

DR. AJAI SINGH, Ph.D., FIE

Professor

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EDUCATION

- ◆ **Doctor of Philosophy**, 2011, Soil and Water Conservation Engineering, Sam Higginbottom Institute of Agriculture, Sciences and Technology, Allahabad
- ◆ **Master of Technology**, 1997, Irrigation and Drainage Engineering, G. B. Pant University of Agriculture and Technology, Pantnagar, India
- ◆ **Bachelor of Technology**, 1995, Agricultural Engineering, Allahabad Agricultural Institute (University of Allahabad), Allahabad, India.

PROFESSIONAL EXPERIENCE: 22 years

- ◆ Professor in Department of Water Engineering and Management at Central University of Jharkhand, Ranchi, Jharkhand (April, 2017 to till date).
- ◆ Associate Professor in Department of Water Engineering and Management at Central University of Jharkhand, Ranchi, Jharkhand (June 2013- April, 2017).
- ◆ Assistant Professor in Soil and Water Conservation in Uttar Banga Krishi Viswavidyalaya, Coochbehar, West Bengal. Nodal Officer of Integrated AgroMet Advisory Services, AMFU, Majhian (January, 2002 - June, 2013).
- ◆ Jr. Hydrologist in Action for Food Production, New Delhi (2001).
- ◆ Junior Project Officer in Plasticulture Development Centre, Agriculture and Food Engineering Department, IIT, Kharagpur (1997-2001).

ADDITIONAL RESPONSIBILITIES

Dean Students Welfare of Central University of Jharkhand, Ranchi, Jharkhand from 29.03.2016 to 13.12.2017.

Chief Proctor of Central University of Jharkhand, Ranchi, Jharkhand from 2015 to 13.12.2017.

Head of Department of Water Engineering and Management, Central University of Jharkhand, Ranchi, Jharkhand from 2013 to 2018.

Coordinator, University Placement Cell (2015-2019).

RESEARCH GUIDANCE

Guided more than 36 M.Tech dissertation and four research scholars are presently under direct supervision. Research area of doctoral students are from WEAP modelling application to address water allocation issues to EPA Storm Water Management Model (SWMM) application for single event or long-term (continuous) simulation of runoff quantity and quality from urban areas. Research is being carried

out to establish a relationship between Impacts the decreasing trends of convectional rainfall with receding forest cover under climate change scenario.

PROJECTS AND CONSULTANCY

- ◆ Leading a team as Nodal Officer of Social Impact Assessment team of CUJ. Completed 21 Social Impact Assessment studies of Infrastructural projects of Government of Jharkhand, India. The details are in Annex I.
- ◆ Leading a team to evaluate the Detailed Project Report of Weirs/Check Dams constructed by Drinking Water and Sanitation Department, Government of Jharkhand, Ranchi. The details are in Annex II.
- ◆ Nodal Officer, Integrated Agromet Advisory Services, IMD, Ministry of Earth Sciences, Govt. of India.

RESEARCH AND TEACHING INTERESTS

- ◆ Runoff production mechanism
- ◆ Hydrological investigation of dam and reservoir
- ◆ Physically-based, distributed watershed modeling
- ◆ Soft Computing
- ◆ Design of Micro Irrigation System
- ◆ Groundwater Hydrology
- ◆ Environmental and Social Impact Assessment

INTERNATIONAL PUBLICATIONS

1.	Singh Ajai , R.P.Singh, P.S.Mahar and K.K.Singh. 2000 . Optimal design of tapered microirrigation submain manifolds. American Society of Civil Engineers, Jr. of Irrigation and Drainage Engineering , 126(6), pp. 371-374.
2.	Tiwari, K. N., Ajai Singh , P.K.Mal and A.Pandey. 2001 . Effect of crop geometry on yield and economics of okra (<i>Abelmoschus exculentus</i> (L.) Moench) under drip irrigation. Jr. of the Institution of Engineers , Division of Agricultural Engineering, India, 82, 9-12
3.	Tiwari, K. N., Ajai Singh , P.K.Mal. 2003 . Effect of drip irrigation on yield of cabbage (<i>Brassica oleracea</i> L. var. capitata) under mulch and non-mulch conditions. Jr. of Agricultural Water Management , The Netherlands, 58, pp. 19-28.
4.	Singh, Ajai. 2007 . Yield response of drip irrigated tomato to different levels of irrigation. Jr. of Interacademia , 11(2), pp. 200-207.
5.	Singh Ajai, 2007 . Economic feasibility of drip irrigated tomato crop under rainfed condition. Agricultural Engineering Today , 31, pp.1-5.

6.	Singh Ajai. 2008 . Economic feasibility of growing capsicum crop under drip irrigation in West Bengal, India. Jr. of Irrigation Drainage System , Springer Science, 22, pp.179-188.
7.	Singh Ajai, 2008 . Short duration rainfall analysis for effective crop planning in rainfed agriculture. Jr. of Interacademia , 12(4), pp. 469-477.
8.	Ajai Singh, Mohd. Imtiyaz, R. K. Isaac, D. M. Denis. 2011 . Application of multilayer perceptron (MLP) artificial neural network model in simulating rainfall-runoff processes. Jr. of Interacademia , 15(2), 213-221
9.	Ajai Singh, A.C. Pandey, V.K. Pandey, S.S. Kumar. 2012 . Probability analysis of rainfall for crop planning in Dakshin Dinajpur, West Bengal, India. Eco. Env. & Cons. 18 (1), pp. 61-64.
10.	Ajai Singh, Mohd. Imtiyaz, R. K. Isaac, D. M. Denis. 2012 . Hydrological Process Modelling using RBNN - A Neural Network Computing Technique. Journal of Agricultural Engineering , 49(2), pp. 27-32.
11.	Ajai Singh, V. K. Jain. 2012 . Modeling Daily Evaporation Using Multilayer Perceptron Artificial Neural Network Algorithm. Journal of Interacademia , 16(3), 675-683.
12.	Singh, A., M. Imtiyaz, R.K.Isaac, D.M.Denis. 2012 . Comparison of soil and water assessment tool (SWAT) and multilayer perceptron (MLP) artificial neural network for predicting sediment yield in the Nagwa agricultural watershed in Jharkhand, India. Agric. Water Mgt. , 104, pp.113-120.
13.	Ajai Singh, V.K.Jain, Jayanta Dutta. 2012 . Comparison of Artificial Neural Network Models and Regression Model for Prediction of Evaporation for Malwa Region of Madhya Pradesh, India. International Agricultural Engineering Journal , 21(3-4), 96-104.
14.	Singh, A., M. Imtiyaz, R.K.Isaac, D.M.Denis. 2013 . Comparison of Artificial Neural Network Models for sediment yield prediction at single gauging station of watershed in Eastern India, Jr. of Hydrologic Engineering , American Society of Civil Engineers. 18:1 , 115-120
15.	Ajai Singh, V. K. Jain, Sanjeeb Bandhopadhyaya. 2013 . Impact Assessment of Rainfall and Soil Temperature on Simulation of Daily Pan Evaporation using Multilayer Perceptron Model , Jr. of Interacademia , 17(30), 474-488.
16.	V. K. Jain, Ajai Singh, O. P. Soni. 2013 . Performance Evaluation of Recharge Pits Method of Artificial Recharge of Ground water in Madhya Pradesh, India. Advances in Water Resources and Protection , 1 (1), 1-10.

17.	Ajai Singh, Sankar Saha, Sanchita Mondal. 2013 . Modeling irrigated wheat production using the FAO AquaCrop Model in West Bengal, India for sustainable agriculture. Irrigation and Drainage , 62: 50–56.
18.	Singh, A., M. Imtiyaz, R.K.Isaac, D.M.Denis. 2014 . Assessing the performance and uncertainty analysis of Soil and Water Assessment Tool (SWAT) and Radial Basis Neural Network (RBNN) models for simulation of sediment yield in Nagwa watershed, India. Hydrological Sciences , 2(59): 351-364
19.	Ajai Singh. 2015 . Modeling Stream Flow with prediction uncertainty by using SWAT hydrologic and RBNN Neural Network models for agricultural watershed in India. Natl. Acad. Sci. Lett. , 39: 213
20.	Ajai Singh. 2015 . Optimization of neural network structure for radial basis function network for simulation of hydrological processes. Indian Journal of Soil Conservation , 43 (3), pp 250-254.
21.	Ja, S. and Singh A. 2015 . Rainfall Runoff Modeling by Artificial Neural Network - A Case Study of Chotki Bharghi Watershed in Damodar Barakar Basin, Jharkhand. International Journal of Artificial Intelligence and Mechatronics , 4(2), pp. 69-73.
22.	Surojit Sarkar, Vivek Vaibhav and Ajai Singh. 2017 . Estimation of sediment yield by using Soil and Water Assessment Tool for an agricultural watershed in Eastern India. Indian Journal of Soil Conservation , 45 (1), pp 52-59.
23.	Priyanka Rani, Ajai Singh. 2017 . Evaluation of benchmarking indicators of Sanjay Sarovar Irrigation Project, India. Sustain. Water Resour. Manag. DOI 10.1007/s40899-017-0122-7.
24.	Sunny Agarwal, J. Patil, V. C. Goyal, Ajai Singh . 2018 . Assessment of water supply-demand using Water Evaluation and Planning (WEAP) model for Ur river watershed, Madhya Pradesh, India, J. Inst. Eng. India Ser. A , https://doi.org/10.1007/s40030-018-0329-0
25.	Singh, P., Patil, R.G. and Ajai Singh . 2018 . Assessment of Recent Changes in Planform of River Ganga from Mirapur Khadar To Narora Barrage, Uttar Pradesh, India, Sustain. Water Resour. Manag. 5(2), 575-586 [https://doi.org/10.1007/s40899-018-0222-z]
26.	Puja Kumari, Annapurna Patra, C. Ramesh and Ajai Singh. 2018 . Real time flood forecasting in the Godavari basin at Nashik Maharsatra, India, Indian Journal of Power and River Valley Development , 68(11-12), pp. 187-197.
27.	Bhattacharya, A. K., Lodh, R., Roy, A. K., Karthik, D.M.P., Singh, Ajai. , Kumari, S., Kumari, V., Daksh,K., Kumar, P., Anurag, Mishra, A. K. 2019 . Arsenic Contamination in the Groundwater of West Bengal, Jharkhand and Bihar with a Special Focus on the Stabilization of Arsenic-Laden Sludge from Arsenic Filters” Electronic Journal of Geotechnical Engineering , 24 (2), pp. 605- 627.

28.	Bhattacharya, A. K., Lodh, R., Roy, A. K., Karthik, D.M.P., Singh, Ajai. , Mishra, A. K., Kumari, S., Kumari, V., Daksh,K., Kumar, P., Anurag, 2019 . Analysis of Arsenic contamination in the groundwater of India-Bangladesh and Nepal with a special focus on the stabilization of arsenic laden sludge from arsenic filters. Indian Journal of Power and River Valley Development , March-April, pp. 49-67.
29.	Tanisha Ghosh, B. Simhadri Rao, Ajai Singh. Monitoring Glaciers and Glacial Lakes of Chenab Basin using Geospatial Tools. 2019. Journal of Remote Sensing & GIS. 10(3): 1–11p.
30.	Jai Kant Kumar Sharma, Ajai Singh. 2019 . Development of Leachate Pollution Index of Jhiri Dumpsite; Ranchi, Jharkhand. Indian Journal of Waste Management. 3(2):53–59.

BOOKS AND CHAPTERS

- ◆ Ajai Singh, Ray, A. K., 2004. **Rain Water Harvesting in North Bengal**. Uttar Banga Krishi Viswavidyalaya, Pundibari, Coochbehar.
- ◆ Ajai Singh. 2012. **Introduction of Drip Irrigation**, N.D. Publishers, New Delhi, India
- ◆ Ajai Singh. 2012. **Biodiesel plantations for livelihoods improvement and environmental protection**.(ed) S. Chakravarty, G. Shukla, A.N.Dey. In: Tree-borne Oilseeds Species, Lambert Academy Publishing, Germany, pp: 82-96.
- ◆ Ajai Singh, Mohd. Imtiyaz. 2013. **Hydrological modelling using process based and data driven models**. Lambert Academy Publishing, Germany, pp: 269
- ◆ Ajai Singh, R. P. Singh, 2013. **Finite Element Analysis and Optimal Design of Drip Irrigation Sub-main**. Lambert Academy Publishing, Germany, pp: 82
- ◆ Ajai Singh.2015. **Economic Returns for Drip Irrigated Tomato**. In ‘Research Advances in Sustainable Micro Irrigation: Applications of Furrow and Micro Irrigation in Arid and Semi-Arid Regions. Ed. Megh R. Goyal.
- ◆ Ajai Singh. 2016. **Water and Sustainable Development**. N.D. Publishers, New Delhi, India.
- ◆ Ajai Singh, Megh R. Goyal. 2017. **Micro irrigation engineering in horticultural crops: policy option, scheduling and design**. In Innovation and Challenges in Micro Irrigation, Vol. 6 (Edited Book). CRC Press Taylor and Francis Group, USA. Hard ISBN: 9781771885409, E-Book ISBN: 9781315207421
- ◆ Rajan Kumar Jha, A.K. Singh, L.R. Ranganath and Ajai Singh.2017. **Study of Hydrodynamic and Sediment Transport in Gulf of Khambhat, Western Coast India—A Numerical Approach**. In V. Garg et al. (eds.), Development of Water Resources in India, Water Science and Technology Library 75, DOI 10.1007/978-3-319-55125-8_7. Springer International Publishing
- ◆ Ajai Singh. 2017. **Maximizing profits by using different planting geometry under micro irrigation**. In Megh R. Goyal (Ed.) Micro Irrigation Management – Technological advances and their applications. Vol. 5, pp 295-301.

- ◆ Ajai Singh. 2019. **Wastewater Reuse and Watershed Management: Engineering Implications for Agriculture, Industry, and the Environment**. Apple Academic Press.

CONFERENCE PROCEEDINGS

- ◆ Tiwari, K. N., J. Panda, **Ajai Singh**, P.K.Mal and R.P.Singh. 2000. Conservation, Storage and Effective Utilization of Rainwater. *Proc. National Workshop on Rainwater and Groundwater Management for Sustainable Rice Ecosystem*. September 25-26, AgFE Department, IIT, Kharagpur, India and Institute of Water Resources and Hydrology, University of Hannover, Germany.
- ◆ **Singh, Ajai**. 2007. Economic analysis of capsicum crop under drip irrigation. Seminar on Drip and Sprinkler irrigation systems Development – Prospect, Technical Issues & Solution. Organised by Jalpaiguri Govt. Engineering College and The Institution of Engineers (India). 27th April.
- ◆ **Singh Ajai**. 2008. Application of gamma distribution for analysis of rainfall for crop planning in Dakshin Dinajpur, West Bengal. Published in One Day Conference on Agricultural Input for the Development of the NE Region at Assam University. 3rd December.
- ◆ **Ajai Singh**, Mohd. Imtiyaz, R. K. Isaac, D. M. Denis. 2012. Performance evaluation and uncertainty analysis of SWAT model for simulating hydrological processes in an agricultural watershed in India. International SWAT Conference, Organized by IIT Delhi and Texas A & M University, USA, July 18-20, New Delhi, India.
- ◆ **Ajai Singh**. 2015. Quantification of uncertainty inneural network models’ in a National Workshop on ‘Challenges and Opportunities for management of Water Supplies in Rural Area’ during January 23-24, 2015 at ISM Dhanbad.
- ◆ Participated in World Irrigation Forum Meeting organized by International Commission on Irrigation & Drainage at Chiang Mai, Thailand during November 6-8, 2016.
- ◆ Tiwari, K. N., **Ajai Singh** and P.K.Mal. 2001. Design and development of low cost filter system. XXXV Annual Convention, *Indian Society of Agricultural Engineering*, Jan 22-25. SWE-01-13, Orissa University of Agriculture & Technology, Bhubaneswar, India.
- ◆ **Ajai Singh** and T. K. Das. 2009. Probability analysis of rainfall for crop planning in Dakshin Dinajpur, West Bengal. . XLIII Annual Convention, *Indian Society of Agricultural Engineering*, February 15-17, Birsa Agriculture University, Ranchi, India.
- ◆ Jayanta Dutta and **Ajai Singh**. 2012. Rainfall variability and foodgrain production in Uttar Dinajpur, Dakshin Dinajpur and Malda districts of West Bengal. Published in National Seminar on Biodiversity and Sustainability vis-à-vis Economic Development in the Northern Parts of West Bengal. RSM Raiganj, Uttar Dinajpur, West Bengal, India, August 26-27, 89.
- ◆ Presented a paper on ‘Assessment of supply – demand by using Water Evaluation And Planning model for Ur river watershed, Madhya Pradesh, India’ during May 8-10, 2019 at Workshop: Science and Innovation for Catchment Management at University of Warwick, UK.
- ◆ Delivered Keynote lecture on ‘Impact of mining on environment in Ramgarh district of Jharkhand’ in Conference on Water Infrastructure for urban areas and industries at KIIT, Bhubaneswar organized by CEAI, New Delhi.

AWARDS AND HONORS

- ◆ Conferred Distinguished Services Certificate (2012) by Indian Society of Agricultural Engineers, New Delhi.

EDITORIAL

- ◆ Member of Editorial Board of Sustainable Agricultural Research, ISSN 1927-050X, Canadian Center of Science and Education.
- ◆ Member of Editorial Board of Advances in Water Resource and Protection (ISSN Print: 2327-7319)
- ◆ Associate Editor. International Journal of Hydrology. MedCrave Group, OK, ISSN: 2576-4454

SCHOOL/TRAINING ATTENDED

- ◆ Completed Short -Term (8 weeks)NNRMS Course on Remote Sensing & GIS Applications to Water Resources during May 3 to June 25, 2004 at Indian Institute of Remote Sensing (National Remote Sensing Agency), Dept. of Space, Govt. of India, Dehradun. Project submitted at IIRS, Dehradun was on “Demand Supply Analysis of Kashori Patan Irrigation Command Area, Kota, Rajasthan using Remote Sensing and GIS Techniques”.
- ◆ Completed 3 Weeks SERC (Science & Engineering Research Council) School sponsored by Department of Science & Technology, Govt. of India on ‘Agrometeorology – Aspect of Micrometeorology’ at Central research Institute for Dryland Agriculture (CRIDA), Hyderabad during September 25 to October 15, 2006.
- ◆ Attended a short term program on ‘Data mining and GIS for decision Support in Agriculture’ during August 31 – September 11, 2009 at Indian Institute of Management, Lucknow, India
- ◆ Attended a SWAT (Soil Water Assessment Tool) Workshop at Indian Institute of Technology, Delhi during July 12-16, 2010.
- ◆ Completed 3 days training on GIS provided by ESRI India at RRS, Majhian during August 30, 2010 to September 1, 2010
- ◆ Attended a WEAP Workshop at NEW Delhi by NIH

PROFESSIONAL AFFILIATIONS

- ◆ Fellow of The Institution of Engineers (India)
- ◆ Indian Society of Agricultural Engineers
- ◆ Indian Water Resources Society
- ◆ Indian Association of Hydrologist
- ◆ Indian Meteorological Society
- ◆ Crop and Weed Science Society