Irrigation Management Modernization - A Response or a Plan
12 March 2013, Manila, Philippines

Impacts of Competing Water Demands on Irrigation Districts in California, USA

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"Revitalizing Irrigation and Agricultural Water Management in Asia"
12 March 2013, Manila, Philippines

Is there enough water for everyone ?

Competing interests for water in California

- Urban development/encroachment
- Environment , Agriculture, groundwater overdraft
- Government

What are the impacts on irrigation districts?

What are the district's responses to these demand drivers ?

What are the government's responses to resolving these conflicts ?

Figure 4-1 Map of California with major rivers and facilities

Urban Development

Cause – Water transfer s from agriculture to urban
Effects - Permanent fallowing
- Negative economic impacts in ag communities

Alternative Approach

- Long-term rotational fallowing lease (e.g.,Palo Verde ID and "Super Ditch" concept)
- Groundwater banking (e.g., Semitropic District)
- Water conservation (i.e., Imperial ID)

Environmental Water Requirements

Cause – Increased water releases for in-stream flows and lesser water diversions. Increased water transfers.

Effects – Reservoir storage reduction/less carry over
- Greater groundwater pumping and depletion
- Reduced irrigated lands

Approaches to Mitigating Shortages (Merced ID)

- Better conjunctive use planning
- Capital improvements/system modernization and pumping costs funded through water sales
- More aggressive enforcement of district rules on water wastage in the fields.
- Improving the monitoring of river releases and flows through telemetry (SCADA).

Current Water Conservation Related Mandates in California

- Could the state government help to better manage its water resources ?

- Introduction of new policies and regulations to provide guidance in overall water management
  - Water Conservation Act 2009/Senate Bill X7-7 Legislation (it also has an urban component)
  - Agricultural Water Measurement Regulation (Title 23 California Code of Regulations, §597 et seq., 2011)
  - Water measurements required for all diversions (CWC §5103)
  - Development of integrated regional water resources management plans

Current Water Conservation Related Mandates in California

Water Conservation Act 2009/Senate Bill X7-7 Legislation

- Water Supplier Requirements :
  - Prepare and adopt SB X7-7 Agricultural Water Management Plan (AWMP) (California Water Code (CWC) §10826).
  - Submit an Aggregated Farm-Gate Delivery Report (California Code of Regulation (CCR) §597 et seq.)
  - Implement efficient water management practices (EWMPs) (CWC §10608.48).

Current Water Conservation Related Mandates in California

Efficient Water Management Practice (EWMPs) (CWC §10608.48)

(a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

Current Water Conservation Related Mandates in California

Efficient Water Management Practice (EWMPs) (CWC §10608.48) *(continued)*

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

The Changing Landscape in Irrigated Agriculture in California

Delivery System Responses:

- Greater flexibility → automation
  → regulation reservoirs
  → Improved delivery operations
- Pipeline conversion
- Accurate measurements
- Improved service to increase surface water usage

The Changing Landscape in Irrigated Agriculture in California

On-farm System Responses:

- Cropping patterns
  - low value → high value
  - Seasonal → permanent → greater supply reliability
    → groundwater pumping
- Irrigation technology → lesser labor and high energy demand
  → impacts on downstream users

District Management Responses:

- Tiered-rate structure to encourage water use.
- Conjunctive use planning
- Sales on surplus water to generate revenues for system improvements.
- Economics/business oriented