

**DECISION PROTOCOL**

**VERSION 2.0**

**ACTION CYCLE**

**NOTE:**

**The Decision Protocol is intended to be a tool to help US Forest Service decision teams work through complex business and environmental decisions. It is an administrative aide that introduces the professional to the principles of decision science, outlines useful steps, and provides sources of information and techniques for improving decision quality. The Protocol is not and should not be viewed as formal Forest Service guidance or policy. Forest Service teams are not required to use the Protocol; its recommendations are not legally binding. Members of the public or other agencies are welcome to participate in Protocol-based projects or use the Protocol or any of its concepts or parts, but their use is strictly voluntary. The Forest Service is not responsible for the consequences of applications or misuse of the Protocol outside the agency.**

**DESCRIPTION**

**PURPOSE**

- \* Choose a course of action from the alternatives.
  
- \* Describe the deciding officer's rationale for choosing an alternative.
  
- \* Develop an action plan for implementation.

## **PROCESS**

- \* Describe information and assumptions that are critical in making a choice.
- \* Compare how the alternatives perform on the objectives, consequence predictions, public issues, and other decision criteria.
- \* Evaluate the alternatives under varying assumptions about critical information.
- \* Describe the rationale for choosing the alternative, including what is gained and what is foregone in choosing it.
- \* Choose an alternative or construct a new action from the components of the alternative set.

## **PRODUCTS**

- \* Narrative description of selection rationale
- \* Display of tradeoffs among important measures and criteria.
- \* Description of the selected alternative
- \* Written plan to ensure that the action is implemented and that contingencies are provided for.

## **INITIAL ASSESSMENT QUESTIONS**

Put a check beside each statement below that is true about any choice of alternatives or action you have already taken on the problem. For each statement unchecked, work through the CORE QUESTION suggested and/or describe what

should be done to bring this part of the action analysis "up to grade". If you check fewer than half of the questions, work completely through the ACTION cycle questions.

\_\_\_\_\_ The display of the expected consequences of all alternatives is understandable. If not, go to ACTION Question 3.

\_\_\_\_\_ The benefits, costs, risks, and trade-offs that would occur are understandable. If not, go to ACTION Questions 3 and 9.

\_\_\_\_\_ The criteria for the choice of alternatives are clearly stated. If not, go to ACTION Questions 3,4 and 7.

\_\_\_\_\_ The relative importance of different objectives, consequences, and other criteria are clearly presented. If not, go to ACTION Questions 3, 7-9.

\_\_\_\_\_ The rationale for choosing the alternative is understandable and well-presented. If not, go to ACTION Questions 7-9.

\_\_\_\_\_ The alternative chosen fully addressed the objectives set out by the team and stakeholders. If not, go to Problem Question 16, and ACTION Questions 3 and 7.

\_\_\_\_\_ The choice process relied strongly on the results of the CONSEQUENCE cycle analysis. If not, go to ACTION Question 3.

\_\_\_\_\_ The choice rationale closely followed a process design developed by the team and stakeholders. If not, go to PROCESS Question 8 and ACTION Question 7.

\_\_\_\_\_ The choice rationale is logically defensible. If not, go to ACTION Questions 7-9.

\_\_\_\_\_ The choice rationale is legally consistent. If not, go to ACTION Questions 7 - 9.

\_\_\_\_\_ Stakeholder concerns been addressed in the choice rationale? If not, go to ACTION Questions 2,7-9.

\_\_\_\_\_ The rationale is candid about biases that could have influenced the choice. If not, go to ACTION Questions 4-5.

\_\_\_\_\_ The strengths and limitations of critical assumptions and information source are clearly described. If not, go to ACTION Questions 4 and 5.

\_\_\_\_\_ The selected alternative is technically, financially, and logistically feasible. If not, go to ACTION Questions 10 and 13.

\_\_\_\_\_ The alternative chosen is consistent with organizational policies and plans at higher scales of authority. If not, go to ACTION Questions 7 - 9.

\_\_\_\_\_ The organization's legal and other authorities to implement the activities chosen are clear. If not, go to ACTION Questions 7-9.

\_\_\_\_\_ The plans for control and accountability are clear and comprehensive. If not, go to ACTION Questions 10-16.

## **CORE QUESTIONS**

### **CHOICE**

#### **ACTION Question 1. How do the alternatives compare in meeting the objectives and minimizing negative consequences?**

Summarize the consequence predictions from the CONSEQUENCE cycle. Review the results of CONSEQUENCES SUMMARY TABLE 3 for each of the alternatives and the overall comparison in DESIGN SUMMARY TABLE 5.

Important: Include the NO-ACTION and the Current or Status Quo alternatives.

Compare the performance of the alternatives, giving each a relative rating or ranking for each measure. Use either an intuitive approach or a structured analysis, discussion technique, rating or ranking process such as those referenced in the Team Leader TIPS and TOOLS. Identify the technique you are using.

Summarize your comparisons by providing an overall ranking and/or describing the "pluses" and the "minuses" for each alternative relative to the others.

**ACTION SUMMARY TABLE 1. Alternative ratings. (ACTION question 1)**

Measure	Measure value (consequence)					
	Rating or Ranking					
	Current Action	No action	Alternative A	Alternative B	Combined or hybrid Alternative (A6)	Highest rated /ranked alternative
Measure A						
Measure B						
Measure C						
Overall /ranking for the alternative						
Relative advantages and disadvantages (plusses and minusses)						

**ACTION Question 2. What are the most critical assumptions in your comparison?**

*Record results of your discussions on questions 2-4 in ACTION Summary Table 2.*

Describe the most critical factors or information in the comparison. Cycle back to the DESIGN and CONSEQUENCE summary table results, if

necessary.

What did you assume about each of these factors?

**ACTION Question 3. How would your ranking of the alternatives change if the assumptions were different?**

Indicate which of the assumptions above are the most uncertain. to 10 = highest confidence).

For each of the critical assumptions above, assume the opposite or drastically different conditions. Describe how the relative performance of the alternatives would differ under these different conditions.

**ACTION Question 4. What additional information will you (and/or the deciding officer) need to fully compare the alternatives and choose one?**

ACTION SUMMARY TABLE 2. Assumptions for choice. (ACTION questions 2-4)

Assumption	Certainty level (0 to 10)	Opposing assumption	Alternative ranking under opposing assumption	Information needs
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**ACTION Question 5. How will stakeholders respond to the alternatives?**

For each alternative, describe stakeholders and whether, in your opinion, they will support, oppose, or be neutral. Describe what you think are the reasons for their views.

ACTION SUMMARY TABLE 3. Stakeholder responses. (ACTION question 5)

Stakeholder responses expected

Support / Neutral / Oppose

Reasons for responses

Stakeholder	Current Action	No action	Alternative A	Alternative B	Combined or hybrid alternative (A6)	Alternative most preferred by the stakeholder
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*Support*

*Stakeholder 1*

*Because they like it.*

*Stakeholder*

Overall "net" view of the alternative

**\*\*\* STOP: COLLECT MORE INFORMATION HERE OR CYCLE BACK TO EARLIER INFORMATION.**

**ACTION Question 6. How might you combine features of the alternatives into an action that would outperform the existing alternatives?**

This same question was asked of the analysis team in the DESIGN cycle. The version here gives the line officer and the team a second opportunity to refashion a suitable action after a closer look at all the objectives, consequence predictions, stakeholder responses and other criteria.

ACTION SUMMARY TABLE 4. Composite alternative. (ACTION Question 6)

Alternative:

Activity	Description
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**ACTION Question 7. What alternative action do you prefer? Why?**

Describe the alternative action that creates the most desirable and feasible change in the situation.

Describe what makes your preferred alternative better than the others. List the factors, measures, or features that drive your preference.

**ACTION Question 8. What keeps you from selecting each of the other alternatives?**

Explain how each alternative not selected may not perform as well as your preferred alternative on objectives, consequences, costs, or other criteria

For each alternative not selected, display the rationale for non-selection in ACTION Summary Table 5 after Question 10.

**ACTION Question 9. What do you give up (trade off) with the preferred alternative?**

Describe the benefits or opportunities that will not be realized if you implement the preferred alternative. In other words, what do the other alternatives offer that you will forgo in your choice of actions?

List the stakeholders that will be most affected and/or will respond most strongly to these tradeoffs.

**ACTION Question 10. What aspects of the preferred action are negotiable?**

List those activities, refinements, or other features of the preferred alternative which you may be able to forgo or modify in negotiations with powerful stakeholder groups or internal interests.

Describe the levels or types of activity that must be retained for the alternative to meet objectives and keep unwanted consequences to acceptable levels.

Describe the negotiable and non-negotiable features(s) in ACTION Summary Table 5, Rationale for Choice.

ACTION SUMMARY TABLE 5. Rationale for choice (ACTION questions 7-10).

Current action	No action	Alternative A	Alternative B	Combined or hybrid alternative
		(after refinement)	(after refinement)	

Preference

(select one or rank) (A-7)

Factors for selection

(A-7)

Non-selection factors

(A-8)

Tradeoffs with selection of preferred

(A-9)

Stakeholders

affected

(A-9)

Negotiable

features

(preferred alternative)

(A-10)

Non-negotiable features

(preferred alternative)

(A-10)

## **IMPLEMENTATION**

### **ACTION Question 11. What must be done to ensure that the design will be implemented?**

List the contents of the action/implementation plan for your preferred alternative. Describe the specific activity, who is responsible, and times in ACTION Summary Table 6 (after Question 13):

### **ACTION Question 12. What stipulations or conditions will be necessary for partners, users, and others?**

**ACTION Question 13. Who are the key players in making this action accomplish its objectives and be successful?**

List the people and groups (or coalitions) inside the organization who must be convinced that this action is worthwhile.

Describe how the preferred action does or does not meet their particular needs and goals.

Describe what you can do to gain or maintain their support.

**ACTION SUMMARY TABLE 6. Implementation plan. (ACTION Question 11-13)**

Activity	Who?	When?	Stipulations	Key players	Support basis
(A-11)	(A-11)	(A-11)	(A-12)	(A-13)	(A-13)

**ACTION Question 14. What could go wrong during the implementation of this action?**

Develop several "worst-case" accident, mistake, natural disaster scenarios.

Describe how you or future decision teams could respond to each of these scenarios to achieve the original objectives or otherwise minimize negative consequences.

**ACTION SUMMARY TABLE 7. Worst-case scenarios (ACTION question 14)**

**ACTION Question 15. How will you monitor to see that the activities are implemented?**

Describe who will have the responsibility, the information to be collected, documentation requirements( including reporting milestones and timelines, and corrective actions in ACTION Summary Table 8 (after question 17).

**ACTION Question 16. How will you monitor to determine whether the activities will have the consequences you predicted?**

Describe who will have the responsibility, information to be collected, documentation requirements( including reporting milestones and timelines, and corrective actions in ACTION Summary Table 8 (after question 17).

**ACTION Question 17. How will you document and record this action so that future teams can learn from its successes and failures?**

Imagine yourself 10 years in the future as a member of a decision team facing a similar or related decisions about this area or situation. What information would you like to have in the project files to help you move through the five cycles of decisionmaking?

Describe how you will incorporate these needs into the action plan and into the development of the files for this action.

**ACTION SUMMARY TABLE 8. Monitoring and learning plan (ACTION questions 15 - 17)**

Implementation monitoring

Consequence monitoring

Learning design

( A-15)

(A-16)

(A-17)

Who?

Information to be collected

When?

Corrective responses and actions

**AUDIT QUESTIONS**

**REANSWER THE INITIAL ASSESSMENT QUESTIONS IN THIS CYCLE. IF YOU ARE UNSATISFIED WITH ANY OF THE ANSWERS, RETURN TO THE APPROPRIATE CORE QUESTIONS. SEE THE APPENDIX FOR PROCESS SUGGESTIONS.**

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## TEAM LEADER TIPS AND TOOLS

NOTE: There are no tips or tools for ACTION Questions 2-10, and 12-17.

### **ACTION Question 1. How do the alternatives compare in meeting the objectives and minimizing negative consequences?**

There are many ways of comparing and choosing the "best" alternative. One of the most difficult issues in making these comparisons is dealing with multiple consequences in different measures. Converting measure values to some common scale can be helpful if the team can (a) agree on the scaling process and (b) be able to explain it to the deciding officers and stakeholders who must use the comparisons.

One way is to scale each of the possible values for a measure from 0 (worst) 100 (best). Each alternative then is "scored" on this common measure. With these numbers, the team and the deciding officer has several options:

\* Set minimum limits (0 to 100) for acceptability, below which you screen out the alternative from further consideration. Eliminate those alternatives that do not satisfy some minimum level on each measure. The remaining alternatives can be compared with more complex techniques (below).

\* Rank the alternatives for each measure, and choose the alternative that ranks highest on the largest number of objectives and/or consequence measures. This assumes that all the objectives/measures are equally important

\* Rank the objectives/measures and choose the alternative that best meets the most important objectives. Weight the measures themselves from least (0) to most important (1). Develop a weighted total score (weight of measure A (e.g., .70) times the score of Alternative XXX on that measure (e.g., .50). The score in this example would be  $.70 \times .50 = .35$ . Develop scores for all measures and alternatives. Choose the alternative with the highest total weighted score.

\* Calculate the advantage of each alternative by comparing its score with those of the worst alternative for each measure. Choose the alternative that has the most advantages or the highest total advantage score (greatest net advantage).

### **ACTION Question 11. What must be done to ensure that the design will be implemented?**

Successful implementation involved handling many barriers. Any action plan should develop answers to the following questions:

1. Are resources adequate?

2. Do others have the motivation and commitment needed?

3. Is the idea likely to meet with general resistance to change?
4. Are there procedural obstacles?
5. Are there structural obstacles?
6. What organizational and managerial policies need to be changed?
7. How much risk-taking is required?
8. Are there any power struggles that might block implementation?
9. Are there interpersonal conflicts that might retard progress?
10. Is the general organizational climate one of distrust or trust?

#### **FOR FURTHER READING**

##### **ACTION question 1**

Dunn: 64-94. Modes of argument about policy options; 219-276. Recommending policy actions.

Dunn: 399-359. Evaluating policy performance.

##### **ACTION question 5**

Covello et al. (1986). How people perceive risks of activities and technology.

Cross (1994). Public perceptions and roles in risk assessment and management.

Sandman (1985). Communication planning for risky projects and technologies.

Slovic (1986). Review of research on risk communication and perception.

### **ACTION question 7**

Clemen (1996): 101-153. Making choices in decision analysis; 155-179 sensitivity analysis; 461-502 risk attitudes in decision analysis; 503-575 conflicting objectives and applied utility theory; 576-606 multiattribute utility and tradeoffs.

Dawes (1986): 146-175. Subjective expected utility theory and applications.

deBono(1994) : 113-159. Alternative comparison and selection.

Doyle and Strauss (1982): 243-256. Methods for choosing options in group settings.

Jones(1995): 127-159. Weighted ranking of alternatives.

Kleindorfer, et al. (1993): 115-176. Review of research findings on valuation and choice behavior.

Russo and Schoemaker (1989): 119-169. Coming to conclusions (choice behavior) and group choices and tools.

Sinden and Worrel (1979): 130-249. Methods for choosing with multiple objectives.

vonWinterfeldt and Edwards (1986): 259-308. Multiattribute utility theory and examples.

### **ACTION question 11**

Leintz and Rhea (1995):47-66. Project definition and task analysis

### **ACTION question 17**

Dawes (1988): 92-125. Problems in learning from experience; 230-253 giving up beliefs.

Leintz and Rhea (1995): 259-291. Project change and learning from projects.

Russo and Schoemaker (1989): 173-210. Learning from experience.

Senge (1990): 17-68. Learning dysfunction in organizations.

Keeney (1983). Role of standards in tradeoff analysis

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Cross, F.B. 1994. The public role in risk control. Environmental Law 24: 821-969.

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Keeney, R.L. 1983. Issues in evaluating standards. *Interfaces* 13:12-22.

Kleindorfer, P.R., H.C. Kunreuther, P.J.H. Schoemaker. 1993. *Decision Sciences: An Integrative Perspective*. Cambridge University Press, New York.

Lientz, Bennet P., and Kathryn P. Rea 1995. *Project Management for the 21st Century*. Academic Press, Inc. San Diego, CA. 308 pp.

Russo, J. Edward and Paul J.H. Schoemaker. 1989. *Decision Traps: The Ten Barriers to Brilliant Decision-Making and How to Overcome Them*. Simon and Schuster, New York. 280 pp.

Sandman, P.M. 1985. Getting to maybe: some communication aspects of siting hazardous waste facilities. *Seton Hall Legislative Journal* 9:442-465.

Senge, Peter M. 1990. *The Fifth Discipline: The Art and Practice of the Learning Organization*. Doubleday/Currency, New York. 424 p.

Sinden, John A., and Albert C. Worrell. 1979. *Unpriced Values: Decisions Without Market Prices*. John Wiley and Sons. New York. 511 p.

Slovic, P. 1986. Informing and educating the public about risk. *Risk Analysis* 6(4): 403-415.

von Winterfeldt, Detlof and Ward Edwards. 1986. *Decision Analysis and Behavioral Research*. Cambridge Univ. Press. Cambridge G.B. 604 pp.

Wack, P. 1985. Scenarios: uncharted waters ahead. *Harvard Business Review*. 85(5): 73-89.