Cosumnes Subbasin SGMA Working Group Meeting
Meeting #24
Meeting held December 19, 2018
Prepared by the Consensus Building Institute and the Water Forum

ACTION ITEMS

Who	What
GSAs	Discuss model selection at GSA board meetings (as needed)
GSAs	Send EKI comments on groundwater model ranking criteria
Sacramento County, GSAs, EKI, and WF	Arrange and participate in a groundwater model coordination meeting
EKI	Update Technical Memo #2 and model selection timeline
EKI	Update 3-month look ahead schedule
K. Schmitz	Review contract to verify whether tools and data developed by EKI are owned by the Working Group
CBI	Send Jan. 16 WG/TAC draft agenda to Agenda Review Committee
CBI	Develop a list of GSA responsibilities
Working Group	Revisit the role of the TAC, including public input

DISCUSSION – KEY THEMES

Below is a summary of key themes discussed at the meeting. This summary is not intended to be a meeting transcript. Rather, it focuses on the main points covered during the group's discussions and any action items.

AGENDA REVIEW

Barbara Washburn, SRCD, proposed that the order of the Technical Advisory Committee and Working Group be switched to ensure adequate time for discussion of groundwater modeling. GSA representatives agreed and the items were re-ordered.

GENERAL UPDATES

Near-term coordination: Eastern San Joaquin and South American Subbasins

Anona Dutton, EKI, reported that Eastern San Joaquin Subbasin (ESJ) is actively soliciting information and ranking projects to address the significant overdraft identified in the subbasin. ESJ also continues to develop sustainability criteria.

Tom Gohring, Water Forum, noted the ongoing dialogue between Omochumne-Hartnell Water District (OHWD), and Sacramento Central Groundwater Authority (SCGA).

Sloughhouse Resource Conservation District (SRCD) has disengaged. The agencies in dialogue are hoping to bring items to their boards in February. If the entities can work together, they will reach out to SRCD and Northern Delta GSAs with a briefing and potentially an invitation to rejoin the effort.

Sloughhouse Resource Conservation District Proposed Basin Boundary Adjustment

The California Department of Water Resources (DWR) issued a draft rejection of SRCD's proposed boundary basin adjustment. Alison Tang, DWR, notified the group that DWR held a public meeting on this topic December 11 and is accepting comments until January 4.

Technical Support Services Grant

A. Dutton, EKI, announced that Amador County applied to DWR for two DWR Technical Support Services (TSS) funded monitoring wells in its portion of the basin. DWR indicated that it has received only eight requests to date. There is still time and funding available for additional GSAs to submit TSS applications. Representatives from SRCD expressed intent to follow up with EKI about a potential monitoring well location.

DWR Grant-Related Updates

K. Schmitz reported that Sacramento County signed the Prop. 1 grant contract with DWR and scheduled a kick-off meeting for early next year, at which DWR will discuss key elements of the agreement.

Relevant Updates from Subbasin GSAs

Regarding the EKI stakeholder survey, K. Schmitz will step into Linda Dorn's role while L. Dorn is on leave. L. Dorn created a postcard to send in late December to residents in Sacramento County GSA's portion of the Cosumnes Subbasin. The postcard gives advance notice regarding the request for information that is forthcoming in January. K. Schmitz will share the postcard with Working Group representatives. Amador County representatives are planning to send out requests for information at the beginning of January. SRCD representatives are planning to send a cover letter and fact sheet encouraging constituents to take the online survey. They are also coordinating with Sacramento County Environmental Management regarding well logs.

STRENGTHENING GROUNDWATER MANAGEMENT DELIBERATIONS AND DECISION-MAKING

View slides. Through informal conversations, the Consensus Building Institute (CBI) gathered feedback from GSA representatives, staff and consultants regarding the Working Group and TAC process. CBI prepared the following summary of key themes and recommendations:

Staff/Consultant Team observations:

- Good progress on several key elements
- Roles and responsibilities not always clear
- Working Group/ TAC distinctions not crisp
- Pace of decision-making challenging given aggressive timeline and tasks ahead
- Meeting discussions can lack sufficient focus
- Communication protocols fuzzy

GSA observations:

- Working Group lets issues drag on; need to be more efficient but may also need more time for dialogue
- Lack of ownership of documents and decisions; GSAs need to do more pre-meeting homework, surface important issues in timely manner
- Sometimes feels like WF-CBI-EKI planning team is too directive
- Key decision points not always clear; develop and adhere to schedule – highlight deadlines, decision points and linkage to GSAs
- Before meetings: Highlight key discussion points, critical materials; consider pre-meeting teleconference (though teleconference does not work well for all)
- Consider opening TAC to active public participation

In order to address these concerns, CBI highlighted relevant portions of the Working Group's existing **Framework Agreement**:

- Regarding the **Working Group**:
  - Up to two reps from each GSA; each GSA has one vote (if needed)
  - Parties committed to make the best use of everyone's time and resources
  - Convening/facilitation team to work in service of all parties
  - General ground rules and protocols
- Regarding the **TAC**
  - Each GSA may name one representative and one alternate
  - Water Forum supports deliberations, collaborates with GSAs on agendas, discussion materials and identifying outside experts with relevant expertise
  - Individual GSAs may bring consultants whom they deem relevant, to support their GSA's effective participation; but such experts are not considered members of the TAC and their role should be made explicit

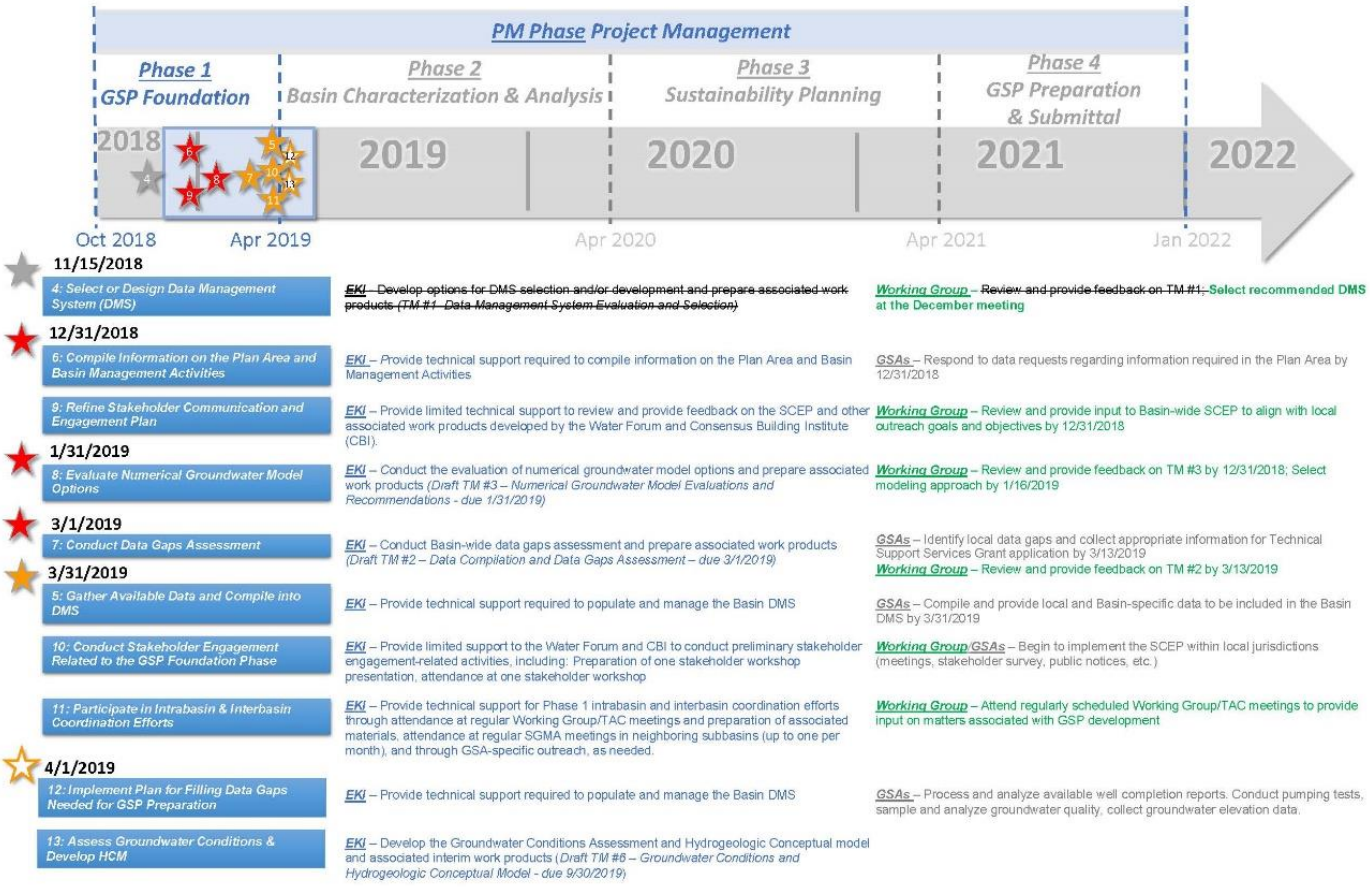
Given the various observations, CBI suggested a handful of potential actions to ensure timely discussion and decision-making:

- Prepare **3-5 month look ahead calendar**
- Develop list of GSA versus project team **roles and responsibilities** and highlight budgetary implication for GSAs
- Create **agenda subcommittee** and provide meeting material well in advance to GSAs
- Cover most critical topics early in agenda

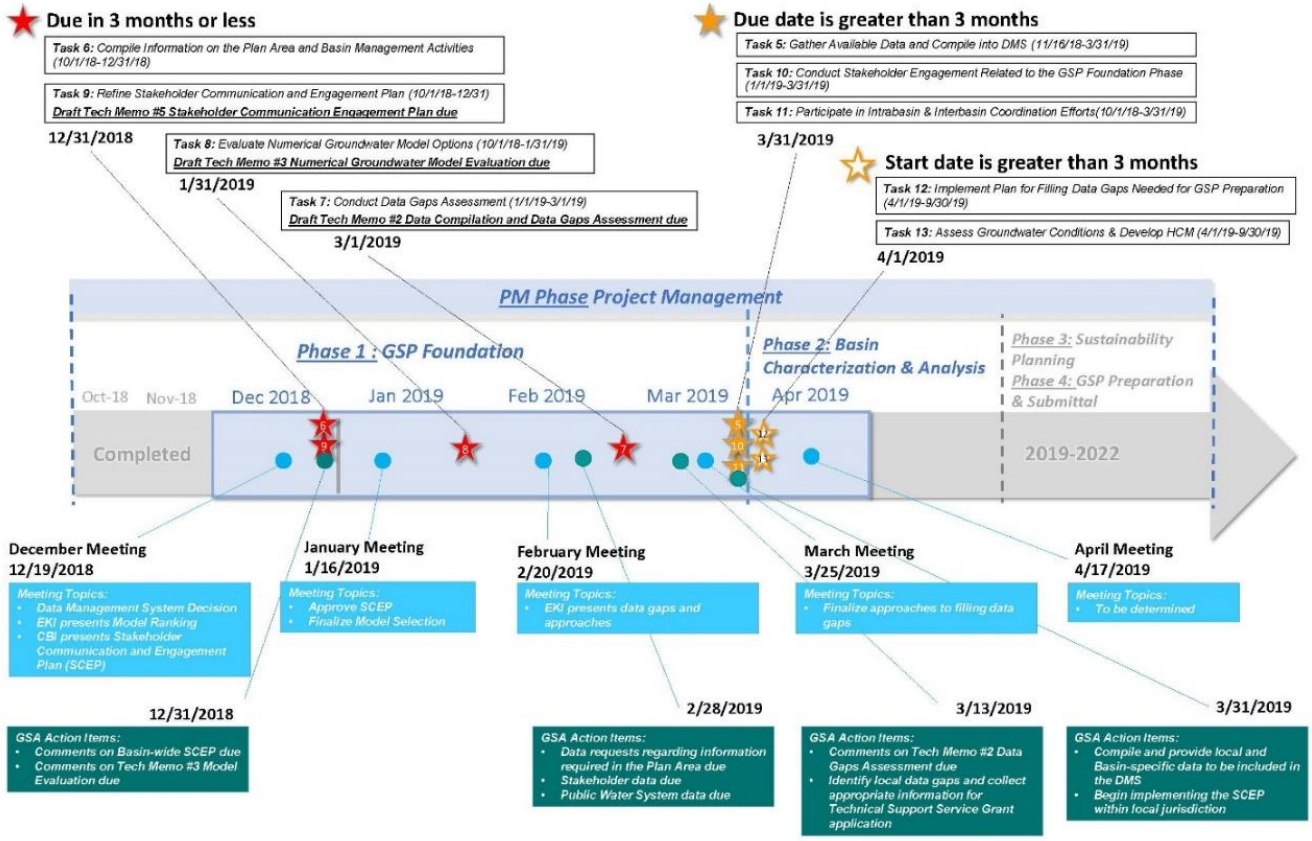
- Revisit TAC purpose, composition and timing

The presentation concluded with a look-ahead calendar of key due dates and decision points prepared by EKI. View Timeline for Phase 1 Tasks (timeline as of Dec. 19).

Page 1 of the timeline document lists key actions by due date. EKI's responsibilities are captured in the middle column and GSA/Working Group responsibilities are captured in the right column. Red stars denote due dates that fall within the next three months; yellow stars denote due dates that are more than three months away.



Page 2 (see following page) delineates the due dates of EKI tasks (top of page) and lists Meeting Topics and GSA Action Items (bottom of page).



Discussion

- Working Group participants expressed support for forming an Agenda Review Committee, with up to one representative from each GSA.
- One participant recommended a classroom or workshop be organized to educate decision-makers on groundwater management technical aspects. Other participants expressed concern over potentially slowing progress or increasing members' workload by adding more meetings or workshops.

Outcome: The Working Group formed an Agenda Review Committee. To maximize efficiency, the Committee will review and discuss draft agendas via email. The Working Group will check back in a few months to evaluate the agenda review process.

The following Working Group members volunteered to represent their GSA on the Agenda Review Subcommittee: K. Schmitz, SCGA; Gene Mancebo, Amador County; Barbara Washburn, SRCD; Mark Clarkson, City of Galt; Rick Wohle, Clay ID; Mark Stretars, OHWD; Leo VanWarmerdam, Galt Irrigation District.

Public Comment: T. Washburn and M. Frost-Hurzel asked if the Working Group had time to discuss public involvement in technical issues. The Working Group expressed interest, but suggested tabling the issue for a future meeting due to time constraints.

COSUMNES SUBBASIN SGMA TECHNICAL ADVISORY COMMITTEE

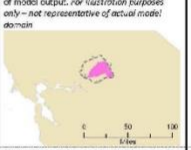
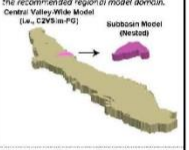
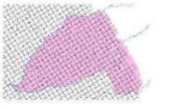
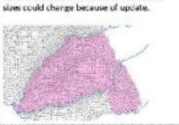
GROUNDWATER MODELING

EKI presented an analysis of potential groundwater models based on criteria developed by the Working Group in November and recommended that the Cosumnes Subbasin Working Group choose a nested model to guide GSP development. View Draft Technical Memo #2.

Six models were considered in the evaluation:

- California Central Valley Groundwater-Surface Water Simulation Model Fine-Grid (C2VSim-FG);
- Central Valley Hydrologic Model (CVHM);
- Sacramento Valley Groundwater-Surface Water Simulation Model (SVSim);
- Sacramento Area Integrated Water Resources Model (SacIWRM);
- A custom, stand alone model developed for the Cosumnes Subbasin; and
- A custom, nested model developed for the Cosumnes Subbasin.

Table 1 of Technical Memo #2 presents a comparative analysis of potentially applicable groundwater models (View pages 8-9).

Model Characteristics		*Central Valley-Wide Models*		*Regional Models*		*Subbasin Models*	
		C2VSim Fine Grid	CVHM	SVSim	SacIWRM	Custom (Stand Alone)	Custom (Nested)
Model History	Model Developed By:	DWR (2018), as an update to coarse grid model	USGS (2009), as an update to CV-RASA mode (Williamson and others, 1989)	DWR	RMC Water and Environment/WRIME (2011)	EKI	EKI
	Model Developed For:	DWR, federal/state entities, and public use	USGS Groundwater Availability Program, federal/state entities, and public use	Simulation of basin-wide groundwater conditions with a focus on stream-aquifer interactions	Sacramento Groundwater Authority, Sacramento Central Groundwater Authority, South Area Water Council	Cosumnes Working Group	Cosumnes Working Group
	Status:	Development in progress; expected release first part of 2019	Update in progress; possibly available in late 2019	Development in progress; expected release 1st Quarter 2019	Update by Woodard & Curran for North American and South American Subbasin Water Purveyors in progress; expected completion ~~Summer 2020~~ Sept. 2019	Expected completion April 2020	Expected completion April 2020
Model Construction and Calibration	Model Platform	Integrated Water Flow Model (IWFM)	MODFLOW-2000 with Farm Process (MF2K-FMP)	IWFM	IWFM	MODFLOW or IWFM	MODFLOW or IWFM
	Spatial Domain	Central Valley 	Central Valley 	Sacramento Valley 	North American, South American, Cosumnes, and part of Eastern San Joaquin subbasins 	Physical and hydrologic boundaries are located far enough from the Cosumnes Subbasin geographic boundaries to minimize influence on model calculations within the Subbasin, but near enough to a low appropriately detailed input, reasonable model run time and manageable processing of model output. *For illustration purposes only – not representative of actual model domain* 	Cosumnes Subbasin and immediately adjacent areas are "nested" within a regional model representing a larger geographical area (for example, SacIWRM, SVSim, CVHM, or C2VSim-FG). Also referred to as "telescopic" modeling approach. *For illustration purposes only – not necessarily the recommended regional model domain.* 
	Spatial Resolution	Finite element model, element size ranges from 74 to 1,064 acres with an average of 351 acres in the Cosumnes Subbasin. 	Finite difference model with 273-317 cells in the Cosumnes Subbasin; Cell area of 1 mi² (USGS reported accuracy estimated at 5 mi²). 	Finite element model, element size ranges from 0.7 to 2,341 acres with an average of 205 acres over the entire model domain (specific element size not available for Cosumnes Subbasin). 	Finite element model, element size ranges from 19 to 362 acres with an average of 106 acres in the Cosumnes Subbasin. Element sizes could change because of update. 	Element or cell size specifically determined to capture spatial variability in land use, recharge, surface water drainages, and other landscape features and processes as described by the Groundwater Conditions Assessment and Hydrogeological Conceptual Model (HCM) developed for the Cosumnes Subbasin GSP.	Element or cell size specifically determined to capture spatial variability in land use, recharge, surface water drainages, and other landscape features and processes as described by the Groundwater Conditions Assessment and HCM developed for the Cosumnes Subbasin GSP.
	Vertical Layering	Four layers, representing the "unconfined," "pumped confined," "un-pumped confined," and deep saline aquifers.	Ten layers of increasing thickness with increasing depth: layers 1-3 represent the shallow unconfined to semi-confined aquifers; layers 4-5 represent the Corcoran Clay where present; layers 6-8 represent the deep pumped zone; and layer 10 represents a deep, unpumped zone.	Nine layers: layer 1 designed to include a minimum thickness of 20 feet below streams; layers 1-3 designed to accommodate fluctuations in the water table; layers 4-8 represent deeper production zones; layer 9 extends to base of continental deposits.	Three layers: layers 1-2 represent the freshwater aquifers; layer 3 represents the aquifer materials from the base of freshwater to the continental deposits. Layering could change because of update.	Sufficient layering to capture basin structure, vertical heterogeneity, and variability in aquifer parameters as determined by updated Cosumnes Subbasin HCM with scheduled completion date of September 2019.	Sufficient layering to capture basin structure, vertical heterogeneity, and variability in aquifer parameters as determined by updated Cosumnes Subbasin HCM with scheduled completion date of September 2019.
	Temporal Scheme & Resolution	Transient, monthly time step	Transient, monthly time step	Transient, monthly time step	Transient, daily time step	Transient, likely monthly or finer timestep as needed to capture stream-aquifer interactions represented by Groundwater Conditions Assessment, HCM, and Basin-Wide Water Budget developed for Cosumnes Subbasin GSP.	Transient, likely monthly or finer timestep as needed to capture stream-aquifer interactions represented by Groundwater Conditions Assessment, HCM, and Basin-Wide Water Budget developed for Cosumnes Subbasin GSP.

EKI evaluated models according to the following GSA-developed criteria, using both unweighted and weighted scales (view slides 10-11).

Three criteria were applied on a Pass/ Fail basis:

- Release Date (available on or before April 1, 2020)
- Supports water budgets, SMC development, & evaluation of P&MAs
- Development/ Update cost within available budget

Five additional criteria were ranked according to priority assigned by the GSAs:

1. Represents HCM accepted by Working Group and employed for Cosumnes Subbasin GSP
2. Supports coordination with adjacent basins and regional water supply planning (e.g., GW banking)
3. Minimum cost for future maintenance, implementation, and adaptive management
4. Working Group is primary decision maker
5. Schedule allows Working Group opportunity to provide input to model development / update.

MODEL RANKING WEIGHTED CRITERIA

	Model Selection Criteria	*Central Valley-Wide Models*		*Regional Models*		*Subbasin Models*	
		C2VSim Fine-Grid	CVHM	SVSim	SacIWRM	Custom (Stand Alone)	Custom (Nested)
Pass/Fail	Release Date (available on or before April 1, 2020)[1]	5	5	5	0	5	5
Pass/Fail	Supports water budgets, SMC development, & evaluation of P&MAs[1]	5	5	5	5	5	5
Pass/Fail	Development / Update cost within available budget[1]	5	5	5	5	5	5
Ranked Priority	1) Represents HCM accepted by Working Group and employed for Cosumnes Subbasin GSP[2]	0	0	0	0	5	5
Ranked Priority	2) Supports coordination with adjacent basins and regional water supply planning (e.g., GW banking)[2]	4	4	4	4	0	4
Ranked Priority	3) Minimum cost for future maintenance, implementation, and adaptive management[2]	3	3	3	3	0	0
Ranked Priority	4) Working Group is primary decision maker[2]	0	0	0	0	2	2
Ranked Priority	5) Schedule allows Working Group opportunity to provide input to model development/update[2]	0	0	0	1	1	1
	SUM	*22*	*22*	*22*	*18*	*23*	*27*

MODEL RANKING – EQUAL WEIGHTING

	Model Selection Criteria	Central Valley-Wide Models		Regional Models		Subbasin Models	
		C2VSim Fine-Grid	CVHM	SVSim	SacIWRM	Custom (Stand Alone)	Custom Nested
Pass/Fail	Release Date (available on or before April 1, 2020)	1	1	1	0	1	1
	Supports water budgets, SMC development, & evaluation of P&MAs	1	1	1	1	1	1
	Development / Update cost within available budget	1	1	1	1	1	1
Ranked Priority	1) Represents HCM accepted by Working Group and employed for Cosumnes Subbasin GSP	0	0	0	0	1	1
	2) Supports coordination with adjacent basins and regional water supply planning (e.g., GW banking)	1	1	1	1	0	1
	3) Minimum cost for future maintenance, implementation, and adaptive management	1	1	1	1	0	0
	4) Working Group is primary decision maker	0	0	0	0	1	1
	5) Schedule allows Working Group opportunity to provide input to model development/update	0	0	0	1	1	1
	SUM	*5*	*5*	*5*	*5*	*6*	*7*

The Working Group and EKI previously discussed model selection at several Working Group meetings, including:

- February 2018 – Discussed ESJ modeling efforts; introduced basics of groundwater modeling philosophy
- September 2018 – Overview of numerical groundwater model options for the Cosumnes Subbasin and associated costs; generated a list of questions GSAs had for EKI (View slides 8-24)
- October 2018 – Reviewed available models and considerations for choosing a model; answered questions generated at September meeting (View slides 16-36)
- November 2018 teleconference - Ranking Criteria for Model

EKI noted a typo in the draft Technical Memo #2, specifically the date of completion for SacIRWM (September 2019 rather than the 2020 date included in the initial memo/evaluation). An updated version of the document will be sent to the Working Group following a model coordination meeting planned for early January 2019.

Discussion – Groundwater Modeling:

- A Working Group participant asked a question clarifying whether any input would be accepted for the update to SacIRWM. EKI responded that the Working Group could likely provide some general input to the SacIRWM update process, assuming they were open to accepting the input. However, there is a potential challenge with timing as the SacIRWM update has already been initiated and Hydrogeological Conceptual Model (HCM) for the Cosumnes Subbasin would not be developed until

September 2019. A fairly complete understanding of HCM and critical issues is needed before input could specifically be supplied in support of any model development/refinement.

- Another participant inquired as to whether there are basic principles the Working Group could use to guide input to the SacIRWM update, without the HCM. EKI responded that, as an example, the group could suggest finer mesh around the Cosumnes river, but that other areas/issues are less well-known at this time.
- Some Working Group members expressed concern over their jurisdictions being split between two models. EKI addressed these comments by indicating that the boundary of a nested model would be pushed further from the Cosumnes River.
- Another Working Group member expressed concern that a nested model, because it is a custom application, could cost more to maintain in the future and this could make the basin overly dependent on our consultants. EKI responded that any model used would require update and maintenance by some entity in the future – the question is who controls what is done and when and for what purpose.
- A participant voiced concerns that DWR would not accept a custom model. EKI shared experience from other basins where DWR has been receptive to updated information from basins to calibrate/improve their model, and do not anticipate any opposition to a basin-specific model if that is what the Working Group decides to pursue. A custom model is being used in the adjacent ESJ subbasin.
- All GSAs present expressed support for a coordination meeting between modeling consultants working in the region.
- Some GSAs indicated that they would need to seek additional guidance from their boards before making a final decision on model selection.

Next Steps:

- GSAs needing board approval will bring the topic of model selection to their boards.
- The Working Group will revisit model selection at its January 16 meeting and at its February 20 meeting will develop a Working Group recommendation for consideration by each GSA.
- The Water Forum will convene a groundwater modeling coordination meeting between the Water Forum, EKI, Regional Water Authority, Woodard Curran modelers working on the SacIRWM update, and others.

Public Comment:

- T. Washburn advocated for updating and using SacIRWM as the best way to achieve a single regional model.
- S. Pecci expressed concern over the cost of developing custom models.
- T. Rauh suggested that Rob Swartz, Manager of Technical Services at Regional Water Authority, be included as the group works to understand Central Basin's model.

- M. Frost-Hurzel expressed her support for the group's discussion of regional coordination.

COSUMNES SUBBASIN SGMA WORKING GROUP

DATA MANAGEMENT SYSTEM (DMS)

EKI reviewed the Working Group's prior discussion of the Data Management System (DMS) during the November webinar, during which EKI presented **Technical Memo #1** and Working Group members posed questions regarding relative cost and a web-based interface. EKI later responded to these questions in a follow-up email (View Technical Memo #1).

SGMA Groundwater Sustainability Plan Regulations specify that GSAs are responsible for developing and maintaining a DMS to store and report information relevant to GSP implementation and monitoring of the basin, and this data must be available in both tabular and geodatabase-compatible shapefile form.

EKI's evaluation concluded that a **DMS using Microsoft Access and ArcGIS** would best meet the criteria of:

- SGMA GSP Regulations;
- California Department of Water Resources (DWR) Best Management Practices (BMP) Guidance;
- Public Availability;
- Common Use;
- Adaptability;
- Web Data Interface; and,
- Cost-Effectiveness.

EKI recommended that the group move ahead with DMS selection, so that EKI could immediately begin using the DMS to store data.

Discussion – DMS:

- A Working Group participant asked if EKI would be providing documentation of the DMS. EKI responded by explaining that EKI would produce content that describes the structure and content of the DMS, rather than a manual. EKI will deliver the DMS to the Working Group and DWR with queries.
- One GSA member initially requested postponing the decision on the DMS. However, after group discussion and explanation of the role of the DMS in the context of future modeling work, that GSA representative supported the DMS recommendation.

Outcome: All GSAs present voted yes to instruct EKI to begin using the selected DMS.

NEXT MEETING

The Working Group and TAC will next meet in person from 9-12 p.m. on Wednesday, January 16 at the Galt Police Department Community Room, 455 Industrial Drive, Galt, CA.

MEETING PARTICIPANTS

Darrel Evenson, Amador County Groundwater Management Authority
Ed Gonzalez, Amador County Groundwater Management Authority
Gary Thomas, Amador County Groundwater Management Authority
Gene Mancebo, Amador County Groundwater Management Authority
Mike Israel, Amador County Groundwater Management Authority
Herb Garms, Sloughhouse Resource Conservation District
Barbara Washburn, Sloughhouse Resource Conservation District
Jay Schneider, Sloughhouse Resource Conservation District
Mark Stretars, Omochumne-Hartnell Water District
Rick Wohle, Clay Water District
Steven Winkler, City of Galt
Mark Clarkson, City of Galt
Kerry Schmitz, Sacramento County
Rodney Fricke, Sacramento County
Julia Golomb, CBI
Anona Dutton, EKI
John Fio, EKI
Tom Gohring, Water Forum
John Lowrie, Water Forum
Katherine Perkins, Water Forum

Additionally, members of the public and DWR attended the meeting.

GLOSSARY

Below is a list of commonly used terms:

CBI	Consensus Building Institute - The organization that facilitates SGMA implementation in the Cosumnes Subbasin
DWR	California Department of Water Resources
EKI	The firm that currently serves as independent technical consultant for the Cosumnes Subbasin
Galt ID	Galt Irrigation District link) - One of the seven GSAs in the Cosumnes Subbasin
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
OHWD	Omochumne-Hartnell Water District (link) - One of the seven GSAs in the Cosumnes Subbasin
RFP	Request for Proposal
RFQ	Request for Qualification
Prop. 1	Proposition 1
SGMA	California Sustainable Groundwater Management Act (link)
SRCD	Sloughhouse Resource Conservation District - One of the seven GSAs in the Cosumnes Subbasin
SSCWA	Southeast Sacramento County Agricultural Water Authority (link)
TAC	Cosumnes Subbasin Technical Advisory Committee – An advisory body, with representatives from each of the seven GSAs, that develops recommendations for approval by the Working Group.
WF	Sacramento Water Forum (link)

For questions regarding this meeting summary, please contact Tom Gohring at the Water Forum or Julia Golomb at the Consensus Building Institute.

Visit cosumnes.waterforum.org for the latest meeting information and materials.