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FOG AS A WATER SUPPLY IN DESERT ENVIRONMENTS

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Rain and snow are not the only sources of water in arid environments. Substantial amounts of water enter watersheds through the interception of fog droplets by vegetation. This process of fog deposition is especially productive in mountainous areas where the fog is produced by the advection of clouds over the terrain. The combination of fog, with low visibilities, and moderate winds, leads to high fog fluxes that can be utilized by vegetation or artificial fog collectors. Fog water has been shown to be responsible for 20 to 30% of the water inputs in high elevation forests in the Eastern US. The percentage may approach 100% in isolated forests on the west coast of South America. FogQuest is a registered charity that utilizes large fog collectors to provide clean water for villages in some of the world's driest environments. Fog collection projects can provide water at times of the year when no rain falls. This paper will present results from projects in countries such as Chile, Peru, Guatemala, Yemen, Eritrea and Nepal. Evaluations of fog fluxes using a Standard Fog Collector showed that on desert mountains in Chile, Yemen and Eritrea, measured fluxes ranged from 1 to 10 liters of water per square meter of mesh per day. Given the 50% efficiency of the SFCs, this means that in the driest times of the year, there was from 2 to 20 L m-2 day-1 of fresh water moving over the surface. How this water is collected and used to benefit people will be described in the presentation.

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