

Department of Agricultural Engineering
NU:SASRD, Medziphema

FACULTY PROFILE



Arbind Kumar Verma

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Professor of Agricultural Engineering

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Date of Joining	December 3, 1997
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Education:

- i. B.Tech. and M.Tech. in Agricultural Engineering
- ii. Ph.D. on the topic 'Evaluation of GIS-based Watershed Models for Simulating Runoff and Sediment in Baitarani Watershed of Upper Baitarani River Basin'
- iii. SRF and NET qualified

Academic Experience: 20 Years at Undergraduate and Postgraduate level

Research Areas/ Field of Specialization:

- ❖ Soil and water engineering
- ❖ Watershed management and modeling
- ❖ GIS and Remote Sensing Applications in land and water management

Teaching Areas:

- ❖ Agricultural Surveying
- ❖ Irrigation and Drainage Engineering
- ❖ Soil and Water Conservation Engineering

- ❖ **Farm Power and Machinery**
- ❖ **Protected Cultivation**
- ❖ **Renewable Energy**
- ❖ **GIS and Remote Sensing**

Publications:

Publications in Journals/Proceedings

- i. Verma, A.K. and Jha, M.K (2017). Sensitivity analysis and parameter optimization for modeling a Hilly Watershed in Eastern India. Asian Academic Research Journal of Multidisciplinary, 4(8), 158-169.**
- ii. Chase, K., Verma, A.K., Dutta, Manoj and Nayak, R.C. (2017). Watershed development for optimal Agricultural Production in North East Region of India. Asian Academic Research Journal of Multidisciplinary, 4(8), 195-209.**
- iii. Verma, A.K. and Jha, M.K (2017). Extraction of watershed characteristics using GIS and digital elevation model. International Journal of Engineering Science and Invention, 6(7), 1-6.**
- iv. Uniyal, B., Jha, M.K. and Verma, A.K. (2015). Assessing climate change impact on water balance components of a River basin Using SWAT model. Water Resource Management, 29(13): 4767-4785.**
- v. Verma, A.K. and Jha, M.K. (2015). Strategies for soil conservation in a hilly watershed: A modeling approach. In the proceedings of the National Seminar on Rehabilitation and Reclamation of Degraded Land through Cost Effective Bio-engineering Measures, 30-31 January, 2015 ICAR Research Complex for NEH region, Barapani, Meghalaya, pp.87-93.**
- vi. Uniyal, B., Jha, M.K. and Verma, A.K. (2015). Parameter identification and uncertainty analysis for simulating streamflow in a river basin of Eastern India. Hydrological Processes, 29(17):3744-3766.**
- vii. Verma, A.K. and Jha, M.K. (2014). Evaluation of a GIS-based watershed model for sediment yield simulation in Baitarani River basin of Eastern India. Journal of Hydrologic Engineering, 20(6): C5015001:1-12.**
- viii. Verma, A.K. and Jha, M.K. (2009). Simulation of runoff in Upper Baitarni River basin of Eastern India using a GIS-based watershed model. In the proceedings of International Conference on Food Security and Environmental Sustainability (FSES-2009), 17-19 December 2009, IIT Kharagpur, West Bengal, India, pp. 1-10.**
- ix. Verma, A.K., Jha, M.K. and Mahana, R.K. (2009). Comparative evaluation of HEC-HMS and WEPP hydrological model for simulation of watershed runoff. In the proceeding of 43rd Annual Convention of ISAE Annual Convention and Symposium, Department of Agricultural Engineering, Birsa Agricultural University Ranchi, Jharkhand, pp.HG1-HG12.**

- x. **Verma, A.K., Jha, M.K. and Mahana, R.K. (2009). Evaluation of HEC-HMS and WEPP for simulating watershed runoff using remote sensing and geographical information system.** Paddy and Water Environment, 8(2):131-144.
- xi. **Verma, A.K., Sharan, V. and Singh, V.B., (2000). Rain water harvesting for increasing crop production in hilly region: A case study.** In the proceeding of the national seminar organized by North Eastern Regional Institute of Water and Land Management, Tezpur Assam, pp. 16/1-21/1.
- xii. **Verma, A.K., (1998). Watershed management: A strategic approach for the development of agriculture in NEH region.** Indian Journal of Hill Farming, 11(1&2):1-6.
- xiii. **Verma, A.K., Pandey, V.K., Jain, S.K. and Mishra, A.P., (1994). Effect of levelling index on irrigation efficiency.** Indian Journal of Agricultural Engineering. Vol. 2 No. 4, pp.197-300.

Book Chapters

- i. **Singh, V.P., Singh, V.B., Tripathy, S.K., Verma, A.K. and Pathak, B. (2006). Watershed Management for sustainable Productivity in Hilly Ecosystem.** In: Horticulture for Sustainable Income and Environmental Protection, Concept Publishing Company, New Delhi, pp.77-78.
- ii. **Verma, A.K. (2007). Rain water harvesting techniques for increasing crop production in Nagaland.** In: Composite Farming Practices and Economic Development, Abhijeet Publications, Delhi, pp. 1-10.
- iii. **Verma, A.K. (2011). Rainfall-Runoff modelling using remote sensing and GIS.** In: Agricultural Productivity and Resource Use, S.S.Publication, Delhi, pp. 8-21.
- iv. **Uniyal, B., Jha, M.K. and Verma, A.K. (2014). Modeling the impacts of climate change on runoff in a river basin of eastern India.** In: G.C.Mishra (editor), Environmental Sustainability: Concepts, Principles, Evidences and Innovations, Excellent Publishing House, New Delhi, pp. 80-87.

Other Publications (Practical Manuals/ leaflets/Popular Articles)

- i. **Verma, A.K. (2011). Reports on 'Microclimatic variation at Instructional cum Research Farm of SASRD:NU, Medziphema for the period 2010-2011.**
- ii. **Verma, A.K. (2012). Reports on Microclimatic variation at Instructional cum Research Farm of SASRD:NU, Medziphema for the period January-June 2012..**
- iii. **Verma, A.K. (2012).Microclimatic Variation at Instructional cum Research Farm of SASRD:NU, Medziphema for the period July-December 2012.**
- iv. **Verma, A.K. and Sharan, V. (2015). Curricula based manual on Disaster management (For M.Sc and Ph.D. students).**
- v. **Verma, A.K. and Sharan, V. (2015). Curricula based manual on Environmental science (for B.Sc. Ag students).**

- vi. **Verma, A.K.** (2016). Practical Manual on Fundamental of surveying and irrigation engineering (for B.Sc. Ag students).
- vii. **Verma, A.K.** (2016). Curricula based manual on Fundamental of surveying and irrigation engineering (for B.Sc. Ag students).
- viii. **Verma, A.K.** (2017). Practical Manual on Farm power and machinery (for B.Sc. Ag students).
- ix. **Verma, A.K.,** (1997). **Suitable Implements for Proper Weeding and Interculture Operation.** Meri kheti (in Hindi), 1 (1): 12-13.
- x. **Verma, A.K.,** (1997). **Repair and Maintenance of Plant Protection Equipments.** Meri kheti (in Hindi), 1(2):12-13.
- xi. **Verma, A.K.,** (2001). **Tillage Implements for Pulse production in Nagaland.** Training Report on ‘Pulse Production Technology’, Sponsored by Department of Extension, Ministry of Agriculture, Government of India, New Delhi, and Organized at Nagaland University, SASARD, and Medziphema
- xii. **Verma, A.K.,** (1999). **Importance of Improved Implements for Rice Cultivation in Nagaland.** Hill Agri, SASRD, NU, Medziphema. pp. 23-24.
- xiii. **Verma, A.K.,** (2011). **Remote Sensing in Precision Farming,** Hill Agri, SASRD, NU, Medziphema, pp. 21-22.
- xiv. **Verma, A.K.,** (2012). **Satellite Remote Sensing and its Applications in Agriculture,** Hill Agri, SASRD, NU, Medziphema, pp. 96-102.
- xv. **Verma, A.K.,** (2013). **Use of Remote Sensing and GIS in Watershed Management,** Hill Agri, SASRD, NU, Medziphema, pp. 38-45.
- xvi. **Verma, A.K.,** (2014). **Computer Software Packages for Agricultural Research,** Hill Agri, SASRD, NU, Medziphema, pp. 29-32.
- xvii. **Verma, A.K.,** (2013). Leaflet on **Improved Equipments for Effective Weeding in Hill Farming.** Farmer’s Cell, SASRD, NU, Medziphema.

Research Papers presented in Conferences/ Seminars etc.:

- (i) **‘Role of Watershed Management in the Restoration of Ecological Balance in Hills: A Case Study of Vindhya Hill Region, M.P’.** Paper presented in the regional conference on In Search of Sustainability and Ecological Security in the Eastern Hills of India organized by Nagaland University and Ministry of Environment, Govt. of India at Mokochong, Nagaland, (December 8-9, 1998)
- (ii) **‘Rainwater Harvesting for Increasing Productivity of Agricultural Crops in Hilly Ecosystem’.** Paper presented in the National Seminar on Approaches for Increasing Agricultural Productivity in Hill and Mountain Ecosystem Organized by ICAR Complex for NEH Region, Umiam, Shillong, (October 18-20, 2001)

(iii.) 'Harvesting Rainwater for Supplemental Irrigation to Increase Productivity of Agricultural Crops in Nagaland'. Paper presented in the State Level Seminar on Technology for Increasing Agricultural Productivity in Nagaland, organized by Nagaland University at SASRD, Medziphema, (October 11, 2003)

(iv.) 'Comparative Evaluation of HEC-HMS and WEPP Hydrological Model for Simulation of Watershed Runoff'. Paper presented in the National Level Symposium on Engineering Intervention for Sustainable Rainfed Agriculture organized by Indian Society of Agricultural Engineers at Ranchi, (February 15-17, 2009).

(v.) 'Simulation of Runoff in Upper Baitarni River Basin of Eastern India using a GIS-based Watershed Model'. Paper presented in **International Conference on Food Security and Environmental Sustainability** organized by Agricultural and Food Engineering Department, IIT Kharagpur, (December,17-19, 2009).

(vi.) 'Extraction of Geo-morphological Characteristics of Watershed using Digital Elevation Model and GIS'. Paper presented in the National Seminar on Sustainable Natural Resources and its Utilization for Enhancing the Agricultural Productivity in India organized by SASRD, NU, Medziphema, (November,17-19, 2010).

(vii.) 'Evaluation of ArcSWAT Model for Streamflow Simulation'. Paper presented in **International Conference on Soil and Water Assessment Tool** organized by Texas Agri Life Research, USA and IIT New Delhi, (July, 18-20, 2012).

(viii.) 'Simulating Watershed Runoff Using GIS and Remote Sensing'. Paper presented in the National Seminar on Emerging challenges and Prospective strategies for Hill Agriculture in 2050 organized by Indian Association of Hill Farming , ICAR, Jharnapani, Nagaland, (January 23-25, 2014).

(ix.) 'Strategies for Soil Conservation in a Hilly Watershed: A Modeling Approach'. Paper presented in National Seminar on Rehabilitation and Reclamation of Degraded Land through Cost Effective Bio-engineering Measures organized by The Institution of Engineers (India), Meghalaya State Centre, (January 30-31, 2015).

(x.) 'Prioritization of Sub-Watersheds using Simulation Modeling for Soil Conservation in a Hilly Watershed'. Paper presented in the **International Conference** on "Technological Interventions in Agricultural Sciences for Enhanced Productivity, Nutritional Quality and Value Addition" organized by Hi-Tech Horticultural Society, Meerut during at Dimapur, (17-19 February, 2015).

(xi.) 'Development of Soil Conservation Strategies in a Hilly Watershed using a GIS based Watershed Model'. Paper presented in National Seminar on Sustainable Horticulture vis-à-vis Changing Environment organized by The Horticultural Society of North East India at SASRD, NU, Medziphema (February 26-28, 2015).

(xii.) 'GIS-Based watershed modeling for soil conservation'. Paper presented in National Seminar on 'Globalization, Development and Environment with Special Reference to North-East India' organized by Nagaland University, Lumami, Nagaland,

(March 19-20, 2015).

(xiii) 'GIS-based watershed modeling and effective tool for watershed management'. Paper presented in National Conference on Natural Resource Management for Climate Smart Sustainable Agriculture organized by Soil Conservation Society of India, New Delhi at CPGS Meghalaya. (September 11-13, 2017)

Participated without paper presentation

(xiv.) Participated in State Level Seminar on Perspective on Higher Education in Nagaland organized by Nagaland University Teachers Association at SASRD, Medziphema, (October 13-14, 2004)

(xv.) Participated in State Level Workshop on Organic Farming for Rural Development in Nagaland organized by Central Executive Council, Nagaland University Teachers Association at SASARD, Medziphema, (October 20, 2005).