

## Part 610 – Natural Resource Economics Handbook

### Subpart G – General Glossary

#### 610.70 Terms and Definitions

Term	Definition
Amortization	Converting capital to periodic payments by determining the size of payment per time period needed to pay off a debt over a given time at a given interest rate. $\frac{r(1+r)^n}{(1+r)^n - 1}$ where: r = interest rate and n = number of periods
Annuity	A series of payments made over time. An annuity may be a benefit or a cost.
Benchmark	The resource setting from which options are evaluated. A benchmark is commonly thought of as representing the resource setting before conservation treatment.
Benefit-cost analysis	An economic analysis of an investment or policy alternative in which estimated total costs are compared with estimated total benefits.
Breakeven	The point where the proceeds from total output of an alternative plan equal the costs of all inputs associated with that alternative.
Capital	One of four traditional factors of production used to produce goods and services. Capital is generally defined to include machinery, livestock, buildings, cash, or some combination of these that can be used to purchase or trade for other resources. Capital does not include management, land, and labor contributed toward the production of goods and services.
Capital investment	Monetary expenditures necessary for initial installation of a practice or system.
Commodities	Undifferentiated good in which one producer's product is indistinguishable from another.
Competitive enterprise	A business entity which increases its own production in order to capture a greater share of the market, thus causing other competing entities to decrease their production.
Compounding	The process through which interest that is earned for one period is immediately added to the principal, thus resulting in a larger principal on which interest is computed for the following period. $(1+r)^n$ where: r = interest rate, n = number of periods

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Cost effectiveness analysis	An appraisal technique especially useful where benefits cannot be reasonably measured in monetary terms. On a present value basis, the least expensive alternative combination of tangible costs that will realize essentially the same benefits should be identified. The combination is often referred to as least cost or cost effectiveness. Once it is determined that the least expensive alternative has been identified and its costs valued, then the subjective question "is it worth it?" can be more readily addressed.
Crop budget	A systematic listing of resources used, their cost for specified yield levels, and the value of the output by individual crops or enterprises.
Demand	The quantity of a good (or service) that consumers will purchase at a given price.
Soil deposition	Soil movement (erosion) from one location to another resulting in the covering of fertile soil sediment, which results in a less productive soil.
Depreciation	A decrease in the value of property through wear, deterioration, or obsolescence.
Discount rate (see also interest rate)	The time value of money, expressed as a percentage. Interest rate is a comparable term, but interest only related to monetary transactions. Discount rate is the more general term for all economic analysis.
Discounting	The process of finding a present value, given a future value.
Economic analysis	An analysis done using economic values. In general, economic analysis omits payments, such as credit transactions, and values all items at their value-in-use or their opportunity cost to the society.
Effectiveness	The extent to which an alternative plan alleviates the specified problems and achieves the specified opportunities.
Efficiency	The extent to which an alternative plan is the most cost effective means of alleviating the specified problems and realizing the specific opportunities, consistent with protecting the Nation's environment. Considered a measuring stick for evaluating choices based on the ratio of output to input.
Evaluation period	The period beginning at the end of the installation. Based on the expected useful economic life.
Financial analysis	Analysis done to determine effects of a particular action or plan on the liquidity, cash flow, or profitability of a business or enterprise.
Fixed costs	Expenditures an enterprise would incur even if no output were produced.
Interest	The earning power of money or the price for the use of money.
Interest rate	The cost of using borrowed capital or the value placed on using owned capital, determined by demand, time, and risk.

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Internal rate of return	The interest rate money will earn as the total investment is repaid by its revenues.
Management	A decisionmaking process of determining how land, labor, and capital will be combined into an enterprise or organization for the purpose of obtaining one's objective.
Marginal analysis	Determining the level of production where marginal costs are equal to marginal benefits and net benefits are maximized.
Marginal benefit	The additional benefit of producing one more unit of output.
Marginal cost	The additional cost of producing one more unit of output.
Conservation objective	A stated resource conservation goal related to improving general natural resource conditions or resolving one or more specific resource concerns. For a land user, a conservation objective typically comprises what he or she wants to accomplish or what he or she wants to see change as a result of implementing a conservation system. Also usually includes elements of both resolving resource concerns and improving farm or ranch operations. For NRCS, a stated conservation objective usually includes making progress toward agency goals for specific natural resource conditions.
Offsite benefits and costs	Offsite benefits are those benefits realized (and offsite costs are those costs that are incurred) outside of the immediate project area.
Onsite benefits and costs	Onsite benefits are those benefits realized (and onsite costs are those costs that are incurred) on the physical land unit where a conservation system is implemented.
Opportunity costs	The earning capabilities of assets for use in alternative investments having similar risks and timeframes.
Partial budgeting	In contrast with whole-farm or whole-enterprise budgeting, partial budgeting evaluates only the relevant changes that occur in returns and production costs in response to the implementation of a conservation system.
Period of analysis	The specified time period over which the costs and benefits of a given proposed project are analyzed. Generally, includes both the installation period and the expected operations period. Should not exceed the shorter of the planning horizons, such as the repayment period or the physical life of the alternative. If the selected planning horizon is shorter than the physical life of the alternative, however, the benefits that accrue beyond the period analyzed must still be carefully analyzed.
Perpetuity	An indefinite period of time, a period of time that exceeds all legally relevant timeframes, or an annuity that is payable forever.

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Planning horizon	The period of time for which a business owner, farmer, or rancher formulates goals for the operation or business; the time period within which a specific conservation practice or system of practices is planned for installation and implementation; or the time period over which a general conservation plan developed by an NRCS planner is intended to be implemented and operated.
Present value	Current value of a cost or benefit (or a stream of costs or benefits) that will occur in the future, calculated by means of discounting.
Price	The exchange value for commodities generally determined through the market system.
Price index	A series of data that are used to reflect changes in prices relative to prices in some base period.
Principal	The amount of an initial investment or the initial investment plus accrued interest.
Private costs or benefits	Those costs or benefits that are accruing to identified individuals but not to the public sectors.
Production costs	Expenditures, both fixed and variable, for all items required for specified levels of crop or livestock production.
Projections	Best estimates of future development, based upon historical trends, analysis of current relationships, and an evaluation of foreseeable conditions.
Public costs or benefits	Those costs or benefits that are accrued to groups of people and remain inseparable to individuals.
Rent	The amount paid to use an asset belonging to another. Interest is the rental payment for using someone else's money.
Simple interest	Money earned on the principal only and not on accumulated interest.
Social costs	Adverse conditions, either monetary or nonmonetary, that accrue to people outside of those with an immediate, private interest in an activity or transaction. Contrast with private costs. Often used in reference to society as a whole.
Supply	The quantity of a good or service a firm is willing to produce to sell at a given price.
Travel cost method	Method of estimating the economic value to society of a destination or activity at a specific location by using travel expenditures as a proxy for the market value of the destination or activity. Most often used to place a monetary value on nonmarket recreational assets or activities.
Unit cost	Monetary value or price per unit (e.g., cost per cubic yard of concrete or cost

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	per acre of owning an 18-foot self-propelled combine).
Variable costs	Costs of production that increase as the quantity of output increases.
Water resource project	A water-related conservation project that includes at least one structural practice as a means of resolving one or more water resources conservation issues. It may also include land treatment practices. All economic analysis of water resource projects for which federal funds will be expended must be completed in accordance with the guidelines contained in Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G).
Base period (year)	A specified year serving as the basis for comparison to establish an index of prices or other time-related variables. For example, if the year 1991 were selected as the base year for a farm commodity price index, the index value for that year would be 100. All other years' farm commodity price levels could then be compared with 1991's prices, and index values could be calculated to convey the degree to which prices have varied over time in comparison with prices in that base year.
With condition	The anticipated situation projected to occur in the future if the proposed conservation measures are installed. Sometimes referred to as the "future with project."
Without condition	The anticipated situation projected to occur in the future if the proposed conservation measures are not installed. Sometimes referred to as the "future without project."
Out-of-pocket cash costs	Direct cash expenditures for the purchase of items such as farm supplies, hired labor, and services.
Contingent valuation method	Method of estimating the economic value (cost) to society of an environmental good (bad) by interviewing stakeholders and asking them either how much they would pay to retain (eliminate) an existing environmental good (bad), or how much they would have to be compensated in order to give up (tolerate) an existing environmental good (bad). Contingent valuation is also used to evaluate the value (cost) to society of prospective environmental goods (bads). The two types of contingent valuation survey method are the "willingness to pay" method and the "compensation required" method (also known as the "willingness-to-accept" method).
Cropping sequence	The pattern in which crops are grown over time in the evaluation area or the crop rotation system being employed by a farmer.
Custom rate	The usual fee for farm services rendered, generally for machine hire.
Diminishing returns	A condition where each successive unit of input adds less to total output than the previous unit.

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Factors of production	Resources, either human (labor) or nonhuman (land or capital), used for producing goods or services that in turn satisfy wants. The three factors of production commonly identified are land, labor, and capital. Within this context, land is often used as a label for all natural resources.
Fair market value	The price at which an informed owner of an asset would sell that asset to an informed and willing buyer.
Family labor	Nonhired labor inputs from an individual or from their household.
Future with project	The future conditions that will exist, actual or estimated, for each alternative and the approved plan of action. Also known as the "with condition."
Future without project	The future conditions, actual or estimated, most likely to exist in the absence of the proposed plan or project. Also known as the "without condition."
Gross returns	Total production in units multiplied by the price per unit.
Installation period	The number of years required to install the measures of the planned alternative.
Least-cost alternative	The lowest expenditure for installing, operating, and maintaining a system or systems of conservation measures to achieve a specified objective.
Net returns	The residual value of production after total costs of production are subtracted from the gross returns.
Operating cost	Expenditures for machine operation that generally include lubrication, repairs, and fuel (not applicable to all machines).
Operation, maintenance, and replacement	Actual expenditures and donated services to ensure proper functioning of the facility or measure throughout its intended life, or capital outlay required to maintain the benefit stream and planned mitigation measures.
Ownership costs	Costs unrelated to rate of annual use, such as expenditures for depreciation, taxes, interest on investment, insurance, and housing.
Price base	A level of prices, usually associated with a "base" year, used as the basis for establishing a price index.
Production risks	The risk that the crops will fail or livestock will die.
Salvage value	The monetary value of an investment at the end of its economic life, usually the trade-in value as new equipment is purchased.
Short-term	A time period during which at least one production cost is fixed.
Long-term	A time period during which all production costs are variable.

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Sinking fund	A planned accumulation of money or financial capital in an interest-bearing account over a period of years. The intent of a sinking fund is to ensure that adequate funds are available to replace a piece of capital equipment once it has reached the end of its useful life and has been depreciated down to zero.
Technological advancement	Gains in production efficiencies or conservation opportunities through new innovations.
“T” chart	A "T" chart describes the resource setting, resource concerns, and conservation system and lists the "benefits" (good or positive results) and "costs" (bad or negative results) of a proposed conservation action.
Adoption analysis	The formal process of evaluating factors that impede the adoption of conservation practices or systems.
Adoption of conservation practices	The acceptance and implementation of conservation practices or systems.
Alternate conservation systems (ACSs)	A conservation system for treating sheet, rill, wind, and ephemeral gully erosion on highly erodible land that is documented in the Field Office Technical Guide (FOTG) and which achieves a substantial reduction in soil loss rates. This term applies only to conservation plans and conservation systems developed to carry out the provisions of the Food Security Act of 1985, as amended by the Food, Agriculture, Conservation and Trade Act of 1990 and the Federal Agricultural Improvement and Reform Act of 1996.
Alternatives	Sets of practices and activities with individual and societal objectives from which a land user can choose in order to address benchmark natural resource conditions and treat them to achieve the expected future condition.
Annual percentage rate (APR)	A loan interest rate that includes various fees in its calculation. Exactly what is included in its calculation varies among financial institution.
Basic conservation systems (BCSs)	An erosion control system for treating sheet, rill, wind, and ephemeral gully erosion on highly erodible land. A BCS may be a component of a resource management system (RMS). The BCS must achieve soil loss tolerance requirements for the principal soil it is designed to protect and be documented in the FOTG. This term applies only to conservation plans and conservation systems developed to carry out the provisions of the Food Security Act of 1985, as amended by the Food, Agriculture, Conservation, and Trade Act of 1990, and the Federal Agricultural Improvement and Reform Act of 1996.
Conservation benefits	Changes in natural resource or other variables that are deemed positive or desirable effects of the conservation planning and implementation process.
Conservation costs	Expenditures and other costs incurred in order to implement a conservation practice or system.
Conservation	Decisionmaking by land users about conserving natural resources.

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decisionmaking	
Conservation effects for decisionmaking (CED)	A formalized process used to assist land users in making conservation decisions by providing a method for organizing and evaluating information on benchmark conditions, resource concerns, conservation system effects, and other factors related to adoption of conservation practices.
Conservation effects or impacts	Positive or negative changes resulting from the implementation of a conservation practice or system. Determined by comparing the benchmark condition with the expected future condition with the conservation treatment.
Conservation management system (CMS)	A system of conservation practices that is expected to bring all resource concerns on the treated land unit up to an acceptable condition. Also known as a resource management system (RMS).
Conservation planning	A formal, nine-step NRCS process through which resource data are collected and analyzed, conservation alternatives are developed and evaluated, and a conservation alternative is selected, implemented, and evaluated after implementation for effectiveness.
Financial assistance programs contract	A legal agreement between a land user and NRCS in which the land user commits to implementing a project consisting of one or more conservation practices, and in which NRCS commits to paying some of the implementation costs of that project.
Conservation practice standards (CPS)	A conservation practice standard contains information on why and where a conservation practice is applied, and it sets forth the minimum quality criteria that must be met during the application of that practice in order for it to achieve its intended purposes.
Conservation practice	Any work completed or structure installed in order to improve the condition of one or more natural resource assets. See NRCS resource concerns.
Conservation system	A group of practices that collectively treat one or more natural resource concerns.
Conservation treatments	The implementation of one or more conservation practices in order to improve natural resource conditions.
Consumer Price Index (CPI)	A measure of inflation for consumer goods, such as food and clothes, generated by the Department of Labor's Bureau of Labor Statistics.
Discounted cash flow analysis	A tool commonly used in investment analysis to evaluate projects with benefits and costs occurring at different time.
Economic thresholds	An economic threshold occurs when a resource concern, if left untreated, would result in reductions in revenues that exceed treatment costs.

Engineering News Record (ENR) index

A construction costs index generated by Engineering News Record, an engineering industry publication for professionals in the engineering and

construction industries.

Externality	An externality exists when some or all of the benefits of a private action are enjoyed by (or costs paid by) someone who was not directly a party to the market transaction generating those benefits (or costs).
Future value	The expected value of an asset at a set time in the future based on a specific interest rate or rate of return.
GDP	Gross Domestic Product. The market value of all goods and services produced within a specific geographic region (usually a nation) during a defined period of time.
GDP deflator	Measures the ratio of nominal (or current-price) GDP to the real (or chain volume) measure of GDP. Produced by the Bureau of Economic Analysis.
Hedonic pricing method	Placing a value on a nonmarket natural resource asset by identifying a change in the price or value of some other asset that is affected by a change in resource conditions.
Inflation	An increase in the general price level of an economy.
Land-user values	Refers to the viewpoints and preferences of the cooperating land user within the CED process. Each individual's preferences will affect the value they place on an impact as well as determining whether that impact is viewed as a positive or negative difference in conditions.
Market benefits and costs	Benefits and costs consisting of goods, services, and assets bought and sold in a public market and for which market-based prices and values can be readily identified. Examples include labor, purchased input goods, increased farm yields, etc.
Net present value (NPV)	A net present value is the summation of all positive and negative present values for an investment project. The NPV of in a project is also called the net worth of the project.
Nonmarket benefits and costs	Benefits and costs consisting of goods, services, and assets not traded in any public market and for which market-based prices and values cannot be readily identified. Examples include clean air, enjoyment of beautiful landscapes, increased health of wildlife, reduced personal satisfaction, etc.
Nonrenewable resources	Natural resources that are essentially finite in quantity and, within a human time scale, are not renewed by natural processes. Examples include fossil fuels and minerals.
Nominal discount rate	A discount rate that has not been adjusted to take inflation into consideration.
Nominal value	Any value or price that has not been adjusted to take inflation into consideration.

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NPV criterion	The net present value criterion states that an investment project is feasible if its NPV is positive. For two or more exclusive investment projects, the one with the highest NPV is the best choice.
NRCS resource concerns	Title 450, General Manual, Part 401, states in part, “NRCS provides technical assistance to decision-makers to protect, maintain, and improve soil, water, air, plant, and animal resources and related human considerations.” These resource categories have traditionally been referred to within NRCS as the SWAPA+H resource concerns: soil, water, air, plant, animal, and human. In 2010, energy was added as an additional official resource concern of interest to NRCS, expanding the list to SWAPAE+H.
Resource management system (RMS)	A system of conservation practices that is expected to bring all resource concerns on the treated land unit up to an acceptable condition. Also known as a conservation management system (CMS).
Offsite costs	Costs of conservation that are incurred outside of a project's immediate area.
Onsite costs	Costs of conservation implementation that are directly associated with the land unit where conservation practices are to be applied.
Opportunity cost method	Valuation of a project's nonmarket costs based on what the benefits of the project would have to be in order to offset its impacts.
Perpetual resources	Natural resources whose availability is not affected by human use. Examples include solar radiation, tidal forces, and wind energy.
Prices Received by Farmers Index (PPRI)	An index calculated monthly by the National Agricultural Statistics Service (NASS). Can be used to convert conservation benefits between real and nominal values.
Producer Price Index (PPI)	Measures inflation for the producer goods such as machinery. Generated by the Department of Labor Bureau of Labor Statistics.
Producer Prices Paid by Farmers Index (PPPI)	Calculated monthly by NASS. Can be used to convert conservation costs between nominal and real values.
Public investment	Real or financial investment activities conducted within the public (Government) sector of the economy.
Private investment	Real or financial investment activities conducted within the private (nongovernmental) sector of the economy.
Real discount rate	A discount rate that has been adjusted to take inflation into consideration.
Real or constant value	Any financial or market value that has been adjusted to take inflation into consideration.
Renewable resources	Natural resources that reproduce or are replenished by natural processes. Examples include plants and animals.

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Replacement cost method	Valuation estimate based on much it would cost to use alternative means to either provide the benefit or mitigate the cost being evaluated.
Resource conservation	In the agricultural sector, it refers to efforts to protect, maintain, and improve soil, water, air, plant, and animal resources and related human considerations to ensure a quality resource base for long-term productivity of the land and a quality environment for human living standards.
Risk analysis	Within a conservation context, risk analysis is an analytical technique in which the estimation of net conservation benefits from conservation alternatives is based on the probabilities of occurrence of all critical events or elements of conservation in all likely future scenarios.
Sensitivity analysis	Analysis conducted to test the effects of changing any assumptions that were made while evaluating the impacts of implementing a conservation system. Serves as a means of identifying the vulnerability of the success of a conservation system to uncertain future events and values.
Temporal distribution of benefits and costs	The pattern in which the benefits and costs of a conservation project are expected to be realized over time.
Time value of money	The time value of money means that cash flows at different points of time differ in value and thus are not directly comparable.
Unable to adopt	Being unable to adopt a new conservation practice implies the existence of one or more obstacles or situations that prevent the land user from adopting the conservation practice even if he or she is willing to do so.
Unwilling to adopt	Occurs when a land user has not been persuaded that a practice will work or is appropriate and beneficial for their farm or ranch operations.
Useful life of a conservation practice	The time period over which a conservation practice can be expected to continue to function, to fulfill its intended purpose, and continue to provide conservation benefits.
Value engineering	Value engineering is a process in which the planner, the evaluator, or the decisionmaker starts with an initial conservation system alternative, adds an additional feature or increases the magnitude of a characteristic of the alternative (such as adding additional units of a conservation practice), and then evaluates the result to test for a net increase in the overall value of the conservation project.