



DEPARTMENT OF  
**WATER RESOURCES**

**Methodology for Quantifying the  
Efficiency of Agricultural Water Use**

California Water Commission  
Information Item

June 20, 2012

# Authority

- In consultation with Ag WMC, academic experts and other stakeholders develop a methodology and implementation plan including
  - Data needed to support the methodology
  - Cost of implementation
- Report to the Legislature
- DWR is not authorized to implement the Methodology

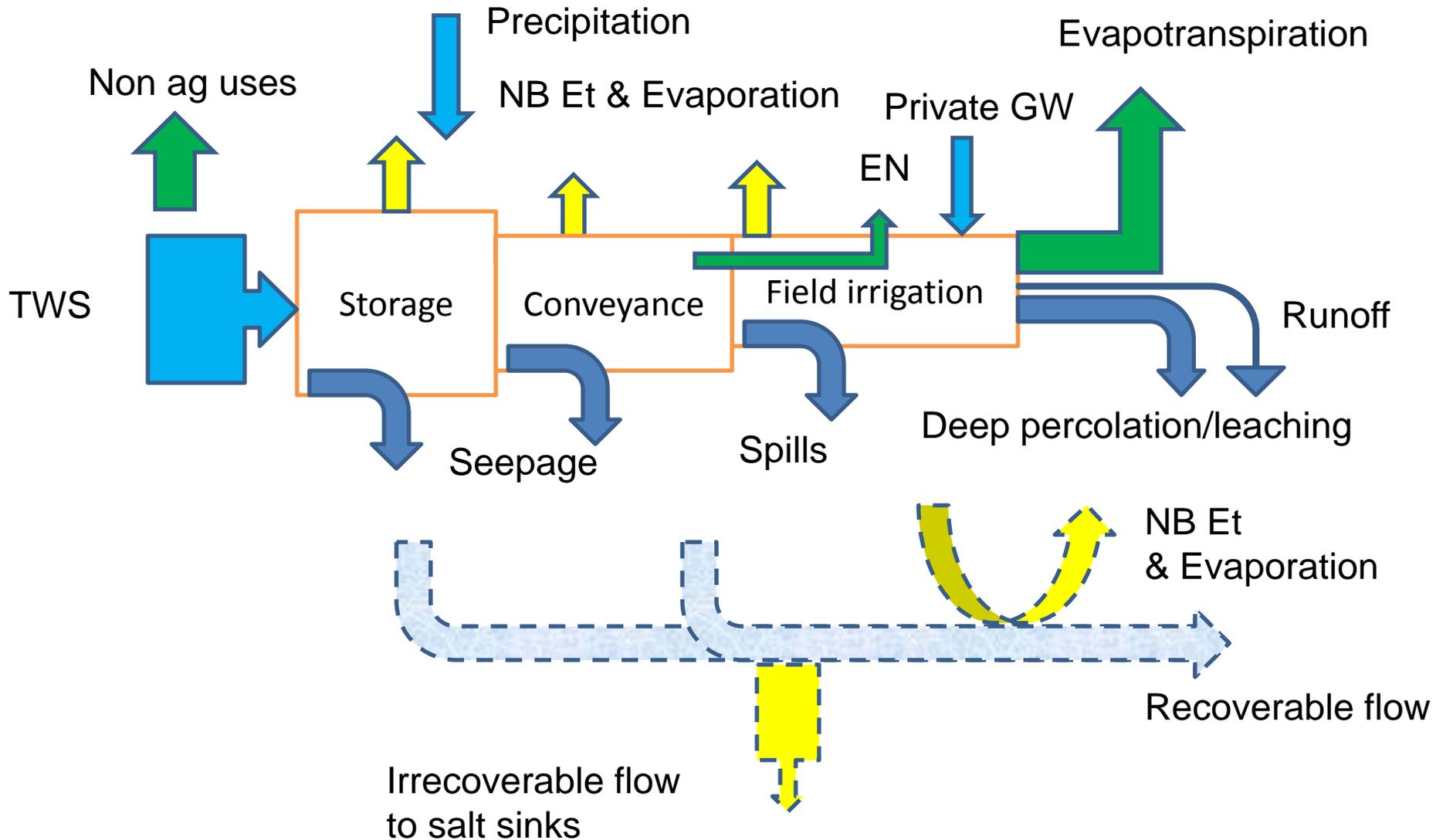
# Status

- Formed a subcommittee of the ASC with representation of all sectors identified in the legislation
- ASC and the subcommittee have met since 2010 and DWR held two public workshops
- DWR drafted a proposed methodology with input from stakeholders and interested parties
- The Methodology Report was approved by DWR Director and the Natural Resources Agency Secretary

# Methodology Report

- Water Use Efficiency Methods
  - Three field scale methods
  - Four water supplier/Basin scale methods
- Plan of Implementation
- Supplemental Indicators
  - Productivity Indicators
    - Crop Productivity
    - Crop Value
  - Performance Indicators
    - Distribution Uniformity
    - Delivery Fraction

# Components of Water Balance, Supplier Scale



# Methods

- Method 1 - Crop Consumptive Use Fraction  
= Ratio of **crop ET** to the applied water
- Method 2 - Agronomic Water Use Fraction  
= Ratio of **crop ET** and **crop agronomic needs** to the applied water
- Method 3 - Total Water Use Fraction  
= Ratio of **crop ET**, **agronomic** and **environmental** needs to the applied water
- Method 4 - Water Management Fraction  
= Ratio of **crop ET** and **recoverable flows** to the applied water

# Productivity Indicators

- Productivity of Applied Water (PAW)
  - Ratio of Crop Yield to the applied water
- Value of Applied Water (VAW)
  - Ratio of Gross Revenue to the applied water

# Irrigation System Performance Indicators

- Distribution Uniformity: Evenness of applying water to the field
- Delivery Fraction: Ratio of water delivery to total water supply

# Plan of Implementation

- Implementing entities
- Schedules
- Data needed
- Estimated costs

# Implementation of Methods by Water Supplier(s)

Methods	Basin Alliance	Water Supplier	Field
Method 1-CCUF	★	★	★
Method 2-AWUF	★	★	★
Method 3-TWUF	★	★	★
Method 4-WMF	★	★	

# Implementation of Indicators

Indicators	Statewide	Water Supplier	County	Field
DU	-	-	-	Supplier
DF	-	Supplier	-	-
PAW	DWR	-	DWR	Voluntary
VAW	DWR	-	DWR	Voluntary

# Schedules

- Phase 1 - Initial implementation- First cycle of Ag Water Management Plan after authority is established
- Phase 2 - Make improvements.  
Second cycle of AWMP
- Phase 3 - Full implementation.  
Third cycle of AWMP

# Data Needed

Water Supplier	Field scale
Supplier scale values of ET, Pe, ETAW, Kc, AW, AU(including leaching, climate control and seed germination),EU, RF, WS, FGD	Field scale values of ET, Pe, ETAW, Kc, AW, AU(including leaching, climate control and seed germination), EU

# Estimated Implementation Costs

Costs	Statewide, DWR	Water Supplier >25,000 Acres	Water Supplier <25,000 Acres	Field for Supplier =25,000 Acres
Annual	\$500,000	\$6-30 M	\$9 M	\$12,500- \$31,000/75 fields
Fixed	\$500,000	-	\$15 M	-

# The Report is posted on the DWR Website at

<http://www.water.ca.gov/wateruseefficiency/sb7/committees/ag/a1/>