# Section V-B
## Effects for Decision Making

### Definition

Conservation Effects for Decision Making (CED) is an analytical process that helps in conservation planning. It is the framework for the conservation planner to help clients make better informed decisions in solving natural resource problems.

CED focuses on the producer as the decisionmaker. This focus on the client defines the type of information needed and the kinds of tools used to get that information. It is a process focused on the exchange of information between you and the people who make decisions about their operations.

### Background

CED has two driving forces - changes in public law and SCS's desire to focus more on client satisfaction.

The Food Security Act (FSA) and the Food, Agriculture, Conservation and Trade Act (FACTA) had a dramatic impact on farmers, ranchers, and SCS. It mandated a greater need for farmers and ranchers to consider the social and environmental impacts of their actions.

SCS recognized that the conservation planner needed additional tools to help with the increased responsibilities. CED is one of those tools.

### Problems

A primary concern that drives the SCS conservation planning policy is the quality of service to the client. CED is designed to address two major problems in providing high quality service:

1. Poor Information Delivery System:

   a.) *Not enough information.* When clients request conservation assistance from SCS on a voluntary basis, the information they receive may be insufficient for them to make an informed decision.

   b.) *Amount and type of information.* When clients request conservation assistance from SCS to qualify for farm program benefits, their information requirements are different than voluntary requests for help. Their requests may be more narrowly focused and they are generally less motivated to fully implement a conservation management system. Each client needs to understand the impact of the decisions they make.

   c.) *Level of detail.* Depending on the planner's background and training, he or she may give a client information that is detailed in some areas, but weak in others. Consequently, clients do not always receive enough information about the cost and impact to make an informed decision. CED uses a multi-discipline approach to solving a planning problem, with the emphasis on the clients needs.

2. Lack Of Useful Records:

   *No readily usable method.* SCS had no readily usable method of recording and documenting the effects of conservation treatments that field office staff observe in the field. This knowledge primarily resides "in people's heads" and is not available when these individuals are no longer in that field office.

Consequently, new employees and transferees learn about local resource setting and the effects of conservation management systems from other staff and from observation.

A fundamental element of CED is establishing a method to store and use conservation experience.

## CED Objectives

CED will help:

-Establish the client as the conservation decisionmaker, recognizing the client's values in determining the advantages and limitations of conservation treatments for the operation.

-Describe the use of conservation effects in a consistent, common-sense framework to aid the client in making choices.

-Describe different levels of information/analysis useful to the client when making choices.

-Give meaningful information to clients by providing guidance through the use of experience, research data, and other information in the Field Office Technical Guide (FOTG).

-Involve all disciplines in an integrated approach to conservation planning that supports the process detailed in the National Planning Manual.

-Direct SCS planning efforts toward client decision - allowing the clients to really "buy into" the conservation plan for the farm or ranch.

## CED Benefits

CED is designed to help you assist the farmer or rancher in reaching an informed decision about a conservation plan by:

-Giving you a method to more easily obtain and store effects information.

-Outlining a process that helps you to present, discuss, and compare the effects of the present situation or system to any number of proposed treatments.

-Giving you a logical method of helping the client evaluate the conservation treatment alternatives available.

## CED Process

The CED process involves 4 steps to be effective.

**Step 1: DESCRIBE THE BENCHMARK:**

You begin the CED process by examining and documenting the current system and effects, or BENCHMARK.

**The benchmark is a statement of the condition or situation that exists currently or is expected to exist in the future if the current pattern of resource use and problems are not treated. The benchmark is described within the context of the *resource setting* and includes the present *management systems* and the resulting *effects*.**

A. Resource Setting

The resource setting is a list of attributes or characteristics used to identify areas for measuring results of different treatments. In other words, it is a list of factors that will not change with different treatments, but are important in the planning problem at hand. The resource setting you use for the benchmark will be the same for the alternative systems you may propose. Examples of factors you may list for a resource setting are, but not limited to:

* Dominant Soils
* Precipitation Rates
* Elevation
* Range Sites

B. System

The first part of the benchmark is a description of the present management system. The term "system" means any combination of practices and management measures used that has a bearing on the planning problem. You describe the benchmark system by listing the practices and management measures for which you are concerned. Practices and management measures noted in the benchmark may include but not be limited to:

* Crops and Rotation
* Management Methods
* Farming Operations
* Conservation Practices (if any)

C. Effects

Effects are the results of treatments, practices, and management - they are results you can measure and/or describe. Effects should be recorded in physical terms. For example, a physical description of effects might be a USLE erosion rate of 20 tons per acre per year or a corn yield of 90 bushels per acre.

Some examples of types of effects are but not limited to:

* Water/Wind Erosion Rates
* Water Quality Problems
* Crop Yield
* Plant Conditions and Stocking Rates
* Soil Tilth
* Other Resource Problems and Opportunities, such as Improved Wildlife Habitat

D. Future Condition

Your assessment of the effects expected from continuing the system without change completes the Benchmark description. Estimate the conditions if no alternative treatments are used. Examples of status quo may be that soil erosion will increase from the current 10/t/ac/yr to 20/t/ac/yr resulting in yield reduction of 20 bu.

**Step 2: DEVELOP ALTERNATIVES**

Next, you prescribe a conservation ALTERNATIVE and document its effects.

The alternative provides a new picture of the unit with the proposed conservation in place.

The alternative is a combination of practices and management that achieves a level of treatment of natural resources specified by criteria contained in Sec III of the Field Office Technical Guide (FOTG) for a resource management system (RMS), acceptable management system (AMS), or other program - designated systems. The alternative also includes a list of the effects resulting from that alternative. The alternative takes place within the same resource setting as the benchmark.

Depending on the planning problem and the resource needs, the alternative you develop may end up requiring a number of practices, a single practice, or simply an adjustment of a current farm or ranch operation.

For example, depending on the benchmark condition, the alternative may involve a change in cropping system, land use, seeding date, tillage, structural components, or management levels, or it may be a combination of practices needed to fully treat all resource problems on the farm or ranch.

Your alternative proposal to the client should include what actions are needed to install and maintain the system. Collectively this means the kinds, amounts, and timing of actions to address the resource problems for the operation.

There can be several alternatives to solve the resource problem or concern. HOWEVER the alternatives should be evaluated one at a time. The CED process depends on your ability to compare two sets of effects to measure the difference between them. Therefore, you should propose one alternative at a time, then work through the rest of the CED process with the client.

## Determining Effects

Effects can come from many sources; from your personal experience, from the experience of the client or neighbors, from the FOTG, or from models, such as the Universal Soil Loss Equation (USLE).

Field trials, successful experiences, university data, or other research material are also useful. In some cases, you can develop a clear picture only by conducting a trial on a few acres of that unit.

**Step 3: DETERMINE THE IMPACT(S)**

The differences between the benchmark effects and alternative effects are listed as IMPACTS.

**Impacts are not effects!**

Do not confuse impacts with the term "effects." Effects are outcomes or results. Impacts are the differences between the effects. Example: Corn yield of 120 bu./ac. is the effect of Irrigation Water Management (IWM). Changing present corn yield from 90bu./ac. to 120 bu./ac. is the impact of IWM.

Impacts may be expressed in monetary, physical, or narrative terms.

Monetary and physical terms can be measured and expressed clearly and precisely. An example of a physical term is: "soil loss from sheet and rill erosion was reduced 16 tons per acre"

A narrative term is an expression of an outcome that is not described in precise measurements - either because it can't be quantified, or it doesn't need to be measured exactly to solve the problem. An example of a narrative term would be: "Water quality would be improved because of less suspended sediment."

## Time Frame

In some cases, you need to pay attention to the time frame in which the impacts occur. Certain activities may result in immediate and large costs in "up front money". Even if you can expect larger returns over an extended period of time, cash flow could be a concern.

**Step 4: PRESENT THE BENCHMARK, ALTERNATIVES, AND IMPACTS**

A. Clarity

You must give the information to the client in terms he or she understands. In most cases, SCS jargon and terms aren't helpful to a client. Put yourself in their place and try to use terms the client understands.

## Worksheet

The CED worksheet lists impacts in a clear format, allowing the client to evaluate/weigh the impacts using his or her values.

The focus of CED is to help clients make an informed decision, so you must give them the right type and amount of information to use. The type and amount of information depends on their needs. The clients should be able to use the information to judge the merits of the proposed alternative and understand what the alternative offers their total operation.

Tailor the amount and type of information to the client's needs and objective. you do not necessarily need to provide all of the detailed data you generated when you developed the alternative - give the client only enough information to make an informed decision.

B. Values Systems

Values are an important factor that must be considered when preparing and presenting information to the client. The information you provide is filtered through the client's value system. Each person's values will affect the merits of any impact. To one person, ten additional pheasants might be a positive impact - to another, the additional pheasants may be of no value.

Values are the ideals, intuitions, and concerns a client uses to judge whether an impact is favorable or unfavorable.

The key word is **client**. The values that determine if the proposed alternative will be implemented belong to the client, not the planner.

The values that belong to society, SCS, and you are factors that shape the type of alternative you propose to the client, but the client ultimately determines how much conservation gets done.

What is important is that the client is able to understand and compile the impacts in a manner that leads to an informed decision. The most simple rating method is using a plus and minus against each impact. Another method could be using numbers on a scale selected by the client, 1 to 10, for example.

The client has to consider not only the relative importance of each impact, but also the overall balance of all the impacts. A proposed alternative may generate several impacts the client considers to be negative, and just a few positive impacts. However, the few positive impacts may be important enough for the client to accept the alternative with the accompanying negative impacts. The client has to weigh each impact using his or her own values and be able to envision the new effect on his or her operation. Your job is to present the information so the client can understand the trade-offs required.

C. Appropriate Amount of Detail

To make a decision about the proposed conservation plan, the client may need more information in a particular area. You can analyze impacts in greater detail using the DETAIL STAGING PROCESS. This technique allows you to concentrate on specific areas that are important to the client.

In some cases clients will require more information before they can "feel comfortable" in making a decision. They may need greater detail on some of the impacts or an analysis of a new concern. You can develop the CED worksheet to provide additional details; this is called the Detail Staging Process.

The 1st CED worksheet developed with the client describes the basic effects. Consequent CED worksheets will progressively get more detailed until the client has enough information to make an informed decision.

**DETAIL STAGING PROCESS** - is a process in which you refine, clarify, or expand information that is important to the client in well defined steps. Don't waste resources on information that won't be used, but spend as much time and effort as necessary on information the client will use to make a decision.

1. Start simple and progress to the more complex. (Use your judgement to decide how simple the starting point should be.)

2. Let the client define the areas where more information is needed.

3. Develop more detailed information in steps (levels of analysis).

4. Continue the process until the client has enough information to make a decision.

There are no specific guidelines to identify how many levels of analysis are needed. In most cases, you identify the cost of a system and describe necessary maintenance. In many situations one or two levels of analysis are sufficient. Occasionally, a complex analysis is necessary.

DETAIL STAGING means analyzing the same data in more and more detail. At times, this means refining the effect data for the benchmark as well as the alternative being considered. The more levels of analysis required, the more complex and sophisticated your tools need to be.

D. Utilize Experience

Experience is professional knowledge about conservation. It directs the assessment, determines the benchmark, helps formulate the alternatives, and identifies the expected effects and refines the impacts.

Experience includes not only your personal knowledge, but also all the knowledge available to us. Experience comes from your background, the knowledge of the farmers and ranchers (and their neighbors), the knowledge of your fellow conservationists, university, extension, other specialists and the information available to you in SCS materials.

## Format

The specific format for displaying effects data is up to you. (Use of the CED worksheet is recommended).

The format you adopt must:

* Be specific for a named map unit, soil series, or range sites and include a specific conservation practice or system of practices

* Provide information of the effects on the soil, water, air, plant, and animal (SWAPA) resources as appropriate, and other considerations that are important to the client.

* Provide information on effect that is useful to the client - it should be specific, factual, and expressed in qualitative, quantitative, or narrative terms. It should enable the client to determine what the suggested alternative means to his or her particular circumstance.

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***Note:*** *Insert specific CED worksheets or other conservation effects information after this page.*

| NAME | ADDRESS | OPID NO. | CTU, FIELD OR TRACT NO. |
|---|---|---|---|
| **RESOURCE SETTING:**<br>MLRA 034, Semidesert zone, loamy soils, 5-20% slopes, fair range condition | **RESOURCE PROBLEMS BEFORE TREATMENT:**<br>Inadequate forage in quantity and quality, excess soil erosion, poor distribution, decadent, big sage | **DESCRIPTION OF TREATMENT OPTION:**<br>Access Road<br>Brush Management - **w/2,4-D**<br>Proper Grazing Use<br>Water Development - **Pond**<br>Wildlife Upland Habitat Management | |

**BENCHMARK: (Present Management System)** Continuous spring, summer, and fall grazing, palatable and productive plant species are declining.

| **Actions**<br>**(Kinds, amounts, and timing)** | **Effects**<br>**(Effects of continuing the benchmark system)** | **Comparison of Effects of Benchmark and Treatment Option**<br>**Impacts** | **Decisionmaker Evaluation** |
|---|---|---|---|
| Continuous spring, summer & fall grazing at high stocking rates. | - Water erosion (concentrated flows) | Reduce concentrated flows | |
| | - Suspended sediments and turbidity | Reduce offsite sedimentation and reduce turbidity | |
| | - Re-routing of two track roads | Stabilize present two track roads | |
| | - Loss of riparian forage production & other values | Improve riparian areas<br>**Water quality (from ponds) is minimal for livestock** | |
| | - Downward trend in range condition | Improving range condition | |
| | - Decrease in AUM's for livestock & wildlife | Increase in AUM's for livestock & wildlife | |
| | - Increasing amounts of sagebrush & low quality species | Sagebrush amounts will decrease | |
| | - Degradation of wildlife food & cover | Improve wildlife food & cover | |
| | - Moving away from operator goals | Move toward operator goals | |
| | - Little control of livestock distribution | **"More effective"** control of livestock distribution<br>**2,4-D less expensive than Tebuthiuron, more risk of drift into riparian areas.** | |

| NAME | ADDRESS | OPID NO. | CTU, FIELD OR TRACT NO. |
|---|---|---|---|
| **RESOURCE SETTING:**<br>MLRA 034, Semidesert zone, loamy soils, 5-20% slopes, fair range condition | **RESOURCE PROBLEMS BEFORE TREATMENT:**<br>Inadequate forage in quantity and quality, excess soil erosion, poor distribution, decadent, big sage | **DESCRIPTION OF TREATMENT OPTION:**<br>Access Road<br>Brush Management - **w/Tebuthiuron**<br>Proper Grazing Use<br>Water Development - **Well & Tank**<br>Wildlife Upland Habitat Management | |

**BENCHMARK: (Present Management System)** Continuous spring, summer, and fall grazing, palatable and productive plant species are declining.

| **Actions**<br>**(Kinds, amounts, and timing)** | **Effects**<br>**(Effects of continuing the benchmark system)** | **Comparison of Effects of Benchmark and Treatment Option**<br>**Impacts** | **Decisionmaker Evaluation** |
|---|---|---|---|
| Continuous spring, summer & fall grazing at high stocking rates. | - Water erosion (concentrated flows)<br><br>- Suspended sediments and turbidity<br>- Re-routing of two track roads<br>- Loss of riparian forage production & other values<br><br>- Downward trend in range condition<br>- Decrease in AUM's for livestock & wildlife<br>- Increasing amounts of sagebrush & low quality species<br>- Degradation of wildlife food & cover<br>- Moving away from operator goals<br>- Little control of livestock distribution | Reduce concentrated flows<br><br>Reduce offsite sedimentation and reduce turbidity<br>Stabilize present two track roads<br>Improve riparian areas<br>**Water quality (from well) is good for livestock**<br>Improving range condition<br>Increase in AUM's for livestock & wildlife<br>Sagebrush amounts will decrease<br><br>Improve wildlife food & cover<br>Move toward operator goals<br>**"More effective"** control of livestock distribution<br>**Tebuthiuron more expensive than 2,4-D, minimal risk of drift into riparian areas.** | |

| NAME | ADDRESS | OPID NO. | CTU, FIELD OR TRACT NO. |
|---|---|---|---|
| **RESOURCE SETTING:**<br>MLRA 034, Semidesert zone, loamy soils, 5-20% slopes, fair range condition | **RESOURCE PROBLEMS BEFORE TREATMENT:**<br>Inadequate forage in quantity and quality, excess soil erosion, poor distribution, decadent, big sage | **DESCRIPTION OF TREATMENT OPTION:**<br>Access Road<br>Brush Management - **w/Burn**<br>Proper Grazing Use<br>Water Development - **Spring, Pipeline, Tank**<br>Wildlife Upland Habitat Management<br>**Fencing & Planned Grazing System** | |

**BENCHMARK: (Present Management System)** Continuous spring, summer, and fall grazing, palatable and productive plant species are declining.

| Actions (Kinds, amounts, and timing) | Effects (Effects of continuing the benchmark system) | Comparison of Effects of Benchmark and Treatment Option<br>Impacts | Decisionmaker Evaluation |
|---|---|---|---|
| Continuous spring, summer & fall grazing at high stocking rates. | - Water erosion (concentrated flows)<br><br>- Suspended sediments and turbidity<br>- Re-routing of two track roads<br>- Loss of riparian forage production & other values<br><br>- Downward trend in range condition<br>- Decrease in AUM's for livestock & wildlife<br>- Increasing amounts of sagebrush & low quality species<br>- Degradation of wildlife food & cover<br>- Moving away from operator goals<br>- Little control of livestock distribution | Reduce concentrated flows<br><br>Reduce offsite sedimentation and reduce turbidity<br>Stabilize present two track roads<br>Improve riparian areas<br>**Excellent water quality (from spring) for livestock**<br>Improving range condition<br>Increase in AUM's for livestock & wildlife<br>Sagebrush amounts will decrease<br><br>Improve wildlife food & cover<br>Move toward operator goals<br>"**Most effective**" control of livestock distribution **with a grazing system**<br>**Burn is less expensive than 2,4-D or Tebuthiuron & creates better mosaic for wildlife. Higher liability if it escapes** | |