

## A Brief Note on Different Types of Irrigation in Agriculture

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### About the Study

Irrigation, often known as watering, is the agricultural practise of applying controlled amounts of water to land to aid in the development of crops, as well as to produce landscaping plants and lawns. Rain-fed agriculture is agriculture that does not use irrigation and instead relies solely on direct rainfall. Irrigation has been a major part of agriculture for almost 5,000 years, and various cultures around the world have developed it separately.

In arid places and during seasons of below-average rainfall, irrigation aids in the growth of agricultural crops, the maintenance of landscapes, and the revegetation of damaged soils. Irrigation also has other uses in crop production, such as frost protection, weed suppression in grain fields, and soil compaction prevention. Irrigation systems are also utilised for animal cooling, dust control, sewage disposal, and mining. Irrigation is frequently studied in conjunction with drainage, which involves the removal of surface and subsurface water.

Irrigation comes in a variety of forms. When compared to overhead irrigation, micro-irrigation requires less pressure and water flow. The root zone is irrigated via drip irrigation.

Archaeological research has shown evidence of irrigation in regions where natural rainfall is insufficient to maintain crops for rainfed agriculture. The technology was first used in the 6th millennium BCE in Khuzistan, which is located in the south-west of modern-day Iran.

Irrigation was employed to manipulate water in the alluvial plains of the Indus valley civilization, and its use is thought to have started approximately 4500 BC, greatly increasing the size and prosperity of their agricultural communities. The Indus Valley Civilization created advanced irrigation and water-storage systems, including 3000 BCE artificial reservoirs at Ginnar and a 2600 BCE canal irrigation system. Agriculture on a large scale was undertaken, with a vast network of canals used for irrigation.

Irrigation has been employed by farmers in the Mesopotamian plain since at least the third millennium BCE. They devised perpetual irrigation, which involves coaxing water through a network of small channels built in the field to irrigate crops on a regular basis throughout the growing season. Basin irrigation was employed by ancient Egyptians, who used the Nile's floods to inundate agricultural areas that had been encircled by dykes. Before returning the excess to the stream, the engineers left the flood water in place until the fertile sediment had settled. The natural lake of the Faiyum Oasis was used as a reservoir by the ancient Egyptian pharaoh Amenemhet III in the twelfth dynasty (about 1800 BCE) to store surpluses of water for use during dry seasons. The Nile's regular flooding caused the lake to grow.

In 1847, during the reign of Mughal Emperor Bahadur Shah II in India, young engineers were rebuilding and improving the existing Mughal irrigation system.

A waterwheel-like contraption known as a sakia was constructed by the Ancient Nubians for irrigation. Between the third and second millennia BCE, Nubia began to irrigate its land. It was heavily reliant on flood waters flowing through the Nile River and other rivers in what is now Sudan.

By the first or second millennium BCE, irrigation had reached the Niger River region cultures and civilizations, and was based on wet-season flooding and water gathering.

Terrace irrigation has been discovered in pre-Columbian America, early Syria, India, and China. Archaeologists discovered the ruins of three irrigation canals radiocarbon-dated from the 4th millennium BCE, the 3rd millennium BCE, and the 9th century BCE in the Zana Valley of Peru's Andes Mountains.