

# Growing Water Smart: Metrics

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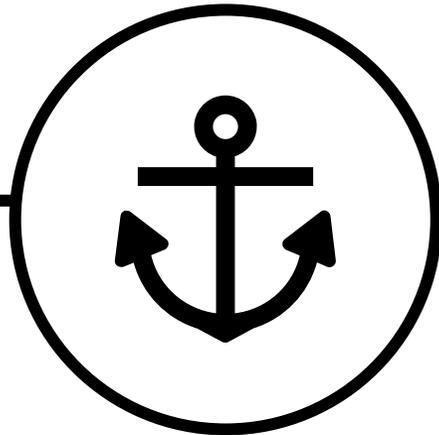


Impact-driven, people-centered  
sustainability

# Building the Metrics Guidebook

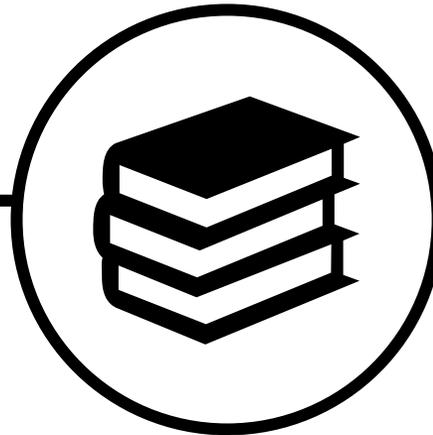
# A Stakeholder Driven Process

May 2019



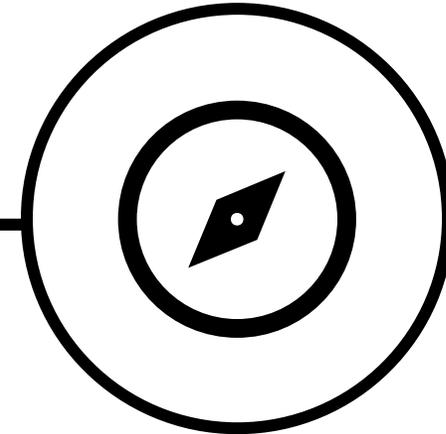
**Anchor:** Overview of past works. Align on key terms. Review project objectives and outcomes.

Sept 2019



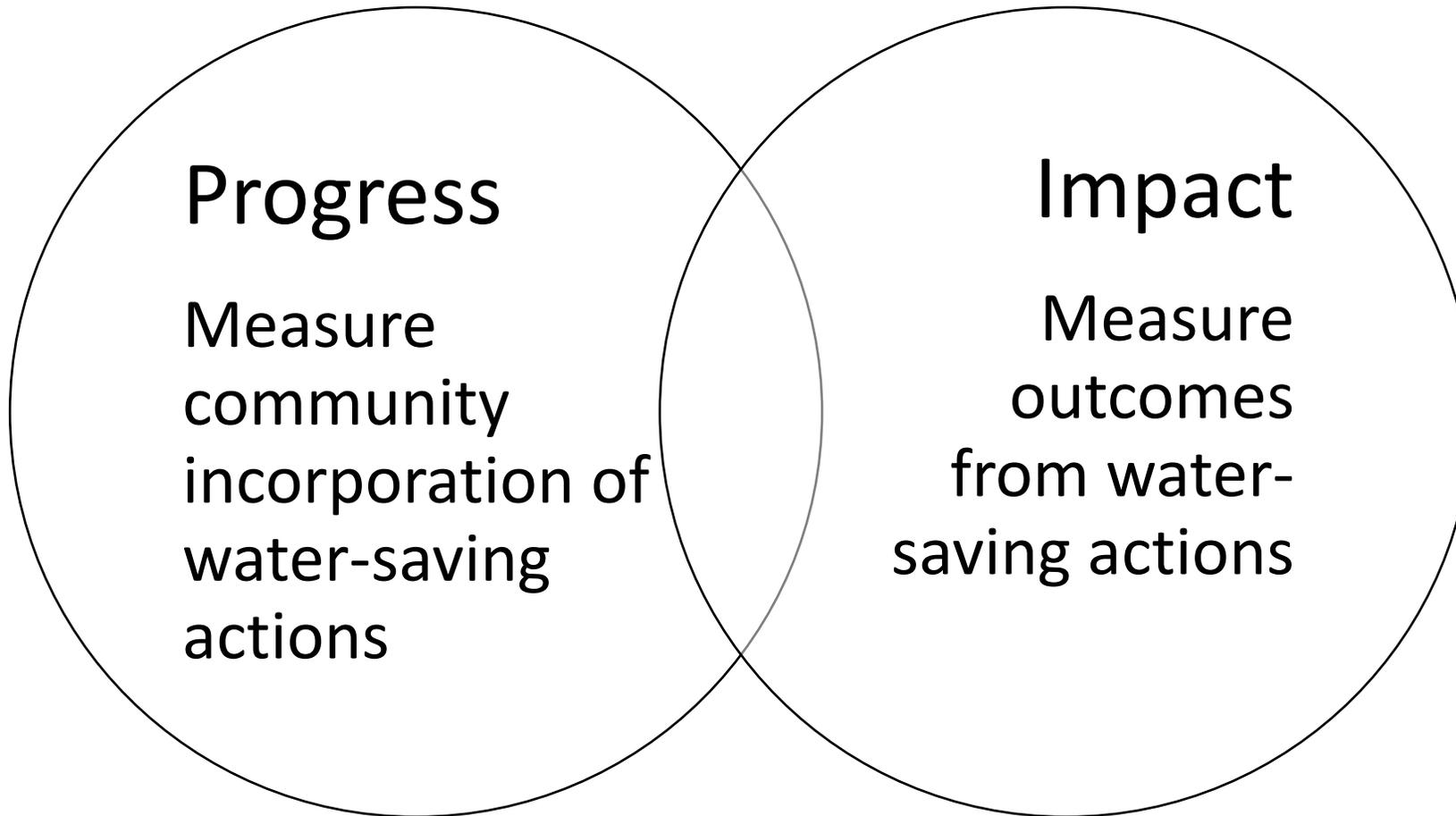
**Define:** Review categories to be measured and preliminary metrics. Identify feasibility considerations.

Dec 2019



**Activate:** Review metric implementation considerations. Discuss next steps and piloting process.

# Progress & Impact Metrics



# Progress Metrics

## Development of long-range plans

1. Percent of population living in communities with a long-range land use plan that integrates water efficiency
2. Percent of population living in communities with a long-range water plan that integrates land use strategies

## Implementation of conservation and efficiency programs

3. Percent of population served by providers with conservation-oriented system development charges (tap fees)
4. Percent of population served by providers with conservation-oriented pricing structures (rates)

## Adoption of landscaping and building codes

5. Percent of population living in communities that have adopted the most recent International Code Council version and/or the International Green Construction Code
6. Percent of population living in communities adopting reuse water into local code
7. Percent of population living in communities with water efficient landscaping and irrigation standards that exceed State standards

## Implementation of adequate water supply rules

8. Percent of population living in communities with water supply adequacy requirements in code that exceed State minimum standards

## Extent of regionalization/collaboration

9. Percent of population living in communities where planners and providers have regular coordination meetings
10. Percent of population living in communities that route development proposals to applicable water providers for review and comment

# Impact Metrics

## Trends in water demand and use

11. Total water distributed by providers
12. Total potable water distributed by providers
13. Percent of municipal and industrial demands served by potable water supplies
14. Total water reused/reclaimed
15. Total non-potable water use
16. Per capita water demands (gallons per capita per day or GPCD)
17. Percent of annual distributed water serving outdoor uses
18. Average irrigation rate
19. Percent of irrigated demands supplied by non-potable or reuse supplies
20. Water demand by land use type
21. Forecasted water demand based on future land use plan
22. Gap between annual water supply and demand

## Trends in development patterns and land use

23. Total irrigated area within water provider service areas
24. Population density

# Calculating Progress Metrics

 Metric description

 Desired Outcome

 Regional/State Methodology

 Data Need and Sources

 Calculation Considerations

 Additional Resources

# The community's long-range land use plan integrates water efficiency.

## Basic Information

- **Regional/State Metric Formulation:** Percent of population living in communities with a long-range land use plan that integrates water efficiency
- **Metric Type:** Progress
- **Metric Category:** Development of long-range plans
- **Metric Description:** This metric encourages communities to incorporate water efficiency into long-range land use planning documents to establish a water efficiency vision, policy, and roadmap. At a Statewide scale, this metric is used to measure progress toward the Colorado Water Plan objective that “75% of Coloradans will live in communities that have incorporated water-saving actions into land use planning by 2025 (State of Colorado, 2015).”

# The community's long-range land use plan integrates water efficiency.

## Desired Outcomes

**Community:** Encourage all communities to have a long-range comprehensive master plan that, at a minimum, includes water efficiency. While sustainability plans or other long-range plans may be developed by a community, a long-range comprehensive master plan is the preferred document. Increase the number of communities that have developed a long-range comprehensive master plan that incorporates all four best practices from (Nolon Blanchard, 2018):

- Build in ongoing coordination concerning water.
- Draft a stand-alone water element.
- Integrate water efficiency measures throughout the comprehensive plan.
- Encourage water-conserving land use patterns.

**Regional/State:** Meet or exceed a target value of 75% of Colorado's population living in communities that have developed long-range comprehensive master plans that incorporate the four best practices described above.

# The community's long-range land use plan integrates water efficiency.

## Regional/State Methodology

- To calculate the metric based on a minimum qualification of having any mention of water efficiency in the long-range comprehensive master plan:
  1. Identify the communities that have developed a long-range comprehensive master plan. Collect the plans.
  2. Review each comprehensive plan for water efficiency.
  3. Where such plans exist, calculate the population living in those communities.
  4. Calculate the percentage of Coloradans living in communities with a long-range comprehensive master plan that incorporates water efficiency.
- The Babbitt Center for Land and Water Policy has developed an evaluation matrix for long-range comprehensive master plans that could form the basis of an evaluation rubric (Lincoln Institute of Land Policy, 2019; Rugland, 2019).

# The community's long-range land use plan integrates water efficiency.

## Data Needs and Sources

- Long-range comprehensive master plans originate from local land use authorities.
- Community and Statewide population data originated from the DOLA State Demography Office (Colorado Department of Local Affairs, 2019a).

# The community's long-range land use plan integrates water efficiency.

## Calculation Considerations

- **Community:** Not all communities are required to complete a long-range comprehensive master plan in Colorado. When developing a comprehensive plan, communities are not required to include a water element (Colorado Revised Statutes, 2018). Communities should evaluate this metric at the time that a long-range comprehensive master plan is being developed or updated.
- **Regional/State:** DOLA, county, and regional government agencies would be primarily interested in tracking this metric, as results could inform State policy and guidance on the development of long-range comprehensive master plans, including incentives for including water efficiency.

- The community's long-range land use plan integrates water efficiency.

## Where Do We Go for More Information

- The best source for more information about how communities can develop long-range comprehensive master plans that integrate water efficiency, along with examples of communities that have done this well, can be found in (Nolon Blanchard, 2018; Rugland, 2019).

# Calculating Impact Metrics

 Metric description

 **Value/Unit of Measure**

 **Desired Outcome**

 **Methodology**

 Data Need and Sources

 Calculation Considerations

 Additional Resources

# Total Water Distributed by Providers

## Basic Information

- **Metric Type:** Impact
- **Metric Category:** Trends in water demand and use
- **Metric Description:** This metric is foundational to establishing the amount of water distributed by water providers to serve municipal and industrial demands. In combination with per capita water use metrics, this metric is the basis for assessing water use and water efficiency trends.
- **Values/Units of Measure:** The result of this metric will be a volume most often expressed in units of acre feet (ac-ft), gallons (gal), or million gallons (MG).

# Total Water Distributed by Providers

## Desired Outcome

- Municipal demands in Colorado have increased throughout recorded history and are expected to continue to do so as a result of population growth. While no single target value has been established, it is desirable to affect the trend of this metric - ideally to achieve a trend whereby this **metric shows less growth, flattens, or even declines over time.** However, with a growing population, overcoming growth in this metric will be a formidable challenge. Arizona is one western state that has faced and overcome this challenge, successfully decoupling population growth from increased water demands

# Total Water Distributed by Providers

## Methodology

- Distributed water (the volume of water entering the municipal distribution system) calculated as total water production from all sources, excluding water exported to another water provider, placed into long-term storage, or delivered for agricultural use (State of Colorado, 2019b; State of California, 2010).
- All types of water, treated or untreated, including potable, non-potable, and reuse water (Open Water Foundation and WaterDM, 2018).
- All uses of water, whether domestic, irrigation, etc.

# Total Water Distributed by Providers

## Data Needs and Sources

- Water providers will be the primary source of distributed water volumes.

# Total Water Distributed by Providers

## Calculation Considerations

It is common for methodologies to vary across water providers, influencing values by 20-30% or more. Common differences include:

- Water volumes used (alternatives to distributed water include water diversions, production volumes, and water delivered to customers).
- Excluded water volumes, especially for non-potable and reuse water. For example, many raw water systems in Colorado are not metered (Colorado Water Conservation Board, 2012).

The longer the historical data record, the better the ability to analyze trends in water use. It's important to note that weather, billing rates, pricing structures, economic conditions, regulations, metering infrastructure, and other factors influence water use from year to year. It's common to normalize annual demands to remove the influence of weather if the historical record is sufficiently long. As presented, this metric excludes SSI which represents 13% of M&I demands (State of Colorado, 2019b). It is important for communities and water providers to maintain an inventory of their SSI users and demands, especially in areas where these users could become customers under future scenarios (e.g., climate change and reduced water supply availability).

# Total Water Distributed by Providers

## Where to Go for More Information

- For more information about calculating water use metrics, consult the following resources (Colorado Water Conservation Board, 2012; Open Water Foundation and WaterDM, 2018; State of California, 2010; State of Colorado, 2019b).

# Proposed Use of Metrics

## State

- Demonstrate progress toward Colorado Water Plan objectives
- Assess impacts from integrated water and land use planning efforts
- Link State grant funding to integration efforts and outcomes
- Focus policy, planning, and funding priorities on areas that need improvement

## Local

- Inform decision making to improve
  - Water and land use planning processes and outcomes
  - Impacts for investments
  - Ecosystem health
  - Economic/fiscal health
  - Community resilience

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