

# COLORADO WATER CONSERVATION BOARD

## Department of Natural Resources

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## RAINWATER HARVESTING IN COLORADO

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The following information has been taken from the final report of the Holistic Approach to Sustainable Water Management in Northwest Douglas County study from January 2007.

### Background:

Currently, rainwater harvesting is being practiced in at least 7 other western states. It is practiced in various forms in numerous other arid and semiarid states surrounding Colorado. Rainwater Harvesting has been overlooked in Colorado primarily for two reasons: 1) historically, relatively abundant and low-cost alternative water supplies have been available and 2) current law requires 100% replacement of any precipitation captured, thereby requiring the user to find an equal amount of replacement water.

The study objectives were to research existing studies and apply identified algorithms to show:

- The potential precipitation as a water supply
- The potential water savings from rainwater harvesting for existing developments that currently rely on non-tributary groundwater supplies.

### Study Findings:

- With rainwater harvesting, outdoor water demand is reduced by approximately 65% with moderate conservation and approximately 88% with water wise conservation.
- For existing well users, rainwater harvesting provides an opportunity to reduce withdrawals from non-tributary aquifers with declining water levels and to provide a

supplemental supply, especially for irrigation and fire suppression.

- Rainwater harvesting does have potential as a sustainable water management approach in northwest Douglas County, particularly when paired with outdoor water demand management practices.

### Legal Roadblocks to Rainwater Harvesting:

- Current Colorado law does not allow rainwater harvesting to be utilized to its full advantage as one source of a sustainable water supply.
- All water that falls as precipitation is assumed to ultimately contribute to flows in the stream, and is deemed to be part and parcel of the water that existing water rights are entitled to use in accordance with their decreed priorities. Intercepting precipitation that would have otherwise migrated groundwater or surface water might interfere with the full allocation of existing water rights.
- Colorado law requires 100% of any precipitation captured-out-of-priority for later beneficial use to be replaced to the stream system in like time, place and amounts.

### Statutory Exceptions to the Law:

- C.R.S. §37-84-117(5) & C.R.S. §37-80-120(5) concerning on-stream reservoir evaporation & §37-92-305 (12)(a) concerning gravel pit pond evaporation, expressly recognize that not all precipitation is a supply to existing water rights.
- These statutes allow “credit” to be taken against the amount of water that would

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otherwise need to be provided to offset evaporation from the exposure of groundwater based on the portion of the precipitation that did not historically reach the stream system, due to consumption by native vegetation through evapotranspiration (ET).

### **Study Recommendations:**

- The study recommended that statutory law be crafted to allow precipitation capture and use with augmentation requirements based on maintaining the amount, timing, and location of historical runoff and deep percolation, which is the water supply for existing water rights. The law would require a water court application for an augmentation plan to provide a forum to allow existing water right owner to evaluate the details of the augmentation plan and impose terms and conditions to protect the historical yield of their water rights.
- Policy makers should consider authorizing a pilot project to verify and/or calibrate the calculated results from the recommended algorithms above. The pilot project could be used to work out many of the detail issues that may arise in a water court application to use rainwater harvesting.

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