HUA XIE

CONTACT INFORMATION

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AREA OF EXPERTISE

- Environmental and water resources management
- Hydrologic and water quality modeling

EDUCATION

PhD, Environmental Engineering, University of Illinois at Urbana-Champaign, 2009

M.S., Statistics, University of Illinois at Urbana-Champaign, 2006

M.S., Environmental Science, Tsinghua University, 2001

B.E., Environmental Engineering, Tsinghua University, 1998

POSITIONS HELD

Since March 2012, Research Fellow I, Environment and Production Technology Division, International Food Policy Research Institute

February 2009-February 2012, Postdoctoral Fellow, Environment and Production Technology Division, International Food Policy Research Institute

November 2004-January 2009, Graduate Research Assistant, Center for Watershed Science, Illinois State Water Survey

January 2002-May 2005, Graduate Research Assistant, Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign

PUBLICATIONS

Journal articles

1. Flachsbarth, I., B. Willaarts, H. Xie, G. Pitois, N.D. Mueller, C. Ringler, and A. Garrido (2015). The role of Latin America's land and water resources for global food security: environmental trade-offs of future food production pathways. PloS one, 10(1), e0116733.

2. You, L., H. Xie, U. Wood-Sichra, Z. Guo and L. Wang (2014), Irrigation potential and investment return in Kenya. Food Policy, 47(August 2014): 34-45.

3. Bell, A., T. Zhu, H. Xie and C. Ringler (2014), Climate-Water Interactions—Challenges for improved representation in integrated assessment models. Energy Economics. Energy Economics, 46, 510-521.

4. Xie, H., L. You, B. Wielgosz and C. Ringler (2014), Estimating the potential for expanding smallholder irrigation in Sub-Saharan Africa. Agricultural Water Management. 131(1): 183–193.

5. Xie, H., C. Ringler, T. Zhu and A. Waqas (2013), Droughts in Pakistan: a spatiotemporal variability analysis using the Standardized Precipitation Index. Water International, 38(5), 620-631.

6. Xie, H. and Y. Lian. (2013). Uncertainty-based evaluation and comparison of SWAT and HSPF applications to the Illinois River Basin. Journal of Hydrology. 481, 119-131.

7. Xie, H., L. Longuevergne, C. Ringler, and B. Scanlon, Calibration and evaluation of a semi-distributed watershed model of Sub-Saharan Africa using GRACE data (2012), Hydrology and Earth System Sciences, 16, 3083-3099, doi:10.5194/hess-16-3083-2012

8. Xie, H., E. Nkonya, and B. Wielgosz, Assessing the Risks of Soil Erosion and Small Reservoir Siltation in a Tropical River Basin in Mali using the SWAT Model under Limited Data Condition (2011), Applied Engineering in Agriculture. 27(6): 895-904

9. Lian, Y.Q., W. Ying, H.I. Choi, H. Xie, and M. Demissie (2011), A Case Study Based on the 50-Year Flood in the Lower Illinois River - Sensitivity of Spillway and Levee Failure Option Parameters in the UNET Model. Journal of Hydraulic Engineering-ASCE, 137(5)

10. Lian, Y.Q., I. Chan, H. Xie, and M. Demissie (2010), Improving HSPF Modeling Accuracy from FTABLES: A Case Study for the Illinois River Basin, Journal of Hydrologic Engineering–ASCE, 15(8): 642-650

11. Xie, H., J. W. Eheart, Y. Chen, and B. A. Bailey (2009), An approach for improving the sampling efficiency in the Bayesian calibration of computationally expensive simulation models, Water Resources Research, 45

12. Xie, H., J. W. Eheart, and H. An (2008), Hydrologic and economic implications of climate change for typical river basins of the agricultural Midwestern United States, Journal of Water Resources Planning and Management-ASCE, 134(3): 205-213

13. Lian, Y. Q., I. C. Chan, J. Singh, M. Demissie (2007), V. Knapp, and H. Xie, Coupling of hydrologic and hydraulic models for the Illinois River Basin, Journal of Hydrology, 344 (3-4): 210-222

14. Fu, P., H. Xie, T. Zhang, and J. Chen (2003), Full cost price of water and water price reform in China, China Water and Wastewater, 19 (10) (in Chinese)

15. Xie, H., and T. Zhang (2001), Pricing in public water supply, Water & Wastewater Engineering, 27(1) (in Chinese)

Book & book chapters

1. Ward, C., R. Torquebiau, and H. Xie (2016). Improved Agricultural Water Management for Africa's Drylands. World Bank Publications.

2. Walker, T., W. Christopher, R. Torquebiau, H. Xie, W. Anderson, N. Perez, C. Ringler, L. You, N. Cenacchi, T. Hash, F. Rattunde, E. Weltzien, J. Koo, F. Carfagna, R. Cervigni, and M. Morris (2016), Agriculture: More water and better farming for improved food security, *in* Confronting Drought in Africa's Drylands: Opportunities for Enhancing Resilience. 115-136, World Bank and and Agence Française de Développement

3. Cervigni, R., M. Morris, F. Carfagna, J. Koo, J. Syroka, Z. Guo, H. Xie, B. de Brouwer, and E. Verbeeten (2016), Evaluating Options: Assessing the relative merits of resilience interventions, *in* Confronting Drought in Africa's Drylands: Opportunities for Enhancing Resilience. 205-220, World Bank and and Agence Française de Développement

Conference articles

1. Xie, H., L. You, B. Wielgosz, T. Zhu and C. Ringler, potential for small-scale irrigation in Sub-Saharan Africa under climate change, accepted by the XIV World Water Congress, Porto de Galinhas / Recife, PE, Brazil, September 25-29, 2011

2. Xie, H., E. Nkonya, and B. Wielgosz, Evaluation of the SWAT model in hydrologic modeling of a large watershed in Nigeria. In Proceedings of the Third International Association of Science and Technology for Development (IASTED) African Conference on Water Resource Management (AfricaWRM), ed. O. Totolo, September 6-8, 2010. Gaborone, Botswana

3. Lian, Y. Q., M. Demissie, H. Xie, J. Singh, and V. Knapp, Comparison of flow and sediment modeling using SWAT and HSPF for watersheds in the Illinois River basin, in Proceedings of World Environmental and Water Resources Congress, Tampa, Florida, 2007

4. Lian, Y.Q, H. Xie, M. Demissie, V. Knapp, Improving hydrologic model performance by using the UNET model: A case study for the Illinois River basin, in Proceedings of World Environmental and Water Resources Congress, Omaha, Nebraska, 2006

5. Knapp, V. J. Singh, H. Xie, Y. Q. Lian, and M. Demissie, Potential effects of climate change and variability on the surface water resources of the upper Midwest, in Proceedings of World Environmental and Water Resources Congress, Anchorage, Alaska, 2005

6. Xie, H., and J. W. Eheart, Effects of climate change on irrigation decisions and low flow frequency for a typical agricultural river basin of the Midwestern US, in Proceedings of World Environmental and Water Resources Congress, Salt Lake City, Utah, 2004

7. Xie, H., and J. W. Eheart, Assessing Vulnerability of Water Resources to Climate Change in Midwest, in Proceedings of World Environmental and Water Resources Congress, Philadelphia, Pennsylvania, 2003

Conference abstracts/presentations

1. Xie, H , Impact of irrigation development strategies for Sub-Saharan Africa on import dependency and food security in the region", OECD-CRP workshop on "Virtual Water in

Agricultural Products: Quantification, Limitations and Trade Policy", Lincoln, NE, September 14-16, 2016

2. Xie, H , Exploring implications of energy use in agriculture for environmental sustainability: Insights from IFPRI's global water quality assessment, Energy, Water, Food, and Competition Policies, EPDP-IFPRI Workshop, Washington D.C., July 19-20, 2016

3. Xie, H, Projections of global nutrient loadings and mitigation measures" and "PANEL on innovative solutions to address agricultural water pollution", 7th World Water Forum, EXCO, Daegu, Republic of Korea, April 16, 2015 (with panel discussion)

4. Xie, H., C. Ringler and G. Pitois, Implications of Agricultural Intensification and Climate Change on Water Quality-A Global Assessment, GWSP conference on sustainability in the Water-Energy-Food nexus, Bonn, Germany, May 19-20, 2014

5. Xie, H., Developing drought assessment tool for India under intensive groundwater irrigation: a SWAT-based Approach, Paul Sabatier Université, Toulouse, France, July 17-19, 2013

6. Xie, H., L. You, B. Wielgosz and C. Ringler, Assessing the application potentials of treadle pump irrigation technology in Sub-Saharan Africa, International SWAT Conference, Toledo, Spain, Jun 13-17, 2011

7. Xie, H., L. Longuevergne, C. Ringler, B. Scanlon, and T. Zhu, Hydrologic Calibration of the SWAT Model for African River Basins using GRACE data, 2010 SWAT (Soil and Water Assessment Tool) International Conference, 2010, Seoul, Korea

8. Xie, H.,The Use of Global Databases in Developing SWAT Applications to Sub-Saharan Africa and South Asia for Large-Scale Hydrological and Crop Simulation: Preliminary Results of Data Preprocessing and Harmonization, the 5th International SWAT (Soil and Water Assessment Tool) Conference, 2009, Boulder, Colorado

9. Xie, H., and J.W. Eheart, Improving the Computational Efficiency of the Bayesian Calibration of Hydrological Simulation Models, poster presentation at American Geophysical Union, Fall Meeting, San Francisco, California 2006

10. Hyunhee, A., H. Xie, and J.W. Eheart, Integrated Assessment of Climate Change Impact in Typical Agricultural River Basin of the Midwestern US, EPA STAR seminar, Chicago, July 14, 2004

Policy notes and white papers

1. Ephraim, N., H. Xie, L. You, T. Johnson, E. Kato, M. Adesugba, H. Takeshima, J. Ogbe, A. Odukwe and T. Edeh (2016), Turning Tragedy into Opportunity: Water Management Solutions for Flood Recession and Dry Season Farming in Anambra, Benue and Kogi (ABK) states in Nigeria, International Food Policy Research Institute (IFPRI), Washington, DC.

2. Xie, H. and C. Ringler (2015), The murky future of global water quality: New global study projects rapid deterioration in water quality. Washington, D.C. and Chicago, IL: International Food Policy Research Institute (IFPRI) and Veolia Water North America.

3. Xie, H. and C. Ringler, (2015). Investir dans l'irrigation pour assurer la sécurité alimentaire dans le futur – Perspective 2050 au Burkina Faso (in French), International Food Policy Research Institute (IFPRI), Washington, DC.

4. Xie, H. and C. Ringler, (2015). Investir dans l'irrigation pour assurer la sécurité alimentaire dans le futur – Perspective 2050 au Guinée-Bissau (in French), International Food Policy Research Institute (IFPRI), Washington, DC.

5. Xie, H. and C. Ringler, (2015). Investir dans l'irrigation pour assurer la sécurité alimentaire dans le futur – Perspective 2050 au Mali (in French), International Food Policy Research Institute (IFPRI), Washington, DC

6. Xie, H. and C. Ringler, (2015). Investir dans l'irrigation pour assurer la sécurité alimentaire dans le futur – Perspective 2050 en Mauritanie (in French), International Food Policy Research Institute (IFPRI), Washington, DC.

7. Xie, H. and C. Ringler, (2015). Investir dans l'irrigation pour assurer la sécurité alimentaire dans le futur – Perspective 2050 au Niger (in French), International Food Policy Research Institute (IFPRI), Washington, DC.

8. Xie, H. and C. Ringler, (2015). Investir dans l'irrigation pour assurer la sécurité alimentaire dans le futur – Perspective 2050 au Sénégal (in French), International Food Policy Research Institute (IFPRI), Washington, DC.

9. Xie, H. and C. Ringler, (2015). Investir dans l'irrigation pour assurer la sécurité alimentaire dans le futur – Perspective 2050 au Tchad (in French), International Food Policy Research Institute (IFPRI), Washington, DC.

10. Xie, H. and C. Ringler, (2015). Investir dans l'irrigation pour assurer la sécurité alimentaire dans le futur – Perspective 2050 en Gambie (in French), International Food Policy Research Institute (IFPRI), Washington, DC.

11. Zhu, T., Xie, H., Waqas, A., Ringler, C., Iqbal, M. M., Goheer, M. A., & Sulser, T. (2014). Climate change and extreme events: Impacts on Pakistan's agriculture, International Food Policy Research Institute (IFPRI), Washington, DC.

Technical Reports

1. Ringler, C., H. Xie and V. M. Nguyen, Quantifying Water and Energy Links in Irrigation for Improved Resource Utilization in Viet Nam (2016), International Food Policy Research Institute (IFPRI), Washington, DC.

2. Rosegrant, M.W., T.B. Sulser, D. Mason-D'Croz, N. Cenacchi, A. Nin-Pratt, S. Dunston, T. Zhu, C. Ringler, K. Wiebe, S. Robinson, D. Wilenbockel, H. Xie, H.K. Kwon, T. Johnson, F. Wimmer, R. Schaldach, G.C. Nelson, and B. Willaarts (2017), Quantitative Foresight Modeling to Inform the CGIAR Research Portfolio, International Food Policy Research Institute (IFPRI), Washington, DC.

3. Xie, H., T. Johnson, L. You, H. Takeshima and E. Nkonya (2016), Ex-ante analysis of potential for small-scale irrigation expansion in Anambra, Benue, and Kogi states of Nigeria, International Food Policy Research Institute (IFPRI), Washington, DC.

4. Nkonya, E., H. Takeshima, T. Johnson, L. You, H. Xie, M. Adesugba, E. Kato, J. Ogbe, A. Odukwe and T. Edeh (2016), Situation analysis of Water Management Solutions for Flood Recession and Dry Season Farming in Nigeria, International Food Policy Research Institute (IFPRI), Washington, DC.

5. Xie, H., W. Anderson, N. Perez, C. Ringler, L. You and N. Cenacchi (2015), Agricultural water management for the African drylands South of the Sahara, International Food Policy Research Institute (IFPRI), Washington, DC.

6. Nkonya, E., Bisong, F., Koo, J., Xie, H., Kato, E., Izaurralde, C., & Traore, P. S. (2010). SLM advisory services: key institutional, financing, economic elements for scaling up sustainable land management in Nigeria. Mimeo, International Food Policy Research Institute (IFPRI), Washington, DC.

Blogs

1. Xie. H., Nitrogen and Phosphorous: once wonder nutrients now threaten aquatic ecosystems, MAY 19, 2014, https://wle.cgiar.org/thrive/2014/05/19/nitrogen-and-phosphorous-once-wonder-nutrients-now-threaten-aquatic-ecosystems

2. Xie., H. and C. Ringler, What's really causing water scarcity in Africa south of the Sahara?, September 2, 2013, https://wle.cgiar.org/thrive/2013/09/02/what%E2%80%99s-really-causing-water-scarcity-africa-south-sahara

Online datasets

1. Xie, H., L. You, B. Wielgosz and C. Ringler, AWM Investment Visualizer, http://investmentvisualizer.agwater.org/

2. Xie. H. and C. Ringler, Level of water quality risks (N & P index) in IFPRI Food Policy e-Atlas-water basin profiles, http://www.tellmaps.com/ifpri/#!/tellmap/880388529/1

SERVICES

- Member of working group for UNEP/IWA "Compendium of Water Quality Regulatory Frameworks: Which Water for Which Use?" (2015)

- Journal referee
  Journal of Environmental Quality, Environmental Management, Environmental Modelling & Software, Journal of Earth System Science, Journal of Hydrologic Engineering, China Economic Review, Water Resources Research, Energy Policy, Journal of Water Resources Planning and Management, Transactions of the ASABE, Journal of American Water Resources Association, Advances in Water Resources, Agricultural Water Management

American Journal of Environmental Sciences, Arabian Journal of Geosciences, British Journal of Environment and Climate Change, Stochastic Environmental Research and Risk Assessment, Water, Water Research, Aquatic Ecosystem Health and Management