Executive Summary

Groundwater is the life blood of the earth. It is the most precious natural resource we have, and we cannot survive or thrive without it. Access to secure water supplies is essential. There are millions of groundwater wells worldwide affected by intensive groundwater pumping. WaterWorks4All can help solve the over pumping of renewable groundwater in communities effected by water uncertainty and scarcity.

Renewable groundwater pumping in the US is significant, rated second in the world. Countries pumping the highest quantities of groundwater per capita are located in arid zones, where surface water is scarce and unreliable and where agricultural irrigation is well developed. Furthermore, groundwater is a common pool and there is little awareness of the cumulative implications of intensive groundwater pumping can do to a community's water supply, leading to an unsustainable water supply.

New Mexico has been experiencing water supply diminishment leading to uncertainty in water supplies due to worldwide, regional and local atmospheric climate changes caused by rising greenhouse gases. There is strong scientific evidence that the current long-term drying trend, driven by warming and precipitation deficits, could worsen for years or decades into the future causing water scarcity and uncertainty (Udall, 2017). There is an urgent need for more groundwater management interventions. WaterWorks4All, is a groundwater well monitoring and usage reporting mobile application (App) to assist in increasing longevity of declining groundwater resources by stopping wastage, encouraging efficiency and providing self-governed conservation behaviors in the Middle Rio Grande. This solution takes an adaptation practical approach to water planning and management by providing a water management tool for users who rely on groundwater for agricultural crop production and domestic use well sharing. WaterWorks4All begins as a pilot project in collaboration with the Middle Rio Grande Conservancy District (MRGCD) (MRGCD, 2020), focused on a select group of users dependent on groundwater wells. During the pilot the App will be analyzed, designed, developed, and tested in a real world setting before it can be made available to thousands of water users.