

Environmental Conflict Resolution



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by

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Table of Contents

I. Introduction	1
II. What Is ECR?	2
III. ECR's Statutory and Organizational Infrastructure	4
A. Federal	4
B. Texas.....	6
IV. Why Use ECR?	9
V. When to Use ECR	11
VI. Principles/Best Practices	12
VII. Clarity of Purpose and Commitment: An Internal Assessment.....	14
VIII. Preparation for a Collaborative Process: External Assessment, Participants and Design	15
A. External Assessment	15
B. Participant Selection and Roles	19
C. Design the Process and Adopt Ground Rules.....	22
IX. Building Consensus	25
X. Dealing with Science.....	26

I. Introduction

Since the 1974 settlement of the dispute over the proposed Snoqualmie River dam in Washington State—issues that at the time seemed intractable—environmental conflict resolution² (ECR) has grown rapidly³ to become a more common tool of those seeking to bridge conflict or full-fledged disputes in the natural resources, environmental, and energy sectors. This chapter focuses on the distinct ECR processes that engage a representative array of interested persons in collaborative problem solving, either to make decisions or to make recommendations⁴ to a governmental entity.⁵ Following a short review of what ECR is, and the statutory and organizational infrastructure that supports ECR, the chapter will turn its attention to understanding why and when to use ECR, and principles and best practices for its use. The chapter then focuses on how to conduct an ECR process, beginning with internal and external assessments that determine if a situation warrants use of ECR, to participant selection and roles, process design, and the steps to build consensus. The chapter concludes with a focus on the special issue of science in these collaborative processes. Two specific case studies will weave throughout the chapter to illustrate practical applications of the principles described.

Books and extensive publications are written on the subjects being covered in this chapter. The author hopes this chapter will provide an overview, and encourage those more interested in the practice to learn more from the many excellent publications available.

² The term “environmental conflict resolution” is used in lieu of “environmental dispute resolution” to reflect the fact that many of the processes used bring parties together early in the formulation of policy. While conflict is present, dispute may not have hardened. ECR as described in these pages is used both in early stages as well as in situations where parties’ positions have become a “dispute.”

³ Bingham, Gail and Haygood, Leah V., *Environmental Dispute Resolution: The First Ten Years*, The Arbitration Journal, Vol. 41, No. 4 at 6 (December 1986).

⁴ ECR can take many forms, including traditional mediation arising from litigation or administrative processes to which only those with “standing” are participants. This chapter does not focus on such traditional mediations, or on the broad public involvement processes used solely to gather information from the public, to provide education about issues, to understand views, and to engage in dialogue. These are important methods of public involvement about which much is written.

⁵ The terms “governmental entity,” “entity,” “agency” or “organization” will be used in this chapter to denote any state or federal entity, nonprofit or other organization that engages stakeholders in a collaborative process.

II. What Is ECR?

ECR as discussed in this chapter involves a diverse group of participants inputting to or participating in decision-making that involves one or more governmental entities to “improve the quality, legitimacy, and capacity of environmental assessments and decisions”⁶ that traditionally are delegated to administrative agencies.⁷ An ECR case invites the public, special interest groups, and private interests into the decision-making process, often beyond the “input” efforts of traditional notice-and-comment rulemaking.

ECR participants may engage in “upstream” processes, such as planning and policy-making, in “mid-stream” processes such as administrative permitting, or in “downstream” efforts such as monitoring, compliance, enforcement and cleanup.⁸ ECR processes are used to define issues, to improve communication, to make recommendations and to make decisions.⁹ This chapter focuses on the latter two of these. ECR processes can tackle any imaginable range of subjects, including water resources, energy, air, toxic pollution, public land management and natural resource management. ECR has been described¹⁰ to include some or most of the following characteristics:

- direct discussion, enhancing participants’ mutual education and understanding;
- open and flexible processes;
- consensus building, joint problem-solving, or non-unilateral decision-making;
- multiparty dynamics;

⁶ National Research Council. (2008). *Public Participation in Environmental Assessment and Decision Making*. Panel on Public Participation in Environmental Assessment and Decision Making, Thomas Dietz and Paul C. Stern, Eds. Committee on the Human Dimensions of Global Change. Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press at 1. (Hereinafter, National Research Council 2008)

⁷ National Research Council 2008 at 11-12.

⁸ O’Leary, Rosemary, *Environmental Conflict Resolution: Strategies for Environmental Grantmakers*, The William and Flora Hewlett Foundation, p.6. <http://www.hewlett.org/uploads/files/HewlettEnvironmentalConflictResolution.pdf>

⁹ National Research Council 2008 at 12.

¹⁰ O’Leary, *supra* *Environmental Conflict Resolution: Strategies for Environmental Grantmakers* at 3; McNaughton, Ann and Martin, Jay, eds., *Environmental Dispute Resolution: An Anthology of Practical Solutions*, American Bar Association Section of Environment, Energy, and Resources, 2002 at 5-10; Bingham and Haygood, *supra*, *EDR: The First Ten Years* at 4. Bingham, Gail, Esterman, Pamela and Riti, Christopher, *Effective Representation of Clients in Environmental Dispute Resolution*, 27 *Pace Environmental Law Review* 61 at 62 (2009-10).

- diverse stakeholders, often involving multiple sectors and conflicting perspectives or values, and cultural and social differences;
- unequal power;
- interconnected human and natural biophysical, economic, political, and social systems;
- allocation and protection of public goods such as air, water, biodiversity;
- subject matter that crosses jurisdictional, geographic, and professional borders;
- optimum solutions that are outside the judicial scope (substantively or because of the exclusion of participants);
- technical & scientific uncertainty and intensity;
- large stakes; or
- involvement of one or more governmental layers.

These characteristics provide both the opportunity and challenge of environmental conflict resolution.



Upper Spring of Barton Creek area of Edwards Aquifer



ECR's Statutory and Organizational Infrastructure

A. Federal

The 1969 passage of National Environmental Policy Act (NEPA)¹¹ began an era of increased public involvement in federal environmental decision making,¹² with public participation requirements now included in most pieces of important U.S. environmental legislation,¹³ and embedded in agency rules. More generalized federal statutes provide a procedural underpinning for public involvement in ECR, including the Administrative Dispute Resolution Act of 1996,¹⁴ the Alternative Dispute Resolution Act of 1998,¹⁵ and the Negotiated Rulemaking Act of 1990.¹⁶

An agency's organic statute and rules often provide specific procedural requirements or aspirations toward public involvement. While federal agencies typically have significant discretion about the extent and use of public participation processes within mandated actions,¹⁷ federal agencies are increasingly encouraged to use collaborative processes.

The Memorandum on Environmental Collaboration and Conflict Resolution, issued jointly by the President's Office of Management and Budget and Council on Environmental Quality, directs all federal executive agencies and departments to increase the "appropriate and effective use of third-party assisted environmental collaboration as well as environmental conflict resolution . . . in the context of environmental, public lands, natural resources, energy, transportation, and water and land

¹¹ 42 U.S.C. §§4321 et seq. The legislation was passed in 1969, and signed into law on January 1, 1970.

¹² National Research Council 2008 @ 37-38, citing D.J. Fiorino, *Environmental risk and democratic process: A critical review*. Columbia Journal of Environmental Law, 14(2) 501-547 (1989); Council on Environmental Quality, *Collaboration in NEPA: A Handbook for NEPA Practitioners* (October 2007), available at <http://www.ecr.gov/Resources/NEPAECR.aspx>

¹³ National Research Council 2008 at 10, citing J.L. Creighton, *The Public Participation Handbook: Making Better Decisions Through Citizen Involvement* at 1. San Francisco: Josey-Bass 2005.

¹⁴ Pub.L. 104-320, Oct. 19, 1996, 110 Stat.3870

¹⁵ Pub.L. 105-315, Oct. 30, 1998, 112 Stat. 2993, 28 USC 651 et seq.

¹⁶ Pub.L. 101-648, Nov. 29, 1990, 104 Stat. 4969, 5 USC. 561 et seq.

¹⁷ National Research Council 2008 at 43.

management” as they carry out their organic acts and enabling legislation, NEPA, and other laws.¹⁸ The memorandum urges agencies to give priority to integrating environmental collaboration and conflict resolution objectives into the agency mission statement and strategic plan, and to incorporate metrics to analyze the use and effectiveness of ECR.

Federal agencies have built a significant infrastructure to support ECR. The U.S. Institute for Environmental Conflict Resolution (USIECR) was created as an independent agency by Congress in 1998 to resolve environmental disputes involving the federal government.¹⁹ The USIECR was deliberately sited away from Washington, D.C., in Tucson, Arizona, and within the Udall Foundation, to enhance its neutrality. It has been cited for its influence in the growth of ECR.²⁰ In addition to dispute resolution services (often provided through a roster of facilitators), U.S. IECR also provides training and education.

The U.S. Environmental Protection Agency supports its own Conflict Prevention and Resolution Center and roster, and hosts other resources for ECR.²¹ The Interagency ADR Working Group serves as a central forum and resource for information about the federal government's use of ADR.²² Some other examples of agencies having significant ECR resources include Federal Energy Regulatory Commission,²³ Department of Interior,²⁴ Bureau of Land Management,²⁵ and U.S. Army Corps of Engineers.²⁶

¹⁸ http://www.ecr.gov/pdf/OMB_CEO_Env_Collab_Conflict_Resolution_20120907.pdf. The current Memorandum (2012) expands and builds on a similar memorandum issued in 2005.

¹⁹ Environmental Policy and Conflict Resolution Act, Pub.L. 105-156, FEB. 11, 1998, 112 Stat.8. For more information see <http://www.ecr.gov/HowWeWork/AboutUs.aspx>

²⁰ Alexander, Robert and O'Leary, Rosemary, *The Past as Prologue: How the Early Years of the US Institute for Environmental Conflict Resolution Helped Shape the Program at Age Fifteen*, Conflict Resolution Quarterly, vol. 31, no. 2, Winter 2013 p111 at 112, 125.

²¹ <http://www.epa.gov/adr/>. Other resources include its Office of Enforcement and Compliance Assurance, Office of Administrative Law Judges, Office of Policy, Economics and Innovation, and the Office of Cooperative Environmental Management.

²² <http://www.adr.gov>

²³ <http://www.ferc.gov/legal/adr.asp>

²⁴ <http://www.doi.gov/pmb/cadr/index.cfm>

²⁵ <http://www.blm.gov/wo/st/en/prog/more/adr.html>

²⁶ <http://www.iwr.usace.army.mil/About/TechnicalCenters/CPCXConflictResolutionPublicParticipation.aspx>

B. Texas

ECR in Texas is enhanced by several broad state statutes that enable and encourage the use of alternative dispute resolution. The Governmental Dispute Resolution Act,²⁷ in tandem with the Texas Alternative Dispute Resolution Act,²⁸ provides a specific foundation for the use of ECR by governmental entities. The Texas Negotiated Rulemaking Act²⁹ provides for a consensus-based process that allows stakeholders to develop proposed rules. Texas agencies may also appoint committees of experts or interested persons and representatives of the public to advise about contemplated rulemaking³⁰ in a less formal structure than negotiated rulemaking. Chapter 22, *State and Local Government Use of Alternative Dispute Resolution*, provides more detail about the general use of dispute resolution by Texas governmental entities.

Specific statutory provisions mention or encourage the use of dispute resolution in settlement of focused environmental cases.³¹ The Texas legislature also has established specific stakeholder processes, such as directing the Texas Water Development Board to create a stakeholder committee to establish uniform standards for regional water planning groups to prioritize projects for funding.³² The following two stakeholder processes were launched recently with statutory mandates, and will be used throughout this chapter to explore various ECR concepts.

The Edwards Aquifer Recovery Implementation Program (EARIP)³³ was initiated in late 2006, when the U.S. Fish and Wildlife Service brought together stakeholders to develop a consensus-based plan to contribute to the recovery of federally-listed species dependent on the Edwards Aquifer.³⁴ The federally organized effort, coupled with a Texas Attorney General opinion potentially impacting aquifer management,³⁵ propelled the Texas Legislature in 2007 to act. The legislature directed the Edwards

²⁷ Tex. Gov't Code, Chapter 2009.

²⁸ Tex. Civ. Prac. & Rem. Code, Chapter 154.

²⁹ Tex. Gov't Code, Chapter 2008.

³⁰ Tex. Gov't Code Ann. 2001.031(b).

³¹ See Tex. Water Code §11.139(j), 36.1072(f).

³² Tex. Water Code §15.436(c).

³³ <http://www.eahcp.org/>

³⁴ Texas Water Journal, Vol. 4, No. 1, at 10 (2013).

³⁵ Id. at 8 and 10.

Aquifer Authority and four state agencies to participate in the Recovery Implementation Program through a “facilitated, consensus-based stakeholder process,” involving all interested stakeholders.³⁶ The plan required recommendations to adjust withdrawals that ensure that federally-listed species associated with the Edwards Aquifer be protected during critical periods.³⁷ The legislation specified a list of 21 entities or interests to comprise a steering committee. It also imposed deadlines on the group’s formation and major milestones, including when the RIP was to take effect.³⁸ The EARIP stakeholder committee ultimately met all legislative deadlines, and adopted a habitat conservation plan that has been approved by the U.S. Fish and Wildlife Service, and that “could resolve decades of acrimonious rancor and litigation.”³⁹

SB3 Environmental Flows Stakeholder Process. In the same bill that helped launch the EARIP process, the Texas legislature enacted changes to the Texas Water Code designed to resolve disputes over environmental flows (i.e., freshwater in Texas’ rivers and flowing into its coastal systems to support fish and wildlife).⁴⁰ Under the legislatively established process, expert science teams and stakeholder groups in Texas’ major river basins would make consensus-based recommendations on environmental flows to the Texas Commission on Environmental Quality (TCEQ).⁴¹ TCEQ would use these recommendations to develop rules that established environmental flows standards and set-asides.⁴² The legislation also established a statewide policy panel and science advisory committee, and established a schedule for initiating and completing these processes.⁴³ The basin science and stakeholder groups

³⁶ Act of May 28, 2007, 80th Leg., R.S., Ch. 1430, § 12.06. (This act, hereinafter cited as SB3 , amended the Edwards Aquifer Act, which is contained in a number of general-law enactments, and is most easily viewed at the website of the Edwards Aquifer Authority, <http://www.edwardsaquifer.org/legislation-and-rules/the-eaa-act>)

³⁷ *Id.*

³⁸ *Id.*

³⁹ Texas Water Journal, *supra* at 1 and 11.

⁴⁰ Act of May 28, 2007, 80th Leg., R.S., Ch. 1430, Art. 1. Remaining specific citations for the environmental flows provisions of SB3 will refer to the Texas Water Code sections enacted or amended.

⁴¹ Tex. Water Code §11.02362.

⁴² Tex. Water Code §11.1471.

⁴³ Tex. Water Code §§11.0236, 11.02361.

completed the process, with a majority making consensus or near-consensus recommendations to the TCEQ.⁴⁴ TCEQ has adopted rules for all seven basins.⁴⁵

Texas has institutionalized some infrastructure to promote ADR use by governmental entities. The State Office of Administrative Hearings (SOAH) and Center for Public Policy Dispute Resolution specifically serve as entities with which Texas governmental bodies may contract for ADR services.⁴⁶ The Texas Legislature has amended state agencies' organic statutes, through the Sunset review process, to encourage them to develop policies for using negotiated rulemaking, and to use other appropriate ADR processes to resolve internal and external disputes. These Sunset provisions also require each agency to appoint an ADR coordinator.⁴⁷ TCEQ provides an example of an agency incorporating ECR principles by forming a unit available for dispute resolution.⁴⁸



Leona Springs Reservoir area of Edwards Aquifer

⁴⁴ See https://www.tceq.texas.gov/permitting/water_rights/efflows. See also Pugh-Williams, Vanessa, *Implementing SB 3: Adopting Environmental Flows in Texas*, Center for Global Energy, International Arbitration and Environmental Law, The University of Texas at Austin-School of Law, Research Paper No. 2013-04 (September 2013) available at <http://www.utexas.edu/law/centers/energy/research/implementing-sb-3-adopting-environmental-flows-in-texas/> for an update on the processes and recommendations of six of the basins through September 2013.

⁴⁵ 30 TAC Chapter 298.

⁴⁶ Tex. Gov't Code §2009.004(c), Tex. Water Code §36.1072(f).

⁴⁷ See Chapter 22 of this ADR Handbook, *State and Local Government Use of Alternative Dispute Resolution*.

⁴⁸ www.tceq.texas.gov/agency/dispute_res

IV. Why Use ECR?

What are the incentives to engage in ECR processes, which often involve significant time, resources, and uncertainty? Does involving the public in complex scientific and policy decisions impact the quality of those decisions? Can participants really understand the scientific and technical issues? Will the collaborative nature of the processes mean the decisions sink to the lowest common denominator? An intensive analysis of the studies of public participation processes concluded:

“When done well, public participation improves the quality and legitimacy of a decision and builds the capacity of all involved to engage in the policy process. It can lead to better results in terms of environment quality and other social objectives. It also can enhance trust and understanding among parties. Achieving these results depends on using practices that address difficulties that specific aspects of the context can present.”⁴⁹

Enhancements in quality may result from stakeholders helping to get science right, and from a more accurate incorporation of public values in decisions.⁵⁰ Stakeholders also

- contribute new information and ideas;
- may provide alternate solutions that satisfy a greater range of interests;
- sometimes produce solutions that are more cost-effective; and
- generally make more joint gains.⁵¹

Enhanced decision quality generally is associated with more intensive forms of stakeholder involvement (mediation and negotiation).⁵² Well-structured processes are theorized to enhance legitimacy by increasing public acceptance of decisions.⁵³ They also may build capacity by strengthening

⁴⁹ National Research Council 2008 at 2. While recognizing that poorly conducted processes have sometimes made matters worse.

⁵⁰ National Research Council 2008 @50-51.

⁵¹ Beierle, Thomas, *The Quality of Stakeholder-Based Decisions*, Risk Analysis, Vol. 22, No. 4 at 744 - 747 (2002), examining 239 case studies.

⁵² National Research Council 2008 at 85. Beierle, *supra*, *The Quality of Stakeholder-Based Decisions* at 747. See also Beierle and Konisky, *supra*, *Values, Conflict and Trust in Participatory Environmental Planning* at 599.

⁵³ National Research Council 2008 at 50.

relationships, trust, and understanding among the governmental entities and participants.⁵⁴ Building trust in public agencies, however, is not always straightforward, and may suffer if processes are not well constructed.⁵⁵ Capacity to participate in future processes also is enhanced as participants become more sophisticated in understanding both their own views and interests, and those of others.⁵⁶

Of course, ECR processes face potential pitfalls, including political manipulation, degradation of decisions, processes and decisions that are unfair or inequitable, and results that are trivial or undesirable.⁵⁷ Other concerns include whether ECR weakens advocacy, has sufficient due process protections, impacts coalition building, and weakens public processes.⁵⁸ Whether ECR increases or saves cost and time are often debated, and likely will be answered more completely over time as federal agencies increasingly develop and collect metrics.⁵⁹

Any potential sponsor or convener of these processes should carefully consider the pros and cons along with their goals for the ECR process, and whether the resources are available for a quality process. The organization then must select and implement an appropriate process for its situation that enhances the potential of positive benefits and avoids undesirable results.⁶⁰

*"There may be many ways to produce decisions of high technical quality, but there are relatively few methods that do so while also educating the public, eliciting public values, resolving conflict, and building trust in agencies, as many stakeholder processes do. That society can make some headway on these more 'political' features of decision making and not sacrifice quality is indeed a positive endorsement for engaging stakeholders in environmental decision making."*⁶¹

⁵⁴ National Research Council 2008 at 51.

⁵⁵ Beierle and Konisky, *supra*, *Values, Conflict, and Trust in Participatory Environmental Planning* at 588 and 595.

⁵⁶ National Research Council 2008 at 50-51.

⁵⁷ National Research Council 2008 at 52.

⁵⁸ Dukes, E. Franklin, Firehock, Karen, *Collaboration: A Guide for Environmental Advocates* (Charlottesville, VA, University of Virginia, The Wilderness Society and National Audubon Society, 2001).

⁵⁹ The U.S. Institute for Environmental Conflict Resolution offers statistics showing a shorter case duration and monetary savings when ECR is substituted for litigation, and also a 70-80 percent settlement rate based on three decades of published studies.
[http://www.ecr.gov/pdf/ECRStatisticswithReferences\(2012\).pdf](http://www.ecr.gov/pdf/ECRStatisticswithReferences(2012).pdf)

⁶⁰ National Research Council 2008 at 76.

⁶¹ Beierle, *supra*, *The Quality of Stakeholder-Based Decisions: Lessons from Case Study Record* at 748.

V. When To Use ECR

The benefits of ECR may be convincing, but a situation-specific analysis is important to determine its appropriateness. ECR is generally most appropriate when:

- Issues are of high priority to all parties and are negotiable;
- All affected stakeholders are willing and able to participate;
- No single party can resolve the situation on its own;
- Sharing of information is important; and
- Outcomes are genuinely in question.

Conversely, ECR tends to be less appropriate when:

- Resolving the issue doesn't seem of high importance to key stakeholders;
- A key party has better alternatives to achieve their interests;
- Judicial precedent is important;
- Negotiations would impact people who cannot be represented;
- Judicial or administrative processes are needed to provide power to parties or to force action; or
- Not everyone involved agrees that there is conflict. ⁶²

⁶² See <http://www.ecr.gov/Basics/Basics.aspx>, Thomas-Larmer, Jenifer, Ed., *A Practical Guide to Collaborative Governance*, Policy Consensus Initiative, Portland 2007 at 13, Dukes and Firehock, *Collaboration: A Guide for Environmental Advocates*, supra at 15.

VI. Principles/Best Practices

The benefits of ECR are more likely reaped when processes are based on sound principles and best practices. The Memorandum on Environmental Collaboration and Conflict Resolution issued by OMB and CEQ lists eight principles for agency engagement in ECR. They relate to: a) informed, good-faith commitment from the agency; b) balanced, voluntary representation; c) group autonomy; d) an informed process to produce and ensure access to relevant information by all; e) accountability to participate directly, fully and in good faith; f) openness relating to purpose, objectives, and authority; timeliness; and g) implementation of agreements.⁶³

As part of its recommendation that public participation be fully incorporated into environmental assessment and decision-making, a National Research Council study advanced the following principles for program management and conduct of participation.

“When government agencies engage in public participation, they should do so with

1. clarity of purpose,
2. a commitment to use the process to inform their actions,
3. adequate funding and staff,
4. appropriate timing in relation to decisions,
5. a focus on implementation, and
6. a commitment to self-assessment and learning from experience.”⁶⁴

⁶³ http://www.ecr.gov/pdf/OMB_CEQ_Env_Collab_Conflict_Resolution_20120907.pdf (see Attachment B); <http://www.ecr.gov/Basics/Principles.aspx>

⁶⁴ National Research Council 2008 at 3 and Chapter 4.

"Agencies undertaking a public participation process should, considering the purposes of the process, design it to address the challenges that arise from particular contexts. Process design should be guided by four principles:

1. inclusiveness of participation,
2. collaborative problem formulation and process design,
3. transparency of the process, and
4. good-faith communication."⁶⁵

This remainder of this chapter will focus on practical advice for incorporating these principles into practice.



Farmer's Well area of Edwards Aquifer

⁶⁵ National Research Council 2008 at 3 and Chapter 5.

VII. Clarity of Purpose and Commitment:

● An Internal Assessment

An organization's commitment to appropriately using an ECR process to inform its actions is key to achieving good results, to stakeholder acceptance of agency decisions, and to stakeholder willingness to engage in future participation.⁶⁶ An internal assessment—which may be conducted formally or informally by the entity itself or by a third-party—will help the organization determine whether it is prepared to engage in a collaborative or consensus process.

The organization must determine its purpose for

- (1) engaging the public;
- (2) preliminary goals and objectives;⁶⁷
- (3) how the outcomes will be used by the agency;
- (4) any initial boundaries or constraints for the process;
- (5) the authority of the stakeholder group;⁶⁸
- (6) timing of the process in relation to needed decisions by the organization; and
- (7) the ability to provide adequate resources for the process and for implementation.

If multiple entities are working together to initiate a process, they first should agree on these matters. Bringing in a neutral third-party in such cases may greatly enhance the entities' ability to reach consensus on these questions themselves. The organization(s) should leave the internal assessment process able to clearly share these matters with potential stakeholders. Even if an agency is mandated by law to engage in a stakeholder process, an internal assessment will assist it in clarifying the parameters of the process and prepare it to better engage the stakeholders.

⁶⁶ National Research Council 2008 at 99; Beierle and Konisky, *supra*, *Values, Conflict, and Trust in Participatory Environmental Planning* at 598.

⁶⁷ These preliminary goals and objectives ideally should become part of negotiated goals and objectives to which the agencies and parties all agree. National Research Council 2008 at 96.

⁶⁸ Governmental entities must particularly be aware of how much authority they can delegate to a stakeholder group. Often, statute requires that the ultimate decision be made by the entity's governing board.

VIII. Preparation for a Collaborative Process: External Assessment, Participants, and Design

Once an entity decides it can engage in a consensus process, it should delve more deeply into both the feasibility of moving forward, and a preliminary selection of the appropriate processes to use. This analysis goes under many names, such as conflict assessment, situation assessment, conflict analysis, or convening report. and is even formalized in statutes on negotiated rulemaking.⁶⁹ The analysis assists both the governmental entity and other stakeholders to make informed decisions about engaging in a collaborative process that often will require extensive resources and time from the stakeholders themselves. This section will briefly describe an assessment's key components. The information in this section is informed by the author's experience, as well as from many excellent resources on assessment.⁷⁰

A. External Assessment

A conflict assessment identifies those interested in and needed in the collaborative process, the issues to be addressed, and the feasibility of moving forward.⁷¹ It also provides insight into the best processes to utilize. Although an agency may conduct its own assessment, many engage a third-party neutral trained in conflict assessment, facilitation, and mediation to ensure that people interviewed will more openly share information; also, third-party neutrals provide confidence that the information is analyzed neutrally. Because this neutral assessor often becomes the facilitator if a consensus process is undertaken, some organizations involve a small group of diverse stakeholders in the selection process.

⁶⁹ See Tex. Gov't Code, Chapter 2008.

⁷⁰ Susskind, Lawrence, McKernan, Sarah and Thomas-Larmer, Jennifer, Eds., *The Consensus Building Handbook*, (See Chapters 2, Susskind and Thomas-Larmer, "Conducting a Conflict Assessment" and Chapter 4, Carlson "Convening,") Sage Publications, Thousand Oaks (1999). Thomas-Larmer, Jenifer, Ed., *A Practical Guide to Collaborative Governance, Policy Consensus Initiative*, Portland 2007. Arthur, Jim, Carlson, Chris, and Moore, Lee, *A Practical Guide to Consensus*, Policy Consensus Initiative, 1999. Dukes and Firehock, *supra*, *Collaboration: A Guide for Environmental Advocates*.

⁷¹ Even if an agency is mandated by statute to move forward with a process, the assessment will help structure participants, issues and process to use, and will consider roadblocks that must be navigated for success.

Stakeholder interviews form the core of the assessment.⁷² Stakeholders are those interested in or affected by the outcomes of decisions, those needed to implement the decisions, or those who could block their implementation. An initial list of stakeholders often is provided by the organization seeking to launch the collaborative process.

As stakeholders are interviewed, they are asked to provide names of others who should be contacted in order to identify the full spectrum of interested and affected parties. Interviews may be conducted with persons external and internal to the entity sponsoring the project. Interviews provide information about

- the history of the conflict;
- past and current relationships among the stakeholders;
- how those relationships might impact a collaboration;
- who should be involved in a collaborative process;
- the key issues of importance;
- information to determine the feasibility of moving forward; and
- other information needed to structure a meaningful and effective process (such as the resources and knowledge available to or needed by the stakeholders, or power imbalances).

While primarily gathering information, well-structured interviews also will introduce stakeholders to principles of collaborative/consensus processes, and will answer their questions about what to expect moving forward. Mediators and facilitators will use the interviews to build trust with the stakeholders.

Assessments will generally include the following key elements.

Identify the stakeholders. The assessment will identify the array of all interests and views that should be represented in a collaborative process.⁷³ Stakeholder identification is distinct from an actual participant list, which may be smaller and will be developed later. Stakeholder identification should go deeper than identifying only broad categorizations of interests (such as environmental, municipal, or

⁷² The assessor may also gather relevant information through research in appropriate situations.

⁷³ *A Practical Guide to Collaborative Governance*, supra at 34.

industry), since there may be different and important ranges of views within these broader categories. Making appropriate distinctions at this stage will help assure that a full range of perspectives will be included when building the consensus table.

Identify key issues. Interviews will develop a list of key issues that are important to stakeholders and that must be addressed in a successful process. This information not only assists with the later design of a process, but also informs whether a process should be initiated at all. Issues that are particularly polarizing or that could derail the process are closely examined to determine their importance to the process and the likelihood that they can be successfully addressed. The interview process provides an opportunity for the facilitator to begin helping the stakeholders differentiate between their interests and positions relating to issues, thus laying a foundation for the actual consensus process.

Assess the feasibility of moving forward. While assessments can help set the stage for a consensus process, they also can tease out situations that are not amenable for these processes. Some key questions that must be answered include the following.

- Do key stakeholders have better options than working collaboratively?
- Are they willing to participate in good faith?
- Are some stakeholders so invested in the conflict (e.g. in terms of group identity) that they would undermine an ability to reach agreement?
- Is trust so broken that parties must use preliminary efforts (such as information exchange or dialogue) to rebuild trust sufficiently to allow a consensus process to move forward?
- If a consensus process could be used, what resources are needed, and can they be secured?
- Is there enough time to complete the consensus process before results are needed?

The assessment will make recommendations on all of these matters, and others specific to a project.

Recommend a preliminary process design. If the assessment concludes that a consensus process is appropriate, it may propose the building blocks of a process to use. In addition to identifying issues to include or avoid in the stakeholder process, it may

- provide a draft goal for the process;
- recommend procedures to select representatives of the identified stakeholder interests;
- provide an estimated timeframe;
- summarize the types of technical and scientific information and resources needed;
- discuss the need for broader public involvement during the process; and
- provide draft ground rules.

The draft ground rules may be particularly important if trust, power, or relationship issues exist among the stakeholders. Because of the importance that stakeholders participate in the design of the process, the assessment will present these as preliminary proposals.

The assessment generally is disbursed broadly to both the sponsoring agency and stakeholders. The agency should study the assessment and reexamine the organization's continuing commitment to using the recommended processes and to devote the needed time and resources. The sponsoring organization should make any needed adjustments to its goals and boundaries for the process, and provide a clear articulation of how it intends to use the results of the consensus decision to inform its decisions.⁷⁴ Stakeholders similarly should consider at this stage their commitment to participate in the proposed process.

⁷⁴ See VI. Principles/Best practices of this chapter.

B. Participant Selection and Roles

The assessment provides a starting point for designing a consensus process. Because of the importance that participants be involved early in problem formulation and process design,⁷⁵ initial engagement of participants follows as a next logical step.

Build a table based on interests. Environmental issues often impact a large number of people and organizations. Broad representation is crucial to the success of the process.⁷⁶ How to engage that array is a challenge if consensus is the goal, since negotiation in the complex arena of ECR works best with a more limited number of people. The most common answer to that dilemma is to build a representative table. In this case, the person selected to sit at the negotiation table does not always represent one organization or entity. Rather, he or she often serves as the spokesperson for a broader coalition of people and organizations that share the same interests. A well-convened group will include representatives of all relevant and significantly different interests identified in the assessment phase.

The entity with final decision-making authority or with authority to implement the group's decisions should be actively involved in the collaborative process to enhance its chance for success.⁷⁷ The entity should weigh whether having a representative actively negotiating at the table or participating in a resource role will best further the success of a particular effort. Regardless, good communication between participants and government agencies, coupled with the agency's commitment to the process, is important.⁷⁸ In the SB3 Environmental Flow Processes, success increased during successive river basin stakeholder groups as staff of the Texas Commission on Environmental Quality (which adopted final rules in the process) increasingly played a more active role in advising stakeholders about technical expectations of the agency for the final product.⁷⁹

⁷⁵ See VI. Principles/Best practices of this chapter. Processes with less overt public control can be successful. "As long as agencies were flexible and responsive, even tightly managed and strictly advisory processes could be successful" at achieving social goals of values conflict and trust. Beierle and Konisky, *supra*, *Values, Conflict, and Trust in Participatory Environmental Planning* at 599 but noting the relatively small number of observations and potentially complicated relationships on this correlation.

⁷⁶ National Research Council 2008 at 118.

⁷⁷ Bingham and Haygood, *supra*, *EDR: The First Ten Years* at 12 showed significantly greater percentage of agreements were implemented when the implementing entity was involved.

⁷⁸ Beierle and Konisky, *supra*, *Values, Conflict, and Trust in Participatory Environmental Planning* at 599.

⁷⁹ These conclusions are based on the author's facilitation of three successive stakeholder groups in the SB3 process.

Once the initial group of participants is brought together, the participants can assess whether any key interests are missing. Care should be taken to assure that the group includes both those needed to implement an agreement and those who could block implementation. While a strict balance in numbers among interests is not essential in a consensus process (since all or most parties must agree to a decision), the dynamics of a group will be impacted negatively, and the process may be judged as unfair, if there appears to be a significant imbalance. Including a full range of socio-economic and ethnic representation also will help secure a more legitimate process.⁸⁰ The EARIP expanded its initial statutorily established group of 21 to become a 26-member steering committee to ensure “a broad diversity of representation;” 40 stakeholder groups or individuals executed an agreement about how the EARIP process was to be conducted.⁸¹

Who represents interests? Whenever possible, stakeholders should self-select their representative to imbue the process with the most credibility. The most effective representatives communicate effectively both within the negotiating group and to the constituency, are good listeners, are able to commit the needed time, and are able to understand or be educated about the policy and technical issues involved. Often the assessment itself can identify the person whom an interest group recognizes as its natural representative. The facilitator may help an interest group select its representative by providing education about what makes a good participant in a consensus process, and by facilitating processes for the group to choose its representative.

Where an interest is broad or not well organized, selection of the representative may require more effort. One example technique could include open public meetings at which participants break into self-selected groups, according to the interest with which they most closely associate. These self-selected groups could choose someone to represent them at the consensus table. If the representative is appointed by someone other than the group itself, as was done in the SB3 Environmental Flows stakeholder groups,⁸² members may face challenges connecting to their constituency. This needs to be weighed against the advantages and expediency of creating a more streamlined process for representative selection, as was established in the SB3 environmental flows process to counteract concerns that the process could be used to delay establishment of environmental flows.

⁸⁰ Beierle and Konisky, *supra*, Values, Conflict, and Trust in Participatory Environmental Planning at 588 and 595.

⁸¹ Texas Water Journal, *supra* at 11

⁸² By statute, the Environmental Flows Advisory Group selected the representatives to each basin’s stakeholder group based on a list of the interests to sit at the table. Tex. Water Code §11.02362.

Who else is needed in the process? In addition to representatives of interests, the assessment likely will recommend, and the initial stakeholder group also should explore, others needed in the process. While these additional participants might have a seat at the negotiating table, they often serve in a resource or advisory role to individual stakeholders or the stakeholder group. Examples are persons selected for technical or scientific expertise. The group should be closely involved in determining its need for expert support, and in selecting the persons serving in this capacity. More on this is found in Section X, *Dealing with Science*. The group also should assure it secures support for logistical needs such as communication, note keeping, or compilation and dissemination of materials.

Mediator/Facilitator. Special consideration should be given to participation by a mediator/facilitator. Although stakeholder groups may self-facilitate, most benefit from the participation of a mediator or facilitator. While this chapter will use the term “facilitator” to describe the third-party neutral who helps guide consensus processes, the role in complex multiparty consensus processes typically involves persons using both mediation skills to help people negotiate productively in large group settings, as well as facilitation skills of meeting organization and management.

A facilitator will play many roles, including

- conducting an assessment, bringing in stakeholders;
- planning an overall work plan to allow the group to reach its goals;
- planning the content and logistics of each meeting;
- gathering and disseminating material for the stakeholders;
- preparing meeting notes or minutes;
- routine communication; and
- assisting the group locate needed experts.

Facilitators foster consensus-based communication in the group, meet privately and confidentially with individual members for coaching and to foster communication and collaboration, and assist with communication to the stakeholders’ communities, the public at large and leaders.⁸³

⁸³ Elliott, Michael, *The Role of Facilitators, Mediators, and Other Consensus Building Practitioners*, Chapter 5 (p.208-9) in Susskind et al. *The Consensus Building Handbook*. See, also, *A Practical Guide to Collaborative Governance*, *supra* at 25-27.

The group's trust in, and acceptance of, a facilitator is important to its success. If a facilitator conducted an assessment, the transition to facilitation of the larger group must be considered. The larger stakeholder group's ratification of a facilitator selected by either the sponsoring entity, or by a limited group of stakeholders, will add legitimacy. If a facilitator has not yet been selected, the stakeholder group should undertake a formal search and selection process, which often involves requests for qualifications and interviews. Stakeholder groups often wisely seek facilitators with subject matter experience.⁸⁴ Facilitators for ECR may be located through neutral forums such as university centers⁸⁵ or nonprofit organizations, through rosters of neutrals such as those managed by the U.S. Institute for Environmental Conflict Resolution⁸⁶ or EPA, and by recommendations from others who have used similar processes.

C. Design the Process and Adopt Ground Rules

The complex decisions and changing landscapes of ECR demand care in design of the process and techniques to be used. The National Research Council suggests a best-process approach should include elements of

- (1) diagnosis of context,
- (2) collaborative choice of technique to meet difficulties,
- (3) monitoring how well the process is working, and
- (4) making changes to overcome problems.⁸⁷

Having collaboratively designed the roadmap allows stakeholders to maintain their confidence in both their direction, choice of techniques, and progress. Often, a process design committee⁸⁸ will work with the facilitator to present a proposed process for input and approval of all participants. The facilitator helps the group monitor how well its process is working, and assist it in developing needed

⁸⁴ *A Practical Guide to Collaborative Governance*, supra at 26.

⁸⁵ Policy Consensus Initiative, *Finding Better Ways to Solve Public Problems: The Emerging Role of Universities as Neutral Forums for Collaborative Policymaking*, 2005, available at <http://www.policyconsensus.org/publications/reports/docs/UniversityReport.pdf>. Also see University Network for Collaborative Governance <http://www.policyconsensus.org/uncg/index.html>.

⁸⁶ <http://ecroster.udall.gov/Default.aspx>

⁸⁷ National Research Council 2008 at 4, 237.

⁸⁸ Susskind et al, supra, *The Consensus Building Handbook* at 140.

process changes. The process design should be transparent to the participants. The EARIP's success was attributed in part to the stakeholder development of an open and transparent process that helped build trust, and the stakeholders' ownership of the process.⁸⁹

Some specific provisions that should be considered in the design phase include:

- Meeting the needs of individual members for technical and other assistance to place them on an equal footing with other stakeholders.
- Public involvement. Consensus processes, especially those dealing with complex environmental issues, often operate out of the public spotlight. Even where the issue is of great public interest and the meetings open to observers, the length and detail of these processes often results in a fading of public involvement and media interest over time. This tendency challenges diligent stakeholder groups that desire to keep their efforts visible to the public to achieve greater acceptance of their work. If appropriate, the stakeholder processes can be designed to involve the broader public or larger groups of specifically interested stakeholders at key stages. Early public involvement assures that public values are included in the framing of the problem. Public input also adds important local knowledge to the factual underpinnings of a decision. Public review of drafts helps develop support for implementation. At all phases, public education and communication may provide a crucial foundation to a well-designed process. The stakeholder group also should consider whether the public will be allowed to attend its meetings, and what their role in such meetings will be. Many groups allow the general public to attend as observers only, while some routinely build in a public question or comment period.
- Use of subgroups (subcommittees, task groups, advisory committees or workgroups) to develop detailed information and/or proposals. These subgroups provide opportunities to involve others in the process. They tend to be efficient, and several can operate simultaneously, allowing a greater amount of work to be accomplished. Communication between the subgroups and the main stakeholder group assures that trust is maintained and the subgroup's product meets the needs of the larger stakeholder group.
- Making clear how the stakeholder group and sponsoring/implementation organization will interact, and how that organization's personnel will be involved (see discussion above).
- How to obtain, understand and consider scientific and technical information (See discussion below in *Section X, Dealing with Science*).

⁸⁹ Texas Water Journal at 15

The stakeholder group should develop ground rules or protocols for how it will operate. While groups often dislike spending time on these operational rules, this deliberation is important for the group. First, the deliberation itself allows the group to practice working together and making decisions before difficult policy decisions are encountered. Facilitators often use development of the ground rules as an opportunity to educate the group about collaborative decision making in a just-in-time setting. Second, early consideration of the group's operational framework prevents that discussion from being entangled with substantive decisions. Some elements to consider in ground rules include attendance, ability to use alternates, communication with the media, whether meetings are open to the public, expectations about openness in sharing information with other stakeholders, and responsibility to keep the participant's constituency informed.

A ground rule about how decisions will be made is particularly important. If the group wants to use consensus, its ground rules should define what consensus means to the group, and the process the group will employ to achieve consensus. Many ground rules define underlying consensus principles in the ground rules. Groups define consensus in varied ways. For instance, the EARIP defined consensus to be an absence of opposition to a decision.⁹⁰ The Colorado-Lavaca River Basin Environmental Flows stakeholder group defined consensus to be agreement by all members participating in a meeting, in which their major interests have been taken into consideration and addressed in a satisfactory manner so they can support the decision of the group.⁹¹ Both groups had alternate decision-making rules if consensus proved unattainable, but did not have to use them.

⁹⁰ Texas Water Journal, *supra* at 15.

⁹¹ http://www.tceq.state.tx.us/assets/public/permitting/watersupply/water_rights/eflows/201101126clbbasc_%20meeting%20rules.pdf

IX. Building Consensus

The outline for building consensus in a large stakeholder group is similar to that for other collaborative decision-making processes such as mediation:

- educating each other about interests and issues;
- refining and articulating shared goals for the process and confirming these with the sponsoring entity;
- building joint knowledge and gathering information;
- determining appropriate standards against which to weigh options;
- generating options,
- evaluating options, and
- packaging them into a decision that satisfies as many of the stakeholders' interests as possible.

The process requires that the parties engage openly in sharing knowledge and articulating their needs, and in considering options to meet the needs of as many participants as possible. Differences are found in the often public settings that are used to make decisions, multiparty dynamics including possible coalitional issues, and communication complexities. Communication is complicated not only by the large number of parties present in the stakeholder groups, but also by the importance for stakeholders to communicate with their constituencies, and often to seek approval of decisions being made. Unlike many mediations, where the parties with decision-making authority are present or easily reachable, the stage of seeking ratification of agreements by constituencies may be protracted and take great communication skills. This process is often aided by the facilitator.

X. Dealing with Science

By their nature, environmental conflicts often involve significant technical and scientific issues. Successfully negotiating in the environmental arena requires handling science in a way that all stakeholders will trust. Without such trust, participants will continue to battle over whose science is right, just as they do in traditional administrative and judicial settings, and consensus will be difficult to achieve. Stakeholder consensus processes are excellent forums for dealing with the “inherent uncertainty surrounding scientific analysis and forecasting”⁹² by building collective inquiry with dialogue to assure science is understood and weighed.

Processes that integrate science and policy allow each to inform the other.⁹³ Moving between policy deliberation and scientific analysis helps assure that the right science is conducted to answer questions important to the decision-makers. It also allows participants to “become more sophisticated about scientific analysis” and scientists and agency officials to become “more sophisticated about the public’s need for scientific understanding.” This not only provides more immediate, robust decisions, but also builds a more solid base as groups tackle similar issues in the future.⁹⁴

The National Research Council recommends that “environmental assessments and decisions with substantial scientific content should be supported with collaborative, broadly based, integrated, and iterative analytic-deliberative process” designed using the following principles.

1. Be transparent with decision-relevant information and analysis. Make sure relevant information is accessible and interpretable, that relevant analyses are from open sources and/or with sufficient detail for independent review.
2. Pay explicit attention to both facts and values. Identify values, describe the problem to embody different values and concerns, and analyze how available choices affect values.
3. Describe assumptions and uncertainties.

⁹² Herman A. Karl, Lawrence E. Susskind, and Katherine H. Wallace, *A Dialogue, Not a Diatribe: Effective Integration of Science and Policy through Joint Fact Finding*, Environment, Vol. 49, Number 1, at 24 January/February 2007.

⁹³ National Research Council 2008 at 58 and 149.

⁹⁴ National Research Council 2008 at 149.

4. Use an independent review of official analysis or engage in collaborative inquiry.
5. Iterate to reconsider past conclusions on the basis of new information.⁹⁵

Lessons in integration can be learned from the SB3 Environmental Flows process. Statutes enacting the SB3 environmental flows process took the approach of separating science by mandating that each basin's science team recommend a regime of instream flows, and flows into the bay and estuary system, considering "all reasonably available science without regard to the need for the water for other uses," and with its recommendation based solely on the best science available. The science team was given one year to complete that task, and then provide its recommendation to the stakeholder group as well as to TCEQ. The basin's stakeholder group was to consider the science report in conjunction with other factors, including present and future water needs, and make a recommendation to TCEQ for environmental flow standards and strategies to meet the standards.⁹⁶ Based upon the statutory schedule, the stakeholder processes were initiated in two or three river basins each year over a three-year period. This allowed groups which came later to learn from the earlier processes. While all science teams continued to make their recommendations based solely on science, the stakeholders in later processes moved toward a more integrated working relationship with the science team, which appears to have provided for more robust decision-making.⁹⁷

Science itself often takes center stage as the very basis for controversy, either due to of a lack of science, or the complexity of the science:

- when science appears to provide contradictory results;
- when the science does not address what the parties need to know; and
- when stakeholders don't have a scientific background.⁹⁸

When science is contested, the parties should jointly clarify their questions before gathering decision-relevant data focus on decision-related information, let "science be science," learn together, and

⁹⁵ National Research Council 2008 at 3 and 138.

⁹⁶ Tex. Water Code §11.0262.

⁹⁷ The author of this chapter was a facilitator in three separate SB3 environmental flow stakeholder processes. These conclusions are based on her observations as well as from discussions with participants in the processes.

⁹⁸ National Research Council 2008 at 141-143; Bingham, Gail, *When the sparks fly: Building Consensus when the Science is Contested*, http://www.resolv.org/wp-content/uploads/2011/02/When_the_Sparks_Fly.pdf

recognize that the cause of the dispute may not be science and that the use of basic consensus-building tools might solve the problem.⁹⁹

Stakeholders and scientists working together in a well-designed process can preserve “the impartiality of the scientist and the best practices of scientific inquiry while still honoring the values and preferences of stakeholders.”¹⁰⁰ The process may be formalized into a joint fact-finding or collaborative inquiry if the data is likely to be controversial, or may be conducted less formally in less contested situations.

Regardless of the formality chosen, best practices noted above involve the stakeholders in designing how their deliberative process interacts with the science, including what information and analyses are needed, and clarifying the relevance of the information to their decisions. Stakeholder groups often use subcommittees or technical advisory committees to help answer these questions. The stakeholder group should jointly agree on the makeup of such committees. Good communication between the larger stakeholder group and its committees will maintain transparency, assure the right questions are answered, and help the larger stakeholder group understand the committee reports and recommendations.

Scientists and stakeholders may integrate scientific inquiry and stakeholder decision making by following an outline of steps similar to the following, but structured to suit the context of the particular situation.¹⁰¹

- Determine the questions to answer given the goal of the process and the parties’ interests.
- Determine what data is needed to answer these questions.
- Explore the adequacy of existing data. Does it exist from sources reliable to the stakeholders? Is additional data needed either to fill gaps or to resolve data conflicts?
- Determine how to obtain needed information, how to analyze it, and how to understand it. This will include understanding the advantages of different methods for collection or creation of information and whether the information will address stakeholder needs and their questions.

⁹⁹ Bingham *supra* When sparks fly at 9-12.

¹⁰⁰ Karl et al., *supra*, *A Dialogue, Not a Diatribe Effective Integration of Science and Policy through Joint Fact Finding*, at 23.

¹⁰¹ See Dukes and Firehock, *supra*, *Collaboration: A Guide for Environmental Advocates*; Karl et al., *supra*, *A Dialogue, Not a Diatribe Effective Integration of Science and Policy through Joint Fact Finding* at 25-27; Beierle, *supra*, *The Quality of Stakeholder-Based Decisions: Lessons from Case Study Record* at 741, also Bingham, *supra*, When sparks fly.

- Undertake studies as needed, and keep parties informed about progress to assure trust and understanding. Involve stakeholders in the study as appropriate, including review of drafts.
- Evaluate the study results, and assure both that stakeholders understand the results, and that the data answers their key questions.
- Use both the science that was collected/ developed, and public values, as the stakeholder group formulates its policy recommendation.
- Use science to predict what would happen from preliminary stakeholder decisions. This enables stakeholders to understand whether they have made good decisions.
- Continue to move between science and policy as needed to formulate decisions with acceptable consequences. Loop back as needed to develop more science, or to refine policy recommendations.

Unlike adversarial proceedings, where hiding and protecting information provides advantage to one party, ECR consensus processes with joint scientific inquiry share information openly, and provide all parties equal opportunity to make decisions that they understand, and can competently assess relative to their needs and interests. Using a process that involves the stakeholders in scientific design and fact-finding also helps equalize the power imbalance that often exists between those stakeholders who come to the process with an initial understanding of the science or who can marshal the resources to achieve this understanding, and those parties who do not.

Monitoring and adaptive management play key roles in the integration of science and policy. Stakeholders often must make decisions either when the science is uncertain or when the impact of the stakeholder decisions cannot be clearly predicted. Decisions can be made explicit in terms of goals and objectives, and a monitoring process included to gather information with which to assess the impacts and outcomes of the decision.¹⁰² Triggers often put into place to make alternation of the decision, or to revisit the decision, if warranted. The EARIP process provided for a comprehensive monitoring program and adjustments “through a robust adaptive management process” that includes “an applied research program to test the assumptions underlying the biological goals and objectives.”¹⁰³

¹⁰² Dukes and Firehock, *supra*, *Collaboration: A Guide for Environmental Advocates* at 47.

¹⁰³ Texas Water Journal, *supra* at 12.

The SB3 Environmental Flows process specifically recognizes the importance of adaptive management. After completion of their recommendations for environmental flow standards and strategies to meet those standards, the stakeholder committees are required to work with science teams to prepare a work plan for:

- (1) periodic review of their basin's scientific analyses and the scientific recommendations as well as the stakeholder group's proposed environmental flow standards,
- (2) prescribe specific monitoring, studies and activities, and
- (3) establish a schedule "for continuing the validation or refinement" of the scientific and stakeholder recommendations.¹⁰⁴

The EARIP decisions are monitored and adjusted through an adaptive management plan to include an applied research program "to test the assumptions underlying the biological goals and objectives," improve hydrologic modeling, and develop an ecological model "to evaluate all of the impacts on habitat."¹⁰⁵



Comal Springs area of Edwards Aquifer

¹⁰⁴ Tex. Water Code §11.02362(p).

¹⁰⁵ Texas Water Journal, *supra* at 12.