Sustainable Groundwater Management Act of 2014
Legislative Intent

In enacting this part, it is the intent of the Legislature to do all of the following:

(a) To provide for the sustainable management of groundwater basins.

(b) To enhance local management of groundwater consistent with rights to use or store groundwater and Section 2 of Article X of the California Constitution. It is the intent of the Legislature to preserve the security of water rights in the state to the greatest extent possible consistent with the sustainable management of groundwater.

(c) To establish minimum standards for sustainable groundwater management.

(d) To provide local groundwater agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater.

(e) To avoid or minimize subsidence.

(f) To improve data collection and understanding about groundwater.

(g) To increase groundwater storage and remove impediments to recharge.

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Definitions of Sustainable Groundwater

"Sustainable groundwater management" means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.

"Sustainable yield" means the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus that can be withdrawn annually from a groundwater supply without causing an undesirable result.

"Undesirable result" means one or more of the following effects caused by groundwater conditions occurring throughout the basin:
(1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.
(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.

"Water budget" means an accounting of the total groundwater and surface water entering and leaving a basin including the changes in the amount of water stored.

Other Definitions related to Sustainable Yield:

Safe Yield synonymous with Perennial Yield — the maximum quantity of water that can be withdrawn annually from a groundwater resource under a given set of conditions without causing an undesirable result. The phrase "undesirable result" is understood to refer to a gradual lowering of the groundwater levels resulting eventually in depletion of the supply, subsidence, increased energy costs, desiccated wetland or degraded water supply. Safe Yield was defined in California case law in Coty of Los Angeles v. City of San Fernando (1975) 14 Cal.3d 199, 278 [123 Cal.Rptr. 1, 61-63].

Overdraft – occurs where the trend of historic groundwater level measurements indicate a continual drop in groundwater levels over time, even after wet year conditions. Under such circumstances, undesirable results are likely to eventually occur, and therefore, the basin is considered to be in a state of overdraft. Groundwater Resources Association of California, California Groundwater Management Second Edition, published in 2005.

After Todd and Mays, 2005. Groundwater Hydrology Third Edition:

- Mining Yield – If groundwater is withdrawn at a rate exceeding recharge, a mining yield exists. As a consequence, this yield must be limited in time until the aquifer storage is depleted. Many groundwater basins today are being mined; if mining continues, the local economy served by this pumping change, evolving into other forms that use less water or involve importations of water into the basins, or both.

- Perennial Yield (Safe Yield considered an old term)– the perennial yield of a groundwater basin defines the rate at which water can be withdrawn perennially under specified operating conditions without producing an undesirable result. An undesirable result is an adverse situation, such as (1) progressive reduction of the water resource, (2) development of uneconomic pumping conditions, (3) degradation of water quality, (4) interference with prior water rights, (5) land subsidence caused by lowering groundwater levels. Any draft in excess of perennial yield is referred to as overdraft. Existence of overdraft implies that continuation of present management practices will result in significant negative impacts on environmental, social, or economic conditions.

- Deferred Perennial Yield – the concept of deferred perennial yield consist of two different pumping rates. The initial rate is large and exceeds the perennial yield, thereby reducing the groundwater level. This planned overdraft furnishes water form storage at low cost and without creating any undesirable effects. In fact, reducing storage eliminates wasteful subsurface outflow of groundwater and losses to atmosphere by evapotranspiration from high water table areas. After the groundwater level has been lowered to a predetermined depth, a second rate, comparable to that of the perennial yield is established so that a balance of water entering and leaving he basin is maintained thereafter. With a large available storage volume, more water can be recharged ad a larger perennial yield can be obtained.

- Maximum Perennial Yield – the maximum perennial yield, as the name suggests, is the maximum quantity of groundwater perennially available if all possible methods and sources are developed for recharging the basin. In effect, this quantity depends upon the amount of water economically, legally, and politically available to the organization or agency managing the basin. Clearly, the more water that can be recharged both naturally and artificially to a basin, the greater the yield.