

California Urban Water Use

Dong Chen

Sept. 20, 2007



C A L I F O R N I A
LAND & WATER USE
DEPARTMENT OF WATER RESOURCES

Current Methods

1. Estimate Public Supply Urban Water Use;
 2. Estimate Self Supplied Urban Water Use;
 3. Combine (1) and (2) to obtain Total Annual Urban Water Use.
- The reasons for this approach are the types of data available to us and method required.

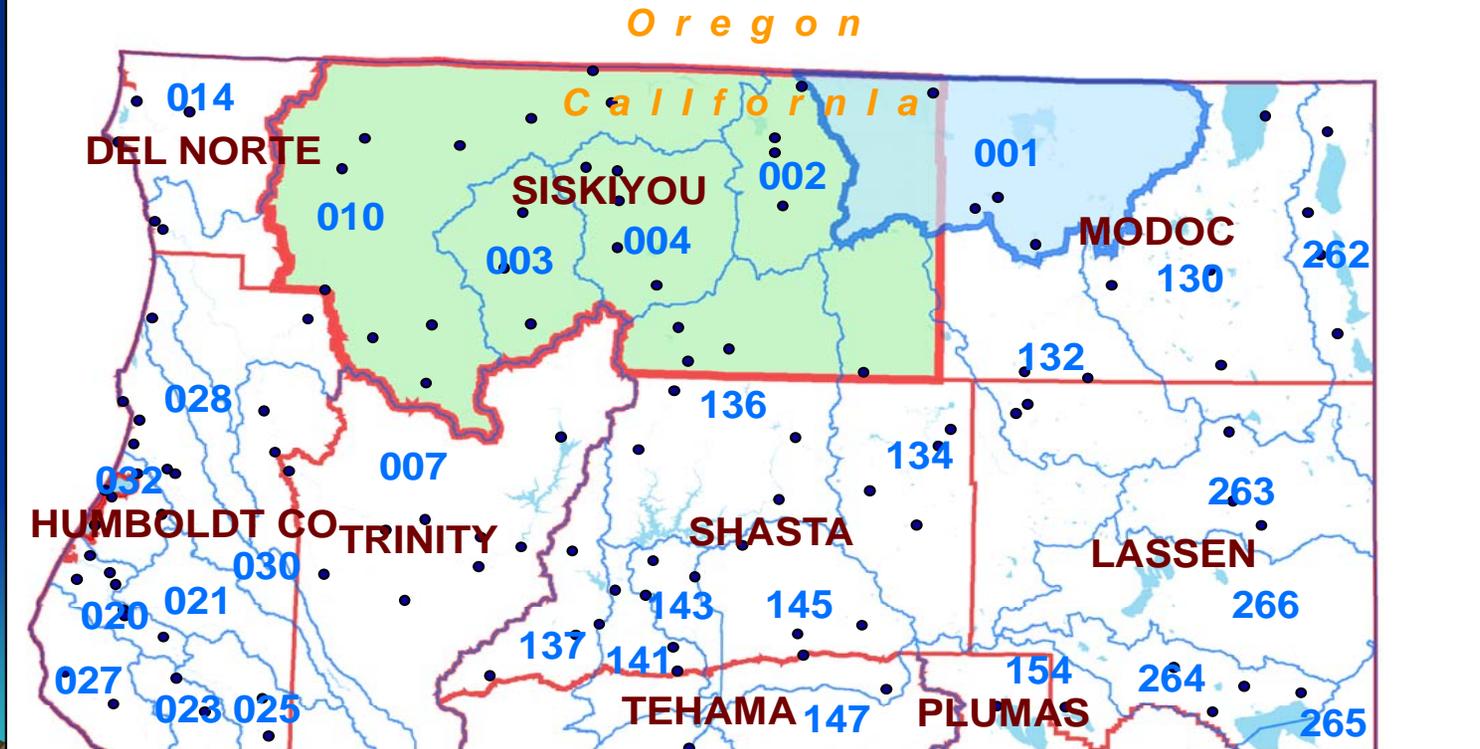


Smallest Study Area of Urban Water Use Data Set: DAU/County

Detailed Analysis Units (DAU) / County
Lost River (01) / Siskiyou

Hydrologic Regions (10 HR)

Planning Area (56 PA)



Data Sources

Node	Box#	Data types	Source
A531	1	Public Water System Statistics	Public Supply Urban Water Use by Water Use Sector: - Overall - Single Family Residential - Multi-Family Residential - Commercial/Institutional - Industrial - Other
A531	2	Public Water System Statistics	
A531	2	Study Area Boundaries	
A531	4	Population served by Public Water Systems	Department of Public Health
A532	1	Public Water System Statistics	
A532	2	Industrial Water Use	Industrial Water Use Survey Data
A532	2	Employment Data	Commercial and Industrial Employment Data
A532	3	Total Population and Population served by Public Water System	Department of Finance, Department of Public Health, and DWR Econ Analysis Section

Survey data

Data from other agencies

Literature review (previous survey results and studies)



PUBLIC WATER SYSTEM STATISTICS

Calendar Year 2006

Sonora Meadows MWC
 Hone Hoyte, CPA
 19969 Greenly Rd.
 Sonora, CA 95370
 PWS# 5510023
 CD

1. General Information

Please follow the provided Instructions.

Contact : _____
 Title: _____
 Phone: _____
 Fax: _____
 E-mail: _____
 Website: _____
 County: _____
 Population served: _____
 Names of communities served: _____

2. Active Service Connections

Customer Class	Potable Water		Recycled Water	
	Metered	Unmetered	Metered	Unmetered
Single Family Residential				
Multi-family Residential				
Commercial/Institutional				
Industrial				
Landscape Irrigation				
Other				
Agricultural Irrigation				
TOTAL				

3. Total Water Into the System - Units of production:

acre-feet million gallons hundred cubic

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Potable	Wells													
	Surface													
	Purchased ^{1/}													
	Total Potable													
Untreated Water														
Recycled ^{2/}														

1/ Potable wholesale supplier(s): _____

2/ Recycled wholesale supplier(s): _____

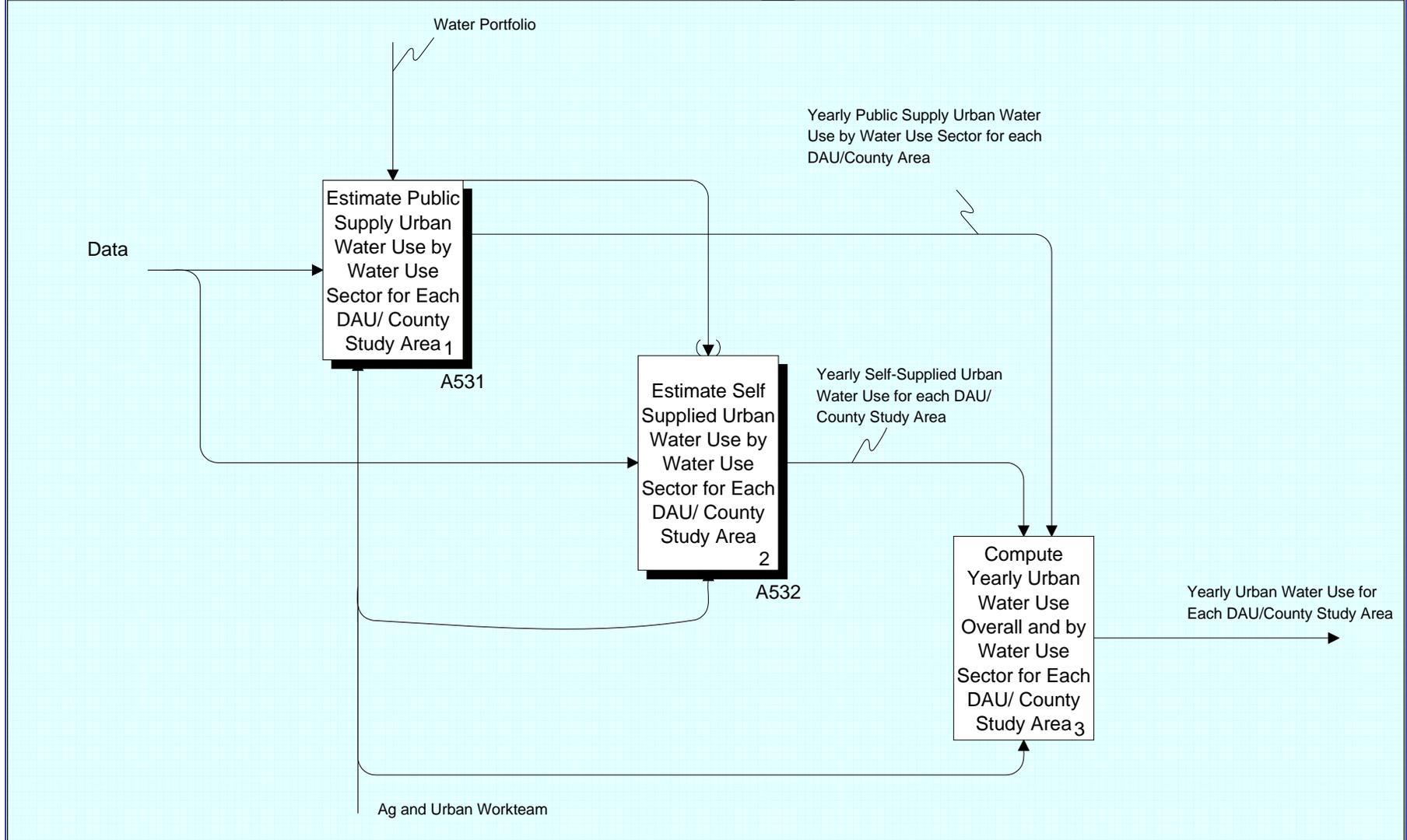
Level of treatment: _____

4. Metered Water Deliveries - Units of delivery:

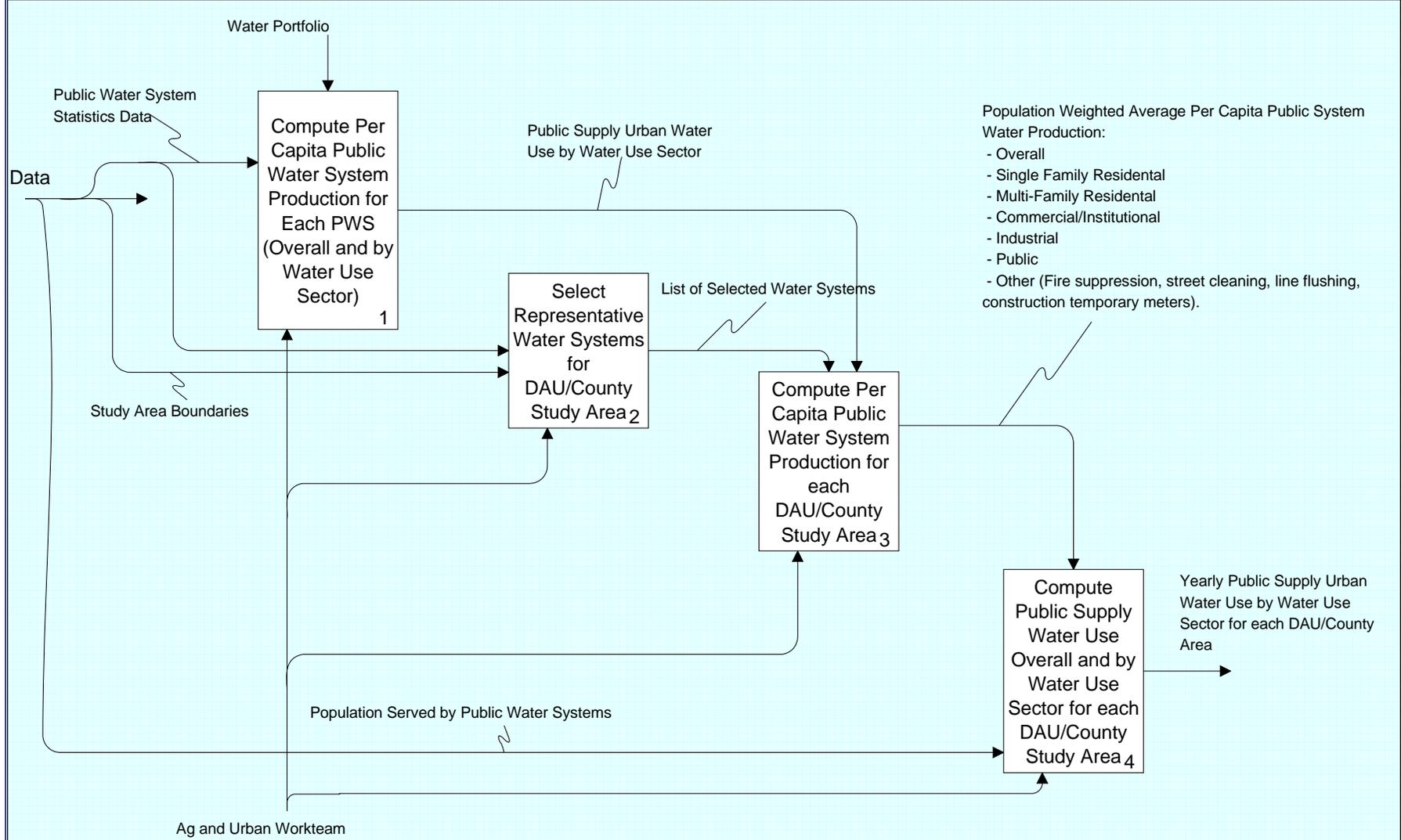
acre-feet million gallons hundred cubic

If recycled is included, ✓ box ↓		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
A. Single Family Residential	<input type="checkbox"/>													
B. Multi-family Residential	<input type="checkbox"/>													
C. Commercial/Institutional	<input type="checkbox"/>													
D. Industrial	<input type="checkbox"/>													
E. Landscape Irrigation	<input type="checkbox"/>													
F. Other	<input type="checkbox"/>													
Total Urban Retail (A thru F)														
Agricultural Irrigation	<input type="checkbox"/>													
Wholesale (to other agencies)	<input type="checkbox"/>													

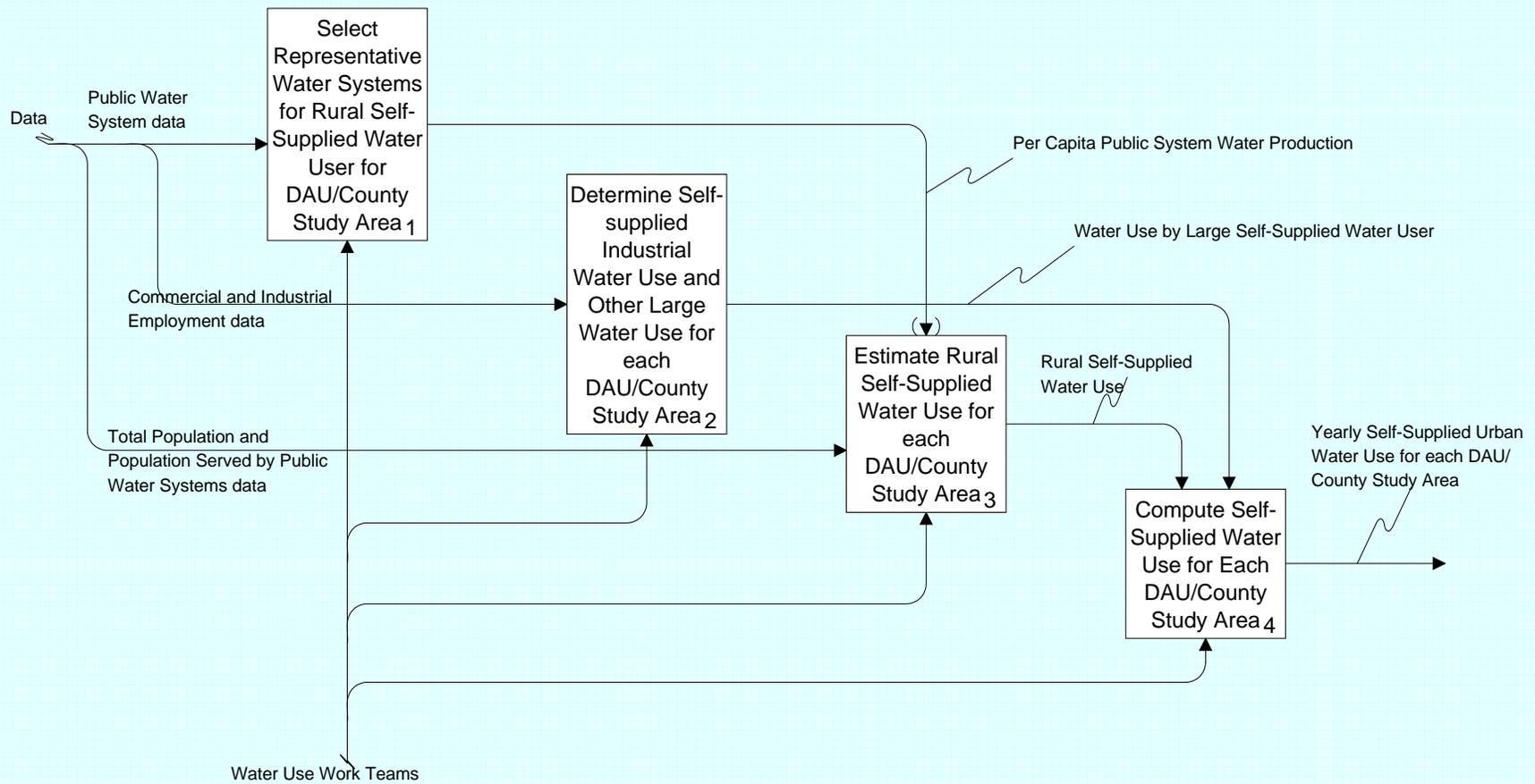
Used At:	Author:	Date: 10/11/2001	WORKING	READER	DATE	CONTEXT: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
	Project: Flow Diagram	Rev: 8/21/2007	DRAFT			
	Notes: 1 2 3 4 5 6 7 8 9 10		RECOMMENDED			
			PUBLICATION			



Used At:	Author:	Date: 10/11/2001	<input checked="" type="checkbox"/> WORKING	READER	DATE	CONTEXT: <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
	Project: Flow Diagram	Rev: 8/21/2007	<input type="checkbox"/> DRAFT			
	Notes: 1 2 3 4 5 6 7 8 9 10		<input type="checkbox"/> RECOMMENDED			
			<input type="checkbox"/> PUBLICATION			



Used At:	Author:	Date: 8/21/2007	<input checked="" type="checkbox"/> WORKING	READER	DATE	CONTEXT: <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> A53
	Project: Flow Diagram	Rev: 8/21/2007	<input type="checkbox"/> DRAFT			
	Notes: 1 2 3 4 5 6 7 8 9 10		<input type="checkbox"/> RECOMMENDED			
			<input type="checkbox"/> PUBLICATION			



Analytical tools

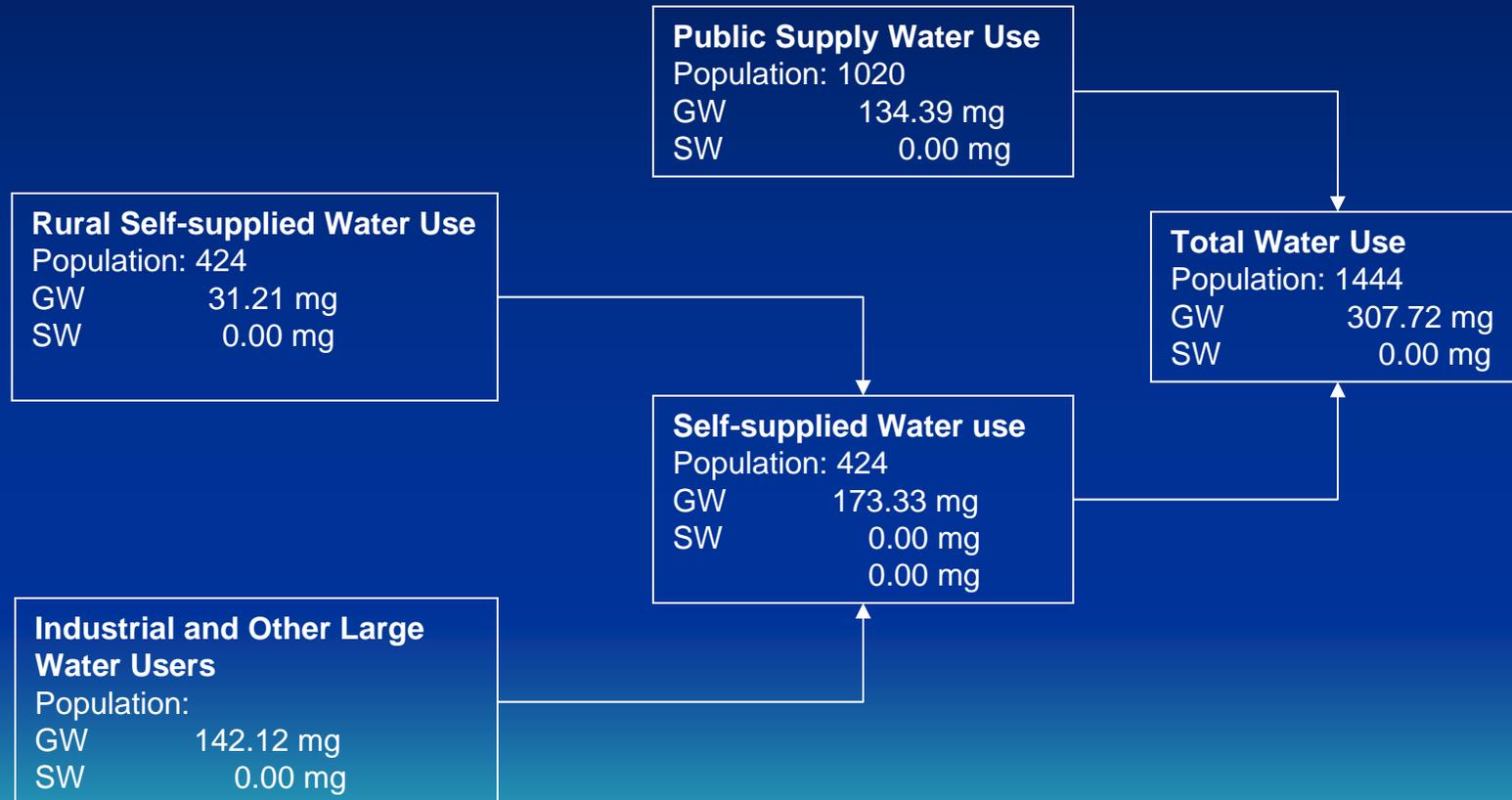
- Excel based model
- Database based model
- GIS tools



Example: Overall Water Production

DAU:001 / County: Siskiyou

Year: 2000



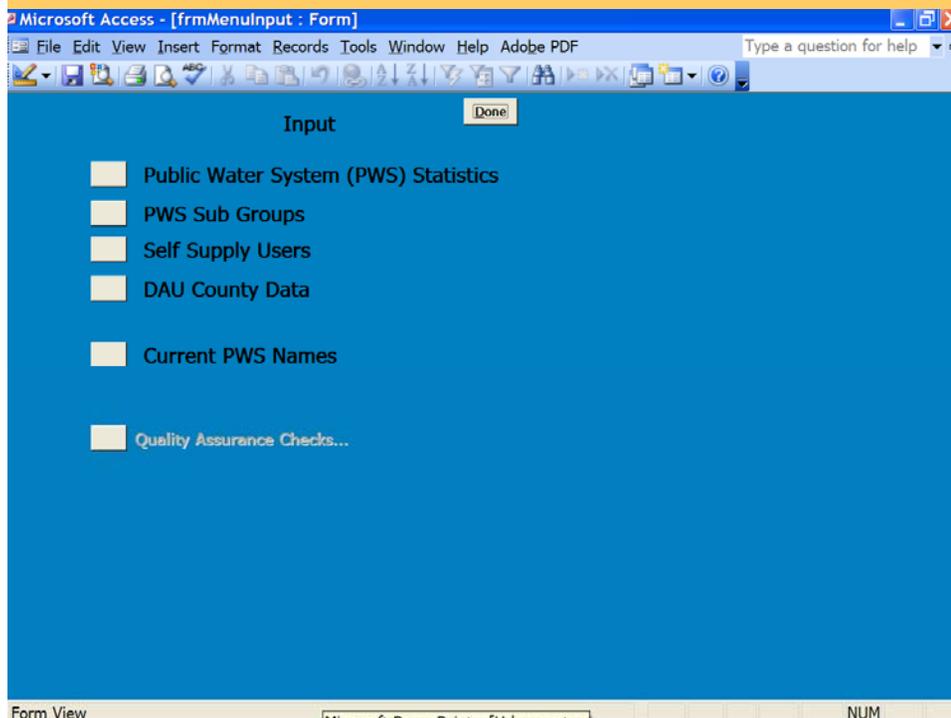
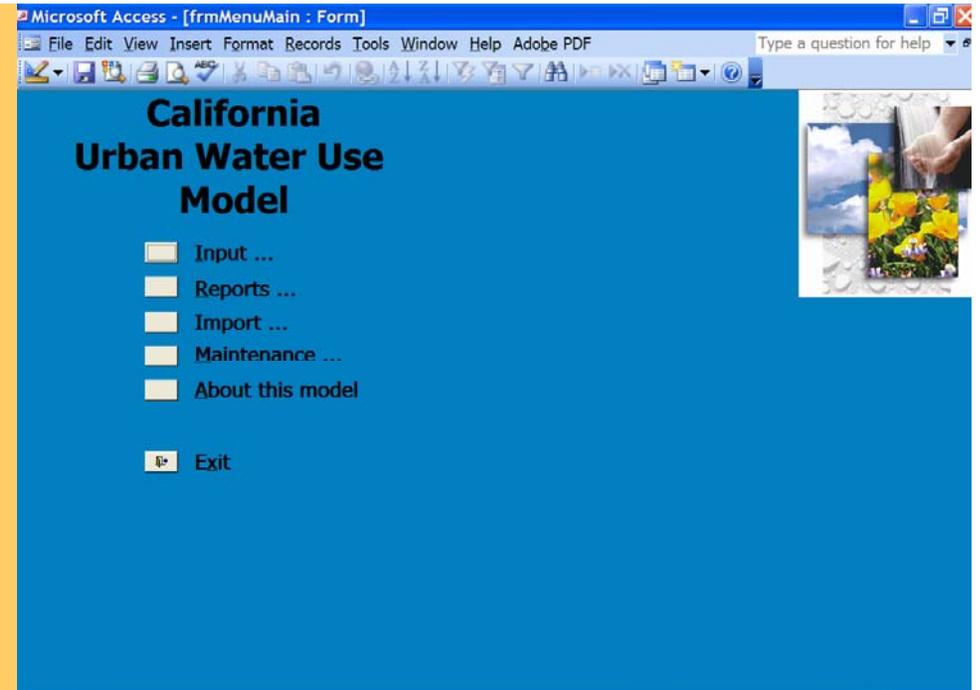
Available Urban Water Use Data

Customer Class	Public Supply Water Use	Self-supplied Water Use
Single Family – In/Ex	1998-2005; DAU/County	1998-2005; DAU/County
Multi-Family – In/Ex	1998-2005; DAU/County	1998-2005; DAU/County
Commercial/Institutional	1998-2005; DAU/County	1998-2005; DAU/County
Industrial	1998-2005; DAU/County	1998-2005; DAU/County
Landscape	1998-2005; DAU/County	1998-2005; DAU/County



What's new for Update 2009

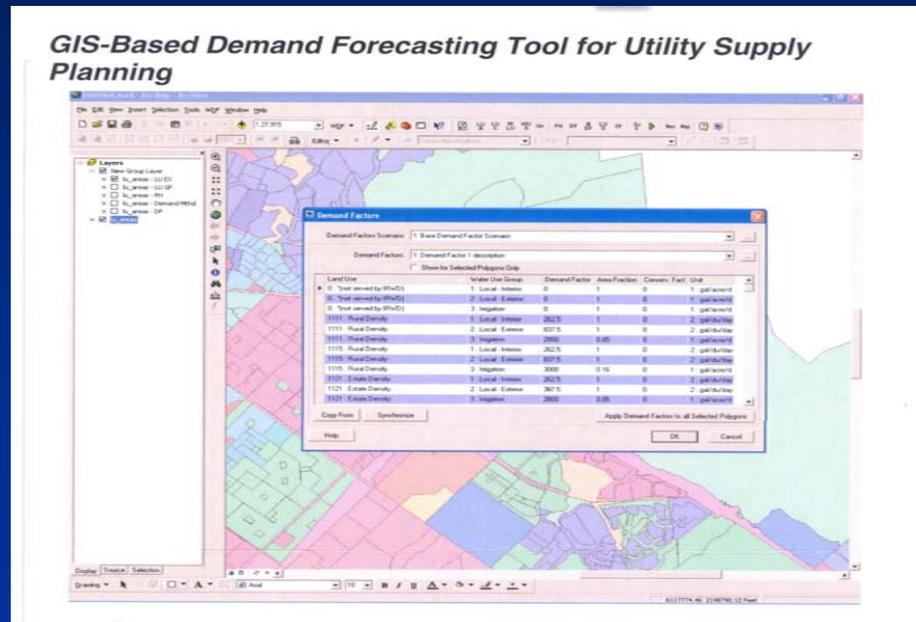
- MS Access is used as the basis for the model;
- Automate all the computation processes;
- Organizing and storing all type of historical data in one file;



- The model can “grow” when we add more data over time and becomes more useful;
- Query functions allow us to have the flexibility to aggregate water use data the ways as we need it, such as spatially, temporally, or categorically.

Improvements Beyond Update 2009

(1) WaterDemandForecaster™ -GIS based Urban Water Use Model



(2) More Socio-economic Data Collections

- Non-residential Water Use Survey
- Golf Course Survey

Improvements Beyond Update 2009

(3) Remote Sensing of Urban Landscape

San Joaquin River

Contact Information

<http://www.landwateruse.water.ca.gov/>

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Antioch,



Public Water System Statistics (PWSS) Survey

Public Water System: anyone who serves drinking water to at least **25** persons for at least **60** days out of the year, or who serves domestic water to **15** or more service connections, is a public water system and must have a domestic water supply **permit**.

