

## Book Review

- *Watering the Revolution: An Environmental and Technological History of Agrarian Reform in Mexico*, by Mikael D. Wolfe, Duke University Press, 2017

Mikael Wolfe sets out a fascinating historical account of the socio-political and technological processes that led to basin closure (Molle et al. 2010) and a ‘water apartheid’ in the region of the Comarca Lagunera in Northern Mexico. His historical analysis focuses on the period from 1900 to the 1970s. Wolfe shows how the expansion of the irrigation sector and the agricultural boom in the region resulted from social change and its interrelations with agrarian, water and land reforms. He demonstrates how these reforms were shaped by changing political projects and powers and their relation to water technologies and surface and groundwater availability.

The book is organized chronologically. The introduction theoretically places this account. Hereafter the author describes how, from the early 1800s, middle to large landlords (*haciendas*) thrived on the production of cotton with water from the Nazas river. Its irregular flow regime, coupled to the intensification of water use, led to many conflicts and in 1906 the first calls to ‘tame’ the river through the construction of a large dam emerged. The Mexican Revolution, that brought the country in turmoil between 1910 and 1917, importantly transformed this area, but no significant irrigated land redistribution policies were implemented until the presidency of Lázaro Cárdenas. In the 1920s the irrigated area kept expanding, reviving the controversies around damming the Nazas river. At the same time, with the advent of motorized tubewell technologies, a silent groundwater revolution unleashed among wealthy landowners. Yet as tensions between *agraristas*, unions and landowners increased, in 1928 a commission of the federal government was installed to make recommendations on the implementation of an agrarian reform program. With important support from local social movements, in November 1936, Lázaro Cárdenas started with the distribution of land in the Comarca Lagunera as part of one of the most ambitious agrarian reform programs in Latin America. By 1938 more than thirty-eight thousand heads of families had received sixty-seven percent of the region’s total irrigable land distributed among *ejidos* (communal lands), colonists and small

holders. Not only was the land distributed; a whole support system for production in the *ejido* sector was also put in place. However, water redistribution was not settled. Much hope was vested in the Palmito Dam on the Nazas river and a revision of the water distribution agreements.

In section two of the book Wolfe describes the history of the dam and analyzes how life at the dam construction site was organized by the workers, which based the organization of work, their lives and their towns on a highly modernist philosophy.

Section three describes how, once the dam was completed in 1946, water inequities persisted as the new governing elites gave political priority to commercial producers that could contribute to the regional and national economy; even though large quantities of agro-chemicals were needed for the production of their commercial crops. As groundwater exploitation kept unabated and aquifer levels drastically dropped, it were the larger producers who kept their access to this secure resource while *ejidatarios*' pumps dried up. The modernization of the irrigation system in the 1960s, through the lining of canals and the creation of compacted irrigation zones, also brought little relief to the *ejidos*. Finally, in the epilogue the author shows how the end of the agrarian reforms and the neoliberal changes to land and water tenure regulations in the 1990s have spurred a new wave of water accumulation, making the differences between the 'have's' and 'have not's' even larger (see also Ahlers 2010).

This book provides important insights into the tensions between the need to develop water resources sustainably and the need for socio-economic development. It shows how environmental changes, the agricultural economy, pests, technologies, bureaucrats, policies and politics intertwined to shape the development of the Comarca Lagunera. The book gives valuable insights in the relations between the often highly politicized development of surface water resources (Molle 2008, Wester, Rap et al. 2009) and the silent untamed development of groundwater resources (Hoogesteger and Wester 2015, Hoogesteger and Wester 2017). In doing so, it shows the difficulty of devising more equitable water distribution regimes, even after a bloody revolution such as the Mexican; showing that grassroots struggles and social movements are quintessential for efforts aimed at advancing socio-environmental justice. A definite 'must' for scholars of Mexican agrarian history and scholars interested in understanding how politics, technology and the environment intertwine to shape the dynamics of water resources development and its impacts on society.

Jaime Hoogesteger, Wageningen University and Research  
jaime.hoogesteger@wur.nl

## References

Ahlers, R. (2010). "Fixing and nixing: The politics of water privatization." Review of Radical Political Economics 42(2): 213-230.

- 
- Hoogesteger, J. and P. Wester (2015). "Intensive groundwater use and (in)equity: Processes and governance challenges." *Environmental Science and Policy* 51: 117-124.
- \_\_\_\_ (2017). "Regulating groundwater use: The challenges of policy implementation in Guanajuato, Central Mexico." *Environmental Science & Policy* 77: 107-113.
- Molle, F. (2008). "Why enough is never enough: The societal determinants of river basin closure." *International Journal of Water Resources Development* 24(2): 217-226.
- Molle, F., P. Wester and P. Hirsch (2010). "River basin closure: Processes, implications and responses." *Agricultural Water Management* 97(4): 569-577.
- Wester, P., E. Rap and S. Vargas-Velázquez (2009). "The hydraulic mission and the Mexican hydrocracy: Regulating and reforming the flows of water and power." *Water Alternatives* 2(3): 395-415.