

Topic 2 - Measureable Objectives and Interim Milestones

*Department of Water Resources - Sustainable Groundwater Management Program
June 26, 2015*

1.0 PURPOSE

The purpose of this paper is to provide information to advance the discussion with stakeholders and the public as the Department of Water Resources (DWR) develops regulations as required in the Sustainable Groundwater Management Act (SGMA). DWR identified a series of ten topics related to the development of Groundwater Sustainability Plan (GSP) regulations and Alternatives to GSP regulations that were deemed of special interest to further discuss with stakeholders and the public. Specifically covered within this paper is information related to Topic 2 – Measurable Objectives and Interim Milestones.

Measurable Objectives and Interim Milestones are provisions identified in California Water Code (Water Code) §10727.2(b)(1). Select provisions of the Water Code are provided in Section 4.0 of this document.

2.0 BACKGROUND

In 2014, legislation was passed that provides a statewide framework for sustainable groundwater management in California (Senate Bill [SB] 1168, Assembly Bill [AB] 1739, and SB 1319). This legislation, collectively referred to as the SGMA, is consistent with California’s preferred bottom-up approach by keeping groundwater management at the local level through management by Groundwater Sustainability Agencies (GSAs). The SGMA requires GSAs and local agencies to cooperatively develop GSPs by 2020 or 2022 to achieve groundwater resource sustainability by 2040 or 2042. Importantly, these GSPs now are required to include “measurable objectives,” moving away from the more qualitative “basin management objectives” of past voluntary groundwater management plans developed under AB 3030 or SB 1938 legislation. In addition, the SGMA allows the State to intervene in basin management where GSPs are found to be incomplete or inadequate.

This document presents preliminary draft information to promote discussion and is subject to revision. Furthermore, because this discussion paper addresses a variety of issues raised by individuals and entities outside of DWR, inclusion of the issues in this document does not constitute an endorsement of any particular issue. DWR invites comment and input on the preliminary draft information and questions presented in this document. Comments should be submitted to sgmps@water.ca.gov.

3.0 SUMMARY OF TOPIC ISSUES AND CHALLENGES

As part of the SGMA outreach effort, DWR continues to meet with various organizations and individual experts to receive input on *Measurable Objectives and Interim Milestone* issues and challenges that should be considered for SGMA implementation. The following represents some of the identified *Measurable Objectives and Interim Milestone* issues and challenges presented by stakeholders and advisory groups to DWR.

- What is DWR's definition of "measurable objectives"?
- Will the measurable objectives be required to be discrete values? Or acceptable operational ranges?
- How will spatial variability be accounted for through creation of the measurable objectives?
- Will measurable objectives and interim milestones be evaluated on an annual basis with submission of an annual report?
- What is the anticipated level of involvement from DWR on an annual basis with respect to non-compliance with measurable objectives?
- Will there be different levels of criteria for those basins designated to be in critical overdraft?
- Can measurable objectives change over time?
- Will there be flexibility, especially in areas that may already be trending in a less-than-sustainable direction?
- Will DWR provide clear guidelines for inter-basin coordination with respect to measurable objectives?
- One subbasin's measurable objectives may not be achievable by an adjacent subbasin. Will regulations identify requirements for coordination?
- Will Alternatives to GSPs be required to provide similar measurable objectives? Will interim milestones be applicable under Alternatives to GSPs?

4.0 SELECT CALIFORNIA WATER CODE SECTIONS RELATED TO MEASURABLE OBJECTIVES AND INTERIM MILESTONES

This part identifies select sections of the California Water Code (Water Code) related to *Measurable Objectives and Interim Milestones*. Each identified Water Code section listed below includes the relevant section of the Water Code and identifies questions and considerations specific to that section.

10727.2. Required Plan Elements

A groundwater sustainability plan shall include all of the following:

(b) (1) Measurable objectives, as well as interim milestones in increments of five years, to achieve the sustainability goal in the basin within 20 years of the implementation of the plan.

(b) (2) A description of how the plan helps meet each objective and how each objective is intended to achieve the sustainability goal for the basin for long-term beneficial uses of groundwater.

10733.2. Department to Adopt Emergency Regulations Concerning Plan Review and Implementation

(a) (1) By June 1, 2016, the department shall adopt regulations for evaluating groundwater sustainability plans, the implementation of groundwater sustainability plans, and coordination agreements pursuant to this chapter.

(2) The regulations shall identify the necessary plan components specified in Sections 10727.2, 10727.4, and 10727.6 and other information that will assist local agencies in developing and implementing groundwater sustainability plans and coordination agreements.

Considerations

The following is a general list of the new GSP requirements in the SGMA as they relate to *Measurable Objectives and Interim Milestones*. A complete list of GSP elements are presented in Chapter 6 of Part 2.74 of the Water Code.

- Physical description of the basin (groundwater level, water quality, etc.).
- Measurable objectives and interim milestones.
- Description of how measurable objectives will be achieved.
- Monitoring and management.
- Relationship between GSP and county/city general plans.

GSAAs will be required to submit GSPs to DWR for evaluation and approval to avoid potential intervention by the State Water Resources Control Board (SWRCB). In addition, a GSP will be reviewed by DWR during interim milestones (every five years) to assess if GSAAs are progressing toward their sustainability goals.

Through the development and application of *Measurable Objectives and Interim Milestones*, GSAAs will need to make and track progress toward their sustainability goals. DWR recognizes that the level of sustainability and uncertainty regarding basin conditions is widely varied across the State, as simplified and illustrated in **Figures 1** and **2**. It will be necessary to acknowledge and accommodate for this variability, recognizing the different paths that GSAAs may take in order to attain their sustainability goals.

FIGURE 1 – Measurable Objectives and Interim Milestones are Necessary to Reduce Uncertainty and Achieve or Maintain Groundwater Basin Sustainability

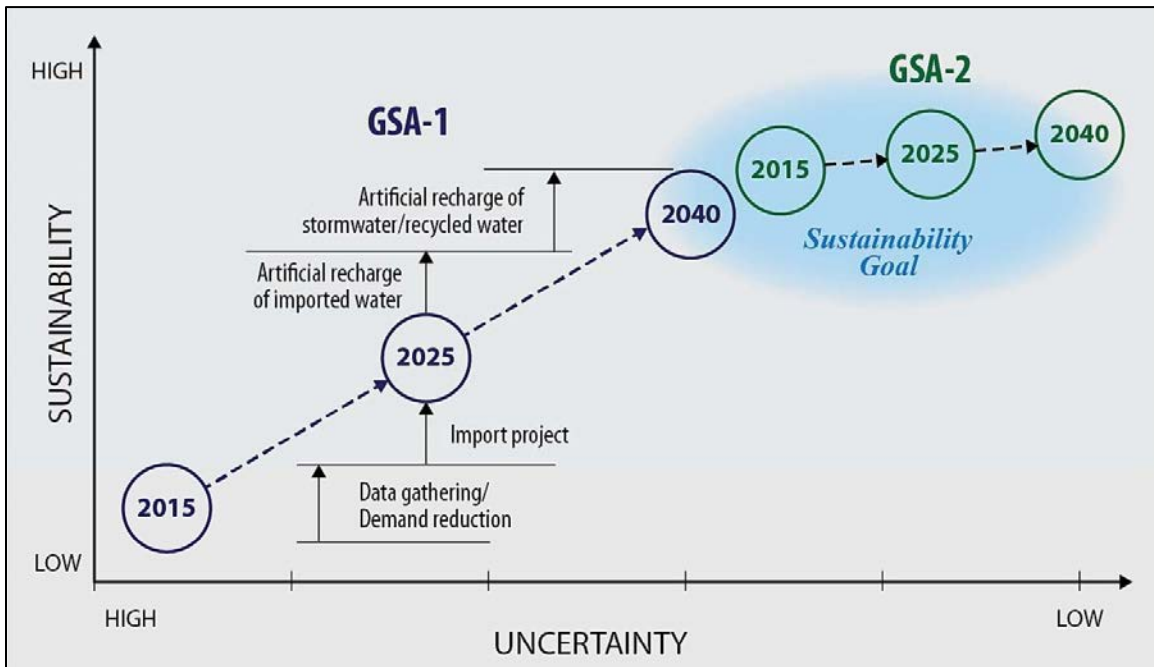
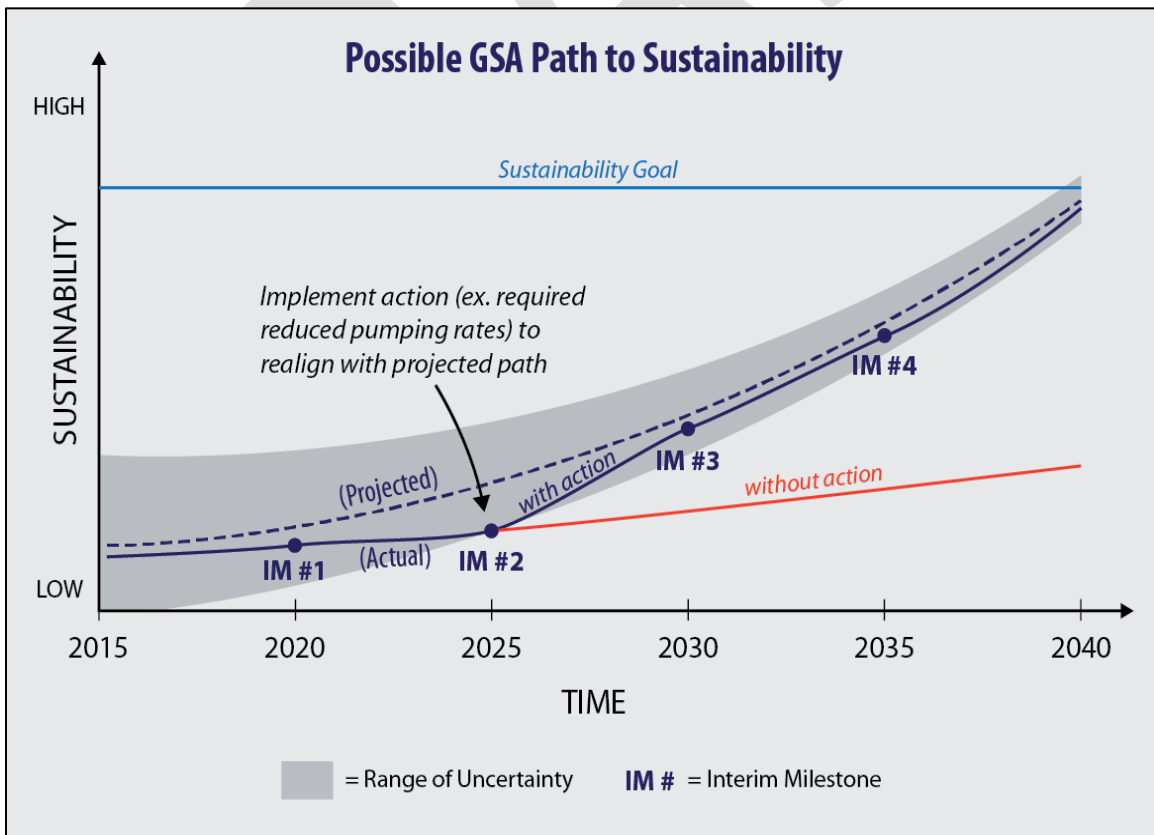


FIGURE 2 – Interim Milestones are Necessary to Trigger Actions if Measurable Objectives are not Being Achieved as Planned



Questions

- How should locally-defined measurable objectives and interim milestones be developed to balance local flexibility with respect to the statewide requirements of SGMA?
- Should measurable objectives include specific and definitive quantitative thresholds that include multiple triggers that activate specific actions which must be taken when objectives are not being met?
- Should this be done so that DWR will be able to say unambiguously whether the GSP is on track to meet the sustainability goal(s)?

To attain basin-wide sustainability goals, it will be necessary to develop *measurable objectives and interim milestones* in GSPs to track and evaluate the progress towards achieving sustainable groundwater management. For this reason, consideration of the following concepts may be important as they relate to measurable objectives and interim milestones.

SPECIFIC MEASURABLE OBJECTIVES AND QUANTITATIVE THRESHOLDS

Considerations

Measurable objectives, interim milestones, and defined actions are required under SGMA so progress toward a basin's sustainability goals can be assessed. This assessment will also determine performance that deviates from the objectives, which may trigger corrective action. This concept is illustrated on **Figure 2**, which shows how corrective actions applied at interim milestones ideally brings actual performance back in line with planned performance, consistent with the measurable objectives set forth in a GSP. For DWR to assess performance at interim milestones (every 5 years), it will be important that there is a clear understanding of the following:

- Who is involved?
- What are the desired outcome(s)?
- When will the outcome(s) occur?
- How will progress be measured?

Matching measurable objectives that are specific with quantitative thresholds may be necessary to evaluate progress. Thresholds could be quantitative target values for the purpose of managing groundwater conditions; these thresholds could support measurable objectives, which could avoid significant and unreasonable undesirable results as they relate to the GSP's sustainability goal(s). Exceeding thresholds may represent a limit indicating the actual conditions related to a specific measurable objective, which are not tracking planned or anticipated conditions.

Questions

- If measurable objectives are to be more specific than many prior Groundwater Management Plan Basin Management Objectives, is it beneficial that all measurable objectives be specific and include numerically-based quantitative thresholds to more accurately and clearly measure progress?

- Should at least one measurable objective with a quantitative threshold be included in GSPs for each of the applicable undesirable results listed in Water Code §10721(w)?
- If goal statement type measurable objectives with narrative thresholds were allowed, how would DWR and the GSAs implementing a GSP(s) in a basin agree on the level of progress made toward sustainability at the interim milestones?
- Are there additional characteristics that need to be considered, other than numeric- or narrative-based measurable objectives and thresholds?

TRIGGERS AND ACTIONS RELATING TO INTERIM MILESTONES

Considerations

A comparison of planned basin conditions versus actual basin conditions will be necessary for GSAs and the State to evaluate progress toward GSP sustainability goals. GSAs will need to evaluate planned versus actual conditions at interim milestones every five years. A GSA will need to potentially take corrective actions periodically if actual conditions, or proposed projects that do not come to fruition, begin to deviate from planned conditions in a way that threatens the ability to reach their sustainability goal(s) (ex. causing significant and unreasonable undesirable results). For this reason, a series of triggers related to thresholds and corresponding actions may need to be established to describe the approach to maintaining the planned basin conditions.

Triggers with corresponding actions can be developed at different levels, and be tied to different thresholds, in order to evaluate and document what actions will be taken if thresholds are not met. Triggers and corresponding actions should be established at various levels to account for the severity of action that could be required to correct the trajectory that each threshold is “off” the planned condition. Triggers and corresponding actions should outline the decision-making process outlined in the GSP related to how, when, and why the corresponding actions will be implemented. The following information in the table below contains additional descriptions of possible content for each concept in an example format.

Measurable Objective (i.e. for each undesirable result or other planning objectives)		
Threshold	Triggers	Actions
Groundwater levels in monitoring wells at the coastline must average at least X feet above sea level to avoid sea water intrusion.	Initial Trigger – Might correspond to the identified threshold value. If so, this trigger value might indicate that the actual conditions are consistent or paralleling planned conditions. (Ex. Groundwater levels fluctuate on annual average at X feet above sea level)	Actions at this trigger value may be used to further evaluate data if uncertainty exists, or advance other planned activities to provide a measure of safety to ensure continued success toward planned conditions.
	Mid-Level Trigger(s) – (Ex. Groundwater levels fluctuate 10 feet below threshold value resulting in inland advancement of saline water)	Action(s) at this trigger(s) may need to be designed to address conditions that are possibly threatening the sustainability goal, where actual conditions are deviating negatively from planned conditions. Example actions could include increased monitoring, importing water, conservation measures, mandatory demand reduction measures, etc. The severity of the action(s) may depend on the final trigger value.
	Final Trigger – (Ex. Groundwater levels fluctuate 30 feet below threshold value resulting in inland advancement of saline water)	Action(s) at this trigger might be designed to address conditions where it's clear based on the trigger value the sustainability goal is being threatened (actual conditions are clearly deviating negatively from planned conditions) and there is an immediate need to address conditions to avoid significant and unreasonable undesirable results. Actions could include those described in Trigger 2, with the understanding implementation of a "Contingency Plan" focused on demand reduction activities to balance supply and demand may be necessary.

Note: Table provided for example purposes only. The threshold value and type, exact number of trigger and values, and number and types of actions would be highly variable. Information does not represent an actual suggested threshold, trigger, or action for any area.

Questions

- Would trigger actions, as explained above, aid GSAs in obtaining statewide sustainability?
- What type of "Contingency Plan" trigger(s) should be considered if planned activities are not progressing toward, or resulting in, the sustainability goal? For example, for basins experiencing undesirable results, if the planned activities to obtain the sustainability goal consist largely of supply enhancement projects, and those projects are not progressing as planned or meeting project goals, are there other methods to achieve sustainability without "Contingency Plan" trigger(s) focused on demand reduction activities?
- Are there other concepts that GSAs and groundwater managers could use to clearly document when actions are needed to maintain progress toward their sustainability goals?
- Does every measurable objective need an interim milestone?

- Should measurable objectives be set up as “stretch goals” where no significant and unreasonable undesirable results are present, but GSAs still want to take actions to improve conditions and use a GSP as a management tool be considered and evaluated by DWR?

UNCERTAINTY

Considerations

DWR recognizes the challenge of uncertainty faced by GSAs and groundwater managers in many of California’s groundwater basins. Uncertainty may be especially challenging when GSAs develop realistic and achievable measurable objectives when little data and information about basin conditions were available when the SGMA was passed. Data collection and analysis will reduce uncertainty in these basins over time, but uncertainty may still be relatively high as GSAs are developing their GSPs. In order to achieve sustainability on the schedule required by the SGMA, GSAs will need to use best available information and tools to develop measurable objectives and corrective measures to be taken at interim milestones. For those basins where uncertainty is initially high, it may stand to reason that the adaptive and/or correction actions required at the early interim milestones may be more significant – this concept is illustrated on **Figure 1** with GSA-1. Over time, as more is understood about the basin conditions and the basin’s response to natural or artificial stresses on the groundwater aquifers (i.e. pumping, droughts, floods, etc.), as basin uncertainty is lowered, the adaptive and/or corrective actions will likely be less significant.

Questions

- What steps can GSAs and basin managers be taking now to reduce uncertainty so that achievable sustainability goals can be set in their GSPs, which are supported by realistic measurable objectives?
- What role would you like to see DWR play in assisting local GSAs within medium and high priority basins with relatively high levels of uncertainty due to poor or no past record keeping of basic groundwater management information (i.e. water levels, pumping quantities, quality)?

The concepts of adaptive management, as it related to the concepts discussed above, may be presented in a future topic discussion paper.