

# 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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- Indicator development and nexus studies
- Hydrological modelling and water accounting
- 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., Fenicia, 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., & Vazifedust, 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., Vazifiedust, 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