

Xu Zhao

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Personal Information

Gender: Male Nationality: Chinese Place of Birth: China
Date of Birth: 06/03/1980 Language: Chinese, English

Education

- 1998 - 2002 Bachelor in Civil Engineering

School of Civil Engineering, Beijing Jiaotong University, Beijing, China

- 2002 - 2005 Master in Environmental Engineering

School of Civil Engineering, Beijing Jiaotong University, Beijing, China

- 2005 - 2009 Ph.D. in Environmental Science

School of Environment, Beijing Normal University, Beijing, China

Work Experience

- 10/2008- 12/2008 Visiting Scholar

Swiss Federal Institute of Aquatic Science and Technology (Eawag)

- 07/2009 - 09/2011 Post-doctoral research fellowship

School of Environment, Beijing Normal University, Beijing, China.

- 10/2011-09/2012, full-time research associate

Division for Policy Research, China-Asian Environmental Protection Center, Ministry of Environmental Protection, Beijing, China.

- 12/2012-06/2016, Post-doctoral research fellowship

School of Nature Conservation, Beijing Forestry University, Beijing, China

- 02/2013-08/2013 Visiting Scholar

water@Leeds, University of Leeds, United Kingdom - funded by Worldwide Universities Network.

- 6/2014 - 8/2014 Visiting Scholar

Swiss Federal Institute of Aquatic Science and Technology (Eawag) - funded by Swiss National Science

- 07/2016- 03/2020, Associate Professor

College of Environment, Hohai University, Nanjing, China

- 04/2020- present, Full Professor

Institute of Blue and Green Development, Shandong University, Weihai, China

Research Interests

Water Resource Management; Water Footprint and Virtual Water; Water-energy Nexus; Environmental Economics; Input-Output Modeling.

Publications

1. Zhao, X., Liu, J., Liu, Q., Tillotson, M.R., Guan, D., Hubacek, K., 2015. Physical and virtual water transfers for regional water stress alleviation in China. *Proceedings of the National Academy of Sciences of the United States of America (PNAS)* 112(4), 1031-1035.
2. Zhao, X., Liu, J., Yang, H., Duarte, R., Tillotson, M.R., Hubacek, K., 2016. Burden shifting of water quantity and quality stress from megacity Shanghai, *Water Resources Research*, 52(9), 6916-6927.
3. Zhao, X., Liao, X. *, Zhang, C., Zhang, X.*, Mao, G., Zhang, S., Tillotson, M.R., 2021. Unveiling the dynamic of water-electricity conflict within and beyond megacity boundary. *Journal of Environmental Management* 286 (2021) 112259
4. Feukam Nzudie, H. L., Zhao, X. *, Liu, G., Tillotson, M.R., Hou, S., Li, Y., 2021. Driving force analysis for food loss changes in Cameroon. *Journal of Cleaner Production*. 278, 123892.
5. Liao, X., Zhao, X. *, Liu, W., Li, R., Wang, X., Wang, W., Tillotson, M.R., 2020. Comparing water footprint and water scarcity footprint of energy demand in China's six megacities. *Applied Energy* 269, 115137.
6. Zhang, X., Zhao, X.*, Li, R., Mao, G., Tillotson, M.R., Liao, X., Zhang, C., Yi, Y., 2020. Evaluating the vulnerability of physical and virtual water resource networks in China's megacities. *Resources, Conservation and Recycling* 161, 104972.
7. Feukam Nzudie, H.L., Zhao, X.*, Tillotson, M.R., Zhang, F., Li, Y.*, 2020. Modelling and forecasting roots & tubers losses and resulting water losses in sub-Saharan Africa considering climate variables. *Physics and Chemistry of the Earth, Parts A/B/C*, 102952.
8. Zhang, C., He, G., Zhang, Q., Liang, S., Zipper, S.C., Guo, R., Zhao, X., Zhong, L., Wang, J., 2020. The evolution of virtual water flows in China's electricity transmission network and its driving forces. *Journal of Cleaner Production* 242, 118336.
9. Zhao, X.*, Liao, X., Chen, B., Tillotson, M.R., Guo, W., Li, Y., 2019. Accounting global grey water footprint from both consumption and production perspectives. *Journal of Cleaner Production*. 225, 963-971.
10. Zhao, X.*, Jin, X., Guo, W., Zhang, C., Shan, Y.L., Du, M.X., Tillotson, M.R., Yang, H., Liao, X., Li, Y.P., 2019. China's urban methane emissions from municipal wastewater treatment plant. *Earth's Future*. 7, 480-490. <https://doi.org/10.1029/2018EF001113>.
11. Zhang, X., Liu, J., Zhao, X.*, Yang, H., Deng, X., Jiang, X., Li, Y., 2019. Linking physical water consumption with virtual water consumption: Methodology, application and implications. *Journal of Cleaner Production* 228, 1206-1217.
12. Liao, X., Zhao, X.*, Jiang, Y., Liu, Y., Yi, Y., Tillotson, M.R., 2019. Water footprint of the energy sector in China's two megalopolises. *Ecological Modelling* 391, 9-15.
13. Liao, X., Chai, L., Jiang, Y., Ji, J., Zhao, X., 2019. Inter-provincial electricity transmissions' co-benefit of national water savings in China. *Journal of Cleaner Production* 229, 350-357.
14. Ming, J., Liao, X., Zhao, X., 2019. Grey water footprint for global energy demands. *Frontiers of Earth Science*. <https://doi.org/10.1007/s11707-019-0760-1>
15. Wang, W., Zhu, Y., Liu, B., Chen, Y., Zhao, X., 2019. Innovative Variance Corrected Sen's Trend Test on Persistent Hydrometeorological Data. *Water* 11, 2119.
16. Liao, X., Chai, L., Ji, J., Mi, Z., Guan, D., Zhao, X., 2019. Life-cycle water uses for energy consumption of Chinese households from 2002 to 2015. *Journal of Environmental Management* 231, 989-995.
17. Guo, W., Lu, S., Shi, J., Zhao, X., 2019. Effect of corn straw biochar application to sediments on the adsorption of 17 α -ethinyl estradiol and perfluorooctane sulfonate at sediment-water interface.

Ecotoxicology and Environmental Safety 174, 363-369.

18. Guo, W., Wang, Y., Shi, J., **Zhao, X.**, Xie, Y., 2019. Sediment information on natural and anthropogenic-induced change of connected water systems in Chagan Lake, North China. *Environmental Geochemistry and Health*. <https://doi.org/10.1007/s10653-019-00280-z>
19. Liao, X., **Zhao, X.***, Hall, J.W., Guan, D., 2018. Categorising virtual water transfers through China's electric power sector. *Applied Energy* 226, 252-260.
20. Liu, J., Zhao, X.#*, Yang, H., Liu, Q., Xiao, H., Cheng, G., 2018. Assessing China's "developing a water-saving society" policy at a river basin level: A structural decomposition analysis approach. *Journal Cleaner Production* 190, 799-808. (co-first author)
21. Zhao, X.*, Li, Y.P., Yang, H., Liu, W.F., Tillotson, M.R., Guan, D., Yi, Y., Wang, H., 2018. Measuring scarce water saving from interregional virtual water flows in China. *Environmental Research Letters* 13, 054012.
22. Hou, S., Liu, Y., **Zhao, X.***, Tillotson, M., Guo, W., Li, Y., 2018. Blue and Green Water Footprint Assessment for China—A Multi-Region Input-Output Approach. *Sustainability* 10, 2822.
23. Yi, Y., Zhou, Y., Cai, Y., Yang, W., Li, Z., **Zhao, X.**, 2018. The influence of climate change on an endangered riparian plant species: The root of riparian Homonoia. *Ecological Indicators* 92, 40-50.
24. Jiang, L., Li, Y., **Zhao, X.**, Tillotson, M.R., Wang, W., Zhang, S., Sarpong, L., Asmaa, Q., Pan, B., 2018. Parameter uncertainty and sensitivity analysis of water quality model in Lake Taihu, China. *Ecological Modelling* 375, 1-12.
25. Liu, W., Antonelli, M., Kummu, M., **Zhao, X.**, Wu, P., Liu, J., Zhuo, L., Yang, H., 2018b. Savings and losses of global water resources in food-related virtual water trade. *Wiley Interdisciplinary Reviews: Water*, e1320.
26. Liu, W., Yang, H., Ciais, P., Stamm, C., **Zhao, X.**, Williams, J.R., Abbaspour, K.C., Schulin, R., 2018. Integrative Crop-Soil-Management Modeling to Assess Global Phosphorus Losses from Major Crop Cultivations. *Global Biogeochemical Cycles* 32, 1074-1086.
27. **Zhao, X. ***, Tillotson, M.R. Liu, Y.W., Guo, W. Yang, A.H., Li, Y.F. 2017. Index decomposition analysis of urban crop water footprint. *Ecological Modelling* 348, 25-32.
28. Zhang, X., Liu J., Tang Y., **Zhao, X.**, Yang H., et al., 2017. China's coal-fired power plants impose pressure on water resources. *Journal of Cleaner Production*. 161, 1171-1179.
29. **Zhao, X.**, Tillotson, M.R., Yang, Z., Yang, H., Liu, J. 2016 Reduction and reallocation of water use of products in Beijing. *Ecological Indicators*. 16,893-898.
30. Gao, F., Guo, W., Wang, J., **Zhao, X.**, 2015. Historical record of trace elements input and risk in the shallow freshwater lake, North China. *Journal of Geochemical Exploration*. (IF=1.401)
31. Tillotson, M.R., Liu, J., Guan, D., Wu, P., **Zhao, X.**, Zhang, G., Pfister, S., Pahlow, M., 2014. Water Footprint Symposium: where next for water footprint and water assessment methodology? *The International Journal of Life Cycle Assessment* 19, 1561-1565.
32. Yang, Z.F., Mao, X.F., **Zhao, X.**, Chen, B., 2012. An ecological network analysis on global virtual water trade. *Environmental Science & Technology*, 46 (3), 1796-1803.
33. **Zhao, X.**, Yang, H., Yang, Z.F., Chen, B., Qin, Y., 2010. Applying the input-output method to account for water footprint and virtual water trade in the Haihe River basin in China. *Environmental Science & Technology*, 44(23), 9150-9156.
34. **Zhao, X.**, Chen, B., Yang, Z.F., 2009. National water footprint in an input-output framework- A case study of China 2002. *Ecological Modelling*, 220(2), 245-253.
35. Zhao, Y.W., Qin, Y., Chen, B., **Zhao, X.**, Li, Y., Yin, X.A., Chen, G.Q., 2009. GIS-based optimization for the locations of sewage treatment plants and sewage outfalls - A case study of Nansha District in Guangzhou City, China. *Communications in Nonlinear Science and Numerical Simulation*, (14), 2507-2518. (IF=2.569)

Selected Funds and Awards

- 1. National Natural Science Foundation of China (No. 51009005): *Driving forces, water saving contribution, and roadmap analysis of China's provincial water use efficiency at sectoral level 01/2021—12/2014, CNY500,000 (As Principal Investigator)***
- 2. National Natural Science Foundation of China (No. 51009005): *Accounting for the global water footprint and virtual water trade with the idea of input-output analysis, 12/2010—12/2013, CNY200,000 (As Principal Investigator)***
- 3. World Wide Fund for Nature (WWF), Beijing Office (No. 10002367): *The water footprint study on major citrus production farms along Yangtze River Basin, 12/2013-08/2014, CNY60,000 (As Principal Investigator)***
- 4. World Wide Fund for Nature (WWF), Shanghai Office (No. 10002209): *Quantification and evaluation of the water footprint of pilot sectors in eco-region, Taihu Lake basin 04/2012-10/2012, CNY50,000 (As Principal Investigator)***
- 5. NSFC-IIASA (No. 91025009): *Water scarcity assessment based on the concept of grey water footprint 01/2012—12/2015, CNY600,000 (Co-investigator)***
- 6. National Basic Research Program of China (973) (No. 2006CB403303): *Hydro-ecological Processes, Water-Environmental Effects and Integrated Control of Ecological Security for Wetlands in Huang-Huai-Hai Region of China, 09/2006-12/2011, CNY 6,000,000. (Co-investigator)***
The project won the first prize of the Science and Technology Progress Award issued by the Ministry of Education of China. I am rewarded as the Ninth Investigator.