



Evaluating Environmental Conflict Resolution Processes



Multi-Agency Evaluation Study (MAES)
2007

Presentation Outline

Evolution and **design** of
a multi-agency evaluation system

Findings and **insights**

Background and Design

Evolution of the ECR Evaluation System

A collaborative evaluation process – begun in 1999

Practitioners, managers, funders, and others engaged

Reviewed over 300 evaluation indicators from the ECR literature

Pilot study conducted in 2004

Instruments and data collection approved by OMB



Oregon Consensus Program



U.S. Institute for **Environmental Conflict Resolution**

Morris K. Udall Foundation

Case evaluation is used for performance feedback, learning and improvement



Sponsors



Participants

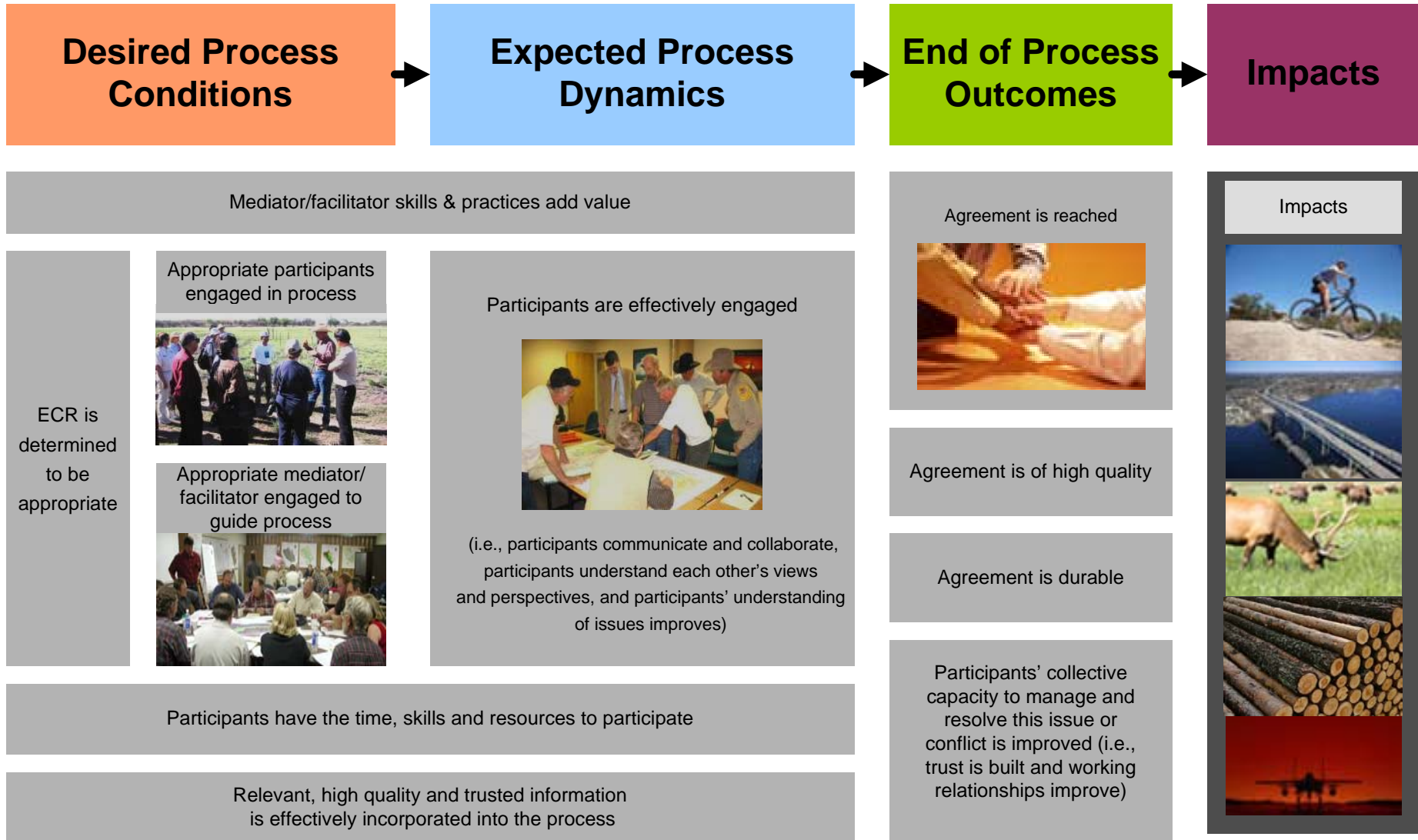


Mediators/Facilitators



Trainers

Evaluation Framework



Case Reports

Barry M. Goldwater Range: Military Training and Protection of Endangered Species

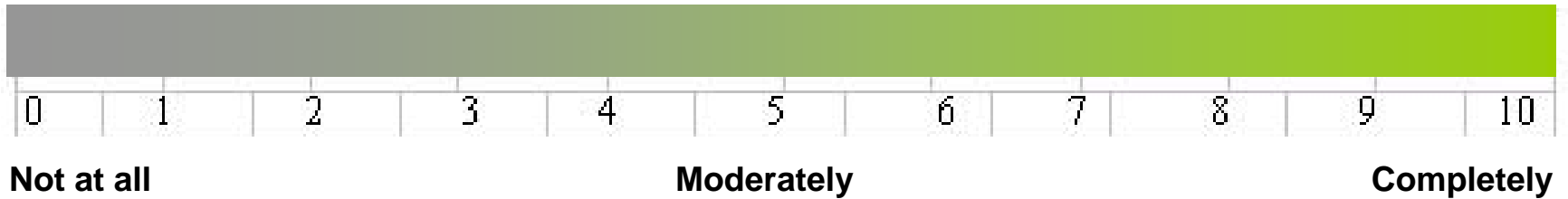


Example Responses	n	Performance Category Percent (%) of Respondent Ratings										Mean (Std)	
		0	1	2	3	4	5	6	7	8	9		10
The extent to which the process helped you identify and focus on the key issues that had to be addressed (Q12g)	9	0%	0%				0%			100%			9.00 (0.87)
The extent to which the mediator/facilitator made sure that the view and perspectives of all participants were heard and addressed (Q11e)	9	0%	0%				0%			100%			9.52 (0.58)
My first choice would be to use this type of process again for similar situations (Q18a)	9	0%	0%				11%			89%			9.11 (1.62)

Agreement is achieved			
	Percent Frequency and Number of Responses		
Agreement reached on all key issues.	78% (n=7)	100% (n=9)	Agreement Reached
Agreement on most key issues.	22% (n=2)		
Agreement on some key issues.	0% (n=0)		
No agreement on any key issues, but progress was made towards solving the problem or resolving the conflict.	0% (n=0)	0% (n=0)	No Agreement, but progress was made
No agreement, we ended the process without making much progress.	0% (n=0)	0% (n=0)	No Agreement



Rating Scale



*Scale interpretation
and example responses:*

Not at all		Weakly			Moderately to mostly			Very much so		
0	1	2	3	4	5	6	7	8	9	10

The extent to which you had the time needed to participate effectively in this process.	2%	13%	40%	45%
	85%			

The MAES Data Set

Funders & Contributors

**William and
Flora Hewlett
Foundation**

The MAES II analysis and interpretation of results are the work of U.S Institute staff and statistical evaluation expert
Kathy McKnight



U.S. Department
of Transportation
**Federal Highway
Administration**

Oregon Consensus Program



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What is an “Environmental Conflict Resolution (ECR)” Case?

Focus on an **environmental**, natural resource or public lands issue, including those involving energy, transportation and land use issues

Be **agreement-seeking** – where agreements include written or unwritten plans, proposals/recommendations, procedures, and settlements

Involve an independent, **third-party facilitator or mediator**

The MAES II data set includes....

52 ECR cases

523 respondents
(52% response rate)

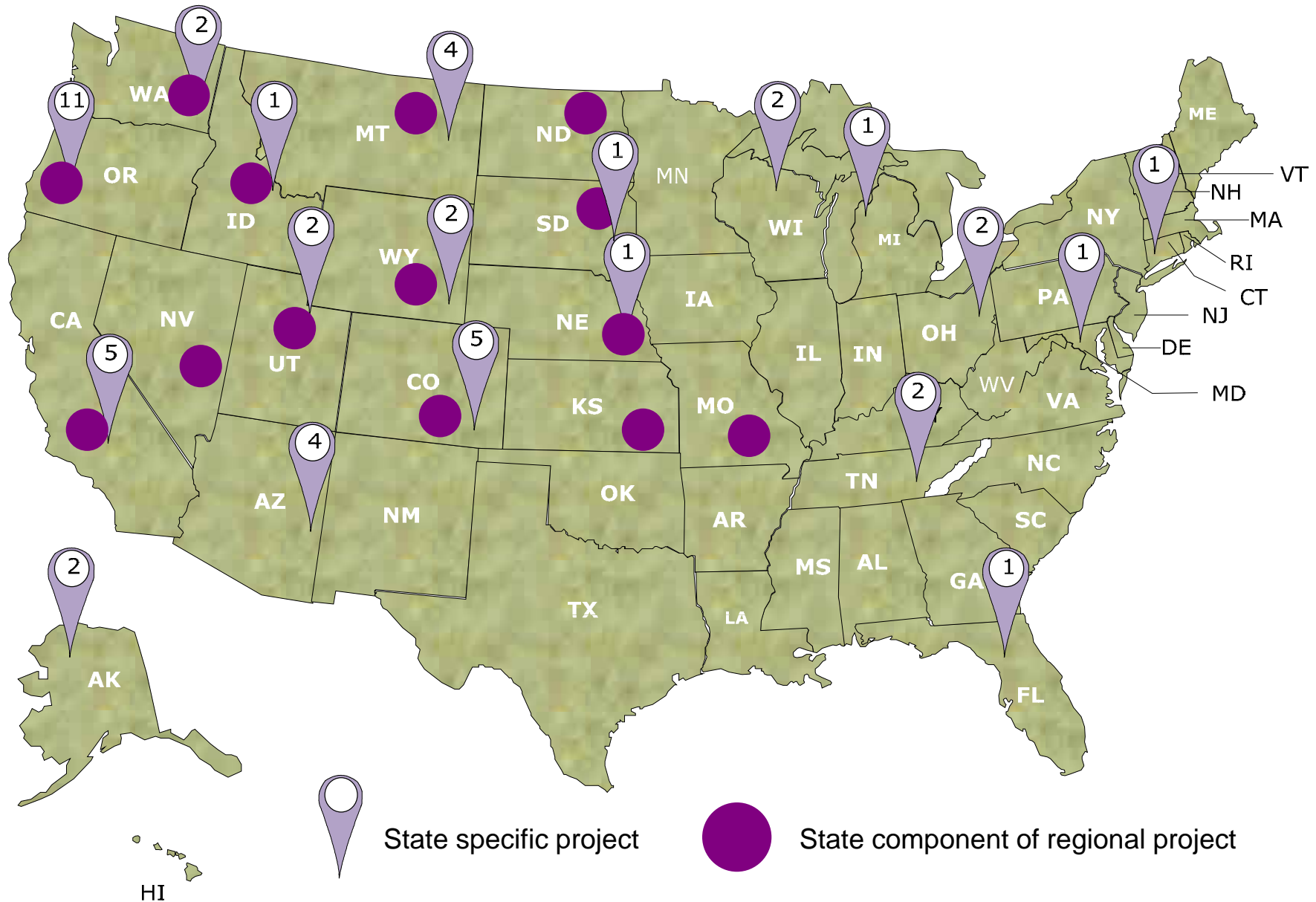
2 to 76 participants per case
(median of 24)

58 mediators/facilitators
provided feedback

Application

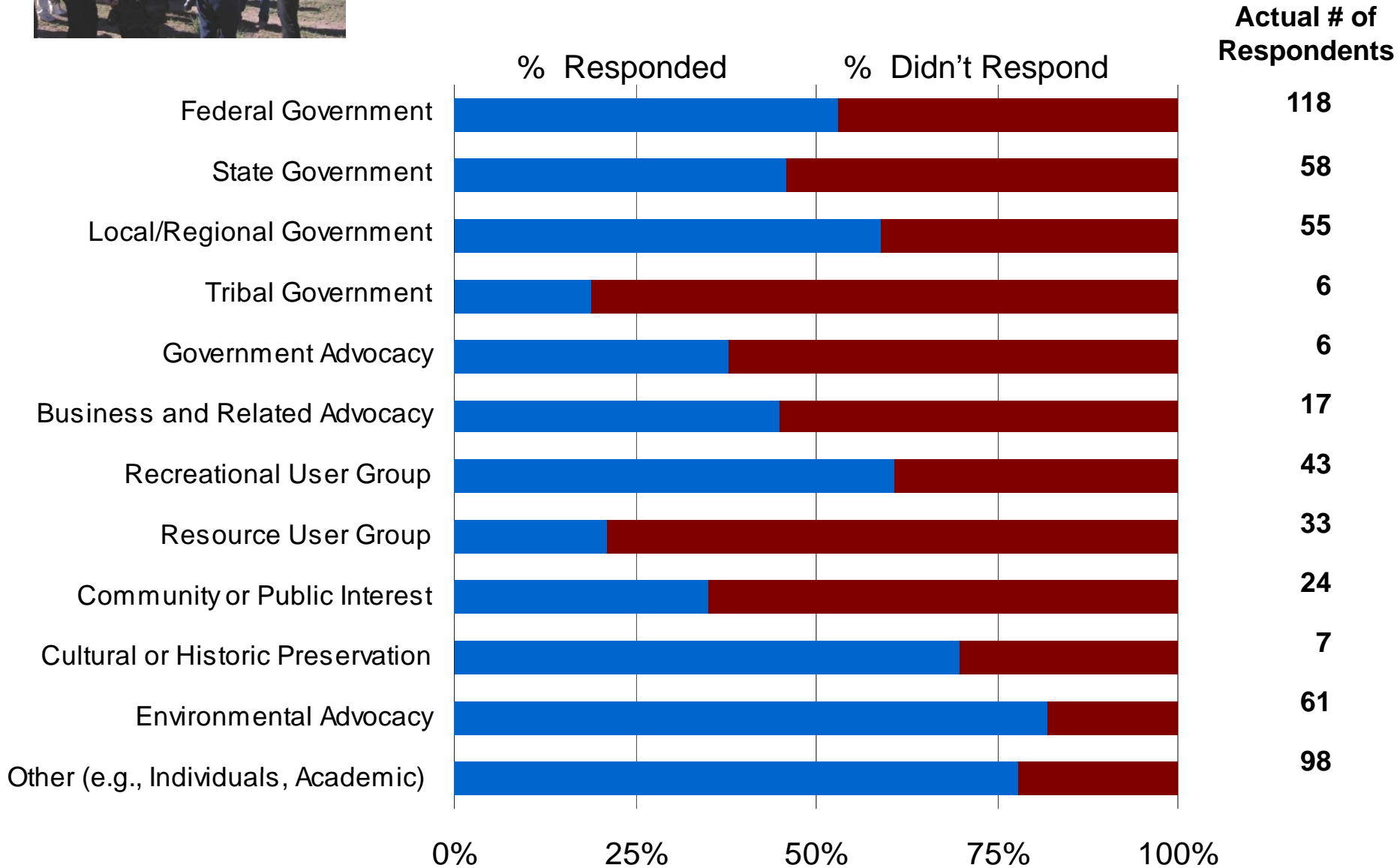
		Purpose					
		Develop Plans or Site Facility	Develop Guidance/ Policy	Develop Rules/ Regs	Settle Enforcement Actions or Specific Disputes	Other	
Substantive Area	Transportation Facilities	3	2			5	
	Off Road Travel	3				3	
	Resource Supply or Use (e.g., energy, water, timber)	1		3	3	7	
	Habitat or Species Protection or Ecosystem Restoration	5		1		6	
	Multiple Use of Resources	7		1		8	
	Pollution or Contamination	1	2	1	8	12	
	Fire Protection	3				1	4
	Other	4			2	1	7
		27	4	6	13	2	52

Geographic Distribution of 52 Cases





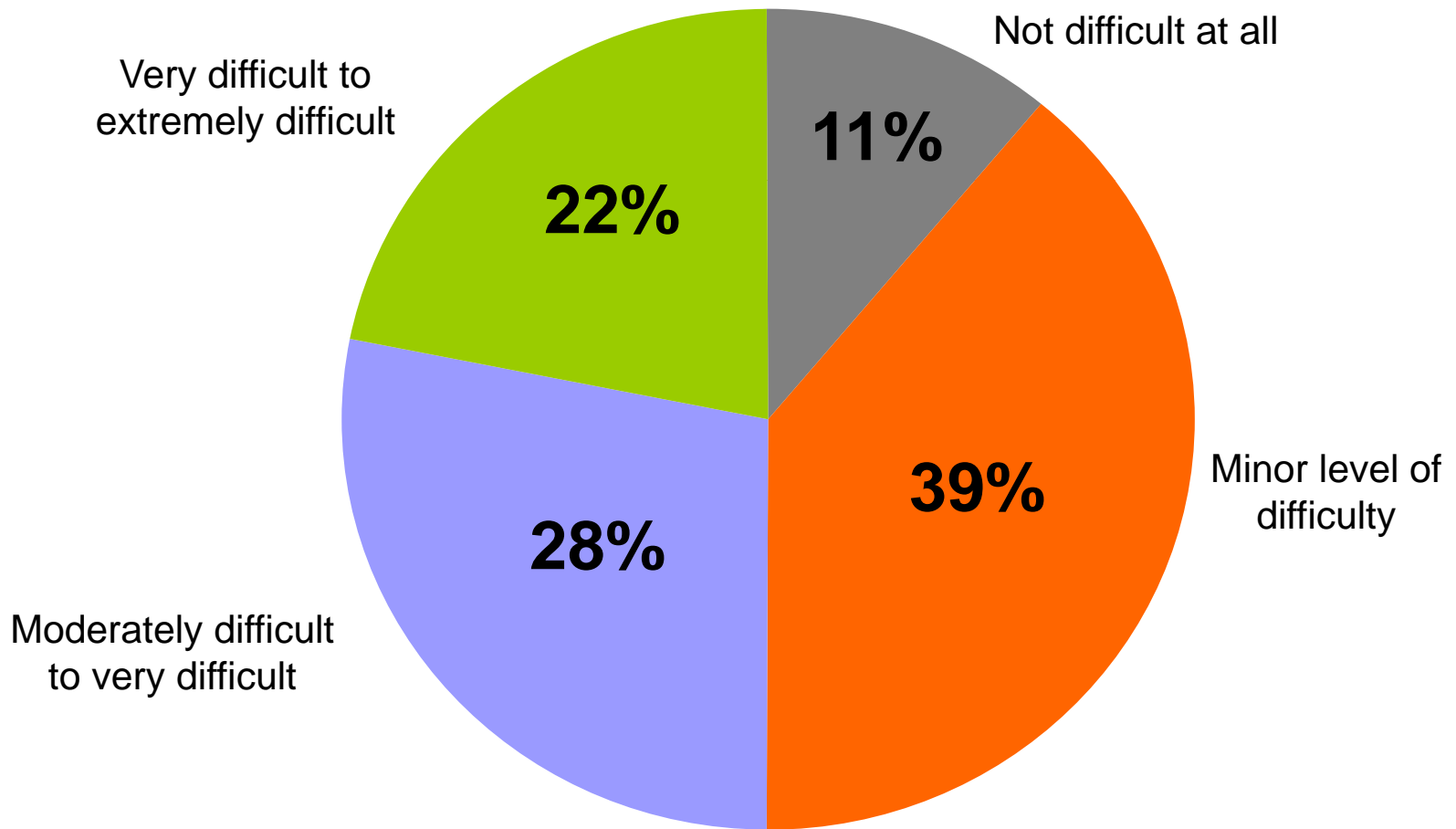
Who Responded?



* Estimated based on respondent self-identification and participant affiliations as reported by the mediators/facilitators

Range of Challenging Cases

Mediators/Facilitators ratings of the difficulty of developing and implementing an effective collaborative process



Data Set Summary Observations

Strengths

Includes wide range of cases from several agencies, several types of processes, applications and geographic locations

Number of cases and individuals is sufficient for the modeling of relationships

Respondents used the entire range of the scales: they thought critically and didn't simply indicate total satisfaction or dissatisfaction

Limitations

Cannot characterize the universe of ECR cases and cannot say the data set is a representative sample

Based on self-reporting and perceptions

Missing data from respondents required treatment

Potential bias given level of non-respondents

Results

- a. Level of Agreement
- b. Agreement Quality
- c. Working Relationships
- d. Relative Effectiveness
- e. Outcome Predictors

Levels of Agreement

Levels of Agreement: Based on Median Response

**Median Participant
Reported Outcome**
(% of Cases)



Level of Agreement Compared

	Median Participant Reported Outcome (% of Cases)	Mediator/Facilitator Reported Outcome (% of Cases)
Full Agreement Agreement on <u>all</u> or <u>most</u> key issues	61%	77%
Partial Agreement Agreement on <u>some</u> key issues	21%	8%
Progress but no agreement	10%	9%
No agreement and little progress	8%	6%

Level of Agreement: Based on Consensus

35% of cases where *all respondents* reported agreement on all or most key issues

48% of cases where *all respondents* reported agreement on at least some key issues

71% of cases where *all respondents* at least reported progress

29% of cases had mixed responses including ended “without making much progress”

Different Perspectives on Reaching Agreement

Case example:



Timber Sale Mediation

A seven-month mediation led to an agreement that dismissed a timber sale lawsuit. In the course of reaching the settlement agreement, a small number of plaintiffs indicated they were 'standing aside' to let the agreement go forward.

Take Home Message

- Over 70% of respondents report progress made in solving environmental problems/ resolving environmental issues
- Measuring the “agreement reached” is not as simple as it seems
- Differing perspectives regarding “agreement reached” often exist
- Success in terms of “agreement reached” should consider degree of concurrence and the context

Agreement Quality

Agreement Quality (n=52)

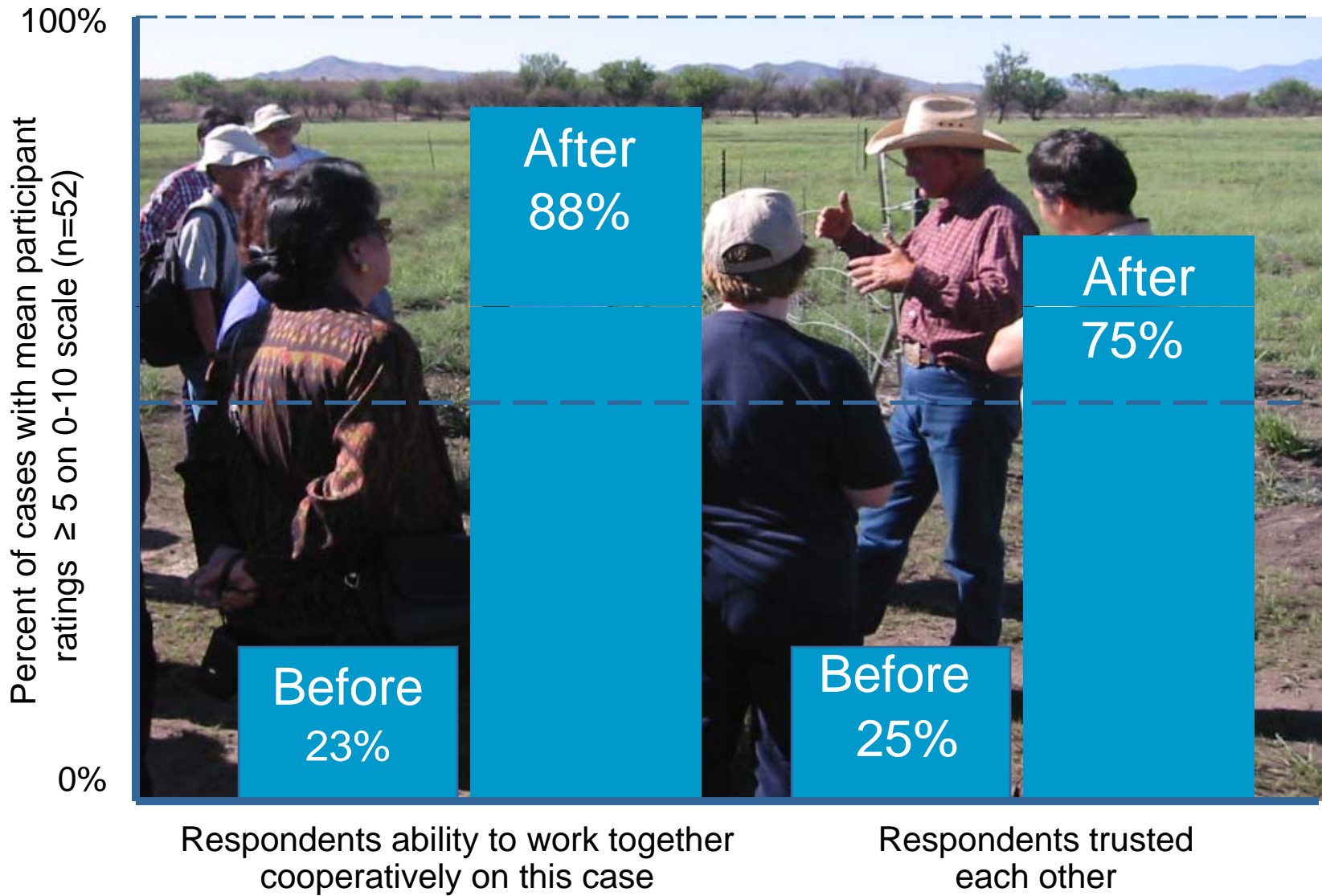
Percent of Cases
with Mean
Ratings ≥ 5

Took full advantage of relevant information*	100%
Addressed legal requirements*	100%
Participants understood the terms	100%
Is implementable*	100%
Identifies implementation roles and responsibilities*	97%
All critical issues were addressed	95%
Takes account of participants interests	92%
Provides workable means for adapting to changes*	91%
Contains clear and measurable objectives to be achieved	84%
Effectively deals with key issues	84%
Specifies how participants will know it is implemented*	79%
If implemented, will effectively address issues	78%
Includes a plan for monitoring implementation *	78%
Can be carried out in it current form	76%
Addresses implementation resource needs*	74%
Specifies ways it can be changed/modified	67%
Includes conditions under which participants reconvene*	58%

* Signifies Mediator/Facilitator Data

Stakeholder Working Relationships

Change in Cooperation and Trust



Parties Ability to Work Together on Case Related Issues



In a **before and after rating question**, participants identified significant positive changes in relationships



The **most frequently cited accomplishment** was “relationships among parties improved”



Compared to alternatives participants are more likely to be able to **work together in the future** on matters related to the case or project



Participants reported they built strong enough **relationships** to ensure their **agreements would last**

Take Home Messages

- A substantial majority of participants report improvement in relationships and trust
- When relationship and trust building have long-term value consider how ECR can help create the foundation

Desired Conditions and Expected Process Dynamics

Information



Participant
Feedback
(n=523)

Mediator/
Facilitator
Feedback
(n=49)

Relevant, high quality and trusted information is effectively incorporated into the process

86% reported they worked effectively to identify information needs

92% understood all important information used

87% reported all participants had full access to relevant information

67% reported the validity of the information was accepted by all

90% reported the relevant information was understood by the participants

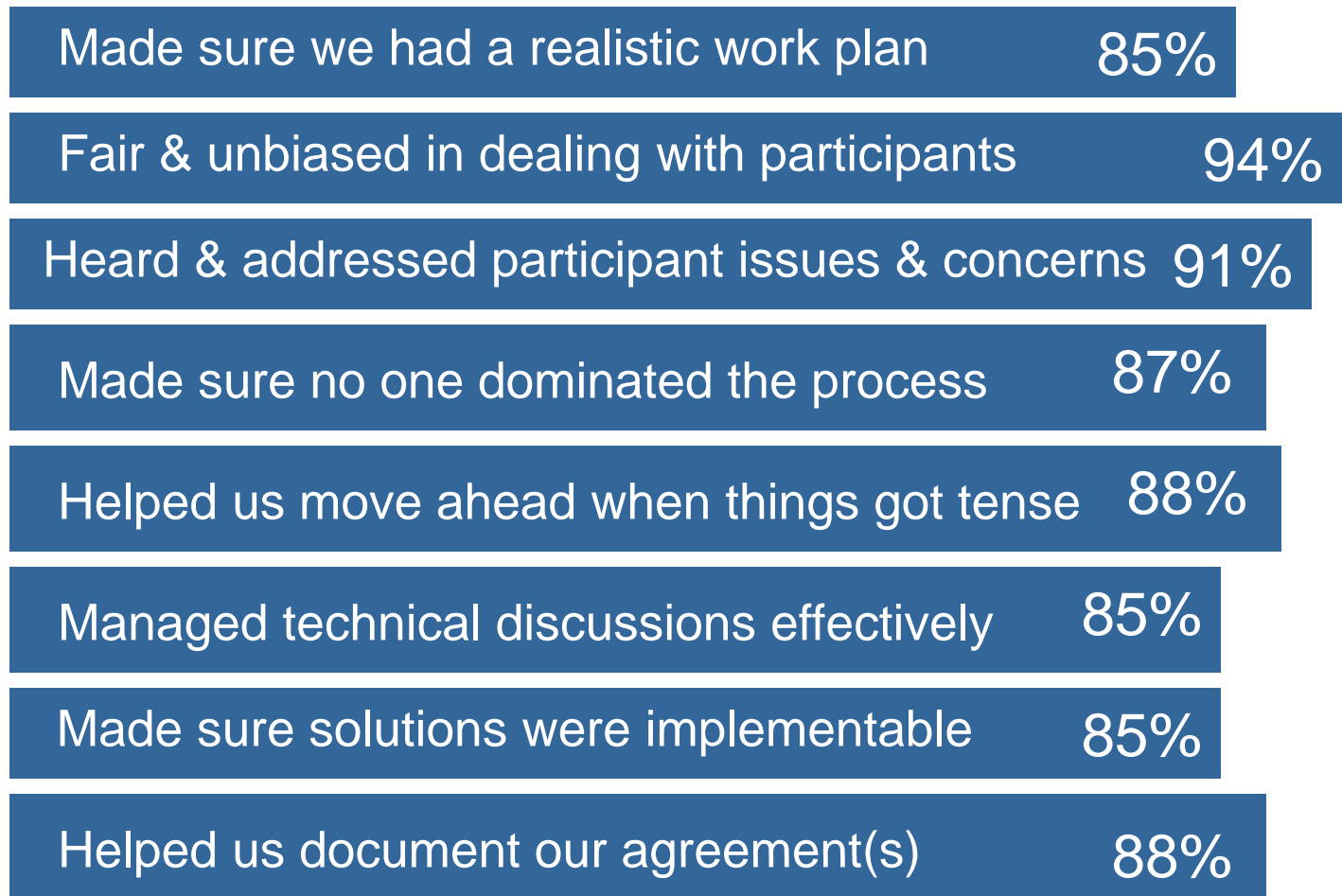
91% reported resources were available for expertise/information

90% reported experts were used to educate participants

89% reported that participants worked to ensure agreement on the meaning of relevant information

Mediator/Facilitator Skills & Practices

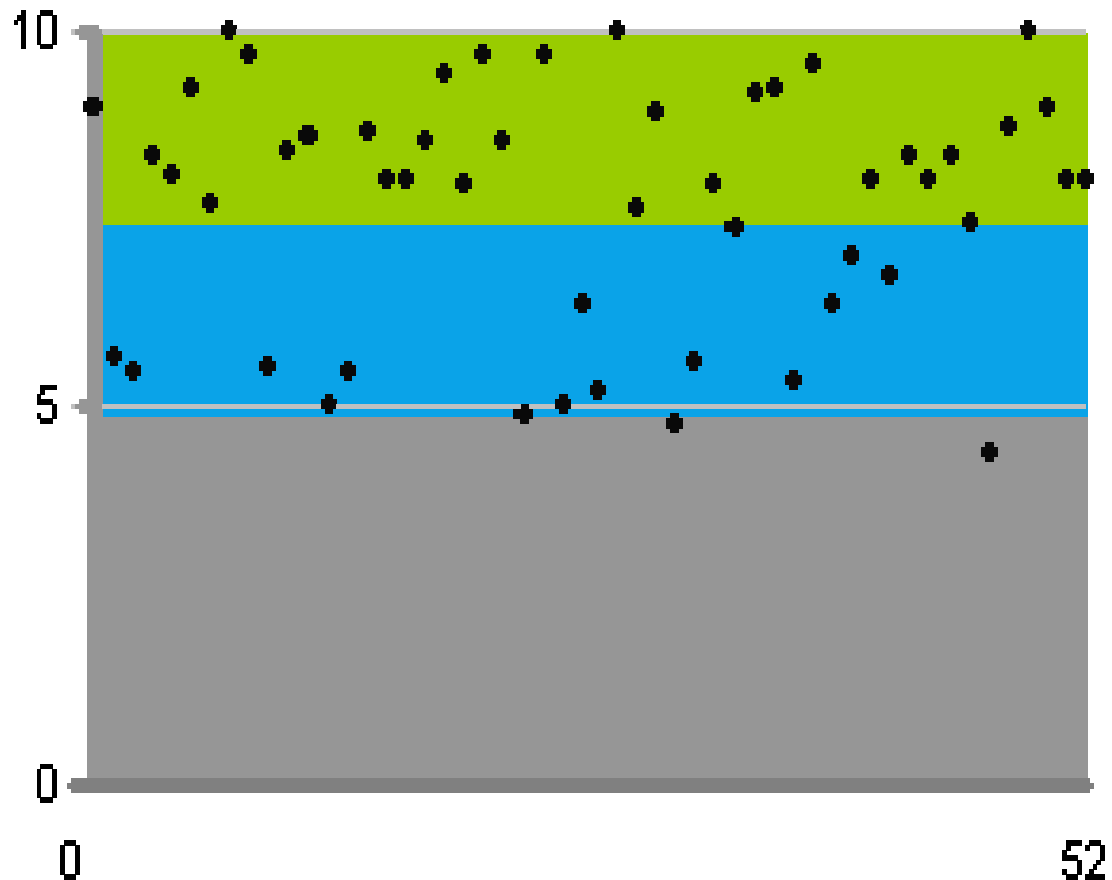
(Participant Ratings n=523)



Percent of participants rating ≥ 5 on 0-10 scale

Recommend mediators/facilitators to others without hesitation

For the 52 Cases: Mean = 7.14 on 0-10 scale, Std Deviation = 2.98, Median = 8



Relative Effectiveness

Is ECR *better* at preventing, managing and resolving environmental conflicts?

Two Perspectives on Effectiveness



Independent Accomplishments

Reach agreement/make progress

Establish working relationships

Create a collaborative “tool of choice”

Benefits will outweigh the costs



Relative Merits


ECR more effectively addressed issues

Parties are more likely to work together

ECR is a preferred alternative

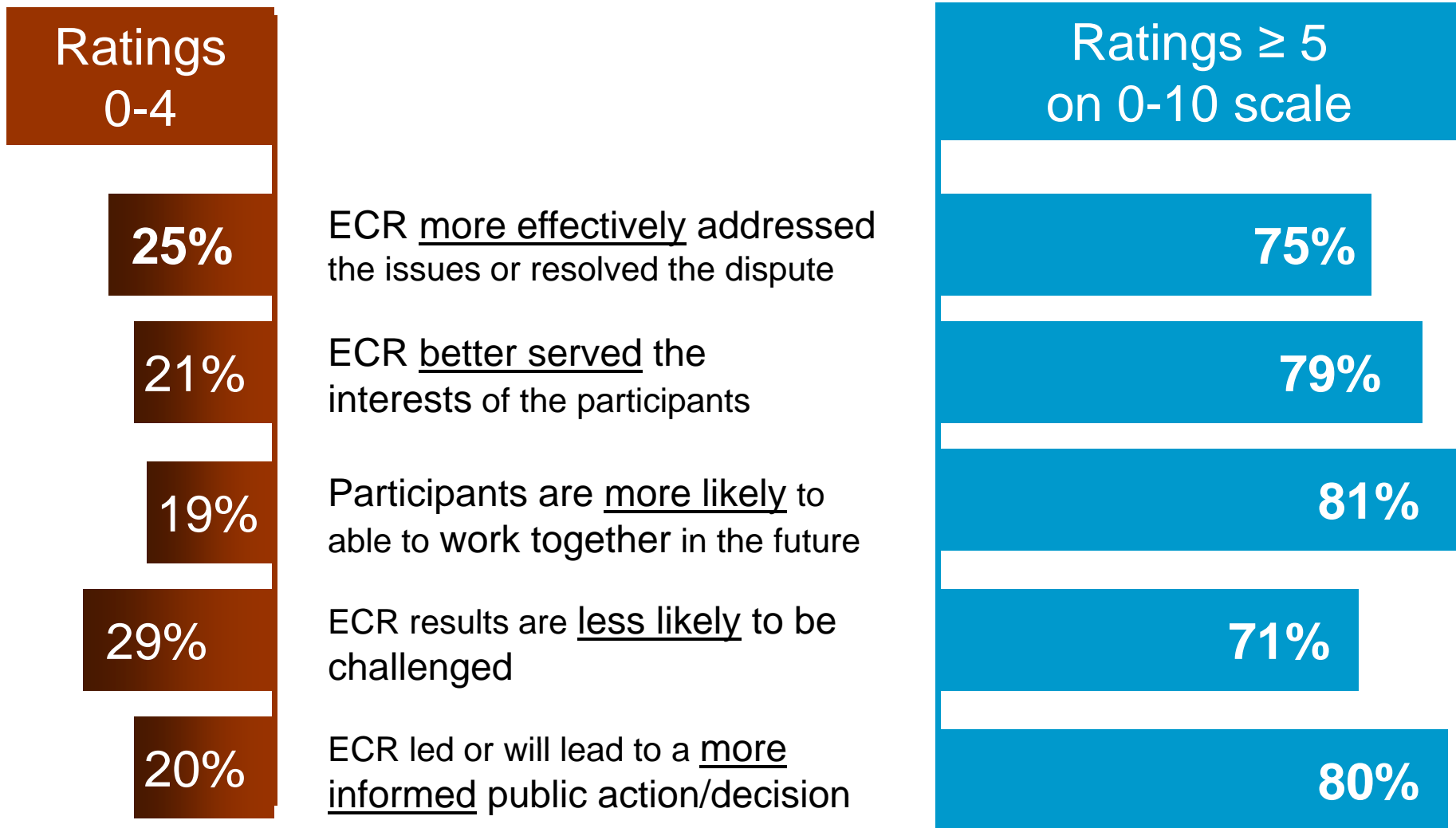
Cost less, or cost more but the extra costs are worth the investment

Compared to what: ECR alternatives identified by participants

- 
1. **Litigation** (n=108)
 2. **Administrative proceedings** (n=87)
 3. **Lobbying/working for legislative action** (n=79)

In 75% of cases, at least one stakeholder identified legal proceedings as the likely alternative had ECR not been an option

ECR Effectiveness Compared to the Most Likely Alternative (n=523)



Time and Costs Compared



Time Effectiveness

- **75%** of respondents said ECR took less time, or if it took more time the extra time was worth the investment

Cost Effectiveness

- **78%** of respondents felt ECR cost less, or if it cost more the extra costs were worth the investment

Overall Progress with ECR versus Other Processes



We could not have progressed as far using any other process (n=523)

Not at all		Weakly			Moderately to mostly			Very much so		
0	1	2	3	4	5	6	7	8	9	10
15%		15%			30%			40%		
					70%					

Take Home Message

- Respondents view ECR favorably with alternatives
- The majority of participants believe more progress is made through ECR

Impacts

What can we say about longer-term outcomes and impacts...

- Timing
- Tracking
- Evidence
- Causality



Evidence 1 year on...

Military Overflight Noise Case

Results: Consensus recommendations developed and in evaluation feedback respondents indicated:

- ECR more effectively addresses issues
- They are more likely to be able to work together

Implementation and Impact:

- Flight altitude changes implemented to reduce noise
- Ongoing military community compatibility committee



By Carol Ann Alaimo,
Arizona Daily Star,
Published: 03.15.2007

**“D-M cuts noise from flights over Tucson
With higher flight altitudes folks ‘will hear a difference’”**

**Davis-Monthan
Air Force Base**

INTEGRITY - SERVICE - EXCELLENCE

AMERICA'S AIR FORCE



Evidence 2 years on...

- **International Wastewater Treatment Plant**
- Collaborative problem-solving and conflict resolution kick-started planning process.
- **Results:** A \$59 million EPA-funded agreement for a International Wastewater Treatment Plan in Nogales Arizona (December 2005).

Implementation and Impact:

Groundbreaking, Public Forum for Nogales Wastewater Treatment Plant

NOGALES, Arizona (April 24, 2007) - Construction has begun on a unique project to treat Wastewater along the U.S./Mexico border, a project that has brought together environmentalists, local municipalities and a variety of government agencies



Evidence 7 years on...

Forest Planning Process

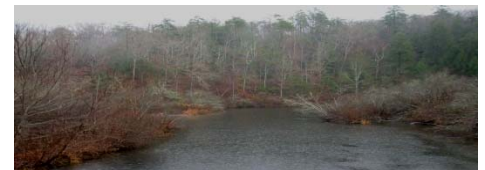
About 7 years ago, the Forest Service sought ways to engage affected parties in developing a Forest Health and Restoration Initiative for the Bankhead National Forest.

Results: In 2004, agreement was reached on the terms of the Bankhead Forest Health and Restoration Initiative.

Implementation and Impact:

The Birmingham News • Subscribe
• Today's Paper & More

"New life for old growth in Bankhead" Editorial Published: 03.01.2007



“About seven years ago, the Bankhead National Forest had hit bottom. The U.S. Forest Service had shut down logging as a result of persistent and successful legal challenges by conservationists. **Today, the forest is a national model.** Orderly monthly meetings are run by a committee of loggers, foresters and preservationists. They discuss whether forest management is progressing according to the plan they wrote a few years ago.”

Take Home Message

- We have a solid foundation of end-of-process outcome data for ECR
- Over time we need to augment this information with evidence of longer-term outcomes and impacts of ECR

Learning More About the Factors Influencing ECR Performance Outcomes

Exploring the MAES dataset using Multi-Level Modeling (MLM) to...

Test the **working theory** of ECR (as captured in the evaluation framework)

Better understand the factors important to 3 key **dimensions of ECR success**:

(1) agreement reached, (2) quality of agreement and (3) working cooperatively

Why MLM?

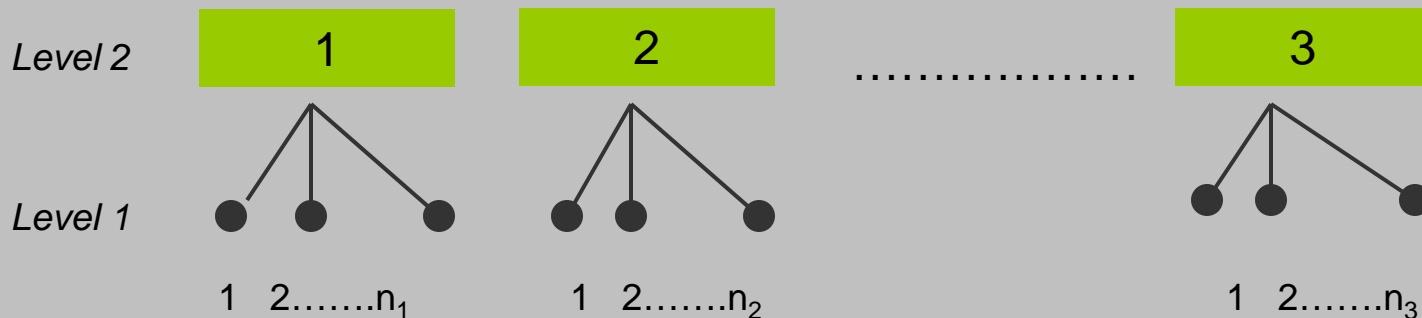
We expected that participants within a specific case would share similarities

This violates a basic assumption of traditional general linear models --- that participants are assigned to groups randomly and observations are thus independent

Multi-level modeling (MLM) is used for analyzing data where data are grouped and random assignment & independent observation assumptions don't hold

Data structure for the two-level hierarchical model

(Adapted from: Sullivan, Dukes and Losina, 1999):



MLM Advantages

Takes into account the multi-level structure of data (Sullivan, Dukes, and Losina, 1999).

Explains outcomes for members of groups as a function of the characteristics of the group, as well as the characteristics of the members (Arnold, 1992).

MLM software is now readily available.

MLM Limitations

Models are statistically complex and require expertise in specifying and analyzing them.

Multi-collinearity of explanatory variables makes models difficult to interpret.

Familiar statistical indices of explanatory ability (R^2 , tests of statistical significance) do not apply or are interpreted differently.

Factors that Contribute to Reaching Agreement

Case Context Variable

Number of Participants

Degree of Case Difficulty

Willingness to Collaborate

Desired Process Conditions

ECR Determined to be Appropriate

Appropriate Participants



Appropriate Mediator/Facilitator



Participants have the time, skills and resources to engage

Relevant high quality and trusted information integrated

Expected Process Dynamics

Participants are Effectively Engaged



(i.e., participants communicate and collaborate, understand each other's views and perspectives, and participants' understanding of issues improves)

Factors that Contribute to Agreement Quality

Case Context Variable

Number of Participants

Degree of Case Difficulty

Willingness to Collaborate

Desired Process Conditions

ECR Determined to be Appropriate

Appropriate Participants



Appropriate Mediator/Facilitator



Participants have the time, skills and resources to engage

Relevant high quality and trusted information integrated

Expected Process Dynamics

Participants are Effectively Engaged



(i.e., participants communicate and collaborate, understand each other's views and perspectives, and participants' understanding of issues improves)

Factors that Contribute to Improved Working Relationships

Case Context Variable

Number of Participants

Degree of Case Difficulty

Willingness to Collaborate

Desired Process Conditions

ECR Determined to be Appropriate

Appropriate Participants



Appropriate Mediator/Facilitator



Participants have the time, skills and resources to engage

Relevant high quality and trusted information integrated

Expected Process Dynamics

Participants are Effectively Engaged



(i.e., participants communicate and collaborate, understand each other's views and perspectives, and participants' understanding of issues improves)

SUMMARY	Agreement Reached	Agreement Quality	Working Relationships
Number of participants engaged in process			
Willingness to collaborate	✓	✓	✓
Degree of case difficulty	(-) ✓ ✓	(-) ✓ ✓	(-) ✓ ✓
ECR is determined to be appropriate	?	?	?
Appropriate parties engaged	✓ ✓	✓ ✓	✓ ✓
Parties have the time, skills and resources to engage	✓	✓	✓
Mediator/facilitator skills and practices add value	✓ ✓	✓ ✓	✓ ✓
Relevant, high quality and trusted information	✓	✓ ✓	✓
Participants are effectively engaged in process	✓	✓	✓

Take Home Messages

- Seven factors consistently contribute to the three key ECR outcomes
- The more challenging a case the harder it is to achieve these key ECR outcomes
- Factors that stand out as strong contributors of ECR outcomes include having the appropriate parties and the skills and practices of mediators/facilitators
- With respect to quality of agreement, relevant information also contributes strongly

A photograph of a set of concrete stairs leading up to a wall. The stairs are made of grey concrete and are positioned on the left side of the frame. The wall is a light-colored, textured surface. The text "Next Steps" is overlaid in the center of the image in a bold, blue, sans-serif font.

Next Steps

Acknowledgements

The evaluation model described in this document has been created collaboratively in several stages over the past few years by specialists from several agencies. In addition to U.S. Institute staff particular thanks is due to **key design contributors**: Mike Niemeyer from the Oregon Department of Justice; Will Hall from the Environmental Protection Agency (Conflict Prevention and Resolution Center); Elena Gonzalez and Kathy Lynne from the Department of Interior (Office of Collaborative Action and Dispute Resolution); Chris Pederson from the Florida Conflict Resolution Consortium; Kasha Helget from the Federal Energy and Regulatory Commission; Susan Brody from the National Policy Consensus Center; and Chris Carlson from the Policy Consensus Initiative.

Evaluation consultants Kathy McKnight and Lee Sechrest from the University of Arizona have guided this effort since 2004, Tom Miller of the National Research Center helped with preliminary data analysis in 2003, and Andy Rowe of GHK International, guided the development of the original model and provided input on the later revisions.

The U.S. Institute would also like to acknowledge the many **researcher practitioners**, particularly Bernie Mayer of CDR Associates and Julie Macfarlane of the University of Windsor for their contribution along the way. Special thanks is also due to the **William and Flora Hewlett Foundation** for its financial support over the years.

Finally, our sincere thanks to the many **case participants and facilitators** who completed evaluation questionnaires and made this study possible.

For more information visit the
U.S. Institute website: *www.ecr.gov*



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