

Memorandum

Date: January 12, 2004
To: Staff Work Group on Urban Water Use Measurement
From: Eric Poncelet and Bennett Brooks (CONCUR, Inc.)
Re: Revised Draft Implementation Approach

Please find attached, for your review and comment, a copy of a Strawman Draft Implementation Approach for Appropriate Urban Water Use Measurement. It incorporates revisions proposed during the December 5, 2003 Urban Water Use Measurement Staff Work Group meeting (shown in underline/strike-through) as well as additional changes proposed by technical support staff.

As with the accompanying Draft Definition, please note that this document does not yet address the issue of measurement of groundwater banking transfers. CBDA staff and consultants will provide additional information on this issue at the Staff Work Group's January 23, 2004 meeting.

The intent of this draft is to elicit the Staff Work Group's continued feedback on the Authority's current thinking on this topic. We look forward to discussing this material with you.

Appropriate Urban Water Use Measurement Strawman Draft Implementation Approach

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The outline for the Strawman Draft Implementation Approach for Appropriate Urban Water Use Measurement is as follows:

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Introduction and Summary

Background

As California's water resources have become increasingly scarce, diverse stakeholder groups have recognized the importance of measurement to state and federal agencies trying to manage a much-in-demand resource. Measurement can assist state and federal agencies in their efforts to achieve the following four key *water management objectives*:

- Provide better information on statewide and regional water use to support planning;
- Allow users to undertake and demonstrate the effects of water use efficiency measures;
- Facilitate valid water transfers; and
- Help the State more effectively administer the existing water rights system.

Recognizing the potential impact of water use measurement on these overarching objectives and the intense stakeholder interest in this topic, the August 2000 CALFED Record of Decision called for the California Bay-Delta Authority's (CBDA) Water Use Efficiency (WUE) Program to take a closer look at measurement, determine what is needed, and, as appropriate, put forward legislative or other strategies to bolster the current approach.

To address the issue of *urban* water use measurement,¹ the Program adopted a two step process. The first step involved proposing a definition of appropriate measurement of urban water use. This effort was informed by deliberations of the Urban Water Use Measurement Staff Work Group. The second step now involves preparing the broad outlines of an implementation approach by which the actions called out in the definition would be realized. This step will also be informed by input from the Urban Water Use Measurement Staff Work Group. The draft implementation approach detailed below corresponds to the most recent version of the proposed definition.

Structure and contents

This document is divided into two main parts:

- **Introduction and Summary:** This part describes the background for the document, the process used to develop an implementation approach, and a brief overview of the draft implementation approach being proposed. It also includes a table summarizing the primary actions and implementation vehicles included in the draft proposed implementation approach.
- **Draft Implementation Approach – Detailed Overview.** This part provides a detailed look at each of the proposed implementation actions. It summarizes for each one the status of current measurement efforts and puts forward the Authority's current thinking related to, among other things, sub-actions needed,

¹ A parallel process has moved forward on the topic of appropriate agricultural water use measurement.

primary actors, funding, timeline, assurances, and preferred implementation vehicle.

Process and Principles Used To Develop Implementation Approach

The development of an outline for a proposed implementation approach proceeded according to the following key steps:

1. **Derived key actions based on draft definition.** Based on the current definition of appropriate urban water use measurement as discussed with the Urban Staff Work Group, staff and consultants derived a list of key actions needed to implement the definition. These actions segmented into the following categories: establishing standards and protocols for recording, reporting and disseminating data; identifying specific measurement needs; articulating reporting requirements; and stepping out essential research and adaptive management elements.
2. **Developed topic areas related to each possible action.** To focus discussions, staff and consultants developed a series of questions necessary to consider in developing an implementation approach for each possible action. These questions – derived in part from the follow-on considerations listed in the draft definition – focused on topics such as: status of current actions and legislative and regulatory mandates; likely key players; funding and technical assistance needs; potential assurances; possible exemptions/exceptions; and likely adaptive management components. It also focused, importantly, on identifying the primary institutional vehicles required for implementation: legislative, administrative or budgetary.
3. **Identified overarching principles.** Before outlining an implementation approach, staff and consultants developed a preliminary list of overarching principles to guide their thinking on each possible action and provide sideboards for structuring a proposed approach. Key principles include:
 - use legislative remedies only when necessary;
 - streamline and rationalize state and federal reporting requirements;
 - acknowledge and account for smaller water suppliers' resource limitations;
 - seek parity – not symmetry – across agricultural and urban sectors;
 - stress incentives over penalties.
4. **Identified considerations for determining the need for legislative action.** To guide thinking on the new institutional vehicles that would be needed to implement the actions called out in a definition of appropriate urban water use measurement, staff and consultants, in consultation with Staff Work Group members, established draft considerations for evaluating the need for legislative action. Key criteria include:
 - **Level of existing authority:** Absent a new/modified statutory provision, is the affected governmental agency empowered to take the desired actions?

- Are the agencies empowered in a general way, empowered in a detailed way to take the specific action desired, or specifically required to do so?
 - **Interagency coordination required:** Is a governmental agency being asked to coordinate or facilitate actions of other actors without having been given any direct authority or incentive to induce others to cooperate and participate?
 - **Legal concerns:** Is a governmental agency being asked to do something very specific and technical, which it could mandate through a regulation, but which would be protected from legal challenge if embodied in legislation?
 - **Prioritization needs:** Is a governmental agency in need of legislatively-imposed deadlines or mandates to facilitate prioritization of desired agency tasks among competing demands?
 - **Potential for legislative success:** Is there widespread support for a legislative approach for the entire package?
 - Is the process of proposing legislation on a particular component likely to increase or decrease the chance of legislative success for the entire package?
5. ***Drafted preliminary outline of implementation approach.*** Based on process outlined above, staff and consultants took a first step at outlining the overarching elements of an implementation approach. This outline – summarized briefly below and presented in greater detail in the attached material – is intended to communicate the Authority’s current thinking on this topic and foster Work Group discussions and feedback. The Authority expects that this outline will evolve based on Work Group deliberations and comment.

Summary – Implementation Approach

As noted above, the Authority has put forward the broad outlines of a possible implementation strategy for urban water use measurement. Key elements include:

- ***Establish state standards and protocols for recording, reporting and disseminating urban water use measurement data.*** This action, as outlined in the preliminary draft, envisions development of a statewide database to improve consistency across urban water purveyor measurement data and make the information more accessible to industry, government, researchers and the public. As currently proposed, it would be implemented primarily through administrative and budgetary actions. The Department of Water Resources (DWR) would serve as the lead agency, with the California Bay-Delta Authority providing oversight. The effort would require close collaboration with urban water purveyors.

- **Require urban water purveyors to measure and report data on water sources and deliveries.** This action, as outlined in the preliminary draft, relies on a mix of legislative, administrative, and budgetary steps for implementation. Most notably, the current outline envisions legislation requiring urban water purveyors to measure water use deliveries. Additional legislation may be necessary to address reporting requirements, though existing statutes may provide sufficient authority. Size thresholds would be included to minimize the impact on smaller water purveyors. The proposed approach relies on specific timelines but also anticipates incorporating deferrals to help address local cost-effectiveness constraints. Some state funding would likely be needed to support technical assistance.
- **Require wastewater dischargers to measure and report data on urban water discharges.** This action, as outlined in the preliminary draft, relies on current EPA and SWRCB efforts and legislative mandates for implementation. No additional legislation is anticipated, though some administrative actions may be necessary to articulate guidelines for reading and maintaining meters.
- **Require measurement and reporting of net groundwater usage.** This action, as outlined in the preliminary draft, will require administrative authority as well as a budget allocation to enable the continuous regional characterization of groundwater usage. DWR would serve as the lead agency.
- **Establish ongoing research and adaptive management efforts.** This action, as outlined in the preliminary draft, calls for two parallel and complementary administrative actions intended to keep urban water use measurement current and effective: (1) establishment of an urban water-use research program; and, (2) establishment of an adaptive management program. As currently envisioned, these programs would be overseen by the Authority's Science Board, with CBDA implementing agencies taking the lead in implementation. The research program would be implemented in coordination with local universities and water purveyors. These initiatives would require state funding, though dollar amounts are not yet known.

A table summarizing the primary actions and implementation vehicles included in the draft proposed implementation approach is attached separately.

Draft Implementation Approach

I.A. State Standards and Protocols for Recording and Reporting Urban Water Use

Main Action:

State and federal agencies – in close coordination with local water suppliers and others – shall develop standards/protocols for local water suppliers to take, record and report to the State measurements of water sources/production and customer deliveries. Additionally, the State shall develop protocols to guide its preparation, recording, and reporting of measurement data related to net groundwater usage. Other required measurements would be made part of this system as appropriate. (See parallel description of action for agricultural sector.)

State and federal agencies also shall develop a system for receiving, storing, managing, quality-checking, compiling, summarizing, making available, and providing access to urban water source and delivery measurement data and other required measurements as appropriate. A similar system will be developed for the measurement data developed by the State.

Development of these standards/protocols and data system is to focus initially on developing a universal set of data fields and standard definitions based on current practice.

Institutional vehicles:

Administrative action by CBDA, with DWR anticipated to be lead implementer. Related budgetary support through Legislature.

Actors:

Lead/responsible actor: CBDA and DWR.

Key implementation partners: urban water purveyors, USBR, DHS, CUWCC, CPUC, researchers, environmental groups

Rationale for implementation vehicle:

CBDA is appropriate to convene multiple agencies due to CBDA's composition and existing oversight and coordination role. DWR is appropriate as lead implementer for actions relating to development of state-wide measurement data standards and protocols due to DWR's role in marshalling statewide water-related data in preparation of Bulletin 160 and DWR's statutory authority to collect records of diversion and use of water.

Timeline:

Efforts to develop standards/protocol are to begin in July 2004. Proposed standards/protocols are to be completed by July 2006, with an interim milestone at July 2005 to assess progress. Implementation of standards/protocols to be phased in over five to 10 years.

Funding:

Moderate and short-term budget for state agencies is associated with this effort. Cost estimates are to be developed by February 2004. State financial assistance will be provided to help locals, as necessary, adapt systems to meet new standards/protocols. There may be cost savings associated with this action if it enables suppliers to streamline reporting or otherwise reduce redundancies.

Assurances:

Ongoing reports to CBDA and public to summarize progress towards development and implementation of state standards and protocols for urban water use.

Exemptions/exceptions:

Not applicable

Technical assistance:

Not applicable

Adaptive management:

Periodic review to assess the effectiveness of standards/protocols.

I.B. State Standards/Protocols for Recording and Reporting Urban Wastewater Discharge**Main Action:**

Standards and protocols for maintaining equipment and recording and reporting urban wastewater discharge already exist. The SWRCB is presently developing an electronic system to facilitate recording and reporting of wastewater discharge data and to disseminate data to governmental agencies, water purveyors, research institutions, and the public. The SWRCB reporting system would operate independently but in parallel to any system developed for urban water use data (see I.A. above).

Institutional vehicles:

Administrative action by SWRCB, which will issue regulations/guidelines for electronic reporting through the new reporting system. Minimal additional budgetary support is expected to cover WDR reporting, as the EPA funding only covers NPDES reporting.

Actors:

Lead/responsible actor: SWRCB

Key implementation partners: urban wastewater dischargers, DHS, CUWCC, CPUC, Researchers, environmental groups

Rationale for institutional vehicle:

EPA is already funding the SWRCB to develop an electronic reporting system for California NPDES wastewater dischargers that largely accomplishes the above action.

Timeline:

New SWRCB database and reporting system is expected to be completed by 2005.

Funding:

EPA is already funding the SWRCB to develop an electronic reporting system for California NPDES wastewater dischargers. No new funding would be required.

Assurances:

It is assumed that all assurances will be taken care of by the SWRCB system [to be determined via consultation with SWRCB].

Exemptions/exceptions:

Not applicable

Technical assistance:

Needs not yet defined

Adaptive management:

Needs not yet defined

II.A. Measurement of Urban Water Purveyor Water Sources/Production

Main action:

Urban water purveyors to install suitable water source meters, read and maintain accuracy of the meters, and record and store data per state standards/protocols.

Institutional vehicles:

Administrative action in the form of a CBDA directive. State agencies to establish guidelines for reading/maintaining source meters.

Budgetary support may be appropriate to facilitate more rapid adoption through incentives or assistance in cases where not locally cost effective.

Actors:

Lead/responsible actor: Urban water purveyors

Key implementation partners: DWR, ~~USB, DHS, County Sealers of Weights and Measures, Water Measurement Industry~~

Rationale for institutional vehicle:

DWR is appropriate focal point for administrative action because DWR (along with SWRCB) has general authority to take all actions necessary to prevent waste and unreasonable use of water, together with other authorities. Regulation may be necessary to extend requirement to remaining purveyors, and to craft appropriate exceptions/exemptions. Agencies can take administrative action relating to reading and maintaining source meters to help ensure high data quality.

Funding:

Urban water purveyors not currently measuring water source information would be responsible for covering the costs of these retrofits. Costs are not expected to be significant. [REQUEST WORK GROUP FEEDBACK ON THIS.]

Timeline:

Source meters to be installed within 2-5 years.

Assurances:

Assurance of measurement associated with reporting requirements (see III.A). Maintenance of source meters to rely on internal controls.

Exemptions/exceptions: [WHICH IS APPROPRIATE?]

- **[Threshold option 1]** Drawing upon the 1991 California Water Use Measurement Law (S.B. 229) as a model, exemptions include community water systems which serve less than 15 service connections used by yearlong residents or regularly serve less than 25 yearlong residents, or a single well which services the water supply of a single family residential home.
- **[Threshold option 2]** Drawing on the Urban Water Management Planning Act as a model, exemptions include urban water purveyors providing water for municipal purposes either directly or indirectly to less than 3,000 customers or supplying less than 3,000 acre-feet of water annually.

Technical assistance:

Not expected to be significant

Adaptive management:

Evaluate quality of data on an ongoing basis.

² Per the CVPIA, the USBR already requires water measurement from its CVP contractors.

II.B. Measurement of Urban Water Purveyor Customer Water Deliveries

Main action:

Urban water purveyors to install suitable customer service meters, read and maintain accuracy of the meters, and record and store data per standards/protocols

Institutional vehicles:

Legislation will be needed but will affect only pre-1992 and non-CVP cases.

Administratively, state agencies will establish guidelines for reading/maintaining source meters.

Budgetary support will be required to facilitate more rapid adoption through incentives or assistance in cases where not locally cost effective.

Actors:

Lead/responsible actor: Urban water purveyors

Key implementation partners: DWR, ~~USBR,³ DHS County Sealers of Weights and Measures, Water Measurement Industry, DWR~~

Rationale for institutional vehicle:

Legislation is needed, as the administrative actions to strengthen required compliance, consistency, and quality assurance/quality control of urban customer water deliveries measurement represent a significant departure from current practice. Such legislation is consistent with past service meter policy. Any legislation would have to be reconciled with existing metering mandates and agreements.

Funding:

Action would be locally funded by affected urban water purveyors. In cases where retrofitting is not locally cost effective, purveyors would be eligible for grant funding or could defer timeline for implementation. Purveyors could pass investment costs on to customers.

Estimated total cost of retrofitting unmeted connections is approximately \$250 million. Capital and O&M costs may be significant for some Central Valley water purveyors.

Timeline:

Implementation to occur within 10 years (based on AB 306 model). Extended timelines could be established for purveyors for whom this is not locally cost effective. No deferments beyond xx years.

Assurances:

Assurance of measurement associated with reporting requirements (see III.A). Maintenance of customer meters to rely on internal controls.

Technical assistance:

Needs not yet defined.

Exemptions/exceptions: [WHICH IS APPROPRIATE?]

- **[Threshold option 1]** Drawing upon the 1991 California Water Use Measurement Law (S.B. 229) as a model, exemptions include community water systems which serve less than 15 service connections used by yearlong residents or regularly serve less than 25 yearlong residents, or a single well which services the water supply of a single family residential home.
- **[Threshold option 2]** Drawing on the Urban Water Management Planning Act as a model, exemptions include urban water purveyors providing water for municipal purposes either directly or indirectly to less than 3,000 customers or supplying less than 3,000 acre-feet of water annually.
- Locally cost-effective deferment allowing qualified purveyors to extend the timeline of meeting this requirement. No deferments will be extended beyond xx years.

Adaptive management:

Evaluate quality of data on an ongoing basis.

³ ~~The USBR already requires water measurement from its CVP contractors (per CVPIA).~~

II.C. Measurement of Urban Wastewater Discharge

Main action:

Wastewater dischargers to install suitable effluent measuring devices, read and maintain accuracy of effluent measuring devices, and record and store data per existing standards/protocols and the new electronic reporting system. Develop system capabilities for disseminating data to governmental agencies, water purveyors, research institutions, and the public.

Institutional vehicles:

No new actions currently needed.

Actors:

Lead/responsible actor: Urban wastewater dischargers

Key implementation partners: SWRCB, ~~Water Measurement Industry~~

Rationale for institutional vehicle:

Implementation of current statutes (Clean Water Act and Porter-Cologne Water Quality Control Act) already requires measurement of discharges. (Further detailed in Definition.)

Funding:

Action to be funded by local urban wastewater dischargers. Expected costs are small, as most urban wastewater dischargers already measure and record accordingly.

Timeline:

As required by existing NPDES permits and Waste Discharge Requirements. The new SWRCB reporting system is due to be completed in 2005.

Assurances:

Reliance upon internal controls: wastewater dischargers are required by NPDES permits/WDRs to properly operate and maintain equipment. This includes regular calibration of measurement and process control equipment and retention of maintenance records demonstrating equipment maintenance which are reviewed during inspections.

The SWRCB discharge reporting system would operate independently but in parallel to any system developed for urban water use data.

Technical assistance:

It is assumed that all technical assistance needs will be captured by the SWRCB system [To be determined via consultation with SWRCB].

Exemptions/exceptions:

[To be determined via consultation with SWRCB]

Adaptive management:

Evaluate quality of data on an ongoing basis.

II.D.1 Measurement of Urban Groundwater Use: Groundwater Net Usage

Main Action:

State to employ more precise methods to compute net usage of groundwater as part of its ongoing groundwater analyses—specifically, continuous regional characterization using detailed sub-basin hydrologic balances and the water table/specific yield method. The purpose is to provide an accurate and sufficiently specific piece of information which represents a significant element of the state's water balance. This level of accuracy/precision is needed for adequate preparation of water plan updates and ongoing planning and analysis, such as CALSIM II modeling. In addition, groundwater overdraft is a significant problem in some areas. Having a reliable and credible method to estimate that on frequent and periodic basis is very important to state planning.

Work needs to be done in time to inform Bulletin 160 and 118 updates. Access to measurement data to be defined as part of State's development of standards and protocols (see I.A). Recommended action is consistent with findings and recommendations of the Agricultural Water Use Measurement Independent Review Panel.

Institutional vehicles:

Administrative action by DWR. Related Budgetary support through Legislature.

Actors:

Lead/responsible actor: DWR

Key implementation partners: CBDA

Rationale for institutional vehicle:

Computation of net usage of groundwater is already part of DWR's role in preparing Bulletin 160 and Bulletin 118. This action represents a technical improvement in the approach taken in performing that function.

Funding:

Projected to cost the state an additional \$2 million per year; figures need further confirmation.

Timeline:

Implementation of new methodologies prior to preparation of Bulletin 160 (2008) and Bulletin 118; needs to be ready to be incorporated into DWR's assumptions and estimates document released one year prior to Bulletin 160 (2008) and Bulletin 118. Agencies to phase in new methodology, focusing on those basins with the most impacted groundwater resources.

Assurances:

Reporting to BDA on implementation status; DWR to state in each Bulletin 160 and Bulletin 118 the extent to which groundwater data is based on this approach (i.e, the share or number of basins in which these methods are used for calculations.).

Technical assistance:

Not relevant

Exemptions/exceptions:

Not relevant

Adaptive management:

Evaluate the degree to which information coming from net groundwater usage measurement is satisfying state and federal water management information needs. Re-evaluate the need for additional gross groundwater extraction data.

II.D.2 Measurement of Urban Groundwater Use: Groundwater Substitution Transfers

Main Action:

Groundwater substitution transfer permittees to measure groundwater wells directly involved in groundwater substitution transfers at highest technically practical level, including continuous measurement, monitoring, and frequent reporting. Measurement methods are to be consistent with state standards/protocols. Recommended action is consistent with findings and recommendations of the Agricultural Water Use Measurement Independent Review Panel.

Institutional vehicles:

No new actions currently needed regarding measurement.

Actors:

Lead/responsible actor: DWR

Key implementation partners: USBR (as appropriate)

Rationale for institutional vehicle:

The role currently played by DWR (and USBR) in connection with groundwater substitution transfers leads to this action being carried out without further authority required. In out-of-basin groundwater substitution transfers, DWR typically is either (1) a purchaser of water, (2) an owner of facilities through which transferred water is wheeled, or (3) a potentially injured downstream user. In each of these instances DWR requires measurement consistent with this main action, consistent with published DWR technical guidance documents. Confidence is high that these practices will continue due to, respectively, (1) DWR's need as a purchaser for there to be an objective accurate way of determining how much to pay, (2) DWR's need as a wheeler of water to accurately account for "deposits" and "withdrawals" of water transported through its facilities, and (3) DWR's interest as potentially injured downstream user to ensure that measurement devices and methods employed can produce a "rapid response" to any adverse impacts on DWR water. Additionally, strong market forces also help to ensure adequate monitoring.

Funding:

Typically part of internal costs associated with groundwater substitution transfer; no additional impact expected.

Timeline:

Ongoing.

Assurances:

Typically internalized by parties to the transfer; no additional assurances recommended.

Technical assistance:

Ongoing practice (DWR as technical consultant).

Exemptions/exceptions:

Current DWR policies.

Adaptive management:

Periodic review to assess effectiveness of current practices.

II.D.3 Measurement of Urban Groundwater Use: Adjudicated and Managed Basins**Main action:**

Measurement of individual groundwater extraction as required in adjudicated and managed basins.

Institutional vehicles:

Existing adjudications.

Actors:

Lead/responsible actor: watermasters; users

Rationale for institutional vehicle:

Measurement of groundwater extraction in adjudicated and managed basins is currently required and governed by watermasters.

Funding:

No new funding is needed.

Timeline:

Ongoing.

Assurances:

As stipulated in adjudications.

Technical assistance:

Not applicable.

Exemptions/exceptions:

Not applicable.

Adaptive management:

DWR to periodically evaluate the degree of overdraft in non-adjudicated basins. Use this to re-examine whether or not non-adjudicated basins should become adjudicated, thereby requiring measurement of individual groundwater extraction.

III.A. Reporting of Urban Purveyor Water Sources and Production

Main action:

Water purveyors to report ~~water sources~~the following water sources information annually to State of California:-

- Water production by month subtotaled by water source definitions conforming to state water data collection guidelines and protocols.

Institutional vehicles:

Specific legislation to strengthen assurances and require reporting, supplementing existing general authorities for DWR to take all actions necessary to prevent waste and unreasonable use of water. This may only affect the frequency of reporting and/or the temporal specificity of reporting. Related budgetary support through the Legislature. Additional administrative action may be required to describe reporting requirements in appropriate detail to guide on-the-ground implementation.

Actors:

Lead/responsible actor: Urban water purveyors

Key implementation partners: DWR

Rationale for institutional vehicles:

Legislation needed, as administrative actions to strengthen required compliance, consistency, quality assurance/quality control of data reported represent significant departure from current practice.

Funding:

Some cost to local purveyors associated with reporting. State to provide technical assistance to assist local purveyors (cost to be determined). Moderate costs to DWR associated with reviewing and confirming data.

Assurances:

Ongoing review by DWR to assess accuracy of measurements and reported data. Access to incentives (i.e., grants and loans) would be tied to compliance.

Timeline:

Urban water purveyors to be reporting sources data to the State within two to three years from promulgation of measurement standards/protocols [IS THIS ENOUGH TIME?]. Existing reporting requirements to guide reporting requirements prior to promulgation of new standards/protocols.

Technical assistance:

Technical assistance likely needed; use existing DWR, USBR, or CUWCC technical assistance mechanisms.

Exemptions/exceptions:

Drawing on the Urban Water Management Planning Act as a model, exemptions include urban water purveyors providing water for municipal purposes either directly or indirectly to less than 3,000 customers or supplying less than 3,000 acre-feet of water annually.

Adaptive management: Data to be collected and interpreted in a manner that helps assess the validity/adequacy of reporting requirements and practices. The current approach will be re-evaluated on an ongoing basis as part of Adaptive Management (see IV.B).

III.B.Reporting Urban Purveyor Customer Water Uses

Main action:

Water purveyors to report ~~deliveries~~ the following annually to State of California.

- An estimate of service area population that conforms to state water data collection guidelines and protocols
- The number of metered and unmetered customer connections subtotaled by customer class definitions conforming to state water data collection guidelines and protocols.
- Annual water deliveries subtotaled by customer class definitions conforming to state water data collection guidelines and protocols.
- Monthly or bi-monthly water deliveries, according to meter read frequency, subtotaled by customer class definitions conforming to state water data collection guidelines and protocols.
- Water service rates, rate structures, and charges in effect for report year.

Institutional vehicles:

Specific legislation to strengthen assurances and require reporting, supplementing existing general authorities for DWR to take all actions necessary to prevent waste and unreasonable use of water. This may only affect the frequency of reporting and/or the temporal specificity of reporting. Related budgetary support through Legislature. Additional administrative action may be required to describe reporting requirements in appropriate detail to guide on-the-ground implementation.

Actors:

Lead/responsible actor: Urban water purveyors

Key implementation partners: DWR

Rationale for institutional vehicles:

Legislation needed, as administrative actions to strengthen required compliance, consistency, quality assurance/quality control of data reported represent significant departure from current practice.

Funding:

Some cost to local purveyors associated with reporting. State to provide technical assistance to assist local purveyors (cost to be determined). Moderate costs to DWR associated with reviewing and confirming data.

Assurances:

Ongoing review by DWR to assess accuracy of measurements and reported data. Access to incentives (i.e., grants and loans) would be tied to compliance.

Timeline:

Urban water purveyors to be reporting sources data to the State within two to three years from promulgation of measurement standards/protocols; existing reporting requirements to guide reporting requirements prior to promulgation of new standards/protocols.

Technical assistance:

Technical assistance likely needed; use existing DWR, USBR, or CUWCC technical assistance mechanisms

Exemptions/exceptions:

Drawing on the Urban Water Management Planning Act as a model, exemptions include urban water purveyors providing water for municipal purposes either directly or indirectly to less than 3,000 customers or supplying less than 3,000 acre-feet of water annually.

Adaptive management: Data to be collected and interpreted in a manner that helps assess the validity/adequacy of reporting requirements and practices. The current approach will be re-evaluated on an ongoing basis as part of Adaptive Management (see IV.B).

III.C. Reporting of Urban Wastewater Discharges

Main action:

Wastewater dischargers to report specified information annually to State of California

Institutional vehicles:

SWRCB will issue regulations/guidelines for using the reporting system. Additional budgetary support may be required to add WDR dischargers to electronic reporting system.

Actors:

Lead/responsible actor: Urban wastewater dischargers

Key implementation partners: SWRCB

Rationale for institutional vehicle:

Implementation of current statutes (Clean Water Act and Porter-Cologne Water Quality Control Act) already requires measurement of discharges. (Further detailed in definition.)

Funding:

EPA is funding SWRCB development of a wastewater discharger reporting system in CA for NPDES permittees. Some additional funding will be required to expand this for WDR dischargers. Dischargers will also incur some costs in converting from current paper reporting to electronic reporting; however, long-term savings expected

Timeline:

The new SWRCB reporting system is due to be completed in 2005.

Assurances:

It is assumed that all assurances will be taken care of by the SWRCB system [To be determined via consultation with SWRCB].

Technical assistance:

It is assumed that all technical assistance needs will be captured by the SWRCB system [To be determined via consultation with SWRCB].

Exemptions/exceptions:

[Thresholds to be determined via consultation with SWRCB]

Adaptive management:

Data to be collected and interpreted in a manner that helps assess the validity/adequacy of reporting requirements and practices. The current approach will be re-evaluated on an ongoing basis as part of Adaptive Management (see IVB).

III.D.1 Reporting of Urban Net Groundwater Usage

Main action:

In computing net usage of groundwater through continuous regional characterization of groundwater net usage, State to self-report using developed standards and protocols.

Institutional vehicles:

DWR will staff this initiative. Additional funding of DWR will be required.

Actors:

Lead/responsible actor: DWR

Key implementation partners: CBDA

Rationale for institutional vehicle:

Computation of net usage of groundwater is already part of DWR's role in preparing Bulletin 160. This action represents a technical improvement in the approach taken in performing that function.

Funding:

Reporting costs are covered by the funding for net groundwater use measurement (see II.D.1). No additional funding is necessary.

Timeline:

Implementation of measurement and reporting system prior to preparation of Bulletin 160 (2008) and Bulletin 118; needs to be ready to be incorporated into DWR's assumptions and estimates document released one year prior to Bulletin 160 (2008) and Bulletin 118. Agencies to phase in new methodology, focusing on those basins with the most impacted groundwater resources.

Assurances:

Reporting to BDA on implementation status; DWR to state in each Bulletin 160 and Bulletin 118 the extent to which groundwater data is based on this approach (i.e, the share or number of basins in which these methods are used for calculations.).

Technical assistance:

Not relevant

Exemptions/exceptions:

Not relevant

Adaptive management:

Evaluate the degree to which information coming from net groundwater usage measurement is satisfying state and federal water management information needs. Re-evaluate the need for additional gross groundwater extraction data.

III.D.2 Reporting of urban groundwater use; groundwater substitution transfers**Main Action:**

Groundwater substitution transfer permittees to report groundwater well data to the state. Recommended action is consistent with findings and recommendations of the Agricultural Water Use Measurement Independent Review Panel.

Institutional vehicles:

No new actions currently needed; permittees already report data to DWR.

Actors:

DWR and USBR

Rationale for institutional vehicle:

Continuous measurement and monitoring of groundwater substitution transfers is required by DWR pursuant to non-regulatory technical guidance published by DWR, where DWR is a buyer or potentially injured downstream user or when state facilities are used to convey water. (Further detailed in definition.)

Funding:

Typically part of internal costs associated with groundwater substitution transfer; no additional impact expected

Timeline:

Ongoing

Assurances:

Typically internalized by parties to transfer; no additional assurances recommended.

Technical assistance:

Ongoing practice (DWR as technical consultant)

Exemptions/exceptions:

Current DWR policies

Adaptive management:

Periodic review to assess effectiveness of current practices

III.D.3 Reporting of urban groundwater use in adjudicated and managed basins**Main action:**

Measurement of individual groundwater extraction as required in adjudicated and managed basins.

Institutional vehicles:

No new action currently needed.

Actors:

Lead/responsible actors: Watermasters; users

Rationale for institutional vehicle:

Measurement of groundwater extraction in adjudicated and managed basins is currently required and governed by watermasters.

Funding:

No new funding is needed.

Timeline:

Ongoing.

Assurances:

As stipulated in adjudications.

Technical assistance:

Not applicable.

Exemptions/exceptions:

Not applicable.

Adaptive management:

DWR to periodically evaluate the degree of overdraft in non-adjudicated basins. Use this to re-examine whether or not non-adjudicated basins should become adjudicated, thereby requiring measurement of individual groundwater extraction.

IV.A. Urban water use research program

Main action:

State agencies to work with water purveyors, and research institutes/universities to develop and sustain an urban water research program. Urban water research program to make available the resulting data/information to water purveyors, state agencies, research institutes/universities, and the public. State to establish a priority list for research items, develop a budget and timeline for accomplishing those research tasks identified as having the highest priority, and administer a research grant program to facilitate state, local and university entities to carry out those research activities. Included in the list as having the highest priority is metering of irrigated landscape water use.

Institutional vehicles:

Administrative action by CBDA to enable a grant program targeting university/college research capacity and water suppliers/users. Related Budgetary support through Legislature.

Actors:

Lead/responsible actors:

- California Bay-Delta Authority Science Board to develop and carry out prioritization and review of urban water use research program.
- DWR to take lead on ag/urban issues
- SWRCB to take lead on recycling issues

Key implementation partners: water purveyors, USBR, CPUC, DHS, CUWCC, Researchers, urban end users, public interest/environmental groups

Rationale for institutional vehicle:

CBDA and implementing agencies are well suited to facilitate agenda-setting function for research program through grant-making function and to prioritize appropriate improvements in measurement as of ongoing importance to the state. Administrative action is appropriate because research and adaptive management functions are well recognized as within the purview of agencies involved.

Funding:

Sustained, moderate-to-heavy funding need; add greater definition to funding needs by February 2004. Pursue cost-sharing as possible.

Timeline:

Two-track timeline.

- *Track One:* Initiate immediate studies related to irrigated landscape water use (post July 2004).
- *Track Two:* Develop initial priorities for other research needs by 2005; revisit annually; fund priority actions based on funding availability

Assurances:

Ongoing reports to BDA and public to summarize progress towards carrying out research priority actions.

Exemptions/exceptions:

Not applicable

Technical assistance:

Not applicable

Adaptive management:

Annual review and reprioritization of research needs. Review research implementation structure every five years to evaluate effectiveness of approach and results.

IV.B. Adaptive Management Program

Main action:

State to undertake adaptive management program to evaluate performance of measurement actions in implementation and to formulate any desired further improvements to appropriate measurement of agricultural water use. Likely topics for evaluation include, but are not limited to:

- Efficacy and accuracy of new system for recording/reporting/disseminating data
- Quality and completeness of urban source, delivery, and discharge water data being reported
- Degree to which water quality information is being effectively measured and reported.
- Degree of overdraft of groundwater basins and the need to require additional measurement of individual groundwater extraction in basins at risk.
- Harmonization of existing databases and databases under development (e.g., wastewater discharge).
- Effectiveness of research coordination program and cost-effectiveness of research findings

Institutional vehicles:

Administrative action by CBDA and implementing agencies to advance proposed improvements to measurement as needed. Related Budgetary support through Legislature.

Actors:

Lead/responsible actors: CBDA Science Board

Key implementation partners: DWR and all persons/entities whom DWR must consult in preparation of State Water Plan.

Rationale for institutional vehicles:

CBDA and implementing agencies appropriate to maintain focus on measurement over time due to CBDA coordination role and centrality of measurement to diverse management issues to be addressed by agencies over time. Administrative action is appropriate because research and adaptive management functions are well recognized as within the purview of agencies involved.

Funding:

Minimal, but sustained funding need; add greater definition to funding needs by February 2004.

Timeline:

Program-wide review of measurement and reporting approach to be carried out every three to five years.

Assurances:

Ongoing reports to CBDA and public.

Exemptions/exceptions:

Not applicable

Technical assistance:

Not applicable

Adaptive management:

Ongoing