

Structured Decision Making

A Common Sense Approach to Better Decisions

What is Structured Decision Making?

The Structured Decision Making (SDM) process is used for evaluating policy and management alternatives. It provides a common-sense framework that formalizes the steps of good decision-making, emphasizing the integration of scientific, socio-economic and other technical analysis with value-based information. Although specific methods of analysis or implementation may vary depending on the situation, the steps of SDM are general and apply to all major policy and management decisions. Application of SDM is expected to improve the transparency and defensibility of decisions, as well as the efficiency of the decision making process.

Steps in SDM

There are six steps in SDM.

Clarify the Decision Context. At this stage, the nature, scope and context of the decision are defined, as are budgets, timelines, and the roles and responsibilities of the decision team. The approach to the overall decision process, including the level and kind of technical analysis required and the role of public consultation, is specified.

Define Objectives and Evaluation Criteria. Objectives are a simple statement of the resources, endpoints or outcomes that could be affected by the alternative policies or actions under consideration. Evaluation criteria are specific measurable metrics used to report the predicted consequences of the alternatives on the objectives.

Develop Alternatives. A range of creative and well-defined policy or management alternatives must be developed. Alternatives should reflect substantially different approaches to the problem or different priorities across objectives. They should present decision makers with real options and choices.

Estimate Consequences. The consequences of the alternatives on the evaluation criteria are estimated using the best available science, including natural and social sciences, economics, engineering and health sciences, and according to accepted standards of practice within the relevant disciplines. There will be uncertainty in most estimates. Consistent with the timeline and resources available for the decision process, it may be useful to collect additional information, develop predictive modeling tools or elicit expert judgment.

Evaluate and Select. Although the SDM process often delivers “win-wins”, most decisions will still involve trade-offs of some kind and hence will require value-based choices. For example, it

Steps in the Decision Process

Clarify the decision context

Define objectives and evaluation criteria

Develop alternatives

Estimate consequences

Evaluate and select

Implement and monitor

may be possible to deliver different levels of protection at different levels of investment, or it may be necessary to set priorities among different components of ecological health. These trade-offs will be exposed and efforts will be made to gain an understanding of how the people most affected view them. In most cases, the decision team will avoid making recommendations. Instead, they will summarize the alternatives that have been considered, their consequences, and a summary of stakeholder responses to value-based trade-offs, leaving the final choice in the hands of decision makers.

Implement and Monitor. The rationale for the decision will be clearly documented and communicated. Significant uncertainties and their impact on the decision will be reported. Where uncertainty has significantly affected the ability of decision makers to make an informed choice, plans will be put in place for ongoing monitoring or research to improve the information base for future decisions and to verify the effectiveness of the policies implemented.

Applying SDM

Broad Applicability. These Guidelines apply to all major policy and regulatory decisions, including both broad public policy decisions (such as approving solid or liquid waste management plans) and on-the-ground operational decisions (e.g., selecting a method of cost recovery for park services). The objectives, the alternatives and the nature of the analysis will vary depending on the type of decision, but the basic steps are broadly applicable.

Flexibility in Implementation. The steps can be conducted quickly (for example, in a single meeting) either because a decision is urgent or in order to provide an overview of the nature and scope of a decision as a prelude to more comprehensive analysis. For major decisions, the same steps might be conducted over several weeks or months, supported by detailed technical analysis and/or public consultation.

Iterative Approach. Major decisions should begin with an initial decision scoping exercise in which the decision team works through the first five steps of the SDM process within the course of a few days or hours. This will expose all relevant aspects of a decision and facilitate appropriate allocation of resources to the assessment of environmental, economic and social outcomes. After working through all the steps more comprehensively, a review at Step 5 (Evaluate and Select) may identify new alternatives, or reveal that the decision is sensitive to uncertainty in one or more of the evaluation criteria, triggering further targeted analysis. This iterative approach will help to deliver a balanced analysis of all relevant components of the decision, and ensure any further analysis is cost-effective, timely and relevant.

Qualitative or Quantitative Analysis. Consequences can be estimated qualitatively or quantitatively depending on the nature of the decision and the resources and time available for analysis. If a quantitative approach is adopted, the impacts can be reported in natural units or

Core Principles

The following core principles guide the SDM process.

Sound Science. Estimates of the potential consequences of alternatives will be based on information collected through best practices in science, including natural sciences, health sciences, engineering, economics and social sciences.

Clear Values. Decisions will be based on a clear statement of objectives, explicit value judgments and transparent trade-offs.

Decision Focus. The decision process will follow best practices in decision making methods to ensure transparency and defensibility.

Risk Management. Risks and uncertainties will be addressed explicitly and their implications for management noted.

Flexibility and Iteration. The process and analysis will be iterative, adaptable and commensurate with the nature of the decision.

Continual Improvement. Decisions will be based on the best available information, with a commitment to monitor and review over time.

they can be monetized. Where monetization is proposed, the incremental benefits for decision-making should be carefully examined.

Internal and Collaborative Decision-Making. The steps apply equally to internal decisions, to collaborative planning initiatives with partner agencies, and to decision processes involving full public stakeholder participation. When public consultation is involved, the method, format and intensiveness of consultation will vary, depending on the nature of the decision, the values at stake and the resources available for the decision process.

What are the Benefits?

Application of the Guidelines is expected to:

Increase the **transparency and consistency** of decision-making, by following a common process that requires costs, benefits, uncertainties and trade-offs to be explicitly stated and open to scientific and public review.

Increase the **defensibility** of decisions, by ensuring that decisions are based on both sound science and a good understanding of public values. The structured process provides clarification of the factual basis for decisions (scientific analysis and the estimation of consequences) and the values basis for them (priorities, preferred trade-offs and choices).

Improve the **efficiency** of the decision making process. The SDM process is likely to involve some additional up-front investment in problem structuring but it is expected that that will be offset by a streamlined decision process and reduced rework.

Improve **performance** with respect to fundamental Ministry objectives, including on-the-ground outcomes related to human health and the environment, as well as social, economic and financial objectives, and the ability to achieve a sustainable balance among them.

Improve **decision making capacity**, including both the technical data and expertise available to inform decisions, as well as the individual and collective decision making skills and resources of people and institutions. Both of these will improve over time through commitment to monitoring and continual improvement.

Roles and Responsibilities

For major decisions, a decision team should be formed and the process should be guided by a **decision charter**. The charter outlines the decision to be made and its relationship to other decisions or constraints. It defines the range of alternatives to be considered and the minimum objectives that must be evaluated. In addition, it identifies and outlines the specific responsibilities of decision makers, technical specialists, stakeholders and decision team members. It should include an implementation plan, budget and schedule for the decision process.

It is the responsibility of the **decision makers** to approve the decision scope and work plan as outlined in the charter. In addition they must approve the range of alternatives under consideration, and the objectives and evaluation criteria that will be used to evaluate alternatives. This approval should occur prior to detailed technical analysis in order to guarantee the relevance of such analysis to the decision.

The role of **technical specialists** is to provide input on the selection of evaluation criteria, estimate the consequences of the alternatives, describe uncertainty and its effect on the decision, and ensure that key trade-offs are exposed. They may provide and explain relevant technical data and analysis, collect new data, develop models, or provide or elicit expert judgment in support of these tasks.

The role of **stakeholders** will vary by project. However, most decisions will require input from stakeholders on the selection of objectives and evaluation criteria, the identification and refinement of alternatives, and an expression of preferences for specific value-based trade-offs.

Members of the **decision team** will vary by project but for major decisions could include a team leader, a technical coordinator, a communications coordinator, and a decision analyst and facilitator.