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1. Name: AWANINDRA PRATAP SINGH

2. Date of Birth: 07-05-1975

3. Current Position and Address: PRINCIPAL SCIENTIST (GROUP-IV)

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4. Educational qualifications: (Graduation and above)

| SN | Degree | Year of passing | University/Institute | Subjects |
|----|--------------------------|-----------------|-------------------------------|--|
| 1 | B.E.(Mining) | 1999 | Govt. Engg. College, Bilaspur | All subjects of mining |
| 2 | M.Tech. (Rock Mechanics) | 2001 | IT BHU, Varanasi | Rock Mechanics, Operational Research, Physical & Numerical simulation of rock mass etc. |
| 3 | Ph.D | Continuing | ISM, Dhanbad | Ph.D Topic: Appraisal of Coalbed Methane Produced Water and Aquifer Impact Modeling in Raniganj Coalfield, West Bengal |

5. Work experience

| Designation | Institute | From | To | Nature of Work |
|---------------------|---------------|------------|--------------|---|
| Fellow Range (1) | CMRI Dhanbad | 12.08.2001 | 09.12.2001 | Collecting & collating data from field, its documentation and analysis |
| Scientist B | CMRI Dhanbad | 10.12.2001 | 10.12.2004 | To do R&D in the field of mining geo-hydrology |
| Scientist C | CMRI Dhanbad | 11.12.2004 | 10.12.2008 | To do R&D in the field of mining and geo-hydrology |
| Senior Scientist | CIMFR Dhanbad | 11.12.2008 | 10.12.2012 | providing R&D back-up in the field of glaciology, mining and geo- hydrology and feasibility studies of different mining methods |
| Principal Scientist | CIMFR Dhanbad | 11.12.2012 | Continued... | * please see below |

* = Feasibility study for, and on-site implementations of various coal mining methods with deployment of continuous miners and accessories, Design of feasible mining methods and supports, especially during underground coal extraction and then validation at underground coal mines, Aspects of Rock mechanics, Subsidence & Mining engineering, Caving & Rib mechanics and Ground control, including their impact-assessments on methods of mining and requisite modifications, Design of pillars and arrays of pillars for different mining methods including chain-pillars/barrier pillars design for sectionalisation, subsidence control or other purposes, Study and advice related to strata evaluation and management for better safety and ground control outcomes, R&D back-up for safe coal production and enhanced recovery of coal, especially below important sub-surface (overlying goaves, developed workings, water-bodies, aquifers) and surface properties (human settlements, forest land, Aerotropolis etc) without any adverse subsidence-related impacts on them, Stability analysis of an underground mining excavation with the help of empirical and numerical modelling

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approaches, Hydrogeological study confined to a mining proposition with due regard to safety, conservation and productivity, including estimation of make of water and monitoring, Inter-disciplinary and/or collaborative approach in dealing with geo-technical issues related to a mining proposition, sometimes inter-institutional and trans-disciplinary in nature, Retrospective analysis of various mine-accidents happened in past, assisting the constituted enquiry committee.

6. Area of specialization:

- Hydrogeological study for mining proposition with due regards to safety conservation and productivity
- Design of pillars and arrays of pillars for different mining methods
- Study and advice related to strata evaluation and management for better safety and ground control outcomes
- Stability analysis of an underground mining excavation with the help of empirical and numerical modelling approaches

7. Honors/Awards received:

- a. One of the paper entitled “Delineation of offending galleries in barriers of underground coal mines” has been selected under Young Scientist Award programme of 94th Indian Science Congress 2006-2007
- b. Received “Malti Puruskar” Award for the best paper entitled “Certain aspects of water crisis in India with some remedial measures” published in ARPAN, Vol. 4 No. 1-2, pp. 21-34 for 2004-2005.

8. Fellowships/Scholarships: NIL

9. No. of Research Publications:

- Papers in journals: 10
- In conference proceedings: 18
- Invited/key-note addresses: Nil
- List of best 05 publications:

| S N | Year | Article name | Published in Journal/Int. Conf./Award programmes |
|--------|------|--|---|
| 1 | 2005 | Disaster management for Nandira watershed, District Angul (Orissa) India, using temporal remote sensing data and GIS | Int. Jr. of Environment Monitoring and Assessment, Volume 104, pp. 425 - 436 |
| 2 | 2011 | Validation of RMR-based support design using roof bolts by numerical modeling for underground coal mine of Monnet Ispat, Raigarh, India - a case study | Arabian Journal of Geosciences, Published Online 23 March 2011 of Springer Iran, Online Publication, pp.1-14, DOI 10.1007/s12517-011-0313-8 |
| 3 | 2013 | Prediction of sea water intrusion for mining activity in close precincts of sea shore | Springer Plus - a Springer Open Journal, Online Publication, pp.1-10, DOI:10.1186/2193-1801-2-417 |
| 4 | 2006 | Delineation of offending galleries in barriers of underground coal mines | Paper selected under Young Scientist Award programme of 94 th Indian Science Congress 2006-2007 and was presented in the same |

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|---|------|--|---|
| 5 | 2013 | Coal bed methane water quality assessment and utilization options in Raniganj Coalfield, India | Presented in World Mining Congress 2013, held at Montreal, Canada during 11-15 August 2013. |
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10. Number of Books authored/edited: One (Edited book on “Mathematical Modeling of Ground water in Mining Area”, a 14 days Training Course, Sponsored by DST, New Delhi)
11. (a) No. of Patents granted/applied for: Nil
(b) Technologies developed, Licensed and/or commercialized: Nil
12. Foreign visits: Presented one paper in World Mining Congress, 2013, held at Montreal Canada, during 11-15 August 2013, discussed aspects of mining engineering, CBM adsorption/production and assorted subjects related to thrust areas of CSIR-CIMFR with the experts from other countries
13. Details of Professional memberships:
- Life member of Indian Science Congress Association
 - Life and Council member of the Indian Mine Managers’ Association (IMMA) as Co-Treasurer
 - Member of BHU Alumni Association, Dhanbad Asansol Chapter, India
 - Life member of Int. Association of Hydrological Sciences
- 14 . Major contributions: (Max. 150 words)
- Sedimentation appraisal around barrage in Bokaro river basin under intensive coal mining and processing units”, funded by Ministry of Water Resources, Government of India (INCID)-A Grant-in-Aid Project, **funded by INCID, MoWR**, New Delhi, completed successfully.
 - Geomorphological cum Sedimentological Appraisal of Changme Khangpu Glacier, North District (Sikkim Himalaya) – A Grant-in-Aid Project **funded by DST**, New Delhi, completed successfully.
 - Fourteen days training course conducted on “Mathematical Modeling of Ground water in Mining Area” **sponsored by Department of Science and Technology, New Delhi**. 14 days, 10-23 March, 2005 as Co-Course Coordinator., completed successfully.
 - To find a Methodology of Safe Liquidation in thick seams of Raniganj coalfields: Design, Development & Show-casing Demonstrative trials at Khottadih colliery, ECL – **A CIL R&D Grants, funded by Coal India Limited (CIL) being continued as per schedule.**
 - Hydrological work of Surkha mining lease area, Funded by Gujarat Mineral development Corporation (GMDC), Gujarat
 - Geological Investigation for Chunar - Sone Barrage Link Canal (UP Portion) Funded by National Water Development Agency (NWDA).
 - Hydrological Investigation cum geophysical study for Nine Mile and Lantakhola landslide area, Sikkim, funded by Border Road Organization (BRO)
 - Design of feasible method of liquidation of coal & design of support system at Kumbarkhani u/g mine, WCL funded by WCL.
 - Feasibility of Underground and Mixed mining method in Palana Lignite Mine project, funded by Neyveli Lignite Corporation.
 - Study for feasibility of extraction of R-VI seam of Khottadih Colliery by Depillaring with Caving method, funded by Pandaveswar Area, ECL
 - Scientific study for Suitable Method of Work with no subsidence adverse effect on upcoming new Township at Moonidih Mine, funded by Western Jharia Area, BCCL.

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- Feasibility study to provide long-term stable access and egress for the dip-side workings, support design and method of extraction at Chanda Rayatwari Colliery (CRC), funded by Chandrapur Area, WCL.
- Scientific study for depillaring of T9 panel with support design at 3&4 inclines, Tandsi Mine, WCL, funded by Kanhan Area, WCL.
- Scientific study for safe liquidation of coal seams above the CM panels at Sarpi project, ECL, with aim to protect Ukhra Village, funded by Bankola Area, ECL.
- Scientific study to assess no adverse subsidence effect on important surface properties including the forest land due to underground mining during development in SECL, with special reference to Ketki and Binkara, coalmines, funded by SECL.
- Scientific study to ascertain the geotechnical stability of new transmission tower locations of proposed relocation route of existing 400 KV PPSP- Durgapur line for proposed airport at Andal, Durgapur, WB as per requirement of WBSETCL, funded by Bengal Aerotropolis Pvt. Ltd. (BAPL).
- Study for feasibility of extraction of R-VI seam of Khottadih Colliery, ECL by Depillaring with Caving method, funded by Pandawesvar Area, ECL.
- Ascertaining Geotechnical Stability at Tower Locations of 220 kV Mangalpur – JK Nagar Transmission Line Near Raniganj, Burdwan as per Requirement of WBSETCL funded by WBSETCL.
- Scientific evaluation study related to volumetric computations including the method-audit of pachwara (central) opencast coal mine of PSPCL funded by PSPCL.
- Evaluation of roof rock behavior for depillaring T9 panel at Tandsi ¾ Incline, Kanhan Area, Western Coalfields Limited, funded by Kanhan area, WCL.
- Scientific Site Investigation (SSI) at Vijay West u/g mine of M/s SECL funded by Joy Mining Services.
- Scientific study for cavability aspect of massive Deccan trap roof formation and installation of suitable geotechnical instruments at Mauri Mine, Kanhan Area., funded by WCL.
- Extraction strategy in 3 workable seams, namely XIV seam (topmost), XIII seam and XII seam at Lohapatti underground mine, BCCL, funded by BCCL.
- Advice on extraction of developed pillars in 124 LW panel of Churcha (RO) Mine, SECL with continuous Miner deployment and support design, funded by Hansdeo area, SECL.
- Scientific study for safe depillaring in R-VI seam with the deployment for continuous miner: Increase in height and width of extraction and related mining induced stresses, funded by Pandawesvar area, ECL.
- Scientific study for method of working and sequence of extraction of existing developed and virgin section of HR seam at Hirakhand Bundiya Mine, Orient Area, MCL, funded by MCL.
- Advice on selection of a suitable mining method for all workable seams at Thesgora underground mine, Pench Area, WCL, funded by Pench Area, WCL.

15. Technologies and Products/ Services Nil

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

16. Designs and Prototype Developed: Nil

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

Signature