WATER INTERNATIONAL
2020, VOL. 45, NO. 1, 39–59
https://doi.org/10.1080/02508060.2019.1708172

Routledge
Taylor & Francis Group

RESEARCH ARTICLE

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Drivers of groundwater utilization in water-limited rice production systems in Nepal

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ABSTRACT

Most rice farmers in Nepal's Terai region do not fully utilize irrigation during breaks in monsoon rainfall. This leads to yield losses despite abundant groundwater resources and ongoing expansion of diesel pumps and tubewell infrastructure. We investigate this puzzle by characterizing delay factors governing tubewell irrigation across wealth and precipitation gradients. After the decision to irrigate, different factors delay irrigation by roughly one week. While more sustainable and inexpensive energy for pumping may eventually catalyze transformative change, we identify near-term interventions that may increase rice farmers' resilience to water stress in smallholder-dominated farming communities based on prevailing types of irrigation infrastructure.

ARTICLE HISTORY
Received 1 February 2019
Accepted 19 December 2019

KEYWORDS
Groundwater irrigation; decision processes; smallholders; resilience; Eastern Gangetic Plains; Nepal