

## Resource Concerns and Human Considerations (SWAPE+H) Definitions

<i>Resource Concerns</i>		<i>Definitions</i>
<b>SOIL</b>	<b>SOIL EROSION</b>	
	Sheet, rill, & wind erosion	Detachment and transportation of soil particles caused by rainfall runoff/splash, irrigation runoff or wind that degrades soil quality
	Concentrated flow erosion	Untreated classic gullies may enlarge progressively by head cutting and/or lateral widening. Ephemeral gullies occur in the same flow area and are obscured by tillage. This includes concentrated flow erosion caused by runoff from rainfall, snowmelt or irrigation water.
	Excessive bank erosion from streams shorelines/ water conveyance channels	Sediment from banks or shorelines threatens to degrade water quality and limit use for intended purposes
	<b>SOIL QUALITY DEGRADATION</b>	
	Subsidence	Loss of volume and depth of organic soils due to oxidation caused by above normal microbial activity resulting from excessive water drainage, soil disturbance, or extended drought. This excludes karst / sinkholes issues or depressions caused by underground activities.
	Compaction	Management induced soil compaction resulting in decreased rooting depth that reduces plant growth, animal habitat and soil biological activity
	Organic matter depletion	Soil organic matter is not adequate to provide a suitable medium for plant growth, animal habitat, and soil biological activity
	Concentration of salts or other chemicals	Concentration of salts leading to salinity and/or sodicity reducing productivity or limiting desired use
		Concentrations of other chemicals impacting productivity or limiting desired use
<b>WATER</b>	<b>EXCESS / INSUFFICIENT WATER</b>	
	Ponding, flooding, seasonal high water table, seeps, and drifted snow	Surface water or poor subsurface drainage restricts land use and management goals. Wind-blown snow accumulates around and over surface structures, restricting access to humans and animals.
	Inefficient moisture management	Natural precipitation is not optimally managed to support desired land use goals or ecological processes
	Inefficient use of irrigation water	Irrigation water is not stored, delivered, scheduled and/or applied efficiently. Aquifer or surface water withdrawals threaten sustained availability of ground or surface water. Available irrigation water supplies have been reduced due to aquifer depletion, competition, regulation and/or drought
	<b>WATER QUALITY DEGRADATION</b>	
	Excess nutrients in surface and ground waters	Nutrients - organic and inorganic - are transported to receiving waters through surface runoff and/or leaching into shallow ground waters in quantities that degrade water quality and limit use for intended purposes
	Pesticides transported to surface and ground waters	Pest control chemicals are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes
	Excess pathogens and chemicals from manure, bio-solids or compost applications	Pathogens, pharmaceuticals, and other chemicals carried by land applied soil amendments are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes. This resource concern also includes the off-site transport of leachate and runoff from compost or other organic materials of animal origin.
	Excessive salts in surface and ground waters	Irrigation or rainfall runoff transports salts to receiving water in quantities that degrade water quality and limit use for intended purposes
	Petroleum, heavy metals and other pollutants transported to receiving waters	Heavy metals, petroleum and other pollutants are transported to receiving water sources in quantities that degrade water quality and limit use for intended purposes
	Excessive sediment in surface waters	Off-site transport of sediment from sheet, rill, gully, and wind erosion into surface water that threatens to degrade surface water quality and limit use for intended purposes
	Elevated water temperature	Surface water temperatures exceed State/Federal standards and/or limit use for intended purposes

**Resource Concerns and Human Considerations (SWAPE+H) Definitions (cont.)**

<b>AIR QUALITY IMPACTS</b>		
<b>AIR</b>	Emissions of Particulate Matter (PM) and PM Precursors	Direct emissions of particulate matter - dust and smoke -, as well as the formation of fine particulate matter in the atmosphere from other agricultural emissions - ammonia, NOx, and VOCs - cause multiple environmental impacts, such as: 1) The unintended movement of particulate matter - typically dust or smoke - results in safety or nuisance visibility restriction, 2) The unintended movement of particulate matter and/or chemical droplets results in unwanted deposits on surfaces, 3) Increased atmospheric concentrations of particulate matter can impact human and animal health and degrade regional visibility.
	Emissions of Greenhouse Gases (GHGs)	Emissions increase atmospheric concentrations of greenhouse gases.
	Emissions of Ozone Precursors	Emissions of ozone precursors - NOx and VOCs - resulting in formation of ground-level ozone that cause negative impacts to plants and animals.
	Objectionable odors	Emissions of odorous compounds - VOCs, ammonia and odorous sulfur compounds - cause nuisance conditions
<b>DEGRADED PLANT CONDITION</b>		
<b>PLANT</b>	Undesirable plant productivity and health	Plant productivity, vigor and/or quality negatively impacts other resources or does not meet yield potential due to improper fertility, management or plants not adapted to site This includes addressing pollinators and beneficial insects.
	Inadequate structure and composition	Plant communities have insufficient composition and structure to achieve ecological functions and management objectives This includes degradation of wetland habitat, targeted ecosystems, or unique plant communities.
	Excessive plant pest pressure	Excessive pest damage to plants including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes This concern addresses invasive plant, animal and insect species
	Wildfire hazard, excessive biomass accumulation	The kinds and amounts of fuel loadings - plant biomass - create wildfire hazards that pose risks to human safety, structures, plants, animals, and air resources
<b>INADEQUATE HABITAT FOR FISH AND WILDLIFE</b>		
<b>ANIMAL</b>	Habitat degradation	Quantity, quality or connectivity of food, cover, space, shelter and/or water is inadequate to meet requirements of identified fish, wildlife or invertebrate species.
	<b>LIVESTOCK PRODUCTION LIMITATION</b>	
	Inadequate feed and forage	Feed and forage quality or quantity is inadequate for nutritional needs and production goals of the kinds and classes of livestock
	Inadequate livestock shelter	Livestock lack adequate shelter from climatic conditions to maintain health or production goals
	Inadequate livestock water	Quantity, quality and/or distribution of drinking water are insufficient to maintain health or production goals for the kinds and classes of livestock
<b>INEFFICIENT ENERGY USE</b>		
<b>ENERGY</b>	Equipment and facilities	Inefficient use of energy in the Farm Operation increases dependence on non-renewable energy sources that can be addressed through improved energy efficiency and the use of on-farm renewable energy sources. As an example, this concern addresses inefficient energy use in pumping plants, on-farm processing, drying and storage.
	Farming/ranching practices and field operations	Inefficient use of energy in field operations increases dependence on non-renewable energy sources that can be addressed through improved efficiency and the use of on-farm renewable energy sources.

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<b>SOCIAL</b>	
Cultural Resources and/or Historic Properties Present or Suspected to be Present (Effect)	The degree to which implementation of the conservation practice is expected to increase or decrease the risk of cultural resource disturbance, degradation, or loss.
Public health and safety	The degree to which the risk to public health and safety is expected to increase or decrease.
Client/Community Characteristics	Differing social, ethnic, or religious backgrounds may also effect the adoption of conservation practices. Example: some groups may have land-use ethics or social customs that conflict with some NRCS conservation practices.
<b>ECONOMIC (Land, Labor, Capital, Management Level, Risk, Profitability)</b>	
Land - Change in Land Use	The degree to which implementing the conservation practice is expected to cause a change from one land use to another.
Land - Change in Quantity of Land in Production	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of land in production.
Capital - Change in Profitability	The degree to which farm or ranch profitability is expected to increase or decrease as a result of implementing the conservation practice.
Capital - Change in Equipment	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of capital equipment required for farm or ranch operations.
Capital - Total Investment Cost	A qualitative measure of the increase in total investment dollars required in order to implement the conservation practice.
Capital - Change in Annual Costs	A qualitative measure of the expected change in annual capital costs required in order to operate and maintain the conservation practice. Example: The cost that a producer is expected to need to spend on an annual basis in order to perform the operations and maintenance (O&M) necessary to meeting the requirements of NRCS practice standards.
Capital - Credit & Farm Program Eligibility	Included to make conservation planners aware of the potential availability of funding for implementing conservation practices, and that payment rates do not reflect a specific percentage of installation costs. Program participants should be advised to get bids before signing the contract.
Labor - Change in Labor	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of overall farm or ranch labor required for operations. Including O&M, maintenance/monitoring requirements.
Labor - Change in Management Level	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of required active management on a farm or ranch.
Risk - Cash Flow	The degree to which risk, as related to cash flow in farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Risk - Yield	The degree to which risk, as related to crop or livestock yields, is expected to increase or decrease as a result of implementing the conservation practice.
Risk - Flexibility & Timing	The degree to which risk, as related to the flexibility/timing of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice. For example, converting from flood irrigation to a sprinkler system gives a farmer an increase in flexibility of irrigation, which results in a decrease in the level of risk associated with inflexibility of operations.

**HUMAN CONSIDERATIONS**