



Irrigation Changing Culture

By Clint Schafer

Around 4000 B.C. a group of farmers migrated to the Tigris and Euphrates river valley in search for more land and food for a growing population. In this Valley, which is referred to as the Fertile Crescent, they discovered an abundance of

wildlife for their meat supply and flood plains where they would sow crops in the spring. As weather patterns changed from year to year the farmers started to realize rainfall was not a dependable source of water for their crops. To make sure they had a stabilized

water supply the farmers started digging ditches from the river used in many parts of the world. Finally, there is the vast technology of center pivot irrigation which allows farmers access to surface and ground water with less labor intensive work. With these evolving irrigation technologies came an increase in human population which required a supply and demand market for food production and a change in cultural behavior.

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beds. By doing this labor intensive task these farmers started the concept of irrigation which changed their culture. By increasing the ability to expand unusable land into crop land with the use of ditch irrigation, these farmers started to build a surplus of food for the growing population. As a result, less people were needed to farm and there was a shift in society which allowed people to explore other areas of a culture such as craft working and architecture.

In the United States irrigation has changed culture by increasing land values, converting more dry land into irrigated land to help increase food production, and shaping farmers into conservationists and water stewards.

As times change there has been an evolution of irrigation techniques and technology. As stated above, in the beginning there were the ditches, and then came the formation of dams to regulate flood plains which gave the ability to advance the technique of furrow irrigation that is still

Farmers in the US started with furrow irrigation which required a lot of labor and time until the development of center pivot technology. In the 1950s a man by the name of Frank Zybach had a patent awarded to him for the invention of "the center pivot." From that point on center pivot technology was introduced as a labor and time saving tool and as extra insurance to help provide stable crop production in dry years. Center pivots created a cultural change that allowed farmers to convert more pasture and dry land into irrigated land. With





this change came an increase in land values, which in some cases increased from \$400 per acre to \$1,300 per acre for irrigated land. Also with this technology came the idea a farmer could just turn the pivot on and not worry about the usage of water and environmental changes. This was not the case. In some states center pivots and furrow irrigation depleted water levels, created run off that led to soil erosion, and decreased consumptive use of water.

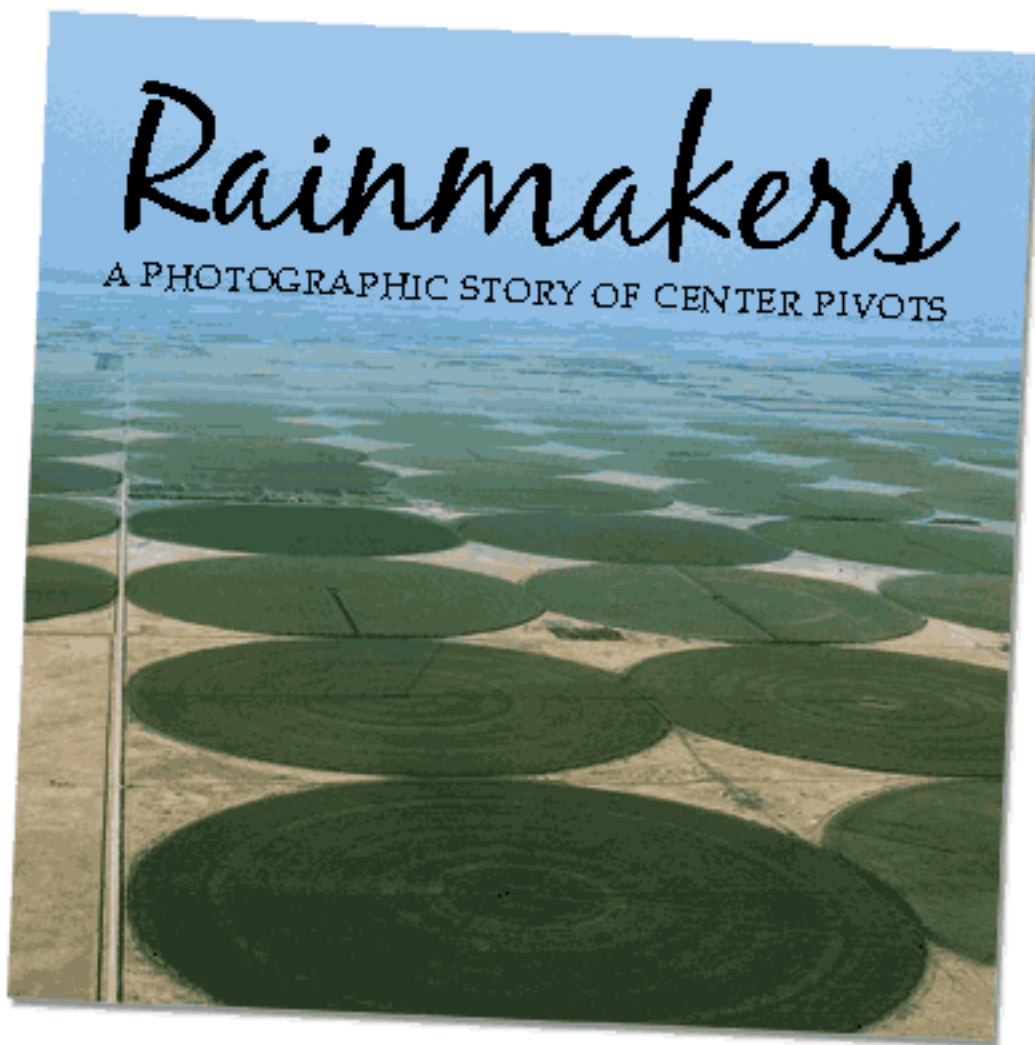
Recognizing these environmental changes, farmers are now changing culture once again by putting parts of irrigated lands back into prairie and habitat to help reduce the risk of soil erosion and runoff and increase the efficiency of water usage. They are also changing

the way they manage their lands with different crop rotations and changing the pivots by using efficient sprinkler systems to distribute the water evenly. By using center pivot irrigation farmers in the United States have changed their behavior and farming practices to best suite the lands needs as well as the world's environmental needs.

In other parts of the world irrigation technology has left many cultures with the ability to become less dependent on other cultures. In order to meet demands for increased food supply some countries were in need of a conservation technology that would help meet both agricultural and fresh drinking water demands. Therefore, center pivots were being introduced in other countries that needed a solution to their food and water shortage problems. For instance, in the Middle East there is an abundant supply of water being used to irrigate crops for food production and commercial use, but these supplies are being depleted because of mismanagement of water supplies. Knowing that water supplies could deplete in future years many of the farmers and government officials started to change farming management methods by using center pivots as a tool to increase the efficiency of water use on crops. In many aspects center pivots have helped the Middle East

economy and provided many cultures with new opportunities to advance into world markets and be self sufficient. On the other hand, introduction of center pivot technology has provided a different use among cultures. For instance, in Central America center pivots were introduced to help stabilize the banana market. With a lacking civil authority there seems to be vandalism on center pivots, where people are melting parts of pivots to make pots, pans, and using the copper in electrical wiring for bullets. Center pivots have helped the banana production but have also provided an increase in potential vandalism for countries that are not advanced in authority and technology.

Our world has many cultures and each culture is different except for two common necessities: food and water. The Food and Agriculture Organization of the United Nations estimates there needs to be a 60% increase in agriculture productivity to provide the world with enough food to meet the demands of an estimated population of eight billion in 2030. With the continued decline in crop acres being developed for urban use irrigation technology needs to continue to advance and change our cultural methods in order to meet our world's food and water demands.



"Rainmakers: A Photographic Story of Center Pivots" is available for purchase directly from The Groundwater Foundation and at speciality bookstores nationwide.



The Groundwater Foundation is a nonprofit organization dedicated to educating and motivating people to care for and about groundwater. Contact us at 1-800-858-4844, info@groundwater.org or visit us online at www.groundwater.org.

