

# MOJTABA SHAFIEI

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## Professional Summary

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Highly-skilled researcher with over eight years of experience in the field of hydrology and water resources management.

Various experience in different projects –from hydrological modelling, water accounting, socio-hydrology, indicator development and strategic planning– both in research and consulting activities.

Several international collaborations in research and capacity building programs with UNESCO Intergovernmental Hydrologic Program (IHP), International Association of Hydrological Sciences (IAHS), and Dutch Research Institutes.

Very keen to find solutions for narrowing the actionable knowledge gap between researchers and policymakers in the context of sustainable development.

## Education

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**Doctor of Philosophy (Ph.D.):** Irrigation and Drainage / Hydrology 03/2015

**Ferdowsi University of Mashhad** – Mashhad, Iran

Dissertation: Uncertainty assessment of agro-hydrological model applications at field scale (ranked as Excellent)

**Master of Science (M.Sc.):** Irrigation and Drainage / Hydrology 09/2009

**Ferdowsi University of Mashhad** – Mashhad, Iran

Thesis: Assessing the hydrological water balance at watershed scale by using GIS and SWAT model: Case study in Nishabour watershed, Iran

**Bachelor of Science (B.Sc.):** Water Engineering 09/2006

**The University of Guilan** – Rasht, Iran

## Areas of Interest

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- (Eco)Hydrological modelling and water accounting
- Indicator development and nexus studies
- Sustainability assessment and SDGs localization
- Strategic planning in Integrated Water Resources Management (IWRM)
- Environmental and human impact assessment

## Work History

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**Postdoctoral Researcher** (full time) 03/2023 to Present

**Norwegian Institute of Bioeconomy Research (NIBIO)** – Ås, Norway

- Hydrological modeling, Nature-based Solutions and indicator development

**Researcher/ Research director** (full time) 01/2016 to 12/2022

**East Water & Environmental Research Institute** – Mashhad, Iran

- Research and consultation in the broad range of water management
- Attracting research funding
- Developing and conducting research projects and capacity building programs
- Publishing research achievements

**Training Facilitator** (contract) 04/2020 to 08/2021

**The Hague Academy for Local Governance** – the Hague, the Netherlands

- Co-facilitator and local expert in an international tailor-made training course in water management and food security nexus
- Guest Lecturer in the field of sustainable water management

**Project Partner Representative in Iran** (contract) 10/2017 to 10/2019

**IHE Delft Institute for Water Education** – Delft, the Netherlands

- Contributing in getting two funds from Netherland Enterprise Agency
- Developing a water accounting framework for one of complex Iranian watersheds
- Conducting a feasibility study of applying drone technologies and RS in agricultural water management in Iran (SMART WADI project)

**Research and Development Director** (full time) 02/2015 to 08/2017

**Hydrotech Toos Consulting Engineers Company** – Mashhad, Iran

- Developing proposals and concept notes in a broad range of water projects
- Maintaining the company's competitive position by working on different functional strategies and capacity building programs

**Visiting Research Scholar** (full time) 02/2013 to 11/2013

**Water Resources Department, Technical University of Delft** – Delft, the Netherlands

- Developing tools for constraining and calibrating hydrological models
- Application of MCMC methods for uncertainty assessment of hydrological models

## Honors and Awards

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### Steering Committee – UNESCO-IHP Conference

19/04/2023 to 21/04/2023

### International Conference on Climate Risk, Vulnerability and Resilience Building– Paris, France

- Member of Steering Committee of UNESCO-IHP lead conference in Paris France, tentatively set from 19 to 21 April, 2023 ([±](#)).

### IAHS SYSTA award

29/05/2022 to 04/06/2022

### International Association of Hydrological Science (IAHS) – Wallingford, UK

- I was awarded as a young researcher to attend the 2022 the IAHS 2022 Scientific Assembly, in Montpellier, France, from 29 May to 3 June 2022 ([±](#)).

### Invited panelist

26/10/2021 to 10/28/2021

### UNESCO global conference on Climate-resilient Water Management – Paris, France

- I was invited by UNESCO Intergovernmental Hydrological Program (IHP) in their global conference from October 26-28, online from Paris, Paris, France ([±](#)).

### Invited talk

17/6/2021

### UNESCO Intergovernmental Hydrological Program (IHP) – Paris, France

- I was invited in a webinar series entitled as “Adaptation in an age of uncertainty: tools for climate-resilient water management approaches” which organized by UNESCO-IHP, Alliance for Global Water Adaptation (AGWA) and the International Center for Integrated Water Resources Management (ICIWaRM). June 17, online, Paris, France ([±](#)).

## Publications

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### Peer-Reviewed Journal Articles

#### Published (International Journals)

1. [Shafiei, M.](#), Rahmani, M., Gharari, S., Davary, K., Abolhasani, L., Gharesifard, M. (2022). **Sustainability assessment of water management at river basin Level: Concept, methodology and application**. Journal of Environmental management, 316, 115-201. [Q1, IF=8.9].
2. Izady, A., Joodavi, A., Ansarian, M., [Shafiei, M.](#), Majidi, M., Davary, K., Ziaei A.N. (2022). **A scenario-based coupled SWAT-MODFLOW decision support system for advanced water resource management**. Journal of Hydroinformatics, 24 (1), 56-77. [Q2, IF=2.37].
3. Gholizadeh Sarabi, S., Davary, K., Ghahraman, B., & [Shafiei, M.](#) (2021). **A perceptual socio-hydrological model of co-evolutionary coupled human–water system based on historical analysis, Mashhad basin, Iran**. Hydrological Sciences Journal, 66(3), 355-372. [Q1, IF=3.78].
4. Blöschl, G., Bierkens, M.F., Chambel, A., Cudennec, C., Destouni, G., Fiori, A., Kirchner, J.W., McDonnell, J.J., Savenije, H.H., Sivapalan, M., ... [Shafiei, M.](#), and 220 others (2019).

- Twenty-three Unsolved Problems in Hydrology (UPH)–a community perspective.** Hydrological Sciences Journal, 64(10), 1141-1158. (One of the IAHS initiatives). [Q1, IF=3.78].
5. Pareeth, S., Karimi, P., Shafiei, M., & De Fraiture, C. (2019). **Mapping agricultural landuse patterns from time series of Landsat 8 using random forest based hierarchial approach.** Remote Sensing, 11(5), 601. [Q2, IF=4.5].
  6. Shafiei, M., Ghahraman, B., Saghafian, B., Davary, K., Pande, S., and Vazifedoust, M. (2014). **Uncertainty assessment of the agro-hydrological SWAP model application at field scale: A case study in a dry region.** Agricultural Water Management. 146, 324-334. [Q1, IF=6.6].
  7. Gharari, S., Shafiei, M., Hrachowitz, M., Fencia, F., Gupta, H. V., and Savenije, H. H. G. (2014). **A constraint-based search algorithm for parameter identification of environmental models.** Hydrology and Earth System Sciences. 18 (12), 4861–4870. [Q1, IF=5.18].
  8. Shafiei, M., Ghahraman, B., Saghafian, B., Pande, S., Gharari, S., and K. Davary. (2014). **Assessment of rain-gauge networks using a probabilistic GIS based approach.** Hydrology Research. 45 (4-5). 551–562. [Q2, IF=2.71].

### **Published (selected Journal papers in Persian)**

1. Shafiei, M., Majidi, M., Gharesifard, M., Tavakoli Aminian, S., & Ghanbari, F. (2020). **An Overview on Research and Innovation in Water Sector of Iran: The Necessity of Paradigm Shifts.** Journal of Water and Wastewater Science and Engineering, 5(2), 4-13.
2. Khazaei, S., Raeini, M., Davary, K., & Shafiei, M. (2020). **Assessing the Status of Water Resources and Consumptions Using Water Accounting Approach in the Rokh-nishaboor Basin by WA+ Framework in Data Scarcity Condition.** Iranian Journal of Irrigation & Drainage, 14(2), 379-392.
3. Shafiei, M., Ghahraman, B., & Saghafian, B. (2019). **A Review on Hydrological Modelling Concepts, Part2: Uncertainty Assessment Concepts.** Journal of Water and Sustainable Development, 6(1), 35-40.
4. Shafiei, M., & Gharari, S. (2017). **A Review on Hydrological Modelling Concepts: Part 1- Introduction of Modelling Process.** Journal of Water and Sustainable Development, 4(2), 95-102.
5. Shafiei, M., Ghahraman, B., Saghafian, B., Davary, K., & Vazifedoust, M. (2014). **Uncertainty Analysis in Prediction of Soil Water Balance Components in two Irrigated Field in Arid Region.** Iranian Journal of Water and Soil. 5, 909-917.

### **Selected Conference Papers**

1. Shafiei, M., Zahraie, B., Soleimaniha, S., Dehbandi, N., Naseri, N., Golkar, E., and Ghasemzadeh, F. (2022). **Water balance assessment in Iran: from unsolved problems to practical solutions.** IAHS-AISH Scientific Assembly 2022, Montpellier, France.
2. Shafiei, M., Gharari, S., Gharesifard, M., Ghoreishi, M., and V. Castro, C. (2022). **Sustainability assessment: the role of indicator-based frameworks in sustainable water management.** IAHS-AISH Scientific Assembly 2022, Montpellier, France.

3. Shafiei, M., Karimi, P., Gharesifard, M., Majdi, M. (2018). **The current situation and future challenges of Mashhad as a water-wise city in Iran**. IWA World Water Congress 2018, Tokyo, Japan.
4. Shafiei, M., Gharari, S., Pande, S., Bhulai, S. (2014). **Kernel Density Independence Sampling based Monte Carlo Scheme (KISMCS) to infer posterior hydrologic parameter distributions**. 7th Intl. Congress on Env. Modelling and Software, San Diego, CA, USA.
5. Shafiei, M., Ghahraman, B., Saghafian, B., Davary, K., Vazifedust, M., and Pande, S. (2013). **Calibration and uncertainty assessment of soil hydraulic parameters for SWAP model application**. EGU general assembly 2013, Vienna, Austria.

## Research Projects

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### Ongoing Projects

1. **2023 – 2025**; SABICAS. SAfeguard Biodiversity and improve Climate Adaptation in catchment areas under pressure: tools and Solutions. Research Council of Norway and Norwegian Institute of Bioeconomy Research (NIBIO). Co-Investigator.

### Completed Projects

2. **2020 – 2022**; Developing a roadmap for implementation of water resources Atlas in Iran. Iranian Ministry of Energy (and water). Principal Investigator.
3. **2019 – 2021**; Sustainability assessment of Mashhad Basin by developing an Indicator-based assessment framework. Internal Grant, Ferdowsi University of Mashhad. Co-Principal Investigator.
4. **2019 – 2021**; Developing a water accounting plus (WA+) system for Integrated Water Resources Management at Nishabour Basin in Iran. Funded by Razavi-Khorasan Regional Water Authority, Mashhad, Iran. Co- Investigator.
5. **2018 - 2019**; SMART Water Decision for Iran (applying RS and drone technologies for agriculture water management). Funded by Netherlands Enterprise Agency. Collaboration with IHE Delft Water Education Institute. Co- Investigator.
6. **2017 - 2018**; Comprehensive Assessment of Water and Food Security in Mashhad Basin, Iran. Funded by Netherlands Ministry of Infrastructure and Environment (IenM). Collaboration with IHE Delft Water Education Institute. Co-Principal Investigator.
7. **2017 - 2019**; Capacity Development for Improving Innovational and Technological Strategies by Approaching International Experience in R&D section of Mashhad Water and Wastewater Company. Funded by Mashhad Water and Wastewater Company, Iran. Principal Investigator.
8. **2015 - 2017**; Evaluation and augmentation of rain-gage networks in South-Khorasan, Iran. Funded by South-Khorasan Water Authority, Birjand, Iran. Principal Investigator.
9. **2015 - 2017**; Rainfall-runoff modelling in semi-arid regions in data scarce condition. Funded by South-Khorasan Water Authority, Birjand, Iran. Principal Investigator.

10. **2014 – 2016**; Developing a decision support system (DSS) for evaluating distributed water balance at Iranian watersheds. Internal Grant, Ferdowsi University of Mashhad. Co-Investigator.

## Training Workshops (Attended – Professional Development)

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- Strategic planning for river basins and deltas. IHE Delft, the Netherlands, Online course, 29 July-August 17. (2020).
- Shiraka Water Management Course. The Hague Academy for Local governance, the Netherlands, September 2- 8. (2019).
- International training workshop on “water accounting: concepts and tools”. Tehran, Iran. 23-26 February, (2019).
- “Hydrocourse, Model building, inference and hypothesis testing in hydrology”. Centre de Recherche Public - Gabriel Lippmann, Belvaux, Luxembourg. April 15-22, (2013).

## Computer Skills

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- Modelling tools: SWAT, SWAP, HBV, FELEX, WEAP
- Geographical Information Systems (GIS): ArcGIS, QGIS
- Programming tools: MATLAB and R
- Microsoft Office Programs
- Web developing: WordPress