Final Program Assessment

Drinking Water Subcommittee

Item 2

August 31, 2006

Final Assessment

1. Presentation:
    1. Objectives/Functions of the Report
    2. Integrating with other Efforts
    3. Schedule
    4. Outline and Scope
2. Discussion:
    1. Comments on Assessment Scope
    2. Recommendations on Schedule/Priorities

From CALFED ROD:

Support the ongoing efforts of the Delta Drinking Water Council or its successor to develop recommendations to the CALFED Agencies on treatment, alternative water sources, conveyance improvements, storage and operations necessary to meet CALFED's goal of continuous improvement in Delta water quality for all uses. ... Actions include:

➢Council will complete final assessment and submit final recommendations on progress toward meeting CALFED water quality targets and alternative treatment technologies by the end of 2007. [Pages 67-68]

Invest in Treatment Technology Demonstration. Recent private sector efforts have generated substantial advances in treatment technologies...Other promising treatment technologies that arise during the Program may be funded as well.

•Evaluate practicability of and determine timelines for full-scale implementation by the beginning of 2007. [Page 68]

From 10-Year Action Plan:

The CALFED ROD identified the following questions as ones that must be answered after the first seven years of the Program, near the end of Stage 1:

1) What additional actions are needed to achieve the drinking water quality goals?
3) Should the screened Sacramento River diversion be built or should alternatives to the Through-Delta conveyance approach be reconsidered?
4) Should surface storage facilities be constructed?
5) Is a new approach needed to reduce Delta levees risks?

Section 4.4

From 10-Year Action Plan (cont'd):

Stage 1 Synthesis of Drinking Water Quality Information. The CALFED ROD established a drinking water quality target of either 50 ug/L bromide and 3 mg/L total organic carbon at Delta drinking water intakes, or an "equivalent level of public health protection" (ELPH). By the end of 2007, implementing agencies SWRCB, DHS, USEPA, in coordination with DWR, will collect and synthesize available drinking water quality information to determine if a Through-Delta facility is a cost-effective way to achieve water quality improvements. This information is currently being gathered through a number of projects, including the development of drinking water conceptual models, performance measures and regional ELPH planning guidance documentation.

ACTION – COMPLETE SYNTHESIS OF DRINKING WATER QUALITY INFORMATION BY DECEMBER 2007. *By the end of 2007, the CALFED implementing agencies will synthesize available water quality information to determine if a Through-Delta facility is a cost-effective way to achieve water quality improvements.*

Points of Discussion

- Do we capture the full range of the system?
- Suggestions for specific consultant work.
- Should certain pieces be prioritized and incorporated into other ongoing efforts?
- Are some areas more important than others?
- Can we convene a small working group to help? Is DWS interaction time appropriate?
- Does this seem like a helpful product by itself??

Why are we proposing this?

- Need to Inform Stage 2 Actions
- Need to Inform Conveyance Decisions

- CALFED Program Proposing:
  - Straw proposal for End of Stage 1/Stage 2 released in December 2006
  - Public process from January – December 2007
  - Final report/decision end of December 2007

- CALFED Conveyance proposing further TDC studies in Fall 2007 – mid 2008

Why are we proposing this?

- Need to know drinking water quality status/progress throughout solution area
- Can use information developed in assessment to support:
    - Central Valley Drinking Water Policy
    - Water Quality Program Performance Measures
    - Delta Vision Process
    - Delta Risk Management Strategy
    - State of Science Report

Rough Schedule

September 2006:	Contract with consultant to support Final Assessment
December 2006:	End of Stage 1/Stage 2 proposal/report released
	Drinking Water Subcommittee meeting
	-Consultant work on Final Assessment concluded/ reported
	-Progress on TDC projects reported
	-Connection with EoS1/S2 discussed
January 2007:	DRMS Phase 1 report released
March 2007:	Drinking Water Subcommittee meeting
	-Progress on Final Assessment discussed
	-Results of DRMS discussed
	-Completed/Refined CVDWP conceptual models discussed
June 2007:	Drinking Water Subcommittee meeting
	-Initial draft of Final Assessment released/presented
	-Performance Measures report
September 2007:	Public Process on EoS1/S2 winding down, draft final report released
	DWS recommendations to agencies on Final Assessment
December 2007:	Make recommendations on EoS1/S2

Assessment Outline

1. Objectives/Targets of Program, Program Implementation Approach, Goals of Final Assessment
2. Current source water quality and opportunities for improvements at Delta intakes and upstream
3. Current (representative) treated water quality and opportunities for improvements “downstream” of Delta intakes, (to the tap or at compliance points in distribution system?)
4. Other considerations (i.e. sensitivity to future conditions)
5. Recommendations for stage 2 and conveyance decisions

Section 1

Objectives/Targets of Program, Program Implementation Approach, Goals of Final Assessment

QUESTIONS:

Are the CALFED drinking water quality targets still relevant?

Should treated water targets be stated?

How are we interpreting the multiple barrier approach to drinking water quality protection (better statement of commitment to ELPH and how we interpret redundancies)?

Section 1

Objectives/Targets of Program, Program Implementation Approach, Goals of Final Assessment

PROPOSED APPROACH:

Implementing agencies will hold workshops to discuss and determine the answers to these questions. This section will include:

- History and background of targets
- Interpretation of “equivalent level of public health protection”
- National Approach to Drinking Water protection
- Evaluation Criteria for this “Assessment of Progress”

DWS will be informed of determinations and invited to comment/debate.

Section 2

Current source water quality and opportunities for improvements at Delta intakes and upstream

QUESTIONS:

What do we know about the sources and fate of constituents of concern in the Delta watershed?

Where and what are the priorities for non-point source improvement upstream and within the Delta?

What are the known costs and benefits of such actions?

What remains unknown? What are the priorities to fill gaps?

Section 2

Current source water quality and opportunities for improvements at Delta intakes and upstream

PROPOSED APPROACH:

Complete data analysis of upstream tributaries building off of conceptual models, USGS work on hydrodynamics and DWR fingerprint and San Joaquin River modeling. Prioritize watershed by load weighting if adequate data (ambient and source water quality data).

Staff continues work with CVDWP and USGS

Investigate effectiveness and economics of nonpoint source improvement

Build off of Joint Study on Sacramento area

Use Reclamation consultant to expand this study to San Joaquin and Delta watersheds, and to compile and evaluate information from CALFED-funded and other studies

Section 2

Current source water quality and opportunities for improvements at Delta intakes and upstream

QUESTIONS:

What do we know about the role of the Delta (e.g. hydrodynamics, sources) in intake water quality?

Where and what are the priorities for improving Delta water quality through changes to Delta conveyance, addition of upstream storage, and or levee protection?

What are the known costs and benefits of these actions?

Section 2

Current source water quality and opportunities for improvements at Delta intakes and upstream

PROPOSED APPROACH:

Describe the role of the Delta in drinking water quality.

- Staff will synthesize information from Conceptual Models, USGS and DWR modeling, the Delta Risk Management Strategy studies, and the Through-Delta Conveyance studies.
- Staff working with agencies early to assure study results fit into larger drinking water description.

Section 3

Current (representative) treated water quality and opportunities for improvements "downstream" of Delta intakes, (to the tap or at compliance points in distribution system?)

QUESTIONS:

What do we know about the how Delta source water quality translates into treated water quality?

What types of treatment processes are meeting CUWA expert panel benchmarks?

Where are upgrades planned that will allow plants to meet benchmarks?

What are the costs and benefits of treatment?

Section 3

Current (representative) treated water quality and opportunities for improvements "downstream" of Delta intakes, (to the tap or at compliance points in distribution system?)

PROPOSED APPROACH:

Develop CALFED solution area representative statistics on where Central Valley surface waters are used as drinking water, including populations served, locations of treatment plants and surface water intakes, types of treatment and disinfection employed, typical treated and raw water quality, and census economic information (in GIS system).

- Staff working with DHS and CVDWP to develop this information

From statistics determine percentage of plants currently meeting CALFED benchmarks and determine the characteristics of plants not meeting benchmarks. Select a representative number of these treatment plants (7-10) and determine a) if plans exist to upgrade plant in such a way as benchmarks will be met and b) what processes/upgrades would be needed to enable plants to meet benchmarks (and comparable order-of-magnitude costs thereof), based on existing information, demonstration studies, and discussions with plant representatives.

- Staff, DHS, and CVDWP developing initial statistics and list
- Use Reclamation contractor to work with selected plants, building off of Delta Treatment Report and CALFED studies where appropriate
- CVDWP may build off of this work

Section 3

Current (representative) treated water quality and opportunities for improvements "downstream" of Delta intakes, (to the tap or at compliance points in distribution system?)

QUESTIONS:

What do we know about the specific water quality impacts of conveying and storing raw water?

Where and what are the priorities for improving conveyance and storage of Delta raw water from the Delta to treatment plants?

What are the known costs and benefits of such actions?

What remains unknown? What are the priorities to fill gaps?

Section 3

Current (representative) treated water quality and opportunities for improvements "downstream" of Delta intakes, (to the tap or at compliance points in distribution system?)

PROPOSED APPROACH:

Identify water quality issues associated with specific constituents of concern within conveyance systems and intermediate reservoirs.

- Work with DHS, DWS workgroup, and project proponents to identify initial list of issues.
- Find expertise, as appropriate, to further explore/describe these issues.
- Work with representative treatment plants and utility planners to identify actions addressing these issues, as well as associated benefits and costs (hopefully within existing plans)

Section 4

Other considerations (i.e. sensitivity to future conditions)

QUESTIONS:

What is the vulnerability of Delta drinking water quality to potential future conditions in the Delta?

Section 4

Other considerations (i.e. sensitivity to future conditions)

PROPOSED APPROACH:

Evaluate/Summarize the vulnerability of Delta drinking water quality to potential future conditions, using descriptions and/or results from Delta Risk Management Study and Delta Vision Process.

- Propose that a DWS meeting be devoted to this activity. Staff could prepare an exercise or straw proposal to assist DWS.

Section 5

Recommendations for stage 2 and conveyance decisions

QUESTIONS:

How does all of this information translate into an “ELPH” strategy and Stage 2 actions?

Section 5

Recommendations for stage 2 and conveyance decisions

PROPOSED APPROACH:

Synthesize information and prioritize actions to develop an "ELPH" strategy and Stage 2 actions, include research and monitoring needs.

Staff will complete this task, bringing information to DWS as developed, and with DWS input into final product.

Implementing agencies will review final product and make recommendations on Conveyance Decision and on Stage 2 Actions.

An independent science panel could be convened as called for by Conveyance Decision (WQ Program does not have funding available for this activity).

Interested in Helping?

Should we reconvene the DWS workgroup as a more frequent, technically focused stakeholder group?

Water Quality Performance Measures

Drinking Water Subcommittee

Item 3

August 31, 2006

Outline

1. Latest developments in Programmatic effort on Performance Measure (from the recent ISB presentation)
2. Draft Products to Review, repackaging Water Quality work
3. Some thoughts on the future of WQ Performance Measures

Mission

To develop indicators and performance measures for the CALFED program that:

- Promote a greater scientific understanding of the system (indicators)
- Inform on progress towards goals (performance measures)

Vision

- Integrated into planning, implementation, assessment and adaptive management.
- Make information accessible and understandable to all
- Integrate program elements – better understanding of linkages
- Document our current understanding of the system.
- Promote interdisciplinary understanding

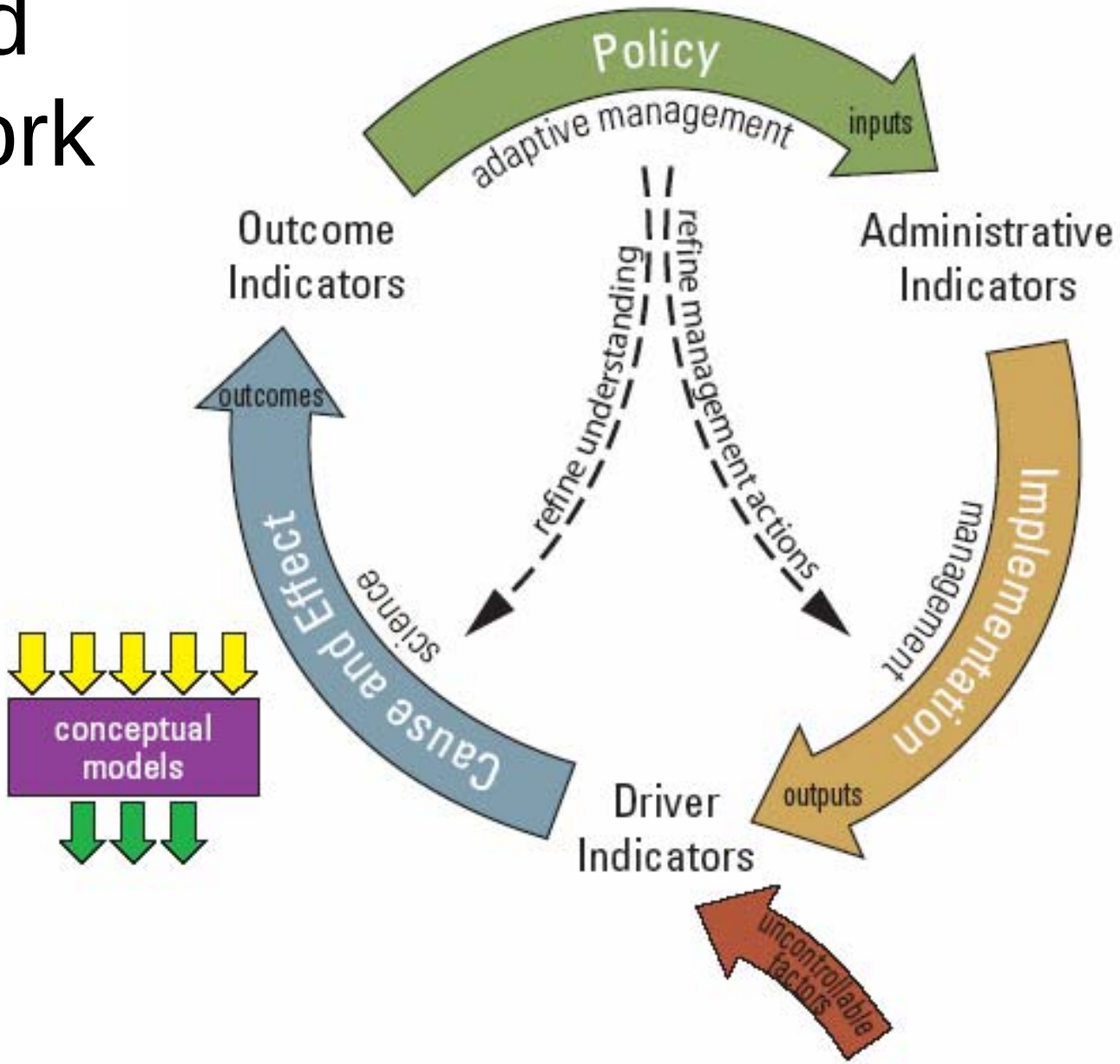
Three levels of indicators

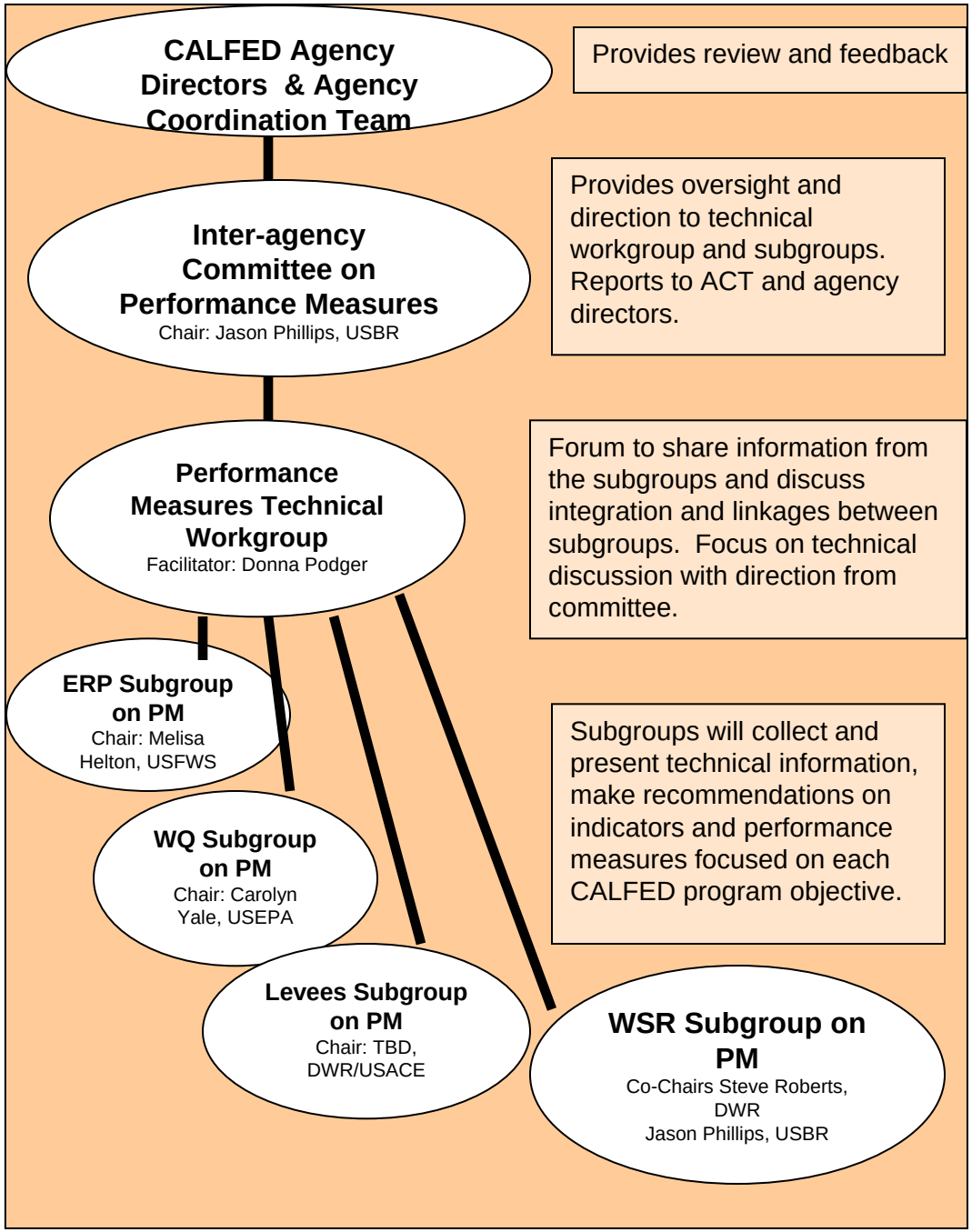
1. Administrative
2. Drivers

   Management actions (outputs)

   + uncontrollable factors
3. Outcomes

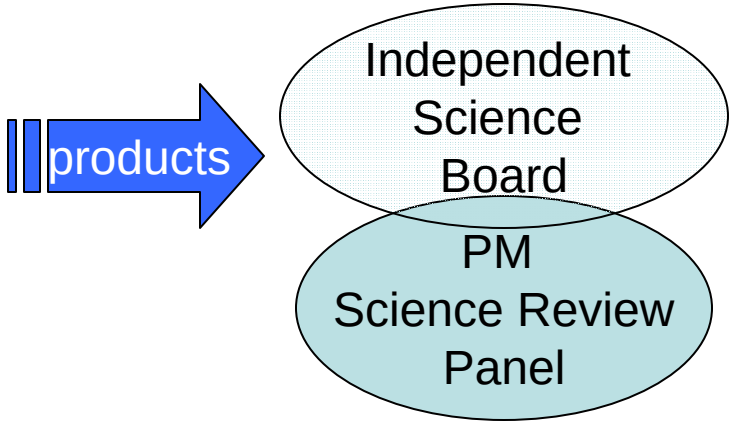
Revised Framework





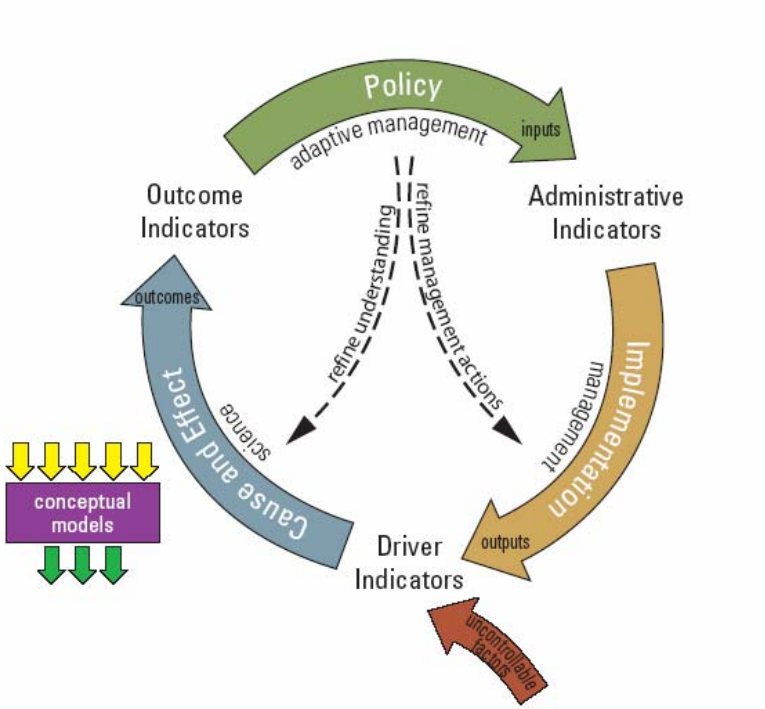
Roles & Responsibilities

- Ten Year Action Plan gives responsibility to implementing agencies.
- Independent science review of products



“Top-Dowr

Four subgroups focused on



Identify

Strategic Goals and Objectives

Performance Goals and Targets

Select

Outcome indicators

Monitoring data

Describe

Conceptual Models

Select

Driver indicators

Phased Approach (& Timeline)

- **Phase 1:** Identify core set of indicators and plan to complete development. (Summer 2006)
- **Phase 2:** Evaluate and develop web-based communication product on core set of indicators. (Spring 2007)
- **Phase 3:** Revise web-based product. Develop information for publication. (Summer 2007)
- **Phase 4:** Develop more complete set of indicators (Fall 2007)

Independent Science Review for products of each phase

Progress

- Phase 1 Report under development
- Subgroups have differing levels of progress
- Lack of resources at some agencies
- Timeline may change

Phase 1 Report

- Overview of Framework and Approach
- Select core set of outcome indicators and describe relation to goals
- Information inventory on indicators (monitoring data, conceptual models, drivers identified)
- Identify resources needed to complete
- Identify next steps and schedule

Water Quality Appendix

3/5 of Appendix Sections are Water Quality:

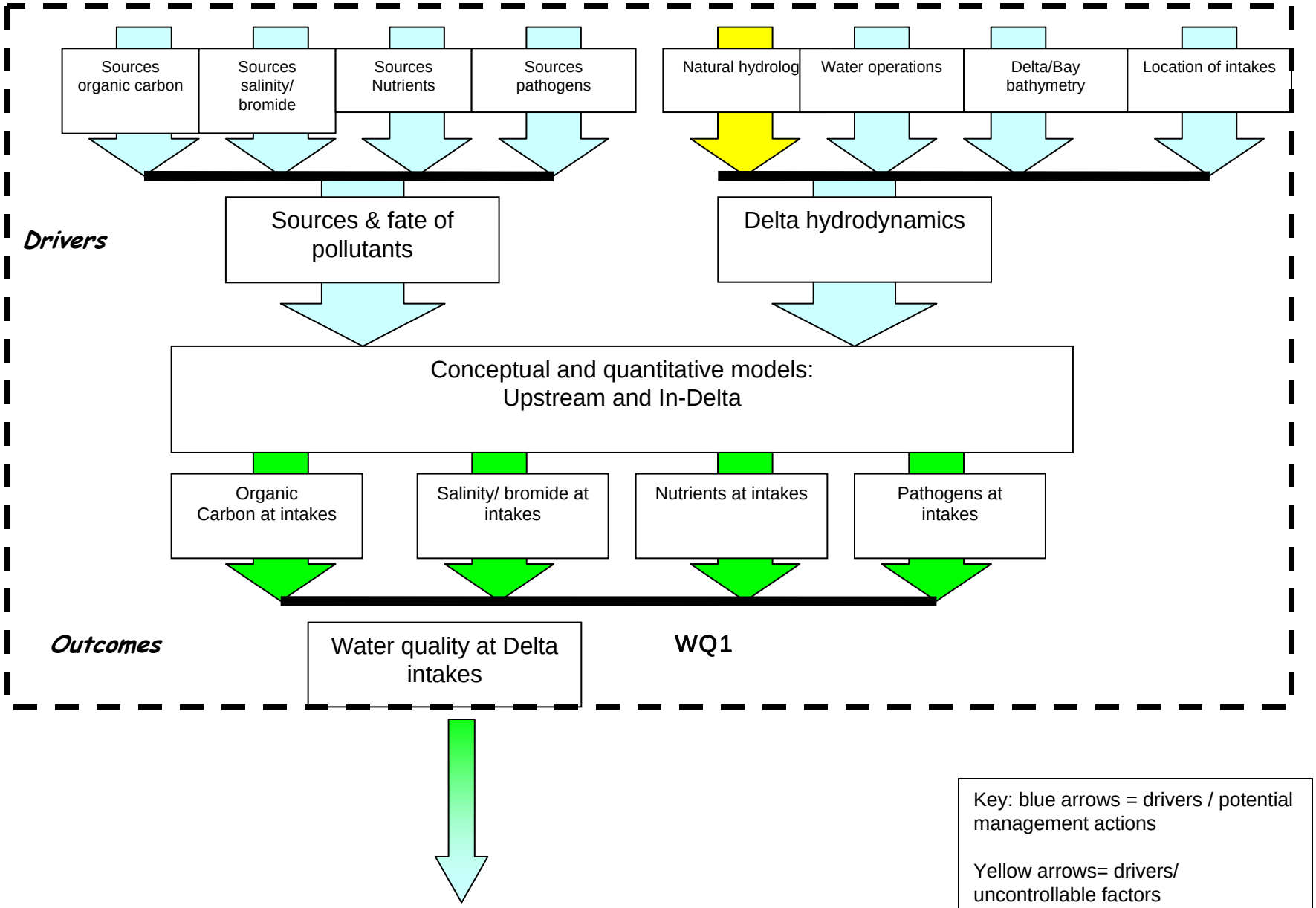
- Drinking Water
- Toxicity of Unknown Cause
- Mercury Effects on the Ecosystem & Human Health

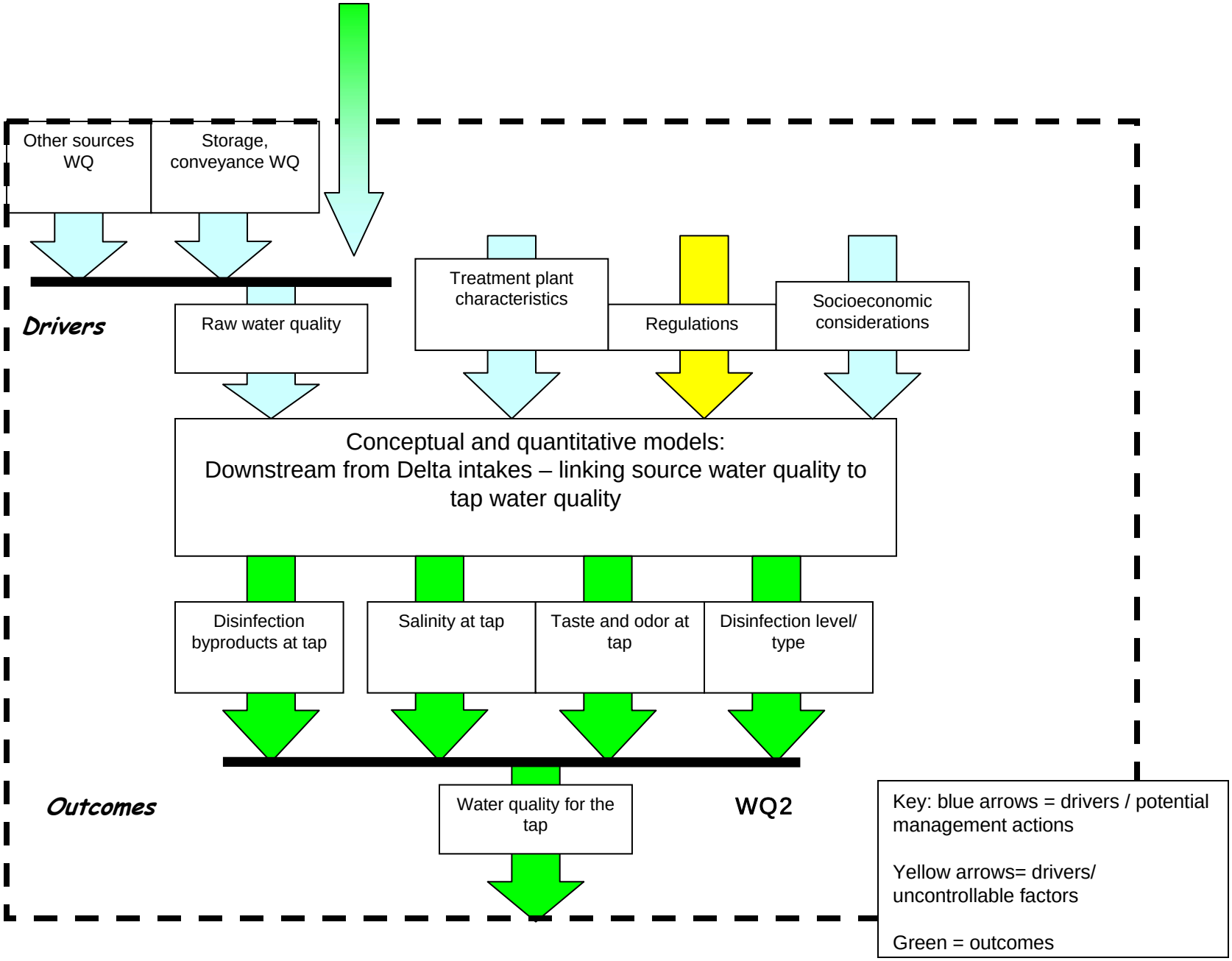
Drinking Water Section develops 2 of 4 potential measures:

- **Water quality at the Delta intakes**
- **Water quality for the tap (post-treatment/pre-distribution)**
- Cost
- Reliability/Flexibility

Work in Phase I Report, Appendix

- Identified example performance measures
- Identified existing information, conceptual models
- Inventoried the quality/quantity of data available to support performance measures
- Identified work and resources needed to complete performance measures by the end of 2007


Sources organic carbon
Sources salinity/ bromide
Sources Nutrients
Sources pathogens
Natural hydrolog
Water operations
Delta/Bay bathymetry
Location of intakes
Drivers
Sources & fate of pollutants
Delta hydrodynamics
Conceptual and quantitative models: Upstream and In-Delta
Organic Carbon at intakes
Salinity/ bromide at intakes
Nutrients at intakes
Pathogens at intakes
Outcomes
Water quality at Delta intakes
WQ1
Key: blue arrows = drivers / potential management actions
Yellow arrows= drivers/ uncontrollable factors
Green = outcomes


Other sources WQ
Storage, conveyance WQ
Drivers
Raw water quality
Treatment plant characteristics
Regulations
Socioeconomic considerations
Conceptual and quantitative models:
Downstream from Delta intakes – linking source water quality to tap water quality
Disinfection byproducts at tap
Salinity at tap
Taste and odor at tap
Disinfection level/ type
Outcomes
Water quality for the tap
WQ2
Key: blue arrows = drivers / potential management actions
Yellow arrows= drivers/ uncontrollable factors
Green = outcomes

Information Survey: Core outcome indicators for Drinking Water Summary

	OUTCOMES					DRIVERS			
Core objective	**Outcome**	**Conceptual model**	**Quantitative model**	**Past monit. data**	**Current / future monit. data**	**Driver key word**	**Driver Concept. (CM) or quantitative model (QM)**	**Driver Past monitoring**	**Driver Current/ future monitor.**
WQ1	Water Quality at intakes	2.5	2	2	3	Delta hydrodynamics	3.5 CM 3 QM	3	3
						Sources / fates of pollutants	2 CM 1 QM	2	2
WQ2	Water Quality at tap	2	2	3.5	3.5	Raw water quality	2.5 CM 2.5 QM	3	3.5
						Treatment plant characteristics	4 CM 4 QM	4	4
						Socio-economic considerations	2	2	2
						Regulations	4	4	4

Key:

--: not applicable 0 = no information available 1 = minimal information available
2 = some information available, but major gaps 3 = information is fairly comprehensive, minor information gaps 4 = information is fairly complete

Some thoughts on next steps

- Continue to use Final Assessment and Central Valley Drinking Water Policy technical work to inform performance measures
- Use real-time fingerprinting to translate intake targets to river input targets
- Use loads on major rivers to identify key sources/watersheds and set targets
- Use Final Assessment work to identify representative targets in conveyance, storage, and treatment (if improvement actions are identified in these areas)

CALFED BDPAC
Drinking Water Subcommittee
August 31, 2006

CA Dept. of Health Services

Item 5

Prop 50 Update

Leah G. Walker, P.E.

CDHS Prop 50 Projects Potentially CALFED-related

Prop 50 Chap	System	Project	CALFED Related?	Comments
3	Contra Costa Water District	Regional Intertie and Security Improvements Program	No	water supply security projects only and will only be used in emergency situations.
3	East Bay MUD	SFPUC-Hayward-EBMUD Emergency Intertie Project	No	water supply security projects only and will only be used in emergency situations.
4a1	Valhalla Mobile Home Park	Source Failure - Interconnect with West Sacramento	Yes	The existing wells have a history of bacterial contamination. The groundwater supply will be replaced by connecting to the City of West Sacramento system.
4a3	Irvine Ranch Water District	Reservoir Management Systems for Monitoring and Control of Nitrification Events	*?*	*Not yet reviewed by CALFED staff*
4a5	Los Angeles Co WW Dist 36-Val Verde	Improving water quality in reservoirs	?	DISCUSSION - Should this project be counted as part of the CALFED DWQP? This is a project to improve water quality in distribution reservoirs.
4a5	Antelope Valley E Kern Wtr Agy	AVEK DBP Control Program - Rosamond WTP	Yes	Project will reduce disinfection byproduct concentrations at the tap.
4a5	Los Angeles Co WW Dist 38-Lake L.A.	Disinfection Conversion Project	Yes	Project will reduce disinfection byproduct concentrations at the tap.
4a5	Los Angeles Co WW Dist 38-Lake L.A.	Improving Water Quality in Reservoirs	?	DISCUSSION - Should this project be counted as part of the CALFED DWQP? This is a project to improve water quality in distribution reservoirs.

CDHS Prop 50 Projects Potentially CALFED-related

Prop 50 Chap	System	Project	CALFED Related?	Comments
4b	Riverside, City of	John North WTP	Yes	Project will reduce imported water and will provide treated water that should be higher in quality than either imported source for most constituents.
4b	Ontario, City of	Well No. 44 and 1 New Well Ion Exchange Treatment	?	REVIEW FURTHER - does the project improve water quality at the tap for folks in the CALFED solution area?
4b	Corona, City of	Resin Supply Wells for RO Plant	?	REVIEW FURTHER - does the project improve water quality at the tap for folks in the CALFED solution area?
4b	Eastern Municipal WD	Perris Water Filtration Plant Expansion and SPW Supply	?	REVIEW FURTHER - does the project improve water quality at the tap for folks in the CALFED solution area?
4b	San Diego, City of	Otay Water Treatment Plant Upgrade and Expansion	Yes	Installation of UV disinfection should reduce DBP concentrations at the tap regardless of the mix of local, SWP, and Colorado River water supplied.
4b	San Diego, City of	Miramar Water Treatment Plant Upgrade and Expansion	Yes	Installation of ozone disinfection should reduce chlorine- based DBPs at the tap.
4b	Park WC-Lynwood	Well 9D Treatment Plant Manganese and Arsenic	?	REVIEW FURTHER - does the project improve water quality at the tap for folks in the CALFED solution area?

CDHS Prop 50 Projects Potentially CALFED-related

Prop 50 Chap	System	Project	CALFED Related?	Comments
4b	SCWC-Bell, Bell Gardens	Bissell Plant GAC Treatment to Remove VOC's	Yes	REVIEW FURTHER - does the project improve water quality at the tap for folks in the CALFED solution area?
4b	Elsinore Valley MWD	Elsinore Valley Municipal Water District Arsenic Treatment Facility	?	Application due Sept. 2006
4b	Metropolitan Water Dist. of So. Cal.	Robert A. Skinner Filtration Plant Oxidation Retrofit Program	?	Application due Sept. 2006
4b	Sweetwater Authority	Sweetwater Authority Brackish Groundwater Desalination Project	?	Application due Sept. 2006
4b	San Diego, City of	Alvarado Water Treatment Plant Upgrade and Expansion	?	Application due Sept. 2006
4b	Metropolitan Water Dist. of So. Cal.	Robert B. Diemer Filtration Plant Oxidation Retrofit Program	?	Application due Sept. 2006
4b	Pasadena-City, Water Dept.	Ion Exchange Perchlorate Treatment System at Sunset Reservoir Wells	?	Application due Sept. 2006
6b	Solano County Water Agency (SCWA)	Permanent Water Treat. Research Facility for North Bay Aqueduct	?	Application due Jan. 2007
6b	Contra Costa Water District (CCWD)	Removal of NDMA, EDCs, and PPCPs in South Delta Water	?	Application due Jan. 2007