

EGU2020-20988

<https://doi.org/10.5194/egusphere-egu2020-20988>

EGU General Assembly 2020

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



## **Analysing the effectiveness of groundwater regulation: a comparative study of Turkey and California**

**Muhammed Yasir Ak**, David Benson, and Karen Scott

University of Exeter, Politics, Exeter, United Kingdom of Great Britain and Northern Ireland (ma711@exeter.ac.uk)

Groundwater abstraction has increased significantly around the world in the last three decades, placing a strain on the sustainability of domestic and agricultural use plus negatively impacting the role groundwater plays in water storage in the absence of surface water. While the proportionality of surface water use has decreased as a result, groundwater has expanded its share of freshwater use. Groundwater management challenges are particularly acute in semi-arid zones due to low replenishment rates. Multiple regulatory innovations are consequently emerging in different countries to regulate groundwater usage but comparative analyses of their effectiveness are limited. In addressing this gap, our paper therefore compares the regulatory performance of the Water Framework Directive (WFD) in Turkey with the Sustainable Groundwater Management Act (SGMA) in California, two semi-arid zones, as a basis for policy learning. Both legislative measures impose river basin planning to protect groundwater resources and should provide them with strong protection. In analysing the effectiveness of these measures, this paper firstly identifies the key regulatory requirements of each legislative framework regarding groundwater protection. Secondly, it compares the institutional arrangements for implementing them, using specific river basin case studies. Thirdly, it quantifies groundwater use trends in river basins to assess the effectiveness of the WFD and SGMA. Finally, it comparatively discusses outcomes to determine the factors influencing implementation effectiveness, in order to inform future regulatory design.