The Arkansas River
A River of Many Uses

by
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The Rocky Mountains and the River

The towering Rocky Mountains of Colorado act as a huge reservoir collecting snow in the fall, winter, and spring. At higher altitudes, the mountains turn into a natural icebox keeping snow where it lands until Mother Nature warms up in the summer. Then, drip by drip, streams form in the cool, colorful mountains. From the height of Colorado's seven great basins, water makes its way toward the lower elevations flowing east, west, north, and south. Water flows eastward to the Mississippi River, westward to California and the Gulf of Mexico, northward into Wyoming via the Platte, southward down the Rio Grande to Mexico.

The Arkansas River rises in the majestic Rocky Mountains near Leadville, Colorado at an elevation of 14,000 feet. From here, the Arkansas flows some 357 miles through Colorado to the Kansas stateline where the elevation is 3350 feet. The drainage area of the Arkansas River basin comprises some 25,400 square miles in Colorado. From Colorado, the Arkansas flows through Kansas, Oklahoma and Arkansas before reaching the Mississippi River.

Administration of the Arkansas River--Agreements

Because so many people in Colorado and other states depend on the water of the Arkansas River, it is a virtual storehouse of treasured wealth. The river provides water for urban residents and rural household, for wildlife and domesticated animals, for field crops and urban lawns. Because of the high demands on the Arkansas River, a number of agreements have been reached about how the water is to be distributed and shared among its users.

- The State of Colorado and the State of Kansas signed an agreement on the use of water from the Arkansas River in 1948. Such agreements take the form of contracts called "Interstate Compacts", and Federal Courts have jurisdiction in disputes which cannot be resolved between the States. Recently, for instance, Kansas brought a suit against Colorado that made its way to the United States Supreme Court for final resolution. The main complaint of this suit was that the use of wells to pump groundwater in the watershed of the Arkansas was depleting the flow of Arkansas River water into the state of Kansas.

- Within Colorado, the basic agreement on water use, often called the "appropriation doctrine", is found in Sections 5-8 of Article XVI of the Constitution. The Constitution holds that the people of Colorado own the water and that the vested rights to use the water are based on the "priority system". This simply means that the first person or entity to use a certain amount of water from the river beneficially cannot have the right to use that water taken away arbitrarily by some person or entity wanting to use the water later in time. Rights to the water are appropriated based on the relative times the water was first put to use. If there is sufficient water all appropriators will receive water; if there is not, the senior or earlier appropriators will have first rights to the water. When water is not sufficient to meet the use of all appropriators, domestic use is given first priority, agricultural use second, and manufacturing use third. Court cases have established that this "appropriation doctrine" is applicable both to stream flow and tributary groundwater.

- On the district level, citizens agreed that there was a need to manage water supplies in the Arkansas Valley basin, and in 1958 petitioned the District Court to create the Southeastern Colorado Water Conservancy District. The formation of water districts is allowed by State Statute and boards of water districts have been given the right to set tax levies in their districts for water management. The Board of the Southeastern District has been responsible primarily for the purchase and transportation of water from the Western Slope of the Rocky Mountains to the Arkansas River. Tunnels and reservoirs were built to transport and store this "trans-

mountain water". Flood control measures were also implemented in the process. This project to add additional water and flood control measures to the Arkansas River, called the "Arkansas-Fryingpan Project", received federal funding in 1962. Because federal funds were used to bring additional waters to the Arkansas River, the federal government now claims certain regulatory rights over this water.

- On the local level a number of differing agreements have been worked out between people using the waters of the Arkansas. One example of such agreements was the creation of canal companies. Such companies were often formed to raise money to build and maintain ditches, headgates, and other structures needed to transport water from the Arkansas. Individuals (often farmers), cities, or other entities would buy stock in the company and receive certain shares of water for their investment. The canal companies would have articles of incorporation and by-laws to protect the water rights of the shareholders.

Administration of the Arkansas River--Day-to-day Operations

Administration of water at the state level is divided between the State Engineer who is responsible to the executive director of the Division of Water Resources, and the judiciary. At the district level, the district engineer and the district water courts handle the day-to-day matters of water delivery and adjudication.

Water is measured terms of volume per amount of time. The basic measurement is in cubic feet per second and acre feet. Water flowing at one cubic foot per second will produce 448.8 gallons of water per minute. In twenty-four hours water flowing at a cubic foot per second will cover one acre of land with two feet of water. Water flowing from ditches and from wells is measured to make sure water is allocated according to Colorado law. An average family in Colorado uses about one acre foot of water per year for domestic purposes.

Water taken from the Arkansas River is normally carried by canals. The state allowed canal companies to acquire right-of-way for the canals by easement, meaning that they did not have to pay for the land through which the canal flowed. The Otero Canal has the only purchased right-of-way in the Arkansas valley. Similarly any holder of a water right is allowed a right of way through land lying between the diversion point and the point of use.

Many canal companies have also acquired rights to store water in reservoirs. Usually the priority date for storage reservoirs is later than that of the canals so storage normally takes place only when there are large quantities of water flowing in the river. Lake Henry has the earliest priority date (1891) for storage in this area, while priority dates for canals are as early as 1861.

Transmountain water is stored in the Pueblo Reservoir. Normally less than the 69200 acre feet of allowable average is diverted yearly from the Western Slope by the Fryingpan Project. Consequently there is often extra storage space available in the Pueblo reservoir. This allows canal companies to store water over the winter for use in the spring. This is especially important for canal companies like the Rocky Ford Canal, the High Line Canal, the Bessemer, the Oxford, and the Catlin which do not have other storage facilities. These canals have been granted "preferred winter water decrees". Cities and other canal companies have also acquired rights to store water in the reservoir. Agricultural water is stored between November 15th and March 15th of each year.

Appropriation decrees for water pumped from the ground are generally much later in date than the decrees for water taken directly from the Arkansas River. Because ground water gradually makes its way back to the stream flow, ground water and stream water are viewed as coming from the same source. Because of this, pumpers of ground water with late decrees must replace water to the stream to avoid adversely affecting those with earlier rights and water users in Kansas. Return flows from transmountain water are allocated to augment the water pumped from the river aquifer, but pump owners are responsible for finding replacement water for a percentage of the water they use.

Major Problems of Water Use Along the Arkansas

The major problem of water use along the Arkansas is the over appropriation of water. By the 1900's the waters of the Arkansas River were for all intents and purposes fully appropriated. However, both the number of water users and the uses of water have continued to increase. Because water rights are considered real property that can be bought and sold, some of the pressures on the water are solved through the transactions of buying and selling water. But this has not solved all problems. Cities, for instance,

usually have enough money to purchase agricultural water for urban use. However, is it in the long run economically justified to use water for lawn watering and golf courses rather than growing food? Is it wise to allow recreational use of water to have precedent over agricultural use? Is it wise to make artificial snow for skiers, keep stream flows high for river rafts, and maintain high reservoir waters for boaters at the expense of agriculture?

A second problem is keeping the waters clean without environmental groups and the federal government setting artificially high standards. The soils along the Arkansas produce river water with a very high saline content. Natural conditions of the river should not be ignored . At the same time, cities and agriculture must do their best to keep water clean for everyone.

The priority system has worked remarkably well in Colorado, but control of water spells power in Colorado. There will be ongoing attempts by various groups, especially the federal government, the state government, speculators, environmental groups, and recreational users, to seek greater control over water distribution. All citizens must be educated and active in the field of water.