

Sustainable Management Criteria

Cheat Sheet (Working DRAFT)

Fundamental to developing Sustainable Management Criteria (SMC) is understanding the language, and understanding how the concepts relate to each other. This cheat sheet provides a plain language discussion of key terms, and illustrates how the concepts are interrelated. These plain language definitions are neither exhaustive nor complete: there are details that must be considered when developing SMCs that are not covered in this document. Sustainable Management Criteria are defined by California, and are comprised of six primary Sustainability Indicators.

Sustainability Indicators or SGMA’s “six deadly sins”. The six conditions defined by the water code that we don’t want to happen in the groundwater basin:

1. Chronic **lowering of groundwater levels** indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon.
2. Significant and unreasonable **reduction of groundwater storage**.
3. Significant and unreasonable **seawater intrusion**.
4. Significant and unreasonable **degraded water quality**, including the migration of contaminant plumes that impair water supplies.
5. Significant and unreasonable **land subsidence** that substantially interferes with surface land uses.
6. **Depletions of interconnected surface water** that have significant and unreasonable adverse impacts on beneficial uses of the surface water (e.g. water in streams or wetlands).

(NOTE: Sustainability Indicators become significant and unreasonable, and therefore Undesirable Results, when a combination of Minimum Thresholds is exceeded, as defined by a Groundwater Sustainability Plan [GSP] adopted by a Groundwater Sustainability Agency [GSA].)

The following describes key terms used by SGMA to determine Sustainability Indicator worst-case and aspirational thresholds, and current conditions. California gives our GSA the discretion and opportunity to define these terms so they are meaningful and useful to our basin groundwater users.

Representative Monitoring Sites. These are typical monitoring sites within the broader entirety network of sites that reliably provide high quality data that characterize groundwater conditions in the basin. Representative monitoring sites are a subset of a basin’s complete monitoring network, where minimum thresholds, measurable objectives, and interim milestones are set and represent a subset of a basin’s complete monitoring network. A single

representative monitoring site can be used for one sustainability indicator or multiple sustainability indicators.

Significant and Unreasonable (or, what our gut tells us we don't want to happen). These are the qualitative statements of what local interests want to avoid. This term is not formally defined in SGMA regulations; therefore, the use of this term is somewhat interpretive. But it is clearly the guiding principle on how sustainability is defined.

Examples might be *lowering groundwater levels to the point that wells can no longer produce any water, or pumping more than the sustainable yield.*

Sustainability Goal (or the big picture). A succinct statement of the GSA's objectives and desired conditions and how the basin will achieve these conditions. The sustainability goal is descriptive and not quantitative, but is supported by the locally-defined minimum thresholds and undesirable results. Demonstration of the absence of undesirable results supports a determination that basin is operating within its sustainable yield and, thus, that the sustainability goal has been achieved. The sustainability goal should incorporate the following:

- Goal Description
- Discussion of measures that will be implemented to achieve sustainability
- How goal will be achieved in 20 years

The sustainability goal cannot be finalized until after minimum thresholds and undesirable results have been defined, projects and management actions have been identified, and the projected impact of those projects and management actions on groundwater conditions have been evaluated.

Example of the Sustainability Goal description (from Paso Robles): *The goal of this GSP is to sustainably manage the groundwater resources of the Paso Robles Subbasin for long-term community, financial, and environmental benefit of Subbasin users. This GSP outlines the approach to achieve a sustainable groundwater resource free of undesirable results within 20 years, while maintaining the unique cultural, community, and business aspects of the Subbasin. In adopting this GSP, it is the express goal of the GSAs to balance the needs of all groundwater users in the Subbasin, within the sustainable limits of the Subbasin's resources.*

Undesirable Results (or the quantitative worst-case scenario). This is a quantitative combination of minimum thresholds that define what it means to be sustainable for every sustainability indicator. Undesirable results, as defined in the GSP, are THE sustainability metrics used to determine whether the basin complies with SGMA and is sustainable now and into the future. Proof of sustainability is avoiding undesirable results.

Example for groundwater levels (from Salinas): *Over the course of any one year, no more than 15% of groundwater elevation minimum thresholds in any single aquifer and no one well shall exceed its minimum threshold for more than two consecutive years*

Minimum Thresholds (or the numerical line in the sand that we don't want to cross). For each sustainability indicator, the Minimum Thresholds are the quantitative values that reflect what is significant and unreasonable at every measuring site. Minimum Thresholds must be quantitative and measurable. The numeric value used to define minimum thresholds represents a monitored point in the basin (such as at a well) that if exceeded, *may cause* undesirable results.

Example for groundwater levels (excerpted from Santa Cruz Mid-County Basin): *The minimum threshold is the numeric groundwater elevation (as measured at representative monitoring sites over a period of time) required to meet the typical overlying water demand in the shallowest well in the vicinity.*

Measurable Objectives (or the ideal destination). These are specific, quantifiable goals at each representative monitoring site to maintain or improve groundwater conditions in order to maintain or achieve the sustainability goal for the basin. Measurable Objectives reflect the GSA's desired groundwater conditions in the basin and guide the GSA to achieve its sustainability goal within 20 years. Measurable Objectives should include operational flexibility to accommodate droughts, climate change, conjunctive use operations, or other groundwater management activities.

Example for groundwater levels (excerpted from Santa Cruz Mid-County Basin): *Measurable objectives are the 75th percentile of historical groundwater elevations for the period of record of each monitoring point, which is higher than median or average groundwater elevations.*

Interim Milestones (or the path forward). Interim milestones are five-year numerical targets that are set to guide the basin to its Measurable Objectives). Interim milestones need to be set at each representative monitoring site using the same metrics as the measurable objectives and minimum thresholds and are used to track progress toward meeting the sustainability goal. Interim milestones should result in sustainability being achieved by 2042, and the plan must have a 50-year planning horizon (2072). SGMA recognizes that there are future uncertainties that can't be predicted, and provides for adaptation and course corrections at the five-year check-ins, as new information becomes available.

Management Area (or unique areas). This is an area within the basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and

management actions. These can be based on differences in hydrology, water use sector, water source type, geology, aquifer characteristics, or other factors. Management areas may have differently defined minimum thresholds and measurable objectives than the basin at large and may be monitored to a different level and scale. Undesirable results, however must be defined for the entire basin and can't vary by management area.

Sustainable Yield (or how much water is in the 'checking account'). This is the maximum quantity of water – calculated over a base period that is representative of long-term conditions (allowing for variable climatic and natural water supply conditions) in the basin and which includes any temporary surplus – that can be withdrawn annually from a groundwater supply without causing an undesirable result. It's important to remember that SGMA requires the GSPs to account for climate change, and its anticipated impacts on groundwater (and sustainable yield).

Note: It is analogous to the sustainable yield calculated for groundwater adjudications, and is used to identify any pumping limits or restrictions that may be necessary. Managed Aquifer Recharge, through ponds or injection wells, is not part of the sustainable yield.