



Statewide Water Conservation Issues

The Role of Conservation in the Statewide Water Supply Initiative

Veva McCaig

*Office of Water Conservation & Drought Planning
Colorado Water Conservation Board*

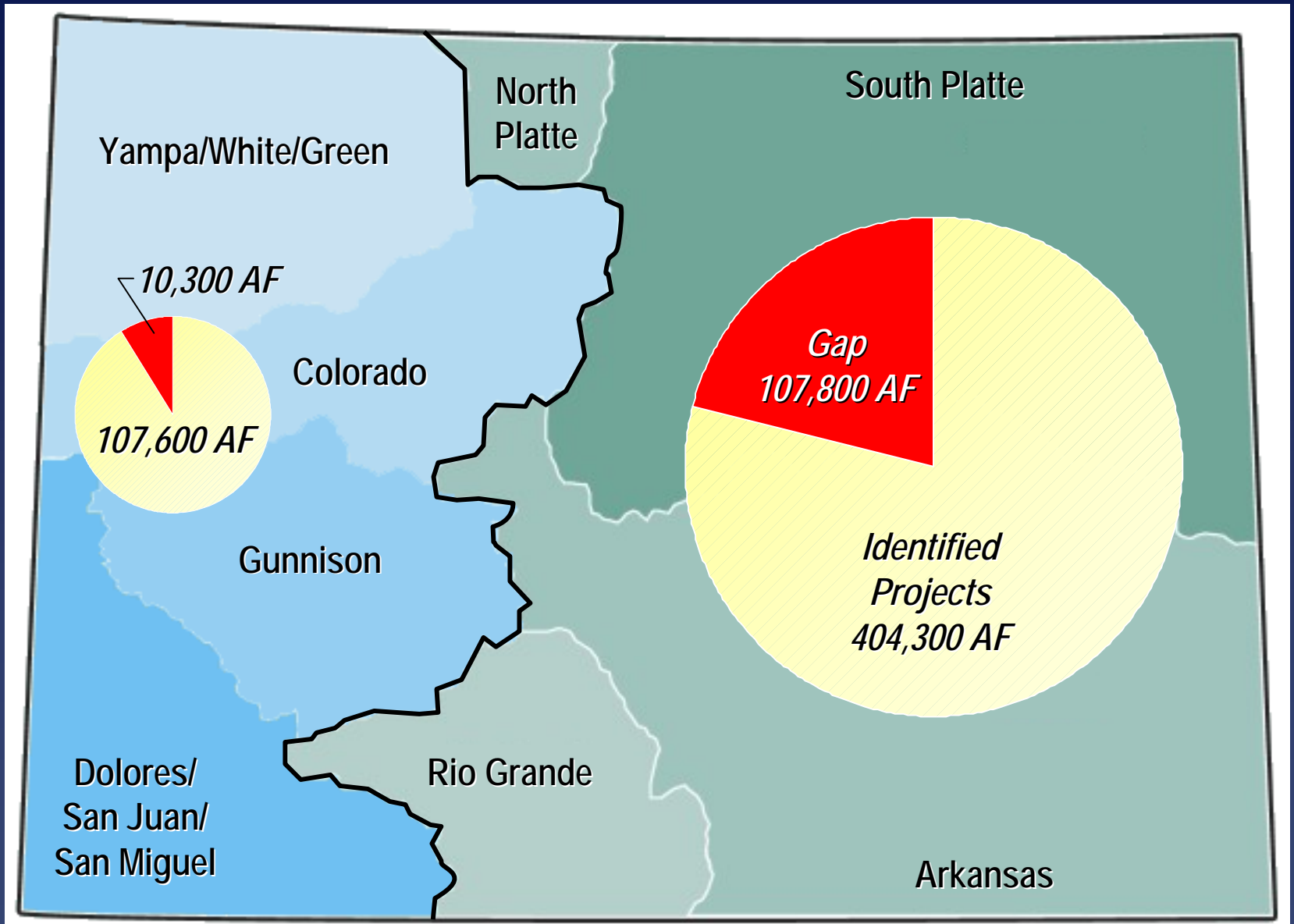
*Douglas County Water Conservation Workshop
May 16, 2006*




Presentation Outline

- *Recap Findings From SWSI Phase I Report*
- *SWSI Phase II Goal*
- *Water Conservation & Efficiency TRT*
- *TRT Objectives & Mission*
- *Questions – Technical, Financial, Institutional/Political*
- *Accomplishments*
- *SWSI → 1177*

2000 to 2030 Increase in M&I Water Demands



6. In-basin Solutions Can Help Resolve Gaps Between M&I Supply and Demand, but There will be Tradeoffs and Impacts on Other Uses

- *Adequate in-basin options are available to meet in-basin needs in each basin*
 - *CONSERVATION* 
 - *Reuse*
 - *Agricultural transfers*
 - *New storage*
- *Multiple solutions will be needed*
- *Will multi-use projects have a greater success?*

7. Water Conservation Will Be Relied On as a Major Tool for Meeting Future M&I Demands, but Conservation Alone Cannot Meet All of Colorado's Future Needs

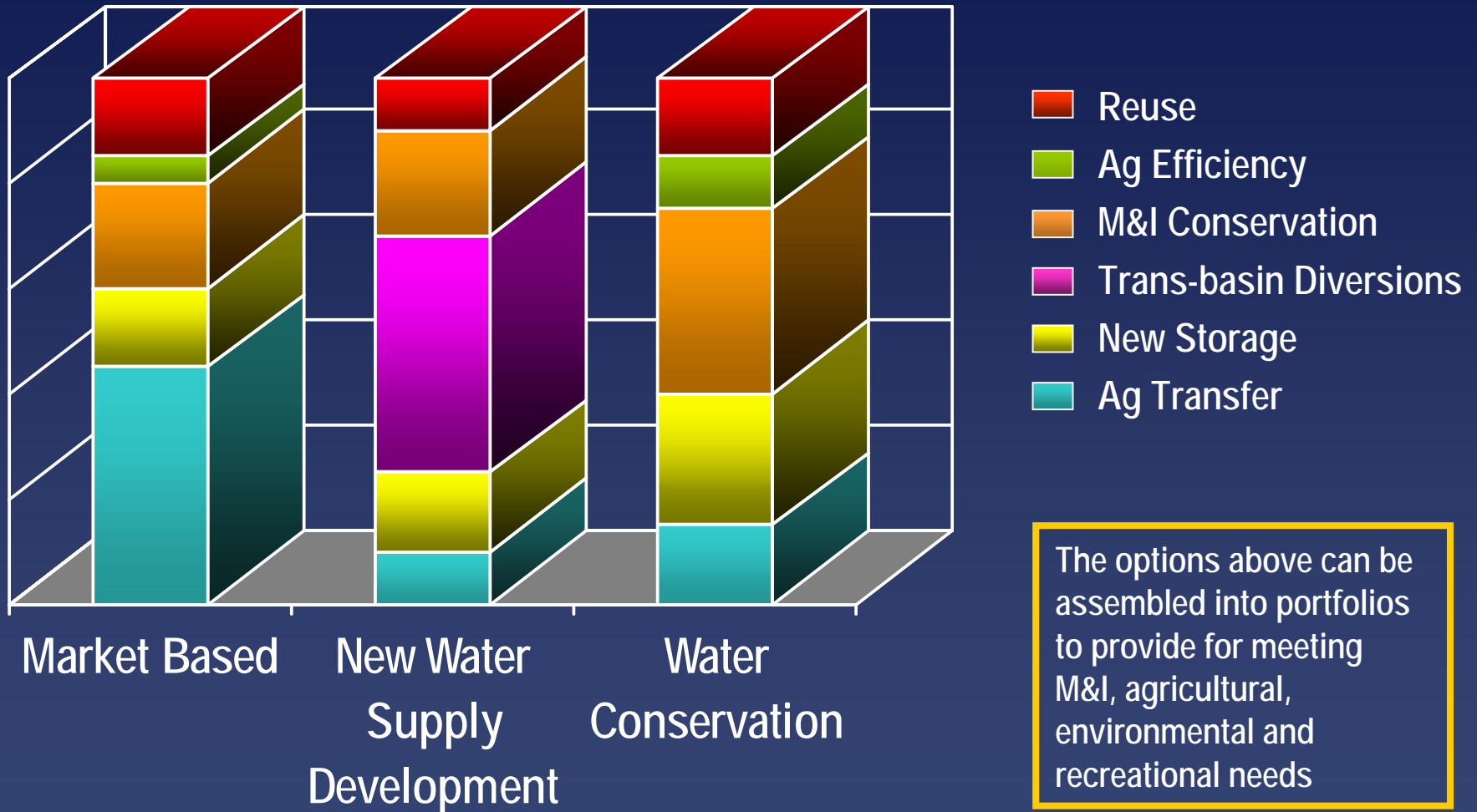
- System reliability depends on ability to further reduce water use in times of drought*
- Additional conservation measures are part of most providers' identified future plans*
- Impacts of additional conservation on downstream supply availability*

SWSI Phase II Goal

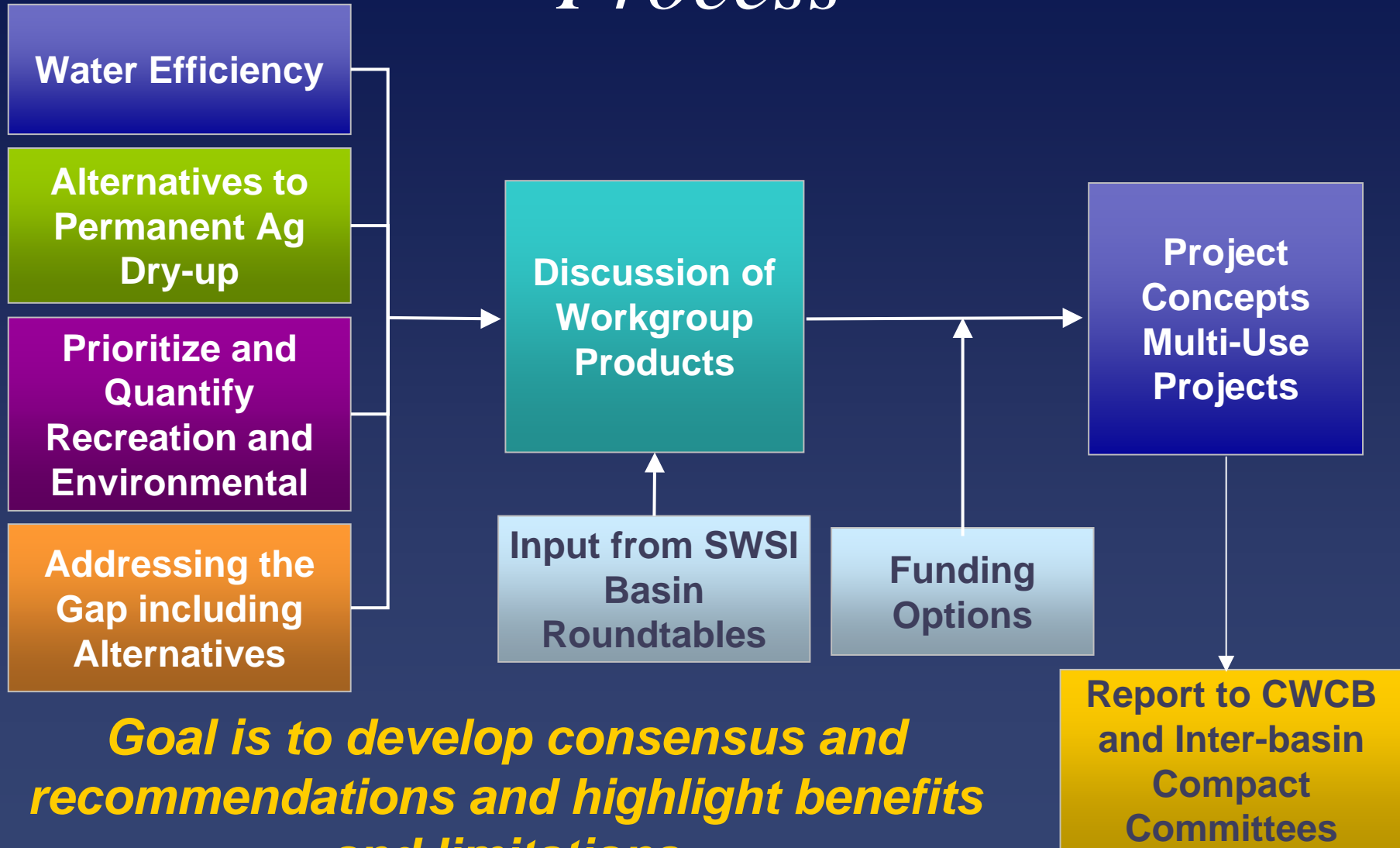
- *Develop reconnaissance level solutions to address the 20 percent M&I Gap, agricultural shortages, and environmental and recreational enhancements*
- *Multi-objective solutions will be sought to the extent possible*



Major Water Resource Development



SWSI Phase 2 Technical Roundtable Process



Goal is to develop consensus and recommendations and highlight benefits and limitations

Mission Statement

*Water Conservation and Efficiency
Technical Roundtable*

*Develop a deeper understanding and
greater consensus on conservation and
efficiency measures for M&I and
agriculture*



Objectives for M&I

To create a better understanding of the following issues:

- *The role conservation plays in water supply planning*
- *Promote information sharing on M&I programs that have been successful*
- *Understand the economics of conservation*
- *Gain a greater understanding of current conservation levels and practices*
- *The role conservation might play in addressing the water supply gap*



M&I Question #1

If we use conserved water for the following purpose, how does it affect system reliability?

- To improve reliability for existing customers*
- For new growth*
- Other uses*
 - Enhance streamflows*
 - Sale to other users*

System Reliability & Water Conservation

Water Planning and System Reliability

- *Every water system in Colorado is unique*
- *Useful concepts for understanding and modeling system reliability are:*
 - *Reliability*
 - *Safe yield*
 - *Reliability criteria*
- *Providing for growth or increased reliability can be accomplished*
 - *Adding new supply*
 - *Decreasing demands*
 - *Combination*



System Reliability & Water Conservation

Water Conservation and Drought Response

- *Long-term water conservation and drought response programs are different*
- *Long-term water conservation programs seek to achieve permanent reductions in demand*
- *Drought response programs typically seek immediate & temporary reductions*
- *Technical savings can usually be achieved through a long-term conservation program*



M&I Question #1

DRAFT Conclusions

- *Some portion of conserved water can be used to serve new customers without negatively impacting reliability as long as the constrained drought demand does not increase*
- *Suggests that conserved water is a resource that can be used to serve new customers under the right set of circumstances*
- *Simplified analysis also highlights the importance of considering the unique interplay of demands, supply, and storage on case-by-case bases for each water supply system*

M&I Question #2

What are the projected long-term savings from conservation alternatives?

- What conservation measures have been most effective in terms of amount and cost per AF saved?*
- What are the implementation costs and “avoided” costs when implementing water conservation and efficiency measures?*

Water Efficiency Measures Considered

- *Submetering in multi-family housing*
- *Residential landscape audits*
- *CII landscape audits*
- *Conservation oriented rate structures*
- *Washer rebates*
- *Toilet rebates*
- *Cooling tower chemical control to increase cycles of concentration*

Water Efficiency Measures Considered (cont.)

- *Residential indoor audits*
- *CII indoor audits*
- *Metering of all utility customers*
- *Turf replacement programs*
- *Rebates for landscape retrofits*
- *Utility water loss reduction programs*

What are the projected long-term savings from conservation alternatives?

<i>Measure</i>	<i>Potential Water Savings (AF/year)</i>	<i>Estimated Cost range of program AF of Savings (\$/AF)</i>
<i>Submetering in multi-family homes</i>	<i>1,840-5,215</i>	<i>\$0-\$4,000</i>
<i>Cooling Towers increased cycle concentration</i>	<i>3,067-24,540</i>	<i>\$1,000-\$5,000</i>
<i>Residential Landscape Audits</i>	<i>3,383-11,503</i>	<i>\$2,000-\$7000</i>
<i>Utility Water Loss Reduction Programs</i>	<i>52,000-86,700</i>	<i>\$2,000-\$7,000</i>
<i>Conservation oriented water rates</i>	<i>30,675</i>	<i>\$6,000</i>

What are the projected long-term savings from conservation alternatives?

<i>Measure</i>	<i>Potential Water Savings (AF/year)</i>	<i>Estimated Cost range of program AF of Savings (\$/AF)</i>
<i>Rebates for Landscape</i>	<i>3,067-18,402</i>	<i>\$2,439-\$10,678</i>
<i>Toilet Rebates</i>	<i>55,800 in 2030</i>	<i>\$7,230 @ \$150 rebate per toilet</i>
<i>Commercial Indoor Audits</i>	<i>767-3,834</i>	<i>\$3,300-\$16,300</i>
<i>Washer Rebates</i>	<i>17,025-40,198 in 2030</i>	<i>\$4,000-\$28,000</i>
<i>Turf Replacement</i>	<i>125,757-211,656</i>	<i>\$7,000-\$25,000 depending on level of rebates offered</i>

*M&I Question 2 Subcommittee
Estimated Potential Reductions in
M&I Water Demand that Could be
Accomplished by 2030*

93,500,000 – 150,000,000 kgal/year

or

287,000 – 459,000 af/year

Note: Duplicate programs are not included. Where there are duplicative programs, the program with the highest potential savings was included.

M&I Questions #3 & #4

Subcommittee

- *What are the issues with ability to pay for Municipal & Industrial users, both at the provider and customer level?*
- *What are the public, political, and institutional challenges to successfully implementing the various levels of Municipal and Industrial conservation?*

Approach to Question #3

- *Interview selected water providers on their ability/willingness to pay for conservation measures*
- *Gather information from AWWA on provider's ability/willingness to pay*
- *Gather data from existing customer surveys – Colorado Springs*



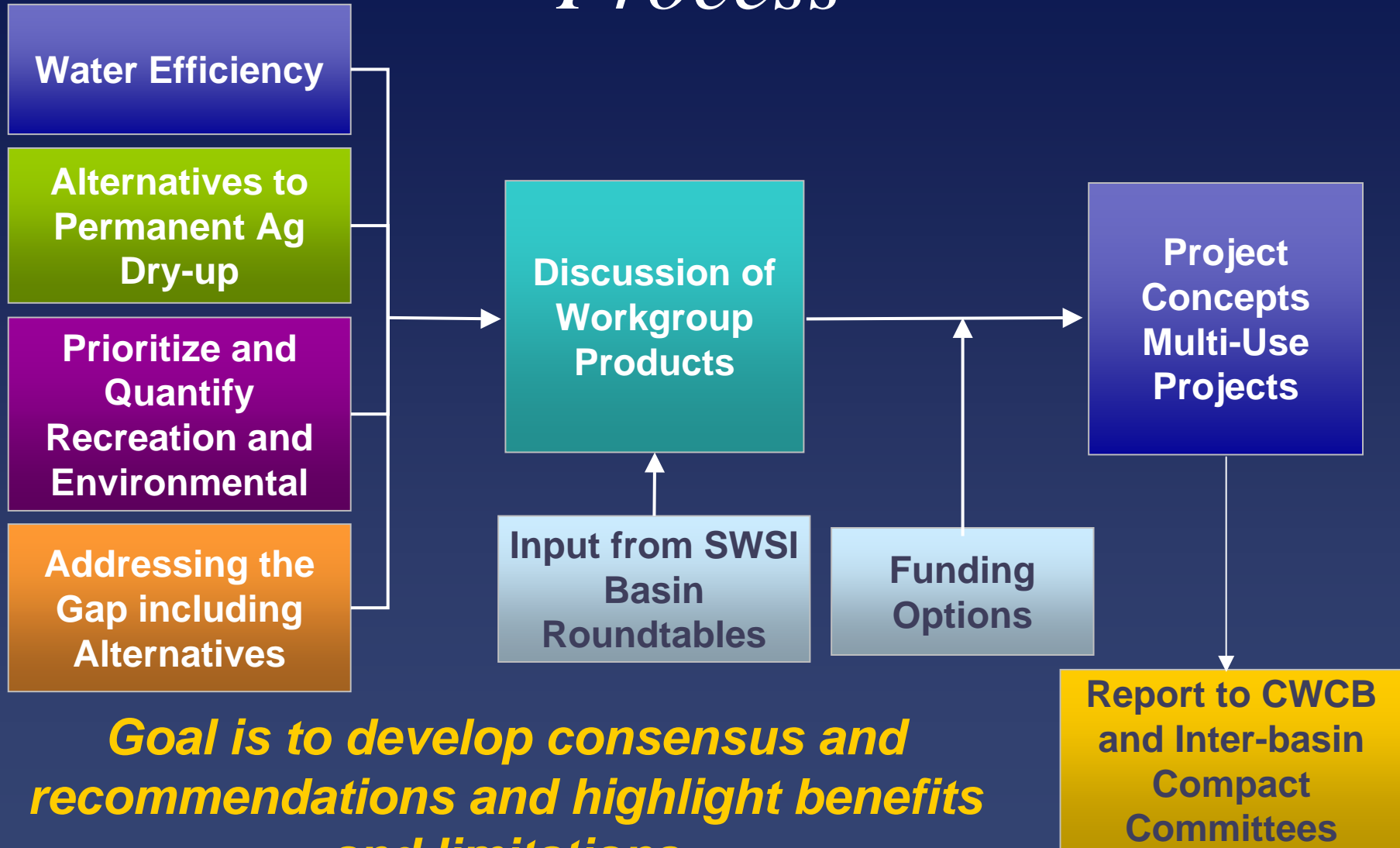
Challenges to Implementing Various Levels of Conservation

- *Market penetration would be a challenge*
 - *Toilet rebates*
- *Convincing utility mgmt of the benefit and to fund the program*
 - *Residential audits*
- *Customer willingness to participate*
 - *Turf replacement*
- *Potential need for new utility billing program*
 - *Conservation rate structure*
- *Relatively high cost & level of effort to retrofit*
 - *Rebates for landscape retrofit*

Developing the Conservation Alternative for Meeting the Gap

- *How quantitative should the alternative be?*
- *How can the alternative be constructed so that it respects local planning?*
- *Does the development of a conservation alternative endanger the successful implementation of identified projects & processes?*
 - *CWCB Mission Statement to support IP&Ps*

SWSI Phase 2 Technical Roundtable Process



Goal is to develop consensus and recommendations and highlight benefits and limitations



*For more information on the SWSI
process and the Water Conservation
& Efficiency Technical Roundtable,
visit the CWCB website:*

www.cwcb.state.co.us