts for help.

Gail Bingham offered to give her 20 hour course on effective coaching to wisdom panel members, so they are doing more than giving feedback—they are actively assisting organizations in choosing, designing, and conducting effective CADRe processes.

Such a program would need external funding (estimated at \$500k) to support the time of the wisdom counsel. The council needs to be sensitive to the fact that the program is not set-up for marketing, but rather to give the most effective guidance possible during the limited interaction.

Next step: Jordan Henk, Gail Bingham, and Megan Wiley Rivera will flesh out the above section into a proposal and shop it to possible funding sources.

Summary of Discussion of Topic #1

In general, education and training came up repeatedly throughout the workshop. This split into two themes. First, for CADRe to be successful in the future there is a need for more people competent in applying the methods. Formal training, such as university courses, will help, but the value of practical experience was emphasized. So an apprenticeship program will be very important for expanding the community of CADRe practitioners.

Strategic Topic #1: Apprenticeship & Internship Program

Second, CADRe methods are more likely to be used if water managers and water management stakeholders are familiar with the methods and their potential benefits. If managers and stakeholders see how CADRe might help solve problems, they are more likely to pursue these methods in their work. This is one way to create and sustain the CADRe “sleeper cells” noted earlier.

Strategic Topic #2: Evaluation Criteria for Assessing CADRe Processes

Strategic Topic #2: Evaluation Criteria for Assessing CADRe Processes

Original report from breakout group

Participants:

- Nina Burkhardt, U.S. Geological Survey
- Doug Clark, U.S. Bureau of Reclamation
- Stacy Langsdale, USACE Institute for Water Resources
- Bill Michaud, SRA International, Inc.

Overview of Breakout Discussion

The breakout group brainstormed the following questions:

- What is the purpose of developing and implementing evaluation criteria for CADRe processes? How would the evaluation criteria be used?
- What are some of the key topics that the evaluation criteria should address?
- How would evaluation criteria be developed?
- How would evaluation criteria be implemented?
- What are some concrete next steps that the CADRe community of practice can take to develop and implement criteria for assessing CADRe processes?

Highlights from the discussions are summarized below.

Highlights of Breakout Discussion

What is the purpose of developing and implementing evaluation criteria for CADRe processes?
How would the evaluation criteria be used?

Evaluation criteria and associated evaluation methods could be used for at least three different purposes:

- To provide feedback to practitioners during implementation of a collaborative modeling process to monitor whether it is achieving its intended goals:
 - Surveys given at the outset and at interim stages of the process could be used
 - It would be useful to identify sub-processes within the overall collaborative modeling process that could be evaluated separately
 - This use would help ensure that practitioners occasionally step back from the process, assess, and ensure that the process is on track
- To help build the capacity of CADRe community of practice over the long-term:
 - Feedback on what works and under what circumstances, critical barriers of which a practitioner needs to be mindful, etc. could be shared among the community of practice

Strategic Topic #2: Evaluation Criteria for Assessing CADRe Processes

- This type of information will help create and document an accessible knowledge base and foster increased capacity of practitioners/community of practice over the long-term
- In order for the implementation of evaluation criteria to accomplish this goal, challenges will need to be addressed, including:
 - Balancing the use of consistent measures that would allow cross-process evaluation vs. the use of flexible measures tailored to the specific application
 - Development of a sustainable mechanism for collecting feedback in an accessible central repository
 - These implementation issues are discussed below
- To disseminate information to potential users of collaborative modeling:
 - To raise awareness of circumstances under which collaborative modeling is likely to be beneficial
 - To address questions about the potential benefits of collaborative modeling and help weigh the likely return on initial investments in the process
- To add to the scholarly body of knowledge about collaborative processes and the factors that are related to success:
 - To determine whether these factors are similar or dissimilar in collaborative modeling processes and other types of collaborative processes
 - To address questions specific to collaborative modeling processes.

What are some of the key topics that the evaluation criteria should address?

Some of the key questions to be addressed in the development of evaluation criteria for assessing CADRe processes include:

- What should be measured?
 - Success needs to be defined, considering:
 - Perspectives of different participants in the process
 - Time scale/horizon
 - Different measures might apply to the overall and sub-processes
 - Different measures might apply to different purposes of evaluation (e.g., process feedback, long-term capacity development)
 - Sustainability of the process outcome is both challenging and important to assess. Measures of sustainability should consider:
 - Adaptive management
 - Political cycles
 - Social networks
 - Agreements
 - Data stewardship
 - Consider the best practices being developed by the EWRI committee
 - If something is important enough to be defined as a “principle” of best practice, it is important enough to evaluate
 - Process evaluations would feed back to the best practices so they can evolve with increasing knowledge and experience

Strategic Topic #2: Evaluation Criteria for Assessing CADRe Processes

- Measures should consider incentives/disincentives for implementation
 - How to design evaluation so it does not point fingers?
 - Bounds of confidentiality – expectation that if you're a practitioner, you're going to be evaluated
- Who will measure?
 - Participants, decision-makers, practitioners?
 - Researchers/scholars who study collaborative processes
- When should a process be measured?
 - Post-process measurement
 - How far out/how long after the formal process has ended?
 - Sustainability – how can monitoring data that will be collected anyway be fit into long-term evaluation of CADRe processes?
 - Measure expectations at the start of the process
 - Interim measurement and feedback
 - Pre-post process design – retrospective pre-test vs. pre-then-post-test designs, etc.
- How should a process be measured?
- How will the data be analyzed?

How would evaluation criteria be developed?

Possible steps for developing evaluation criteria for assessing CADRe processes include:

- Start with IWR performance measures
 - Validate the IWR performance measures
 - Peer review the IWR performance measures
- Who to include in the development of criteria?
 - Community of practice starting point for development
 - Reach out to gather ideas – when are processes successful, what works well, what are key barriers/obstacles, etc.?
 - Focus on implementation side – not just modeling but also collaboration practitioners/agencies
- Research what has already been done
 - Survey community of practice about what is out there
 - Key challenge: ideas/approaches for addressing long-term outcomes?
 - Funding sources for sustained evaluation?
 - What is the appropriate horizon for success?
- Convene a one-day workshop
 - E.g., risk communication – Corps and risk communication experts – maybe a model that would be useful?
- Vet measures and refine through external peer review process
 - Reviewers to include experts in evaluating collaborative decision-making
 - Will elicit expert opinion
 - Will help establish credibility of criteria
 - Will help disseminate information and raise awareness of CADRe

How would evaluation criteria be implemented?

The breakout group identified critical questions to be addressed when thinking about how evaluation criteria would be implemented:

- Enablers/barriers:
 - What could be done to encourage people to use the evaluation criteria?
 - Collect and provide a list of people who are evaluating CADRe processes
 - Provide a ready-made survey tool
 - Explain what people will get out of the evaluation and how it will help them
 - Provide neutrals to the process
 - Provide source of funding for implementing surveys and analyzing data
 - What would motivate people to use the criteria?
 - Understanding of importance of evaluating process
 - Curiosity – desire to contribute to body of knowledge
 - What are some of the barriers to evaluation?
 - The possibility that you will get an answer that you do not want
 - Implications of barriers/enablers:
 - Fully voluntary process where disincentives are not overcome could create bias
 - A funding source, agency policies, and/or administration policy would be useful for encouraging/requiring evaluation
 - Confidentiality issues need to be considered
- Mechanism for feedback
 - How to both allow tailoring and create consistent body of evidence?
 - Include evaluation as principle in best practices
 - Institutionalization
 - Who would collect data and where would data be housed?
 - If someone is not spearheading the data stewardship, it will not happen
 - Which is the appropriate agency?
 - Could this be spearheaded by a task committee within the CADRe community of practice?
 - Sharing and analyzing data:
 - Regular collection and sharing of/open access to data
 - Periodic case study and mixed-method evaluation process
 - ◆ Model or template for case studies to bring in qualitative data
 - ◆ Interviews
 - ◆ Observations of process
 - Need to push out not only data but also case studies
- How to allow processes to evolve?
 - Base set of criteria – identify this
 - Criteria to add case-by-case, over time
 - Implications for federal data collection and ICR

Strategic Topic #2: Evaluation Criteria for Assessing CADRe Processes

What are some concrete next steps that the CADRe community of practice can take to develop and implement criteria for assessing CADRe processes?

- IWR will take the lead in this area in the near term and will work closely with USIECR
 - The development and implementation of criteria needs to be an interagency effort
 - IWR's near-term goals include:
 - Good peer review of what's been done
 - Start getting the word out
 - The next step could be a workshop focused on this issue
 - Use the dynamic space to be established for the CADRe community of practice to continue the dialogue
 - Begin collecting a bibliography of case studies
 - Manage the bibliography as a living document
 - Possibly develop a map of processes that would be interactive, linked to a live database
-

Summary of Discussion

As with training and education, the need to evaluate CADRe processes and objectively demonstrate the benefits was discussed several times throughout the workshop. This need ties into topic #1 (Apprenticeship/Internship program), especially for training water managers and stakeholders on the benefits of CADRe so that these methods might be used more. It is also import for topic #5 (Promoting Agency and Political Support). Getting buy-in among agency and political leaders will be aided by objective evidence of the benefits of CADRe processes.

The report lists several potential activities. The breakout group noted that their first step may be to use an online communication tool (such as that proposed in topic #3) to reach out to the community about next steps.

Strategic Topic #3: Online Tool for Building Community

Strategic Topic #3: Online Tool for Building our Community of Practice

Original report from breakout group

Participants:

- Mark Lorie, Resolution Planning
- Erik Hagen, Patomoi
- Lela Prashad, Arizona State University
- Gail Bingham, Resolve, Inc
- Colleen Whitaker, US Institute for Environmental Conflict Resolution
- Eva Opitz, CDM, Inc
- Bill Werick, Werick Creative Solutions

Purpose: To develop a dynamic online space for this community of practice that will allow professionals to exchange valuable experiences and information, and that will expand and strengthen the community.

We want to have an online collaboration and networking tool that will allow us to communicate on a regular basis. We want this tool to be open and inviting for new members.

Needed Functions:

- The tool should allow us to build an appealing and organized website with graphics and menus. Some tools, such as Google Groups, are fairly limited in this respect
- Registration requiring some background/biographical information on each member. Only members can make full use of the site (uploading, discussions)
- Discussion forum capability in which members could start new topics and comment on existing topics
- Allow members to upload, link to, or embed content, such as reports, websites, videos and photos
- Provide tools for collaboration on documents and other materials. This could be as simple as an efficient file sharing capability, but we had a slight preference for full document/file hosting in the “cloud,” such as with Google Docs
- Voting and rating capabilities to allow the community to share opinions on materials, websites and other things
- Subscription capability, such as email digests, RSS feeds and others.
- Webinar capability (this was a specific suggestion during brainstorming session)
- Search capability, perhaps just using Google

Strategic Topic #3: Online Tool for Building Community

Possible tools to investigate with example applications

Tool	Example sites, notes
Ning.com http://wave.google.com/	http://community.waterworld.com/ (note: a search for “water” on Ning and revealed this; it has its own URL but appears to be built on Ning) http://crismapping.ning.com/
Google Wave http://basecamphq.com/	Wave is currently in limited preview; reportedly, early interest has overwhelmed the site, so it may not be available for a while
Basecamp http://groups.google.com/	No examples; this appears to be more of project management tool than a professional networking tool, but there is considerable overlap.
Google Groups http://www.centraldesktop.com/	http://groups.google.com/group/halligan-seaman-svp?hl=en this is the Google Group for a Shared Vision Planning project.
Central Desktop http://drupal.org/about	No examples, appears to be similar to Basecamp
Drupal http://www.waterinfo.org/	http://www.waterinfo.org/ Appears to be similar to Ning

Other tools that could provide specific functions:

Tool	Example sites, notes
Google Docs http://docs.google.com/	Documents, spreadsheets, presentations and forms (can be used for voting/surveys)
Doodle http://doodle.com/	Can be used for scheduling/voting (is it possible to embed in other sites?)
GoToMeeting http://www.gotomeeting.com/	Online meeting space, desktop sharing, webinars
Webex http://www.webex.com/	Similar to GoToMeeting

Next steps:

- In-depth review of available tools, some examples of each tool and summarize findings. There's no need to make assignments, but all group members should spend a little time investigating the options and share opinions. In a very cursory review so far, Ning is the front-runner, followed by Drupal and Wave (it's Google, it's got to be good).
 - Webmeeting and/or conference call in a few weeks. The group can start a free trial on GotoMeeting or another similar service to try out the tools in the process of meeting.
 - Start pilot sites. Perhaps start one or more pilots just for this workgroup? One or more pilots for each workgroup? To be decided.
 - Eventually make a recommendation along with needed resources to IWR and other sponsors
-

Summary of Discussion

It was widely agreed that some kind of online community would be a useful tool for the work we have agreed to pursue over the coming years. Several workgroups noted that they could use such a tool for outreach and communication. A well designed tool could provide the backbone for continued work with the strategic plan.

In the 2007 workshop, one topic of interest was to develop a CADRe wiki—an online collection of shared knowledge and technique that would describe the state of the art of CADRe. Two attempts to address this need were made. First, an entry for “Shared Vision Planning” was developed on Wikipedia but it has not been maintained or updated since the original posting.

In addition, IWR launched a collaborative workspace for the CADRe community using Microsoft SharePoint. SharePoint allows for discussions and sharing of Microsoft Office documents. The site has seen only limited use. The forum feature of SharePoint was used in the months after the 2009 workshop for follow-up discussions related to the name and identity question. However, activity has died down since.

The Wikipedia and SharePoint experiences highlight the challenges of online collaboration tools. They must be functional but easy to use. And they must be managed closely to make sure that information is up to date and useful. There must also be regular “pushing” of useful information to the community on the site to encourage use of the online collaboration tool.

Strategic Topic #4: CADRe and IWRM

Strategic Topic #4: CADRe and Integrated Water Resources Management

Original report from breakout group

Participants

- Vince Tidwell, Sandia National Labs
- Ann Bleed, CDR Associates
- Karen Price, National Water Authority, Peru
- Tony Eberhardt, Institute for Water Resources
- Aleix Serrat Capdevila, University of Arizona

Considerations:

1. Need to better understand what Integrated Water Resources Management (IWRM) really is. What are the basic principles? Review past case studies and evaluate strengths and weaknesses. Determine whether IWRM would benefit from anything CADRe might offer.
2. Develop list of past and current CADRe projects which have an international application (could also include US based studies). Evaluate success of projects according to "measures of success" developed by other working group.
3. Create community of practice (CADRe applied in international context). This will largely be facilitated through website creation (other working group). Will develop page devoted to international projects. Use site to disseminate information and communicate across group.
4. Coordinate efforts to institutionalize CADRe in the international community. Coordinate both within US and with international agencies.
5. Look at the process by which the principles of IWRM have evolved to the basic way to do water planning within the international community. Use this "model" to develop a strategy to adding CADRe principles to IWRM. Will need to determine whether we simply support IWRM as it is currently defined and practices, or whether we need to modify IWRM or whether we do not associate with IWRM at all.

Activities:

1. Research IWRM (look at open literature and communicate with leading practitioners). Determine if/how CADRe principles might help IWRM. Develop strategy for promoting CADRe
2. Create an information sharing/communication portal accessible to all group members (coordinated with other working group).
3. Develop collaborative plan
 - a. Problem with IWRM and how CADRe can help
 - b. Identify particulars of application of CADRe in international context
 - c. Develop plan to institutionalize CADRe in the international community
 - d. Develop plan for interagency and international cooperation

4. Consider focusing next CADRe workshop on the topic of international applications.
-
-

Summary of Discussion

There was wide agreement that there are initiatives in the international community that are similar to CADRe and that our community would benefit from stronger connections to this international work. Several participants agreed to share information about particular researchers they know. Also, several participants emphasized the need to increase the international presence at the next CADRe workshop.

Strategic Topic #5: Agency and Political Buy-In for CADRe

*Original report for breakout group
(as recorded from flip chart notes and workshop discussion)*

Participants:

- Linda Manning, The Council Oak
- Dan Sheer, Hydrologics, Inc.
- Brian Manwaring, U.S. Institute for Environmental Conflict Resolution

Problem: there is not sufficient awareness of or support for CADRe among federal agency leadership or political leaders

Goal: Develop a strategy for systematically communicating and marketing CADRe to Federal Agencies and possibly political leaders.

The group focused on several key activities/strategies:

- Research existing collaboration directives within federal agencies to determine what policies are in place and how they relate to CADRe; determine how to take advantage of those existing policies and determine whether new directives might be needed.
 - They emphasized the need for a clear message, which requires agreement on name/identity, and some documentation of benefits (relation to evaluation criteria work);
 - The message should be delivered to both top and bottom of Federal agencies
 - Get agencies to budget for it
 - Find and target water management cases for which CADRe will be most applicable;
 - Find legislative barriers to implementing CADRe, with a focus on “non-inferior solutions” (potential need for a new term); draft and push legislation to encourage CADRe and non-inferior solutions.
-

Summary of Discussion

It was noted that the Obama administration has issued directives that are very consistent with CADRe, especially the Presidential Memo on Transparency and Open Government. Some of the outreach planned by this workgroup should target people within the Administration, such as the White House Council on Environmental Quality (CEQ) and the

Assistant Secretary of the Army for Civil Works (the ASACW oversees the Corps of Engineers civil works program). Hal Cardwell and Bill Werick agreed to work on outreach to CEQ and the ASACW.

Strategic Topic #5: Agency and Political Buy-In

Some research on existing directives and policies has already been done by Jim Creighton. Dan Sheer discussed his on-going efforts to promote a legislative mandate for federal water management agencies to pursue “non-inferior solutions” in their work.

Strategic Topic #6: Identity, Naming and Branding

*Original report from breakout group
(as recorded from flip chart notes)*

Participants:

- Lisa Bourget, Institute for Water Resources
- Rick Palmer, University of Massachusetts
- Gerry Galloway, University of Maryland
- Rich Juricich, California Department of Water Resources
- Hal Cardwell, Institute for Water Resources

List of potential names/phrases:

- Mediated modeling
- Participatory modeling
- Collaborative modeling
- Negotiated modeling
- CADRe (A 2007 Senate appropriations bill would have created a Center for CADRe, but the bill was not passed)
- Shared Vision Planning
- Joint Fact Finding
- Technically informed collaborative processes

Issues and questions:

- Need a general brand
- Why give up current brand?
- SVP is well known
- Others use SVP term, but not the same (e.g., Western Governor's Water Council)
- What is SVP?
- Models include GIS and other tools
- How does SVP relate to other processes?
- Concerns:
 - People are not following SVP principles but call it SVP
 - Is multi-criteria planning the same thing?
- Need a tag line to describe what SVP is
- Describe relationship to Shared Vision Modeling
- Is Res-Sim a Shared Vision Model?
- Don't want to draw boundaries
 - Clarify broad principles
 - Acknowledge similar processes
- There is no IWRM done right but we still don't want to stop progress

Strategic Topic #6: Name and Identity

- Is SVP an acceptable umbrella term for
 - CADRe, Negotiated modeling etc?
- What is collaboration?
- Process: Tag line = SVP
- Definition: sentence
- Explanation: paragraph
- Is conflict management part of SVP?
- Different ideas about Shared Visioning

General Recommendation

“Brand” or “Umbrella”

Shared Vision Planning

Tag line

Technically-informed collaborative processes

Summary of Discussion

This topic generated the most discussion by far. The discussion about name and identity consumed the final few hours of the workshop. The participants debated the origin, history, and various pros and cons of each name. The term Computer-Aided Dispute Resolution, or CADRe, was created primarily to establish a generic term that could encompass a variety of approaches around the country and that could be used in a Federal appropriations bill. During the October 20-21 workshop, there were two arguments made against continued use of the name CADRe:

1. CADRe does not capture who we are and what we do very well;
2. The term has too much jargon for a name/identity.

But there is some momentum for continued use of CADRe. It was adopted several years ago and is increasingly recognized as the brand name. A new name would have to be good enough to overcome the costs of switching again.

The naming/branding workgroup suggested a plan:

- Revert to using Shared Vision Planning as the overall brand name and identity, provided the Corps of Engineers accepts the new meaning/use of its terminology;
- Shared Vision Planning (as practiced by the Corps) would also be a particular method within the general brand (analogy to Pepsi Company having Pepsi and other drinks);
- There would be a more descriptive tag line to elaborate on SVP. The suggested tagline was *technically informed collaborative processes*;
- A more detailed description of what the field is and does would be included until the name and tagline stick.

Strategic Topic #6: Name and Identity

One argument made in favor of this plan is that SVP is a known name and has been used for many years. For example, there are a number of reports and projects using the term Shared Vision Planning as part of their titles. At the same time, it is not terribly descriptive (e.g., it does not include anything to indicate the role of computer modeling) and it is often associated with the Corps of Engineers (especially the Institute for Water Resources). The Corps uses the terminology to refer to its particular well-defined approach, and it was not known whether there would be organizational concern over more generic usage of the term. Further, the words “shared vision” are used in other contexts and that may dilute the identity of this community.

After a lot of passionate discussion about the name, it was pointed out that the heart of this issue is that the community has not really defined its identity. Without clear agreement on identity, an agreement on name will be very difficult. The participants agreed to spend the rest of the workshop on a full group discussion about the community’s identity.

The group generally agreed on several key themes or elements in the identity of this community:

- Collaborative modeling is a defining feature of this community;
- Modeling/models are not the point or the primary product of our efforts; the models are there to support a collaborative learning and decision-making process;
- The ultimate goal of these processes is to make decisions about natural resources problems (especially water) that improve environmental, economic and social outcomes; circumstances often prevent this work from influencing decisions, but the ultimate decision provides the primary process design criteria;
- The collaborative process includes experts, stakeholders and decision-makers; and
- These processes are often applied to planning problems, but they can be applied in other contexts or particular pieces of the planning process (such as scoping).

Agreement was reached on the general content of an identity statement, but the group did not wordsmith a final version. It was agreed that the statement should include at least two elements. First, it is important that the statement emphasize the *integration* of collaborative modeling and collaborative process—the union of the two is the key characteristic of this community. Second, the statement should say that the purpose of this work is to improve the outcomes of natural resources management actions. It was kept general with the phrase “natural resources,” but the statement could specify “water resources” instead. There was some disagreement and continued debate about the exact wording and whether to include other aspects of our work, such as the goal of improving understanding or promoting learning, or the fact that the collaboration includes experts, stakeholders and decision-makers.

The group agreed to a process to finalize this decision over the ensuing months. That process included some research on potential names; online discussion about the issue and specific suggestions; an online survey for community members to rate and rank identity statements and names; a conference call to discuss the survey results; and, finally, a last round of email to gage acceptance of the results.

Strategic Topic #6: Name and Identity

The results of the survey showed the name “collaborative modeling” to have the most support and the least opposition, though some respondents did express opposition. Several people commented that “collaborative modeling” was too limited and placed too much emphasis on modeling. Therefore, a broader, more inclusive term was suggested: collaborative modeling for decision-support. The small group of people who participated in the conference call agreed that this was an acceptable name. In addition, that group agreed to the following identity statement:

Integrating collaborative modeling with participatory processes to inform natural resource management decisions.

While the new name and identity statement were selected by a subset of the entire community, both were generally consistent with the highest rated name and identity statement from the online survey.

The selected name and identity statement were sent out the entire community to gage whether they were acceptable. A number of people expressed strong support for the new name and identity statement and no one expressed any opposition.

Therefore, moving forward, the general term for the methods and for this community will be ***collaborative modeling for decision-support***, with the above identity statement serving as a more detailed description.

The decision about a new name and identity statement can be seen as a start. As was pointed out at the workshop, the discussion over name was a passionate one because community members have different ideas about the identity of this community. This is an issue that has barely been addressed. Many participants at the workshop have been engaged in this kind work for many years. But there has been little work to define the differences and similarities between the various approaches and methods. The group agreed on the most essential elements of our identity—that we all *integrate collaborative modeling with participatory processes to inform natural resource management decisions*—but the details are still vague. How does Shared Vision Planning, the approach developed and promoted by IWR, compare to Computer-Aided Negotiation, the method developed and promoted by Hydrologics, Inc.? How do those compare to Cooperative Modeling, a method developed and promoted by Sandia National Labs, or Mediated Modeling, as described in van den Belt (2004)? What can be learned from published and unpublished case studies of each of these methods? What can be learned from a detailed comparative investigation of each method?

A rigorous and detailed analysis of the various methods is the logical next step for a community that has just begun debating its identity and its name.

What Happens Next

Six topics were selected for action at the CADRe09 workshop. Breakout groups described the key challenges for each topic and identified potential next steps. Overall, IWR, Sandia and USIECR will need to determine how to keep the community organized, engaged and funded to pursue the strategies and actions identified at the workshop. Each of the action areas is important for future development and success of CADRe methods. Some progress has been made since the October workshop. Below is a brief summary of each topic, the most important next steps for each topic, the point person from the workshop breakout groups, and a description of work that has occurred since the workshop.

Topic #1: Apprenticeship and Internship Program

Purpose: Ensuring that there are sufficient professionals trained in leading CADRe

Next Steps:

- Scope out a way to survey or poll mid-career professionals, CADRe practitioners, and educators about the best ways to connect current practitioners with other professionals who would be interested in learning CADRe through apprenticeship or internship opportunities.

Point Person: Megan Wiley-Rivera, Hydrologics, Inc.

Progress: None yet.

Topic #2: Evaluation criteria

Purpose: Providing tools for evaluating and adjusting on-going processes, for learning from past processes, and for communicating the risks and benefits of CADRe processes.

Next Steps:

- Solicit peer review on IWR's current report on evaluation
- Expand current bibliographies of case studies and begin developing an interactive map of these case studies.

Point person: Bill Michaud, Institute for Water Resources

Progress: None yet.

Topic#3: Online tool for building community of practice

Purpose: To develop a dynamic online space for the community of practice that will allow professionals to exchange valuable experiences and information, and that will expand and strengthen the community

Next Steps:

- Develop a preliminary site and share it with the entire community
- Solicit advice from agencies or organizations that have successfully used an online networking tool
- Coordinate with leads on other topics who have a need for online communication

Point Person: Mark Lorie, Resolution Planning

Progress: Preliminary testing of available tools for building the site by several individuals

Topic #4: CADRe and Integrated Water Resources Management

Purpose: To expand CADRe into the international community and, specifically, for use in efforts related to IWRM

Next Steps:

- Develop collaborative plan for infusing CADRe into IWRM
 - Research problem with IWRM and how CADRe can help
 - Identify particulars of application of CADRe in international context
 - Develop plan to institutionalize CADRe in the international community
 - Develop plan for interagency and international cooperation

Point Person: Vince Tidwell, Sandia National Labs

Progress: None yet.

Strategic Topic #5: Agency and Political Buy-In for CADRe

Purpose: To help CADRe become a more accepted and sought-after method for conducting water management studies

Next Steps:

- Investigate existing agency policies and directives on collaboration
- Investigate legislative barriers to CADRe
- Develop a list of the biggest water studies and issues; these can be targets for potential use of CADRe

Point Person: Linda Manning, The Council Oak

Progress: None yet.

Strategic Topic #6: Identity, Naming, and Branding

Purpose: Selecting a name that better reflects the methods (now complete) and refining the community's identity

Next Steps:

- The naming debate and process is complete.
- An appropriate next step would be to further investigate the various methods and approaches to compare them in greater detail. This will further establish an identity for the field.

Point Person: Lisa Bourget (Institute for Water Resources) was the lead of the breakout group at the workshop and led the process to select a new name. Since the suggested next step is broader, it may be appropriate to pull in other individuals.

Progress: Name and identity statement have been selected.

IWR, Sandia, and USIECR should convene a conference call on each of these topics. These conference calls should include the point person listed and any other volunteers interested (whether they were part of the original breakout group or not). The conference call should be used to solidify the membership of committees focused on each of these task areas. In

addition, the eventual committees should use these calls to identify specific next steps in pursuing the broader purpose and objectives of each task area.

Finally, the ultimate purpose of the workshop and this report is to chart future strategic directions for the CADRe community. This report will best serve that purpose if it is maintained as a living strategic plan, updated as IWR, Sandia, USIECR and the task committees make progress pursuing the initiatives described here. This can be done in future workshops or as part of regular coordination between IWR, Sandia, and USIECR.

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Appendix I – CADRe09 Agenda

CADRe09 Strategy Workshop
October 20-21, 2009
EPA Region 8 Offices
1595 Wynkoop Street
Denver, Colorado 80201

DAY 1 – October 20, 2009

9:00 Welcome and Introduction

Jim Creighton, Creighton & Creighton, Inc
Hal Cardwell, Institute for Water Resources
Elaine Lai, US Environmental Protection Agency
Brian Manwaring, US Institute for Environmental Conflict Resolution
Vince Tidwell, Sandia National Labs

9:45 Opening Presentation and Group Discussion

Grand Challenges in Water Management – Perspectives from some Experts
Bill Werick, Werick Creative Solutions

10:15 Break

10:30 Panel Session – Past, Present and Future of CADRe

Panelists:

Gail Bingham, RESOLVE
Gerry Galloway, University of Maryland
Rick Palmer, University of Massachusetts
Bill Werick, Werick Creative Solutions
Moderator: Jim Creighton

12:00 LUNCH (provided)

Speech by Congresswoman Betsy Markey (via video)

1:00 Future Water Management Cases (3 presentations)

Presentations of new or continuing water management studies focused on these questions:

What is focus of this study? Who are the stakeholders and decision-makers? What is the political context? What are the primary causes of conflict, or potential causes of conflict? What are the prospects for CADRe?

- The Columbia River Treaty Review, Lisa Bourget, Institute for Water Resources
- Regional Water Resources Management in Peru, Karen Price Rios, Peruvian Federal Government
- Eastern Snake Plain Aquifer Management Plan Implementation, Jonathan Bartsch, CDR Associates

2:00 Panel Discussion on Future Water Management Cases and CADRe

Gail Bingham, RESOLVE

Bill Werick, Werick Creative Solutions

Rick Palmer, University of Massachusetts

Gerry Galloway, University of Maryland

Moderator: Jim Creighton

3:00 BREAK

3:15 Initiatives to Advance CADRe

- Issues in Training and Education, Megan Wiley-River, Hydrologics, Inc
- USIECR Workshop on Technology and Conflict Resolution, Colleen Whitaker, US Institute for Environmental Conflict Resolution
- Performance Measures for CADRe, Stacy Langsdale, Institute for Water Resources
- State Level Water Planning, Eva Opitz, CDM
- *How to Conduct a Shared Vision Planning Process, (IWR Process guide)*, Jim Creighton, Creighton and Creighton, Inc

4:30 Wrap Up of Day 1 and Expectations for Day 2

Jim Creighton

5:00 End Day 1

DAY 2 – October 21, 2009

8:30 Introduction to Day 2 – *Jim Creighton*

8:45 **Strategy Session #1:** Brainstorming on needed action areas for CADRe
What does this community need to work on over the next 1-2 years to improve CADRe methods and encourage increased use of CADRe?
Facilitator: Jim Creighton

9:45 *Dot Democracy voting on action areas (participants are given a limited number of stickers to vote for topics by affixing their stickers to the sheets of paper on the wall)*

10:15 BREAK (workshop organizers tally the votes)

10:30 Organize action area teams

Announce voting results
Ask for volunteer leads for the top 3-6 action areas
Volunteers lead subsequent breakout discussions
Facilitator: Jim Creighton

11:00 **Strategy Session #2:** Breakout group work sessions

Volunteer leads host discussions of their selected action area. Groups begin to frame the issue, identify objectives/milestones, and support they need to work on each action area over the next 1-2 years

12:00 Boxed Lunch, workgroups continue discussions

1:30 **Strategy Session #3:** Breakout groups report back
Open discussion after each report
Facilitator: Jim Creighton

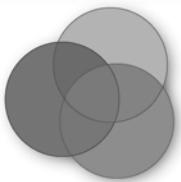
3:30 Next Steps and Wrap Up

4:00 End Workshop

Appendix II - Attendees

CADRe09 Attendees

Name	Affiliation
Jonathan Bartsch	CDR Associates
Gail Bingham	RESOLVE
Ann Bleed	CDR Associates
Lisa Bourget	Institue for Water Resources
Tab Brown	US Army Corps of Engineers
Nina Burkhardt	USGS
Hal Cardwell	Institue for Water Resources
Doug Clark	Bureau of Reclamation
Jim Creighton	Creighton & Creighton, Inc
Tony Eberhardt	Institue for Water Resources
Dave Emmerson	Department of Interior
Gerry Galloway	University of Maryland
Erik Hagen	Independent Consultant
Jordan Henk	Redlands Institute
Karin Jacoby	Mid-America Regional Council/Mo-Ark Association
Rich Juricich	California Department of Water Resources
Elaine Lai	US Environmental Protection Agency
Stacy Langsdale	Institue for Water Resources
Mark Lorie	Resolution Planning
Linda Manning	The Council Oak
Brian Manwaring	US Institute for Environmental Conflict Resolution
Bill Michaud	SRA International Inc
Eva Opitz	CDM
Rick Palmer	University of Massachusetts
Lela Prashad	Arizona State University
Karen Price Rios	Peruvian Federal Government
Jesse Roach	Sandia National Labs
John Sanderson	The Nature Conservancy
Aleix Serrat Capdevila	International Center for Intergrated Water Resources Management
Dan Sheer	Hydrologics Inc
Diane Tate	National Park Service
Vince Tidwell	Sandia National Labs
Bill Werick	Werick Creative Solutions
Colleen Whitaker	US Institute for Environmental Conflict Resolution
Megan Wiley-Rivera	Hydrologics Inc



Shared Vision Planning

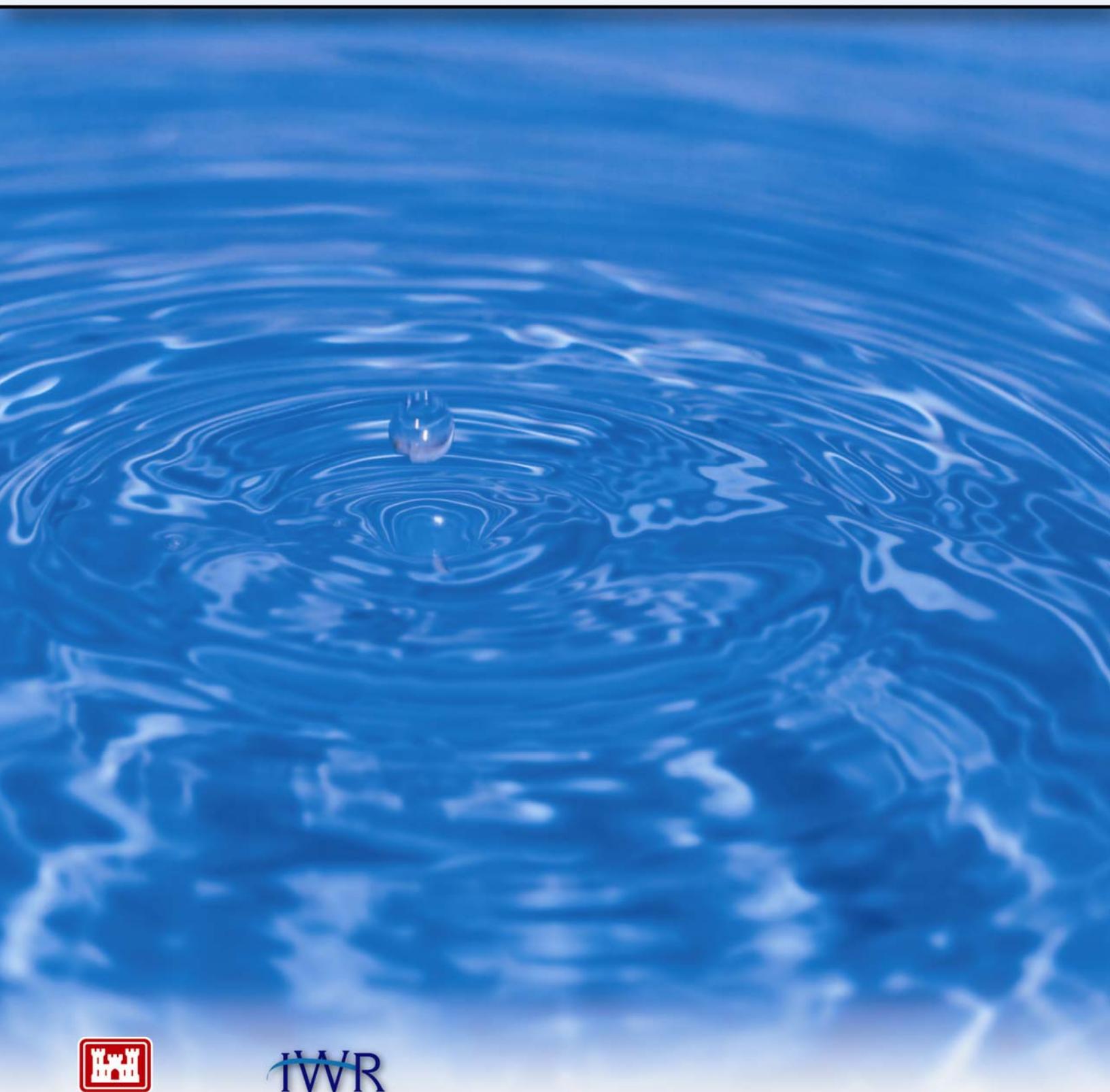
The History of Shared Vision Planning

The Shared Vision Planning approach began in response to the U.S. Army Corps of Engineers need to revise water management strategies on the Potomac River in the late 1970s. The Interstate Commission on the Potomac River Basin made public participation a key feature of its planning process to more effectively manage water supplies in the D.C. metro area.

In 1988, in response to severe droughts across the United States, the Corps undertook the National Study of Water Management During Drought (known as the National Drought Study) to examine and improve water management practices nationwide. The method developed in this project's case studies evolved into the planning approach now known as Shared Vision Planning. The "Drought Preparedness Method," as it was named during the National Drought Study, emphasized preparedness, stakeholder involvement, and the use of collaboratively developed computer models, which remain the core aspects of Shared Vision Planning today.

Shared Vision Planning and its particular method have been applied to a number of case studies since the National Drought Study, thereby refining the process and increasing Corps scientists' familiarity with it. The Lake Ontario-St. Lawrence River Study, the James River Basin Study, and the Rappahannock River Basin Commission Water Supply Planning Project are just a few of the projects that have benefited from the Corps use of Shared Vision Planning.

To further explain the concept and method of Shared Vision Planning, and educate the wider resources planning community, IWR has created a new Shared Vision Planning web site. We invite you to visit the site at <http://www.svp.iwr.usace.army.mil> to learn more about this collaborative planning approach.



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IWR Report 10-R-5