

PhD Dissertation
Department of Environmental Science and Policy
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Defense Date and Time: April 26, 2023

Defense Location: Zoom

Title: The sustainability of an ancestral water acquisition system: a study on falaj Daris, Nizwa, Oman

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ABSTRACT

Between 1982-2020, the discharge rate of falaj Daris (an underground aqueduct sustaining the agricultural activities of Nizwa, Oman) decreased 259,200 L/day. Using ground truth and remote sensing data, three issues were addressed: the causes for the downward trend in discharge; the state of the Wadi al-Abyadh aquifer which supplies falaj Daris; and finally, the falaj Daris death point, given the current decreasing trend. Results showed that the decrease in falaj Daris discharge resulted from population growth, increased farming, and less summer rain. This was reflected in a recession of -1.473 MCM in the Wadi al-Abyadh aquifer between 1993-2019. Given the current downward trend in discharge, falaj Daris will dry-up in approximately ninety-four years.