



Bio-data of Dr A K Soni

1. Name: **(Dr) ABHAY KUMAR SONI** डॉ ए. के. सोनी (CSIR-CIMFR ID No. 82)

2. Date of Birth: 22.05 1963

3. Current Position and Address :

Chief Scientist, CSIR- CIMFR, Nagpur Regional Centre
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4. Educational Qualification : **B.E. (Mining), M.S. (S&T), Ph D , FIE.**

(Graduation and above details)

S. No.	Degree	Year	University/Institute	Subject
1.	Ph D	1998	IIT- Indian School of Mines, Dhanbad, Jharkhand.	Environment Science & Engineering
2.	M.S.	1991	Birla Institute of Technology & Science (BITS),Pilani, Rajasthan	S&T (Science & Technology)
3.	BE (Mining)	1983	National Institute of Technology (NIT), Raipur, Chhattisgarh.	Mining Engineering

5. Work experience: **More than 30 years**

Designation	Institute/company	From	To	Nature of Work
Junior Mining Engineer	Coal India Limited (at SECL Subsidiary)	16/11/83	25/01/86	Production, planning & control of a shift as shift head.
Lecturer (Mining)	Government College of Engineering and Technology, Raipur (CG) (Now NIT, Raipur)	29/07/86	05/10/87	Teaching and Research
Scientist [Group- IV]	Central Institute of Mining and Fuel Research (CSIR-CIMFR) Dhanbad, India	09/10 1987 Scientist 'G' w.e f. 09.10.2013	Till date	Research and Development (R&D)

6. Work Area(s)/ Specialization: **Mining environment & Mine Water**

- Geo-hydrological problems of mines.
- Environmental management in fragile /sensitive areas concerning mining and hill type areas.
- Sub-surface sciences viz. tunnelling, cavern etc.
- Policy issues on mining and environment.

7. Major contributions: Following are the details -

1. Developed an Environmental Degradation Index (EDI) for application in fragile areas (Work published in a national journal).
2. One software (A computer programme called - AWQEFA for the routine check of air and water quality of mine sites) was developed in FORTRAN with commercial application (Included in CMRI publication titled -CMRI Software Packages).
3. Prepared Guidelines for “Acidic Land and Water Management for NE Area” (for North East Council – NEC, Shillong).
4. Developed an approach for “Land Management based on Land Capability Classification Approach for Mining Land of Himalaya”; Agriculture science concept utilized for management of mining land.
5. Developed value-added products from *slate mining waste* for application in the construction/building industry.
6. Laboratory facility created: A computer-controlled low-temperature rock testing facility (LTRT) was developed for rock testing under sub-zero temperature condition, using Liquid N₂ as a cryogen. This experimental *facility* was one of its type, developed for the first time and useful for the tunneling and mining industry in India.
7. Significant international contribution: Contributed a Country Paper for MMSD project in 2001 on “Artisinal and Small–scale Mining in India” (PI see point no d for details under Book Chapters / Monographs Chapters).
8. Guided and evaluated thesis of Ph D, BE and M.Sc. students in environment and ecology subject as a part of HRD workr.
9. Several technical events were organized, as key member and coordinator.
10. Technical inputs were provided as the referee/reviewer; as international advisor; as special guest editor for national and international journals of India and abroad (e.g. *Springer Journal of Mine Water and Environment - Special issue on Confined aquifer for Neyveli Lignite Corporation - NLC, India*).

8. No. of Research Publications: + 116 (Total)

- Papers in Journals: + 40
- In conference proceedings: + 55
- Invited lectures delivered: +14
- List of best 05 publications :

1. **Soni A. K. (2020)**, Estimation of Mine Water Quantity: Development of Guidelines for Indian Mines, J. Mine Water and the Environment, Springer

Publication, DOI: 10.1007/s10230-020-00685-8; 39:397–406 (*Impact Factor, 2019 = 3.184*)

2. **Soni A. K. (2020)**, History of Mining in India, Indian Journal of History of Science (IJHS), 55.3 (2020), Indian National Science Academy (INSA), New Delhi pp. 218-234 [DOI: 10.16943/ijhs/2020/v55i3/156955]. (*IEI Epitome , April 2021, Vol 6 No 4 Page No 10*).
 3. **A K Soni** and Christian Wolkersdorfer (**2015**), Mine water: Policy perspective for improving water management in the mining environment with respect to developing economies, International Journal of Mining, Reclamation and Environment, Taylor & Francis, Vol. 30. Issue 2, pp 115-127. DOI: 10.1080/17480930.2015.1011372. (*Impact Factor 2019 = 3.184*).
 4. **A K Soni** and Bhavika Manewatkar (**2015**), Seepage Modeling for a Large Open Pit Coal Mine in India, Journal of Geotechnical & Geological Engineering, August, Volume 33, Issue 4, pp 997–1007, Springer, DOI: 10.1007/s10706-015-9881-9 (Published online 09 /04/2015) [*SJR(2018):0.63; H Index - 45*].
 5. **A.K. Soni**, B Mishra and S. Singh (**2014**), Pit lakes as an end-use of mining: A review, Journal of Mining and Environment, Iran, ISSN 2251-8592, Vol 05. No. 2, pp 99-111. (*Impact Factor 2013= 0.071*).
- Books/Chapters authored/edited: 02 books (as author) & 02 (as editor); 09 chapters in book and monographs

Books Published (02) & Books Edited (02)

- (i) "Mining in the Himalayas - An Integrated Strategy", 2017, Published by CRC Press / Taylor & Francis; 225 pages; Reference book; Single Author; ISBN 9781498762342; <https://doi.org/10.1201/9781315367552>.
- (ii) "Limestone Mining in India", 2021, Author- Abhay Soni and Prabhakar Nema, Published by Springer, Singapore (Materials Horizons: From Nature to Nano materials series). p 180. (Hardcover ISBN : 978-981-16-3559-5; eBook ISBN : 978-981-16-3560-1; DOI 10.1007/978-981-16-3560-1).
- (iii) Book Edited - "Mining Technique -Past, Present and Future", 2021, Intechopen, London, Open Access, 130 pages, ISBN 978-1-83962-369-1.
- (iv) Book Edited - "Mining and Environment". Authored by Bharat B.Dhar and Published by APH Publishing House Corporation, New Delhi (429 pages; Reference book).

Book Chapters / Monographs Chapters (9)

- a) Soni A. K. (1994) "Impact of Mining on Regional Development -Case History of Himalayan Foot Hills", **Monograph on "Role of Mining in the Development of Backward Regions of India"** Indian Bureau of Mines, Govt. of India, pp. 267 - 293.
- b) Soni A.K. (1997), Mining in Fragile Area: A Case Study of Slate Mining, **UNEP Training Manual on Environmental Management of Mining Operation**, First Indian Edition, Editor - B.B. Dhar, Oxford & IBH Publishing Company, New Delhi, pp. 6.28 - 6.36.
- c) Soni A. K. (1999), Mining in Public and Private Sectors In India, Technological Developments and Current Global Trend, **Saket Mineral Industry Handbook**, Saket Projects Limited, Ahmedabad, pp. 383 -395.
- d) MMSD (2001), "Artisinal and Small-scale Mining in India" – S.L.Chakravorty; Contributed as Country Paper No.78 prepared for Mining, Minerals and Sustainable Development (MMSD) project by International Institute for Environment and Development (IIED), London and World Business Council for Sustainable Development (WBCSD); published as United Nations Documents relating to Mining Industry by UNEP and UNCTAD; October 2001 ; p 81.
- e) Soni A. K. (2002), Land Management Based on Land Capability Classification Approach With Reference to Mining Land of Himalayas, **Environmental Pollution Research**, Editors-D.B. Tripathi and Bharat B.Dhar, APH Publishing Corporations, New Delhi, Chapter 10, pp. 111-134.
- f) Soni A. K. and Tibrewal G.R. (2003), Mining of Limestone by Continuous Surface Miner -Is it Cost Effective, Indian **Cement Industry Desk Book -2003**, Commercial Publications, Mumbai, November, No.12, pp.25 –29.
- g) Soni A. K, Ramulu M and Khond M. V.(2009), Environmental Impact Due to Blasting: An Investigation into Human and Animal Response, Indian **Cement Industry Desk Book -2009**, Commercial Publications, Mumbai, pp.10 -16.
- h) Abhay Kumar Soni (2019), Mining of Minerals and Groundwater In India, A Book Chapter in Intech Open book titled "Groundwater", 33 pages, DOI: 10.5772/intechopen.85309 (published on 29/3/2019).
- i) R. D. Dwivedi and A.K. Soni (2021), 'Eco-friendly Hill Mining by Tunnelling Methods', Book Chapter published in the book '**Mining Technique -Past, Present and Future, Intech open, London**, Editor: Abhay Soni, ISBN 978-1-83962-369-1, DOI: <http://dx.doi.org/10.5772/intechopen.95918>

9. List of 5 Major Contract R&D Projects:

1. Hydro-geological Study of Malanjkhand Copper Project, Hindustan Copper Limited, District Balaghat (M.P.) (Sponsorer: Hindustan Copper Limited, HCL) ; 2018 - 2019.
2. Description of Clean Technologies and Development of Standards for Limestone Mining, Central Pollution Control Board (CPCB), New Delhi ; Sponsorer: Central Pollution Control Board (CPCB), New Delhi, 2008 -2013.
3. Geo-hydrological Studies for Safe Removal of Precarious Boulders on the Hill Slopes of Ajanta Caves, (A combined and co-ordinated project on scientific study of Ajanta Caves consisting of 4 sub-projects), **Sponsorer:** Archaeological Survey of India (ASI), New Delhi; 2008 - 2011.
4. Reclamation of Mined Out Areas in the N-E state of Meghalaya – A Case Study of Jowai Coal Mining Area , A Collaborative R&D project between North Eastern Regional Institute of Water and Land Management (NERIWALM), Tezpur , Assam and Central Mining Research Institute (CMRI), Dhanbad; (Sponsorer: North Eastern Council (NEC), Shillong, 2003 - 2006.
5. Feasibility and Application of Bio-fuel as well as Low Cost and Diluted ANFO for Cost-Effective and safe Blasting Practices in Opencast Metalliferous Mines in India, Sponsorer: Ministry of Mines, Govt. of India; 2010 – 2013.

10. (a) Name of Patents/Copyrights applied /granted/commercialized: NIL

(b) Technologies/Products /knowhow/Services developed : NIL

11. Honors/Awards/Recognitions/Fellowships/Scholarships/Professional Memberships received :

1. **Member, International Advisory Board** for Journal of Mine Water and Environment, Published by Springer Verlag.
2. **Member, Bureau of Indian Standard (BIS) committee** – Hill Area Development Engineering Sectional Committee - CED 56.
3. **Member, Assessment committee and Screening Committee** for NEERI Nagpur.
4. **Member, Screening Committee, AcSIR** at NEERI Nagpur.
5. **Executive Member-IE:** Mining, Chemical, Metallurgy and Material Sciences Engineering Division (2000 – 2002), Institution of Engineers (India), Roorkee Local Centre.
6. **Received IGS Best Paper Award, 2003** From Indian Geotechnical Society (IGS) on the paper entitled” Effect of Repeated Cooling on Fracture Toughness of Rock’, December 18, 2003 (IGS – HEICO Award).

7. **Received ISRM TT Best Paper Award** – 2013 from Indian Society of Rock Mechanics and Tunneling Technology (ISRM TT) on the Paper entitled 'Boulder Characterization and stabilization at Ajanta Caves'. The award is presented during the Indorock-2014 (12-14 Nov) at New Delhi on 12.11.2014.
8. **Best Symposium Paper Award, 2005** - Geominetech Symposium on New Equipment, New Technology, Management and Safety in Mines and Mineral Based Industries (ENTMS), Bhubaneswar.
9. **Expert member : National Green Tribunal (NGT)** for the Malnjkhand Copper mine work (02/03/04 March 2017).
10. **Chaired / Co-chaired technical sessions** in various forums namely - National conferences, seminars/ symposiums, workshops & international conferences.
11. **Invited as Key-note speaker** (In Seminar on COIR Geo-Textiles, Organized by COIR Board Ernakulum and CREATE, Dehradun on 22/05/1996 at Dehradun).
12. **Invited as an external examiner** by the Department of Mining Engineering, Government Engineering College, Raipur (1990, 1991 and 1992) and University of Roorkee, Roorkee.
13. **Member, Committee on Revision of Curriculum** for Diploma Courses in Mining and Mine Surveying, Govt. Polytechnic, Sadar, Nagpur (2016-17).
14. **Chairman, Course Committee (2018-19)**: Appointed for the Diploma Programme in Mining and Mine Surveying (MS) / Mine Engineering (MN) and Mining Engineering (MZ) by Maharashtra State Board of Technical Education (MSBTE), Mumbai (for framing new curriculum scheme and programme Structure).
15. **Member Recommendation Committee**, Int. Conf. & Expo on Mining Industry: Vision 2030 and Beyond, Organized by IBM and MEAI Nagpur Chapter, Nagpur (6-8 December 2017).
16. **National Advisory Committee**, Gondwana Geological Society, Nagpur for the National Seminar on "Groundwater and Lakes: Recent Advancements & Environmental Aspects" (20-21, February 2014).
17. **Member, Selection Committee** for CIL /WCL Campus Interview (8th November 2011) at VNIT.
18. **Member, National Organizing Committee**, National Seminar on "Sustainable Development in Indian Mineral and Earth Resources" (20-21 June 2014).
19. **Member, Advisory Committee**, National Conference on Challenges in 21st Century Mining – Environment & Allied Issues, Conducted by IBM and MEAI Nagpur Chapter during 19-21st February 2013 at Hotel Radisson Blue, Nagpur.
20. **As reviewer /referee of technical papers** for international journals
 - Journal of Mine Water and Environment, Springer.
 - Environmental Nanotechnology, Monitoring & Management, Elsevier.
 - Journal of Geography, Environment & Earth Sciences International Science Domain, International).
 - International Journal of Geography and Regional Planning (Premier Publication).
 - Journal of Water Resource and Protection, Scientific Research Publishing, USA.
 - Environmental Science and Pollution Research (ESPR)
 - Arabian Journal of Geosciences
 - Arabian Journal of Geophysics

21. **Certificate of Excellence in Reviewing -2018:** Honour by Chief Managing Editor, Journal of Geography, Environment and Earth Science International (Certificate No. SDI/HQ/PR/Cert/40885/AKS), Science Domain International.
22. **Member, Scientific Committee,** 3rd Conference of the Arabian Journal of Geosciences (CAJG), Sousse, Tunisia (Online), 2-5 November 2020 (Reviewed abstract and extended abstract 07 Nos. ; Certificate received from Springer vide Email dated 21/12/2020).
23. **Ph D. Evaluation:** Appointed as 'Technical expert member by Shri Ramdeobaba College of Engineering and Management ' for PhD. Evaluation of Mr P.D. Hiwase, Department of Civil Engg (23/01/2016); Topic: Development of Practically Oriented Method of EIA Audit in India.
24. **Expert Member - ENVIS Evaluation Committee:** Listed as National Experts in the field of Mine Environment (http://ismenvis.nic.in/Content/NationalExperts_1257.aspx) by the Ministry of Environment, Forest and Climate Change, New Delhi ; 16-17th Feb 2015; NEERI, Nagpur and 17-19 Feb 2016 at Delhi.
25. **Appointed as 'Evaluator'** for Khosla National Award -2015 for IIT, Roorkee.
26. **Guest of Honor :** Technical Workshop on 'Advancement in Mining Industry' Government Polytechnic, Sadar, Nagpur (05/11/2015)
27. **Member, Recommendation Committee,** National Seminar on "Sustainable Development in Indian Mineral and Earth Resources" (20-21 June 2014).
28. **Member-organizing committee:** National Workshop of the MEAI Nagpur Chapter titled - "Managing Excavation Stability through Design, Analysis and Monitoring", September 24, 2018, Hotel Radisson Blue, Nagpur.
29. **Awarded William Greenwood Scholarship** from Association of Geo-scientists for International Development (AGID), University of Sao Paulo, Brazil for Ph D Work.
30. **Visited abroad (USA and UK)** in connection with research work.

12. Societal Contributions : The societal contribution have been made as a service to mining industry in India. As an output of the several completed projects -

- Helped the industry to obtain statutory clearances and renewal of leases.
- Helped mine management in engineering evaluation and environmental assessment.



Dr A K Soni
Chief Scientist

Date : 23/08/2021

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