Curriculum Vitae

Pradeep Kumar
Professor
Department of Civil Engineering,
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Education / Fellowships:

- B. E. (Civil Engineering), University of Roorkee (now IITR), 1974
- M. E. (Public Health Engineering), University of Roorkee (now IITR), 1976
- Ph. D. (Environmental Engineering), University of Roorkee (now IITR), 1987
- Post-doctoral research (Canadian Commonwealth Scholarship), Regional Environmental Systems Engineering, University of Regina, Regina, Canada, 1994-95
- DAAD Fellowship, Technical University of Dresden, Dresden, Germany, 2008

Appointments:

1978 - Present: Professor (continuing)/ Associate Professor/ Assistant Professor/ Reader/ Lecturer, Indian Institute of Technology Roorkee, Roorkee.
1977 - 1978: Assistant Professor, Thapar Institute of Engineering and Technology, Patiala.

Recent Peer-Reviewed Book Chapters:

1. C. Sandhu, T. Grischek, M. Ronghang, I. Mehrotra, P. Kumar, N. C. Ghosh, Y. R. S. Rao, B. Chakraborty, P. S. Patwal and P. C. Kimothi (2016). Overview of bank filtration in India and the need for flood-proof RBF systems. In: Wintgens T, Nättorp A, Lakshmanan E, Asolekar SR (eds.) SaphPani – Enhancement of natural water systems and treatment methods for safe and sustainable water supply in India. IWA Publishing, London, UK, 17–38.ISBN13: 9781780407104.
2. S. K. Sharma, C. Sandhu, T. Grischek, A. Gupta, P. Kumar, I. Mehrotra, G. Grützmacher, P. J. Sajilkumar, E. Lakshmanan and N. C. Ghosh (2016). Pre- and Post-treatment of BF and MAR in India: Present and Future.In: Wintgens T, Nättorp A, Lakshmanan E, Asolekar SR (eds.) SaphPani – Enhancement of natural water systems and treatment methods for safe and sustainable water supply in India. IWA Publishing, London, UK, 191–206.ISBN13: 9781780407104.
3. A. Gupta, H. Singh, I. Mehrotra, P. Kumar, S. Kumar, T. Grischek and C. Sandhu (2016). Lake bank filtration for water supply in Nainital.In: Wintgens T, Nättorp A, Lakshmanan E, Asolekar SR (eds.) SaphPani – Enhancement of natural water systems and treatment methods for safe and sustainable water supply in India. IWA Publishing, London, UK, 39–56.ISBN13: 9781780407104

Recent Publications:

1. Pradhan, S., Kumar, P., and Mehrotra, I. (2016). Removal of Dissolved Organic Carbon by Aquifer Material: Correlations between Column Parameters, Sorption Isotherms and Octanol-Water Partition Coefficient. Accepted in Journal of Environmental Management (Elsevier).

2. Pradhan, S., Kumar, P., and Mehrotra, I. (2016). Sorption of Aqueous Organics by Aquifer Material: Correlation of Batch Sorption Parameters with Octanol-Water Partition Coefficient. Journal of Environmental Engineering. DOI: 10.1061/ (ASCE) JEE.1943-7870.0001064.
3. P. Opala, A. Kilian, P. Grafe, J. Tiepmar, T. Grischek, C. Sandhu, A. Gupta, P. Kumar and P. C. Kimothi (2016). Robust and Low-cost Disinfection Measures and Water-tightness Methods for Urban Water Supply RBF Wells in India. Extended abstracts Indo-German Conference on Sustainability – Exploring planetary boundaries and their challenges and opportunities, Chennai, India, 27.-28.02.2016, 41–42.
4. C. Sandhu, T. Grischek, T. J. Voltz, W. Schmidt, P. Kumar, H. Börnick and P. C. Kimothi (2016). Riverbank Filtration for Year-round Urban Water Supply in India. Extended abstracts Indo-German Conference on Sustainability – Exploring planetary boundaries and their challenges and opportunities, Chennai, India, 27.-28.02.2016, 56–57.
5. A. Gupta, M. Ronghang, P. Kumar, I. Mehrotra, S. Kumar, T. Grischek, C. Sandhu, and K. Knoeller (2015). Nitrate contamination of riverbank filtrate at Srinagar, Uttarakhand, India: A case of geogenic mineralization. Journal of Hydrology, 531 (3), 626-637.
6. Pradhan, S., Kumar, P., and Mehrotra, I. (2015). River Pollution: Assessment of Hydro-philic and Phobic Nature of Persistent Organic Contaminants. Journal of Environmental Nanotechnology, Monitoring & Management, 3, 47–54.
7. A.Gupta , H. Singh, F. Ahmed, I. Mehrotra, P. Kumar, S. Kumar,T. Grischek,and C. Sandhu (2015). Lakebank filtration in landslide debris: irregular hydrology with effective filtration. Sustainable Water Resources Management, 1 (1), 15-26.
8. R. R. Dash, I. Mehrotra, P. Kumar and T. Grischek (2015). Study of water quality improvements at a riverbank filtration site along the upper course of the River Ganga, India. Desalination and Water Treatment 54(9), 2422 – 2431.
9. S. Mishra and P. Kumar (2014). Adsorption of methylene blue dye from surface water onto aquifer material during batch experiments. Journal of Advanced Engineering Research, 1 (1), 36-40.
10. Pradhan, S., Kumar, P., and Mehrotra, I. (2014). Characterization of Aqueous Organics by Specific Ultraviolet Absorbance and Octanol Water Partition Coefficient. Journal of Environmental Engineering, ASCE, 140 (2), 06013001-6.
11. B. Saini, I. Mehrotra, P. Kumar and R. Verma (2013). Insight of Riverbank Filtration System at Haridwar for Enhancement of Drinking Water Quality. Int. J. Current Engineering and Technology 3(4), 1264 - 1270.
12. C. Sandhu, T. Grischek, P. Kumar and C. Ray (2012). The promise of riverbank filtration in India. Journal of Indian Water Works Association, Special issue (Dec., 2012), 5-12.
13. P. Kumar, I. Mehrotra, H. Boernick, V. Schmalz, E. Worch, W. Schmitz and T. Grischek (2012). Riverbank filtration: An alternative to pre-chlorination. Journal of Indian Water Works Association, Special issue (Dec., 2012), 50-58.
14. M. Ronghang, P. Kumar, I. Mehrotra, P. C. Kimothi, L. K. Adlakha, C. Sandhu, T. Grischek and T. J. Voltz (2012). Application of riverbank filtration for year round drinking water production in a small town in the hills of Uttarakhand. Journal of Indian Water Works Association, Special issue (Dec., 2012), 19-24.
15. P. C. Kimothi, D. D. Dimri, L. k. Adlakha, S. Kumar, O. P. Rawat , P. S. Patwal, T. Grischek, C. Sandhu, J. Ebermann, M. Ruppert, R. Dobhal, M. Ronghang, P. Kumar, I.

Mehrotra and H. P. Uniyal (2012). Development of Riverbank Filtration in Uttarakhand. J. Indian Water Works Association, Special Issue on River Bank Filtration (December 2012), 13 - 18.

16. P. Kumar and I. Mehrotra (2011). Pre-treatment of polluted river water by riverbank filtration for water supply. World Environmental and Water Resources Congress, 2011, Palm Springs, California, USA, May 22 – 26, 2011.
17. C. Sandhu, T. Grischek, P. Kumar and C. Ray (2010). Potential for riverbank filtration in India. Clean Technology and Environmental Policy, 13(2), 295-316
18. P. Singh, P. Kumar, I. Mehrotra and T. Grischek (2010). Impact of riverbank filtration on treatment of polluted river water. J. Environmental Management 91(5), 1055-1062.
19. R. R. Dash, E. V. P. Bhanu Prakash, P. Kumar, I. Mehrotra, C. Sandhu and T. Grischek (2010). River bank filtration in Haridwar, India: removal of turbidity, organics and bacteria. Hydrogeology Journal, 18 (4), 973-983.
20. Nisha L., I. Mehrotra, P. Kumar and T. Grischek (2010). Riverbank filtration as an alternative to pre-chlorination: A case study at Mathura. Drinking Water: Source, Treatment and Distribution, Dehradun, India, April 29 - 30, 2011, 125 - 135.
21. K. Dhakyanaik and P. Kumar (2010). Effect of pollution in river Krishni on hand pump water quality. Journal of Engineering Science and Technology Review, 3 (1), 14-22.

Summary of Recent / Current Projects Undertaken:

(a) Current Project:

An innovative sustainable biotechnology for resource recovery from wastewater streams using microwave enhanced advanced oxidation with algae (2015 - 2018) sponsored by DBT (Department of Biotechnology, Ministry of Science and Technology, Govt. of India) – IC – Impacts, Canada.

Project aims to develop an integrated novel sustainable municipal sludge treatment technology to substantially improve sustainability, efficiency and environmental performance of wastewater treatment plants. The project integrates a microwave treatment step, struvite crystallization for phosphorus recovery, anaerobic digestion followed by algae based nutrient removal, thereby yielding value added products to improve the sustainability of wastewater treatment plants.

(b) Recently Completed Project:

Enhancement of natural water systems and treatment methods for safe and sustainable water supply in India (acronym: Saph Pani) (2011 - 2014).

This collaborative research project received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No 282911. It involved a consortium of 20 partners from India, Europe, Sri Lanka and Australia. It addressed the improvement of natural water treatment systems such as river bank filtration (RBF), managed aquifer recharge (MAR) and wetlands in India building on a combination of local and international expertise. The project aimed at enhancing water resources and water supply particularly in water stressed urban and peri-urban areas in different parts of the sub-continent. It focused on a set of case study areas in India covering various regional, climatic, and hydro-geological conditions as well as different treatment technologies.

Other Activities:

- Selected as **Member of 18th Indian Scientific Expedition to Antarctica** during 1998-99. Carried out research on "Water Quality: Lakes of Schirmacher Oasis, Antarctica".
- Member of EU-Indian River Bank Filtration Network funded by European Union.
- Awarded Visiting International Fellowship (VIF) by EWRI in 2011.

Collaborators (Within Last 48 Months):

T. Grischek (Univ. of Applied Sciences, Dresden, Germany)
H. Boernick (Technical University of Dresden, Germany)
I. Mehrotra (Indian Institute of Technology Roorkee, India)
S. Kumar (National Institute of Hydrology, Roorkee, India)
A. Gupta (Homi Bhabha Centre for Science Education, TIFR, Mumbai)