

Brief Bio-Data

1. **Name:** Dr. Abhay Kumar Singh

2. **Date of Birth:** 10-07.1968

3. **Current Position and Address:**

(with E-mail & Phone no.) Sr. Principal Scientist,
Water Resource Management Group
CSIR-Central Institute of Mining & Fuel
Research, Barwa Road, Dhanbad – 826 001

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4. **Educational Qualifications:** (Graduation and above)

Degree/ Certificate	Year of Passing	University/Institute	Subject
B.Sc. (Hons.)	1988	Banaras Hindu University, Varanasi	Geology
M.Sc.	1990	Banaras Hindu University, Varanasi	Geology
M.Phil.	1993	Jawaharlal Nehru University, New Delhi	Environmental Science
Ph.D.	1997	Jawaharlal Nehru University, New Delhi	Environmental Science

5. **Academic/Research Experience/Employment**

Designation/Position	Name of Organization	From	To
Sr. Principal Scientist	CSIR-Central Institute of Mining and Fuel Research, Dhanbad	07.07.2010	Continue
Principal Scientist	CSIR-Central Institute of Mining and Fuel Research, Dhanbad	07-07-2010	06.07.2010
Senior Scientist	CSIR-Central Institute of Mining and Fuel Research, Dhanbad	07-07-2007	06-07-2010
Scientist 'C'	CSIR-Central Institute of Mining and Fuel Research, Dhanbad	07-07-2003	06-07-2007
Scientist 'B'	CSIR-Central Institute of Mining and Fuel Research, Dhanbad	07-07-1999	06-07-2003
Research Associate (CSIR)	Jawaharlal Nehru University, New Delhi	Feb. 1998	05-07-1999
Senior Research Fellow	Jawaharlal Nehru University, New Delhi	July 1993	July 1996
Junior Research Fellow	Jawaharlal Nehru University, New Delhi	July 1991	July 1993

6. **Area of specialization:** *Environmental Geochemistry/Mining Environment/Hydrogeology/Water Pollution*

7. **Honors/Awards Received:**

- i. Enlisted in Top 2% Scientists in world ranking (*Environmental Engineering*) brought out by Stanford University for the year 2019, 2020
- ii. National Geoscience Award, 2013
- iii. Indian Science Congress (ISCA) Young Scientist Award, 1999
- iv. Associate Editor, *Mine Water and the Environment*, International Journal of Springer-Verlag
- v. Member, Doctoral Research Committee, School of Environmental Science, JNU, New Delhi
- vi. Sectional Committee Member of Bureau of Indian Standards (BIS) for (i) *Water Quality (CHD 36)* and (ii) *Water Conductor Systems (WRD 14)*
- vii. NABET accreditation as a *Functional Area Expert for "Hydrogeology"* under Accreditation Scheme of QCI for EIA Consultant
- viii. Best Paper Award on Citation Basis, CIMFR 2008
- ix. Principal Investigator for DST Young Scientist Project under Fast Track Scheme (2002-05)
- x. External Examiner for M.Phil./Ph.D. Thesis of JNU-New Delhi, BHU-Varanasi, AMU-Aligarh, Pondicherry University and Vinova Bhave University- Hazaribag
- xi. Reviewer for National and International Journals
- xii. Mentor/Guide/co-guide for PDF (2), Ph.D. (4), M.Phil. (6), M.Tech. (7) and M.Sc. (22) students Thesis and Dissertation

8. Fellowships/Scholarships:

- i. **Commonwealth Academic Fellowship** 2012.
- ii. **Indian National Science Academy (INSA) Visiting Fellowship**, 2004-05
- iii. **Post-Doctoral Fellowship** awarded by Council of Scientific and Industrial Research -1999
- iv. **Junior Research Fellowship**, University Grant Commission, New Delhi -1991
- v. **Senior Research Fellowship**, University Grant Commission, New Delhi -1993

9. No. of Research Publications:

❖ Papers in SCI Journals	:	94
❖ Book Chapters	:	10
❖ In conference/seminar proceedings	:	50
❖ Invited/key-note addresses	:	26
❖ Technical Reports	:	40

List of Best 05 Publications :

- i. **Singh A.K. and Hasnain S.I. (1998)** Major ion chemistry and weathering control in a high altitude basin: Alaknanda River, Garhwal Himalaya, India. *Hydrological Sciences Journal*, 43, 825-843.
- ii. **Singh A.K., Hasnain S.I. and Banerjee D.K. (1999)** Grain size and geochemical partitioning of heavy metals in Damodar river sediments, India, *Environmental Geology*, 39:90-98.
- iii. **Singh A.K. and Mandal G.C. (2007)** Chemical characterization of wet precipitation events and deposition of pollutants in coal mining region, India. *Journal of Atmospheric Chemistry*, 59:1-23.
- iv. **Singh A.K., Mondal G.C., Singh T.B., Tewary B.K. and Sinha A. (2008)** Major ion chemistry, weathering processes and water quality assessment in upper catchment of Damodar River basin, India. *Environmental Geology*, 54:745-758.
- v. **Giri S. and Singh A.K. (2014)** Risk Assessment, statistical source identification and seasonal fluctuation of dissolved metals in the Subarnarekha River, India. *Journal of Hazardous Materials*, 265:305-314.
- vi. **Charturvedi A, Bhattacharjee S and Singh AK (2018)** A new approach for indexing groundwater heavy metal pollution. *Ecological Indicators*, 87: 323-331.

10. Number of Books authored/edited: Two

11. (a) No. of Patents granted/applied for: Nil
(b) Technologies developed, Licensed and/or commercialized: N/A

12. Foreign visits:

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|------------------------------------|--|
| 1. New Castle University, UK 2012 | 2. Perugia University, Italy 2007 |
| 3. University of Mauritius, 2010 | 4. Perkin Elmer Center, Singapore 2010 |
| 5. Birmingham University, UK, 1999 | 6. ICIMOD, Kathmandu, Nepal, 1998 |

13. Details of Professional memberships:

1. Life Member of the International Association of Hydrological Science (IAHS)
2. Life Member, Mining Engineers' Association of India (MEAI)
3. Member, International Mine Water Association (IMWA)
4. Life Member of Himalayan Geology, Wadia Institute of Himalayan Geology, Dehradun
5. Member of Geological Society of India, Bangalore

14. Major contributions: (Max. 150 words)

The major research area includes environmental geosciences to understand the recent earth surface processes and human impacts on natural resources including soil, sediments and water. Initially worked on the geochemical aspects of high altitude Himalayan glaciers and river basins for understanding the weathering and solute acquisition processes and transfer of solute and sediment loads from the glacierized catchments. Further, our work on the Damodar River basin, describes the source and mechanism controlling the surface and sub-surface water chemistry and impacts of mining and industrial activities on the water and sediment quality. Study on grain size and geochemical partitioning of heavy metals in bed sediments of the Damodar River and road dusts from mining areas have shown that in the contaminant environment even coarser size sediments may accumulate similar or higher metal concentration due to longer residence time and presence of coarser fraction of mine wastes. The occurrence of acidic rain events in India's richest coal mining belt during late monsoon season was reported for the first time in our investigation on rain water chemistry over Dhanbad-Bokaro region. Heavy pumping and discharge of mine water into natural drain caused many environmental problems including water resource depletion and contamination which create scarcity of potable water in mining areas. A cost effective technology to reclaim mine water for drinking uses has been developed and subsequently demonstrated by installation of a pilot plant of 4000 liter/hr capacity at Pootkee-Balihari mine site in Jharia coalfield.

15. Technologies and Products/Services:

- (i) Developed: 01
- (ii) Licensed:
- (iii) Commercialized:

16. Designs and Prototype Developed:

17. Honors and awards won for technological contributions or sociological impact of R&D:

The developed mine water treatment technology by CSIR-CIMFR has been selected by the PMO for further deployment to solve the potable water availability problem in mining areas.