

## DR SUMIT SEN

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Job Title Assistant Professor in Hydrology

### Professional and Education Qualifications

2001 BS Agricultural Engr., Allahabad Agricultural Institute DU, Allahabad, India  
2004 MS Biological and Agricultural Engr., University of Arkansas, Fayetteville, AR, USA  
2009 PhD Civil Engr., (*Runoff Generation in Pastures of the Appalachian Plateau Region of North Alabama*) Auburn University (AU), Auburn, AL, USA

### Employment History

2012 to date Assistant Professor, Dept., of Hydrology, IIT Roorkee.  
2011 to 2012 Fellow, Ashoka Trust for Research in Ecology and The Environment, India.  
2009 to 2011 Post-doctoral Fellow, Biosystems Engineering Department, AU, USA  
2005 to 2009 Graduate Research Assistant, Biosystems Engineering Department, AU, USA  
2002 – 2004 Graduate Research Assistant, Biological and Agricultural Engr., Univ. of Arkansas, USA

### Research Expertise

Experimental hydrology; Watershed management and modeling; Rainfall-runoff studies

### Selected Relevant Research Projects (reverse chronological order)

2018-2021 *Water Security through Community Based Springshed Development in the IHR.* Sponsored by National Mission on Himalayan Studies, MoEF&CC  
2017-2020 *Development of Field Demonstration Site for Revisiting Rainfall Measurement: An Under-catch Issue.* Sponsored by Ministry of Water Resources (MoWR), CWC.  
2017-2018 *Citizens Science Approach for the revival of dying spring.* Sponsored by Uttarakhand Government, Water for Welfare Initiative, IIT Roorkee.  
2013-2016 *Understanding Hydrogeological Processes and Their Impacts on Water Security in the Tehri-Garhwal Region of Uttarakhand.* Sponsored by Ministry of Human Resources, IIT Roorkee (**SEED Grant**)  
2014-2017 *Understanding Relationship between Infiltration Trade-off Hypothesis and Surface Runoff Generation Mechanisms.* Sponsored by Department of Science and Technology, Government of India. **Young Scientist Award**

### Selected Recent Relevant Publications (reverse chronological order)

Nanda, A., Sen, S., Jirwan, V., Sharma, A., Kumar, V. Understanding Plot-Scale Hydrology of Lesser Himalayan Watershed- A Field Study and HYDRUS-2D Modeling Approach. *Hydrological Processes* (Accepted, 2018).  
Pati, A., Sen, S., Perumal, M. Modified Channel Routing Scheme for SWAT Model. *Journal of Hydrologic Engineering ASCE*, DOI 10.1061/(ASCE)HE.1943-5584.0001657, 2017.  
Shah, A.I., Sen, S., Dar, M.U.D., Kumar, V. (2017). Land-Use/ Land-Cover Change Detection and Analysis in Aglar Watershed, Uttarakhand. *Current Journal of Applied Science and Technology*, 24 (1): 1-11.  
Kumar, V., Sen, S. (2017). Evaluation of Spring Discharge Dynamics using Recession Curve Analysis: A Case Study in Data-Scarce Region, Lesser Himalayas, India. *Sustainable Water Resources Management*, DOI: 10.1007/s40899-017-0138-z.  
Noori, N., Kalin, L., Sen S., Srivastava P., C. Lebleu (2016) Identifying Areas Sensitive to Land Use/ Land Cover Change for Downstream Flooding in a Coastal Alabama Watershed, *Regional Environmental Change*. DOI 10.1007/s10113-016-0931-5

- Adeba, D., Kansal, M.L., Sen, S. (2016) Economic Evaluation of Proposed Alternatives of Inter-basin Water Transfer from BaroAkobo to Awash Basin in Ethiopia. *Sustainable Water Resources Management*, 2(3): 313-330.
- Adeba, D., Kansal, M.L., Sen, S. (2015) Assessment of Water Scarcity and its Impacts on Sustainable Development in Awash Basin, Ethiopia. *Sustainable Water Resources Management*, 1 (1): 71-87.
- Madolli, M.J., Sen, S., Jain, M.K. (2014) Trends in Temperature and Precipitation in Karnataka, India. *Hydrology Journal*, 37(1-4): 61-70.
- Madolli, M.J., Sen, S., Shinde, A. (2014) Effect of Climate Change on Rainfall Pattern and Socioeconomic Condition for Karnataka State. *Proceedings of International conference entitled "Green India: strategic knowledge for combating climate change-prospects and challenges."* 304-312.
- Lamba, J., Way, T.R., Srivastava, P., Sen, S., Wood, C.W., Yoo, K.H. (2013) Nutrient Loss in Leachate and Surface Runoff from Surface-Broadcast and Subsurface-Banded Broiler Litter. *J. Environmental Quality*, 42: 1574-1582.
- Lamba, J., Way, T.R., Srivastava, P., Sen, S., Wood, C.W., Yoo, K.H. (2012) Surface Transport of Nutrients from Surface-Broadcast and Subsurface-Banded Broiler litter. *Trans. of ASABE*. 55 (3): 979-985.
- Sen, S., Srivastava, P., Dane, J.H., Meng, H., Clement, P.T. (2011) Application of HIRO2 Hydrologic Model for Simulating Hortonian Overland Flow on a Pasture Hillslope in North Alabama. *J. Soil & Water Conservation*, 66 (6): 411-422.
- Sen, S., Srivastava, P., Dane, J.H., Yoo, K.H., Shaw, J.N. (2010) Spatial-temporal variability and hydrologic connectivity of runoff generation areas in a North Alabama pasture - implications for phosphorus transport. *Hydrological Processes*, 24(3): 342-356.
- Sen, S., Srivastava, P., Yoo, K.H., Dane, J.H., Shaw, J.N., Kang, M.S. (2008) Runoff Generation Mechanisms in Pastures of the Sand Mountain Region of Alabama – A Field Investigation. *Hydrological Processes*, 22 (21): 4222-4232.
- Sen, S., Haggard, B.E., Chaubey, I., Brye, K.R., Costello, T.A., Matlock, M.D. (2007) Sediment Phosphorus Release at Beaver Reservoir, Northwest Arkansas, USA, 2002–2003: A Preliminary Investigation. *Water Air & Soil Pollution*. 179: 67–77.
- Chaubey, I., Matlock, M., Costello, T. A., Haggard, B. E., Garg, V., Sen, S., White, K. L., Davis, R. K. (2005) Development of a Decision Support System and Data Needs for the Beaver Lake Watershed. Prepared for Arkansas Soil & Water Cons. Comm.

### **Book Chapter**

- Kumar, V., and **S. Sen** (2018). Analysis of Spring Discharge in the Lesser Himalayas: A Case Study of Mathamali Spring, Aglar Watershed, Uttarakhand. *In: Water Resources Management*, pp: 321-338, Springer, Singapore.
- Panda, S.S., E. Mason, **S. Sen**, and H.W. Kim (2016). Forest Hydrology Management Decision Support with Geospatial Technology. *In: Forest Hydrology: Management and Assessment*, Amatya, D.M., Williams, T.M., Bren, L. and de Jong, C. (eds), CABI, Wallingford. ISBN: 9781780646602.

### **Thesis Advisor:**

Seven master students graduated in last five years under single supervision and five under co-supervision. One PhD dissertation completed in Dec., 2016 and five PhDs and two Masters students research work is on-going at IITR.