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1. Name: **Dr. VIRENDRA KUMAR SINGH**



2. Date of Birth: **1<sup>st</sup> July 1959**

3. Current Position and Address: **Chief Scientist & Head, Slope Stability, Tel: 0326-2296039 (O),**  
(with E-mail & Phone no.) **09431746221 (M), vks\_slope@yahoo.com**

4. Educational qualifications: (Graduation and above)

S.No	Degree	Year of Passing	University/ Institute	Subjects
I.	B.Sc.	1978	BHU, Varanasi	Geology, Botany, Chemistry
II.	M. SC.	1980	BHU, Varanasi	Geology
III.	Ph.D.	1992	Centre for Advanced Study on Rock Mechanics and Ground Control, Department of Mining Engineering, Institute of Technology, BHU	Mining Engineering

5. Work experience

S. No.	Period	Place of Employment	Designation	Scale of Pay (Rs.)
I	12-1-1982 to 8-12-1983	CSIR-CIMFR (Erstwhile CMRI)	Junior Research Fellow	600
II	9-12-1983 to 8-12-1988	CSIR-CIMFR	Junior Scientist (Erstwhile Scientist-B)	PB-3, 15600-39100 Grade Pay 5400
III	9-12-1988 to 8-12-1991	Do	Scientist (Erstwhile Scientist-C)	PB-3, 15600-39100 Grade Pay 6600
IV	9-12-1991 to 8-12-1996	Do	Senior Scientist	PB-3, 15600-39100 Grade Pay 7600
V	9-12-1996 to 8-12-2001	Do	Principal Scientist	PB-4, 37400-67000 Grade Pay 8700
VI	9-12-2001 to 8-12-2007	Do	Senior Principal Scientist	PB-4, 37400-67000 Grade Pay 8900
VII	Since 9-12-2007	Do	Chief Scientist	PB-4, 37400-67000 Grade Pay 10000

1. 6. Area of specialization: Broad Subject Area : **Engineering Science & Technology**  
Identified Sub-Subject: **Rock Mechanics & Mining Methods**  
Department : **Slope Stability**

7. Honors/Awards received: **Annexure-II**

8. Fellowships/Scholarships: Nil

9. No. of Research Publications during last 20 years:

- Papers in journals: 21
- In conference proceedings: 34
- Invited/key-note addresses: 39
- List of best 05 publications:

Sr. No.	Authors	Title of Paper	Name of Journal/ symposium, volume, year and page
1.	V.K. Singh, J.K. Singh and A.	Geotechnical study and optimum slope	International Journal of Rock Mechanics & Mining Sciences, Vol. 41 (2004), pp. 524 – 527, Elsevier

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	Kumar	design at Lajkura opencast coal mine, India	Publication, U.K.
2.	V. K. Singh, J.K. Singh and A. Kumar	Geotechnical study for optimizing the slope design of a deep open-pit mine, India,	Bulletin of Engineering Geology and the Environment, Springer-Verlag, USA, Vol. 64, 2005, pp. 303-309.
3.	V. K. Singh	Slope Stability Study For Optimum Design of an Opencast Project	Journal of Scientific & Industrial Research, New Delhi, Vol. 65, 2006, pp. 47-56.
4.	V. K. Singh	Geotechnical Study Of Coal Rib Failure at Ananta Coal Mine, Orissa, India,	Proceedings of 47th US Rock Mechanics/Geomechanics Symposium held in San Francisco, California, USA, Paper ID: ARMA 13: 105, ISBN : 978-0-9894844-0-4, 23-26 June 2013, organized by American Rock Mechanics Association (ARMA).
5.	V. K. Singh	Slope Stability Assessment in Open Cast Mines-Theory & Practice with Case Studies,	International Symposium "ROCK INDIA 2014 – Present Technology and Future Challenges", 21-22 August 2014, New Delhi, organized by ISRM (India) and CBIP

10. Number of Books authored/edited: Co-authored one book.

11. (a) No. of Patents granted/applied for: Nil

(b) Technologies developed, Licensed and/or commercialized:

- A technique based on two way analyses of variance technique was developed for zonation of the mine into different homogeneous design sectors having their unique design criteria for optimum slope design.
- Technique has also been developed to make use of optimum discontinuity orientation of critically dipping discontinuity planes for steeper slope design in mines.
- Correlations were established between rock indices and strength properties of rocks.

12. Foreign visits: Two

13. Details of Professional memberships:

- Life Member (LM-10034) of Mining Geological & Metallurgical Institution (MGMI)
- Member of International Society of Rock Mechanics (ISRM), PORTUGAL
- PRINCIPAL MEMBER: "Rock Slope Engineering, Foundation on Rock and Rock Mass Improvement, Subcommittee, CED 48:4" of the "Rock Mechanics Sectional Committee (CED 48)", "Bureau of Indian Standards", New Delhi.
- LIFE MEMBER (LM-1053): Indian Society for Rock Mechanics and Tunnelling Technology (ISRMTT), New Delhi
- LIFE MEMBER (LM-2163): Indian Geotechnical Society (IGS), New Delhi
- Life Member: Mining Engineers Association of India, Hyderabad.

14. Major contributions: ( Max. 150 words)

- Developed a technique for zonation of the mine into different homogeneous design sectors having their unique design criteria for optimum slope design.
- Technique has also been developed to make use of optimum discontinuity orientation of the critically dipping discontinuity planes for steeper slope design in mines.
- Established the causes of landslides at three sites of the NE Himalayas and remedial measures for the safety of hill slopes and road cuttings of strategic importance.
- Geotechnical study conducted in the capacity of one of the Project Leaders for Highwall mining at Ramagundam OCP-II of M/s SCCL for the first time in India.

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- The R&D studies related to the field applications involving new developments have been major activity with a view to meet the institute's efforts to provide geotechnical services to the industry and society for *better economy, safety and mineral conservation* in environmental friendly manner. 74 projects completed in this category.
- Prediction of slope instability for the safety of men and material working at depth at pit bottom.

#### 15. Technologies and Products/ Services

(i) Developed:

- A technique based on two way analyses of variance technique was developed for zonation of the mine into different homogeneous design sectors having their unique design criteria for optimum slope design.
- Technique has also been developed to make use of optimum discontinuity orientation of critically dipping discontinuity planes for steeper slope design in mines.
- Correlations were established between rock indices and strength properties of rocks.

(ii) Licensed: Nil

(iii) Commercialized: Nil

#### 16. Designs and Prototype Developed:

- Developed a technique for zonation of the mine into different homogeneous design sectors having their unique design criteria for optimum slope design.
- Technique has also been developed to make use of optimum discontinuity orientation of the critically dipping discontinuity planes for steeper slope design in mines.

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

Annexure-I

Signature

## **Annexure - I**

### **Honours/ Awards Received**

- John Dunn Medal Award 2012-2013 by Mining, Geological and Metallurgical Institute of India (MGMI), Kolkata, for outstanding service to the Indian Mineral Industry.
- National Design Award in Mining Engineering -2013 by Institution of Engineers (India) on 20-12-2013 during 28<sup>th</sup> Indian Engineering Congress at Chennai.
- SGAT Award Of Excellence – 2012 by the “Society of Geoscientists and Allied Technologists (SGAT)”, Bhubaneswar.
- MEAI – Sitaram Rungta Memorial Award -2012 by Mining Engineers’ Association of India, Hyderabad.
- National Geoscience Award – 2011 (erstwhile National Mineral Award) by the Ministry of Mines, Govt. Of India.
- Member of Project Review and Supervisory Group to monitor and supervise the Project sanctioned under National Mission on Education through Information and Communication Technology (NME-ICT Mission), (under Ministry of Human Resource Development, Department of Higher Education, Shastri Bhawan, New Delhi; 2012.
- Team Member of the “CSIR Technology Awards 2011” winning Team. The award was given to CSIR-CIMFR under the category of “Physical Sciences including Engineering”.
- Presently supervising two *Ph.D.* scholars registered at IIT, Kharagpur and Birla Institute of Technology (BIT), MESRA; examiner for Doctoral Viva Voce at Institute of Technology, BHU, 2008 and supervised two Master Degree thesis submitted at IIT, Bombay, 2008.
- Member, Board of Courses of Study at Indian School of Mines (ISM), 2008.
- IGS-AFCONS Biennial Award-2006 by Indian Geotechnical Society, New Delhi.
- Member of “Project Monitoring Committee” of “National Institute of Small Mines” to review progress of project titled “Beach Placer Mining” (CSIR Net-Work Project), 2004.
- Member and consultant of high power technical committee for Dump slope stability at Jayant Project, Northern Coalfields Ltd. (NCL), Singrauli, constituted by Chairman, Coal India Ltd. (from 9-10-2001 to 31-12-2002).
- Expert member for technical opinion to the Convener of the Monitoring Committee (The *Chief Conservator of Forests*, Regional Office, Southern Region, Ministry of Environment & Forests) constituted by the Honourable Supreme Court regarding the mining operations by M/s Kudremukh Iron Ore Company Ltd. in the vicinity of Kudremukh National Park, Chickmagalur, Karnataka.
- Delivered 39 invited lectures during last 10 years at following organizations,
  - BHU, MOEF, DGMS, CBIP, NMDC, HCL, TATA STEEL, Sesa Goa, Directorate of Mines Safety and Productivity Council of Goa, SCCL, NECL, IICM, Neyveli Lignite Corp., CCL and ECL.
- M/s *Ararat Gold Recovery* Company, Armenia invited for technical advice on slope stability at Zod Gold open cast mine at Vandnis, M/s Vedanta, *Armenia*.
- Editing and Reviewing of “Proceedings of the Indian Academy of Sciences (Earth and Planetary Sciences), IIT, Bombay
- Reviewer for (i) “*International Journal of Earth Sciences & Engineering*”, Cafet-Innova Publications; (ii) *Int. J. Environmental Earth Sciences*, Springer Publication; (iii) *Int. J. Rock Mechanics and Mining Sciences*, Elsevier Publication, (iv) *Council of Science & Technology*, Lucknow, UP and (v) Proceedings of the *Indian Academy of Sciences* (Earth and Planetary Sciences), IIT, Bombay (vi) *J. of The Institution of Engineers* (India): Series D, Metallurgical & Materials and Mining Engineering, Springer.
- Approved reviewer of reports submitted by foreign consultants/ company (i) M/s *SRK South Africa & Australia*, (ii) *SNC-LAVALIN, Canada* (iii) *SOFREMINES, France* (iv) *Poltegor Engineering Ltd.*, Poland, to different mining companies in India.