

## CURRICULUM VITAE



- Name:** RAJ KISHORE PANIGRAHI
- Designation & Email id:** Senior Principal Scientist, Geotechnical Engineering Division, CSIR-  
Central Road Research Institute, Mathura Road, New Delhi-110025,  
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0120-3556559(R), E - Mail: [panigrahi.crii@nic.in](mailto:panigrahi.crii@nic.in)
- Areas of Interest:** Engineering Geology, Geotechnical Engineering, Landslide investigation & Rock mechanics
- Educational Qualification:**

Degree	Year of Passing	University/ Institute	Subjects	Division
M.Sc. Tech (Applied Geology, 3 year course)	1988	Indian School of Mines (ISM), Dhanbad, Bihar	Engineering Geology, Mining Geology, Rock Mechanics, Geology, Hydrology and Geo-hydrology, Physical Geology, Geomorphology, Mineralogy, etc.	1st
B.Sc. (Hons.)	1985	Khallikote College, Berhampur University, Berhampur, Orissa	Geology (Hons), Physics and Chemistry	1st

5. Professional Experience:

Starting from	Up to	Position held	Organization
Sept. 2018	Till date	Senior Principal Scientist	Central Road Research Institute, New Delhi
Sept. 2009	Sept. 2018	Principal Scientist	Central Road Research Institute, New Delhi
Sept. 2003	Sept. 2009	Scientist E1	Central Road Research Institute, New Delhi
Sept. 1997	Sept. 2003	Scientist C	Central Road Research Institute, New Delhi
Sept. 1992	Sept. 1997	Scientist B	Central Road Research Institute, New Delhi
Sept. 1988	Sept. 1992	Junior and Senior Research Fellow	Indian School of Mines, Dhanbad, Bihar

## 6. Membership to Professional Bodies

- i) Life Member, Indian Roads Congress, New Delhi.
- ii) Member, Indian Geotechnical Society, Delhi Chapter.
- iii) Member, Indian Society for Rock Mechanics & Tunnelling Technology, Delhi
- iv) Member, The Indian Mining & Engineering Journal, Bhubaneswar.

## 7. Achievements

### a) Honours and Awards

- ✓ **RASHTRIYA GAURAV AWARD** (NOV-2014).
- ✓ **R.N.PRASAD – Best Paper Award** (Awarded during IGC-2013, ROORKEE for a paper in Indian Geotechnical Engineering Journal).
- ✓ Certificate of merit on **Waste Materials utilization** in Highway Engineering Projects.
- ✓ **IGS- AIMIL Award** Bangalore, 1995 (**Best Paper Award**).
- ✓ **CSIR-UGC Net qualified JRF (1988-90) and SRF (1990-92) Scholarship.**
- ✓ **UGC scholarship for final year(1987-88) for 3-year Msc.Tech (Applied Geology) course.**
- ✓ **National Scholarship from 10<sup>th</sup>-12<sup>th</sup> class, BSc.(Hons), First and Second year of 3-Year Msc.Tech (Applied Geology) Course.**

### b) Research Projects

More than 28 years of professional experience in the areas of Geotechnical Engineering, Landslide Investigations, Material characterization for soil and rock, Quality control and quality audits, Soil stabilization, Utilization of waste materials like fly ash for okhla fly over and hanuman setu of delhi. The undersigned has worked as Project Leader/Team Member in many R&D and Consultancy projects covering the areas mentioned above. The number of R&D and consultancies projects has been carried out for landslide Investigations, instrumentations, usage of fly-ash in construction of civil engineering projects, Rock Slopes Stabilization etc as per the requirement of clients to solve the complicated problem of the National importance. I would like to inform, in my last 28 years (Sept.1988 to May-2016) of research work, worked as research scholar for 4 years and 24 as a scientist, during this research period based on my R&D Projects and publications, 4 Awards conferred to me. As a Scientist worked as team member and project leader in following project mentioned below. I also published large number of papers as single author and also as a co-author. The list of most of the important projects and details of publication are given below.

#### **RESEARCH EXPERIENCE: (As a Project leader and Team Member in different project given below)**

1. Detailed study of seven span of grade separator in Km.9. and Km.10 (Govt. polytechnic junction) in Lucknow city, Uttar Pradesh., Worked as a Team Member
2. Rock Dynamic Study for Joint Controlled Hill Rock Slopes, (CSIR-CRRI in House Project) Worked as Project Leader.
3. Design and Implementation of remedial measure for preventing of hill slope and landslide at Shri Ram Laxman Mandir at Gadmandir, Ramtek, Nagpur, PWD, Maharashtra, Worked as a Team Member.
4. Preparation of guidelines for stabilization of hill Rock Slopes, (CSIR-CRRI in House Project) - A guideline for stabilization of hill Rock, Worked as Project Leader.
5. Investigation and Remedial Measures for Stabilization of Slope at Km.45.00 on NH-150, Mizoram (PWD, Mizoram), Worked as Project Leader.

6. Investigation and remedial measures for stabilization slope at Km.214.240 on NH-39, Border Road Organization, Nagaland. Remedial Measures Recommended and implemented, Worked as Project Leader.
7. Investigation and remedial measures for stabilization of hill slope from Nadi colony to Crusher house near manual Limestone mines, Sataun, H.P. Stabilisation measures are recommended for hill slopes. A new road alignment from hill slope of Nadi colony to Crusher house near manual Limestone mines, Sataun, H.P was suggested. Worked as a Team Member.
8. Design, Development & Installation of the Instrumentation for detection and Early warning of Landslide (CSIR - Network Project). Model study was carried out to understand the behavior of failure of soil slope at CRRRI, New Delhi. Worked as a Team Member.
9. Quality inspection of Roads under PMGSY (Pradhan Mantri Gramya Sadak Yojana Project). Worked as a Team Member.
10. Investigation Instrumentation and Monitoring of Landslide at Patalganaga, Garhwal, Uttaranchal. DST Sponsored Project. Mechanism of slope failure and remediation was ascertained by high quality element of investigations, analysis and monitoring through different types of instruments. Worked as a Team Member.
11. GIS based Subsurface Geotechnical Map of Delhi (DST sponsored Project). Subsurface Geotechnical Map of Delhi was prepared. Worked as a Team Member.
12. A detailed study on mass wasting and other slope processes - A step towards reducing environmental Hazard in a part of Himalaya, Mass vesting study was conducted and measures are suggested for reducing the environmental hazards in different part of Himalayan road. Worked as a Team Member.
13. Landslide Investigations and Remedial Measures along NH-39 on Dinapur-Kohima-Maram/Mao (DKMM) Road, Nagaland. Sponsored by BRO, Nagaland. Worked as a Team Member.
14. Drainage measures and stabilization slopes near Tala Hydroelectric project, Bhutan. Worked as a Team Member.
15. Field trials on the technique of soil nailing on NH-58 near Rishikesh (DST sponsored project). Trial and technique was successful and same technique may be used for slope stabilization adjacent to road ways in different problematic hill slope of India. Worked as a Team Member.
16. Development and Promotion of Jute Based Geotextiles. Indian Jute Mills Association, Jute Geotextiles was used for different civil engineering applications including stabilisation of hill slope and growth of vegetation. Worked as a Team Member.
17. Investigation Instrumentation and Monitoring of Powari Landslide, HP (DST Sponsored Project). Powari landslides were monitored using different types of instrument and remedial measures are suggested to stabilise the slope. Worked as a Team Member.

18. Field Investigations and correction techniques for improving landslide affected areas at Kinwani, Narendra nagar, Tehri, Garwhal. U.P. Sponsored by Indian Hotel and Health Resort Pvt.Ltd. Remedial Measures are recommended for Stabilization Slope at problematic sports of Kinwani, Narendra Nagar, Tehri, and Garwhal. U.P. Worked as a Team Member.
19. Construction of Reinforced soil wall at Yamuna Bazar flyover using Grogrid (Hanuman Setu), New Delhi. Sponsored by PWD, Delhi. Hanuman setu was constructed using reinforced soil wall and flyash.
20. Landslide Investigation and Stabilization of Landslide on Arnas-Mahore road, Jammu PWD. Remedial Measures are recommended for Stabilization Slopes on Arnas-Mahore Road, Jammu. Worked as a Team Member.
21. Construction of Reinforced Soil Wall for Okhla Flyover, New Delhi. Sponsored by PWD, Delhi. First time in India, Construction of Reinforced Soil Wall for Okhla Flyover, New Delhi was carried with usage of mono and bi-oriented Geo-grid with flyash mixed of soil. Worked as a Team Member.
22. Sinking of Road at Landour Cantt. At Mussoorie. Sponsored by DIWS Mussoorie. Suitable remedial measures are suggested and implemented for remediation of Sinking problem of Road and stablisation of slopes at Landour Cantt. At Mussoorie. Worked as a Team Member.
23. Investigation of Landslide on NH-52A. Sponsored by PWD, Arunachal Pradesh. Remedial measures are recommended for Stablisation of Landslide on NH-52A. Worked as a Team Member.
24. Landslide Hazard Mitigation and Management, Guawahti. Sponsored by PWD,Guwahati. Training program was conducted for field engineers of north-eastern states. Worked as a Team Member.
25. Landslide Hazard Mitigation and Management. Sponsored by PWD, Mizoram. Training program was conducted for field engineers of north-eastern states. Worked as a Team Member.
26. Investigaion, Instrumentation and Monitoring of Powari Landslide, Himachal Pradesh, 1995. (DST Sponsored Project) Worked as a Team Member. First time in India, Powari Landslide at km 367.6 was instrumented for pore-pressure, lateral displacement of slope, slope deformation, rain gauge/rainfall data, etc. Worked as a Team Member.

**c) Research Publications:**

**Papers published in Journals**

1. R.K.Panigrahi and Gaurav Dhiman (2020) Critical review of different types of remedial measures for landslides, Vol.10, No.3, pp-38-45, March-2020, **Indian Highways Journal, Indian Road Congress, New Delhi.**
2. R.K.Panigrahi and Gaurav Dhiman (2019), Design and Analysis of Soil Nailing Technique for remediation of landslides, Vol.10, No.1, pp.24-32, Jan-June-2019, **Highway Research Journal, Indian Road Congress, New Delhi.**
3. R.K.Panigrahi (under preparation) "Soil Structure Interaction & Liquefaction on Building structures", **(For IRC Journal, New Delhi).**
4. R.K.Panigrahi and Gaurav Dhiman (Communicated) "Critical Review of Rock Mass Rating, Slope Mass Rating and Rock Mass Quality for the Remediation of Rock Slopes Adjacent to Hill Roads". **(Communicated for Publication in IRC Journal, New Delhi).**
5. R.K.Panigrahi and Gaurav Dhiman (Communicated) "Landslides Stabilization By Design And Construction Of Earth Reinforced Walls" **(communicated for publication in IRC Journal, New Delhi).**

6. R.K.Panigrahi (under preparation) "Detailed Review of Determination of Engineering Properties of Soil By Different Laboratory Methods" (**For IRC journal, New Delhi**).
7. **R.K.Panigrahi**, U.K.Guruvittal, P.S.Prasad, Pankaj Gupta and Sudhir Mathur (2011), Investigation and Design for Restoration of Hill slope in Mizoram, Indian Geotechnical Journal, 41(4), 2011, pp 215-225.
9. **R.K.Panigrahi**, U.K.Guruvittal, P.S.Prasad and Sudhir Mathur (2010), Geological and Geotechnical Investigations and remediation of hill slope failure at Km.214.240 on NH-39, Journal of Indian Highways, June-2010, Indian Road Congress, New Delhi.
10. **R.K.Panigrahi**, U.K.Guruvittal, P.Gupta, P.S.Prasad and Sudhir Mathur (2008), Geomechanic classification of rocks for hill slope failure at km.45.0 on NH-150 Mizoram, Indian Mining and Engineering journal, Vol. 47, No. 9, September-2008.
11. **R.K.Panigrahi** and Sudhir Mathur (2011), Investigations and Remediation of Hill Rock Slopes, Indian Mining and Engineering journal, Vol. 49, No. 9, pp-143-152, September-2010.
12. **R.K.Panigrahi (2018)**. "Assessment of Rock slopes adjacent to hill roadways", The Indian Mining and Engineering journal, volume 57, No.7, 12-17
13. **R.K..Panigrahi,(2017)** "Assessments of dilated joint controlled rock slope, The Indian Mining and Engg. Journal, Vol/56, No.4, April 2017, pp23-26
14. P.J. Rao, G.L.S. Babu, Kishor Kumar and **R.K. Panigrahi** (1997), Investigation Instrumentation and Monitoring of Landslide at Powari, Kinnaur Distt. (HP) - A Case Study, Journal of IRC, New Delhi, Vol.58- 2, pp-291-315.
15. **R.K. Panigrahi** and A.K. Shaw (2015), Engineering Geological Assessment of Hill Rock Slope, Journal of Engineering Geology, October, 2015, pp 411-419, IIT Delhi, New Delhi.
16. **R.K.Panigrahi**, Alok Ranjan and Sudhir Mathur (2009), Bhushkhalan ki sambadhi adhyayana and unnke sudhar ki upaya, Bharatiya Vaigyanik Evam Audyogik Anusandhan Patrika (NISCAIR Journal), Barsha.17, Anka.2, pp-152-157, December-2009.

#### **Papers published in International/National Conference:**

1. **R.K.Panigrahi** and **Gaurav Dhiman (2019)**" Design And Construction of Reinforced Earth Walls for Hill Slopes", INDO ROCK-2019, 8th Indian Rock Conference, Nov.4-5 2019, ISBN NO. 81-86501-27-1 ISRMTT pp-284-293, New Delhi
2. R.K.Panigrahi and Gaurav Dhiman (Communicated) "Risk Assessment And Early Warning System For Landslides In Himalayan Terrain" (**Paper submitted to Indian Geotechnical Conference(2020), Vishakapatnam**)
3. R.K.Panigrahi (Communicated) "Different Sets of Remediations For Mitigation of Landslides in Hilly Terrain of India" (**Paper submitted to Indian Geotechnical Conference(2020), Vishakapatnam**)
4. R.K.Panigrahi (under preparation)(2020) "Role of Liquefaction for Seismogenic landslides in Road Network of Himalyan terrain of India" for **5<sup>th</sup> World Congress on Disaster Management(WCDM-20),New delhi**.
5. R.K.Panigrahi(Under Preparation) "Climate Change Impacts on Ecosystem and Himalayan Landslides".**5th World Congress on Disaster Management (WCDM-2020), New Delhi**.
6. R.K.Panigrahi(Under Preparation) " Slope Management For Himalayan Landslides", **.5th World Congress on Disaster Management (WCDM-2020), New Delhi**.
7. **R.K.Panigrahi** and **Alok Ranjan(2017)**, Assessment of vibration induced joint controlled Rock slope failure Adjacent to Roadways, 7th Indian Rock Conference, Indorock-2017, 27 october 2017, pp.310-316, NewDelhi, ISRMTT

8. **R.K.Panigrahi and Alok Ranjan(2017)**, Geological and Geotechnical Investigations of Rock Slopes, Indian Landslide Congress, IIT Mumbai
9. **R.K.Panigrahi (2016)**, Evaluation of Joint Controlled Rock Slopes Adjacent to Hill Roads With Rock Mechanics Approach, Sixth Indian Rock Conference (INDOROCK2016), Mumbai, June17-18, 2016 IIT Bombay, pp.922-923, ISRMTT
10. **R.K. Panigrahi** and A.K. Shaw (2015), Rock dynamic study for hill slopes adjacent to roadways, 50<sup>th</sup> Indian Geotechnical Conference (IGC-2015), 17-19<sup>th</sup> December, College of Engineering Pune.
11. **R.K.Panigrahi** (2015), Rock Chemistry and Rock Fracture Studies for Rock Engineering Investigation of Hill Rock Slope, National Seminar on Landslide: Management & Mitigation Strategies (LAMAMIS-2015), Defense Terrain Research Laboratory (DTRL), Defense Research & Development Organization (DRDO).
12. **R.K.Panigrahi** (2014), Rock Fracture, Rock Chemistry and Rock Engineering Studies for Hill Rock Slope, INDOROCK - 2014, 5<sup>th</sup> Indian Rock Conference, 12-14<sup>th</sup> November 2014, New Delhi.
13. **R.K.Panigrahi** (2014), Rock chemistry for slope stabilization, IGC-2014 Kakinada, Proceedings of Indian Geotechnical Conference, IGC-2014, Kakinada, India.
14. **R.K.Panigrahi** (2014): E-waste is a future alternative road material, Sustainable development in Mineral & Earth resources, SDMinER-2014, 21- 22 June, India international center, New Delhi.
15. **R.K.Panigrahi** (2013), Rock Fracture Studies for Hill Rock Slope, GEOSANGHAI-13, China.
16. **R.K.Panigrahi** (2013), Rock Dynamic and Fracture Studies for Hill rock Slope, IGC-2013, Roorkee, Geotechnical Advances and novel Geomechanical Applications (GANGA), IGC 2014, Dec. 22-24, 2013, Roorkee.
17. **R.K.Panigrahi** (2013), Rock Fracture Studies for Hill Rock Slope – A Step towards Better Crisis Management BRO TECH-SEMINAR, Pune, Proceeding on Construction of Roads and Bridges in Challenging Conditions like Hills, High Rainfall and Snow Bound Areas, Organised by Border Road Organisation (BRO), Technical Seminar-2013, 18<sup>th</sup>-19<sup>th</sup> July, Pune, pp-64-74.
18. **R.K.Panigrahi** (2013): Geological and Geotechnical Studies for Stabilization of Rock Slope, INDOROCK-13 Wakahanaghat, H.P., 4<sup>th</sup> Indian Rock Conference (Indorock13), 29<sup>th</sup> to 31<sup>st</sup> May-2013, Indian Society for Rock Mechanics and Tunnelling Technology(ISRMTT) AND Jaypee University of Information Technology, Waknagaht, Solan, Himachal Pradesh (H.P).
19. **R.K.Panigrahi** (2013), Assessment of Geological Fracture Mechanics and Rock Dynamic Studies for Hill rock Slope. Proceedings of workshop on Clean Mining Technologies-Extraction, Beneficiation and Use, (MINETECH-13), 3<sup>rd</sup> and 4<sup>th</sup> May-2013. pp-10-18.
20. **R.K.Panigrahi** (2012) , Rock Dynamics and Acoustic Emission study for Hill Rock Slope, Indian Geotechnical Conference(IGC-2012), Delhi.
21. **R.K.Panigrahi** and M.S.Rout (2011) An innovative approach for study of unstable hill rockslope, Indian Geotechnical Conference-2011, Kochi.
22. **R.K.Panigrahi** and M.S.Rout (2011) Rock Engineering Investigation and Remediation for Unstable Hill Rock Slope - A New Approach Code - 3362011. Abstract accepted and paper under preparation for 4<sup>th</sup> International Conference on Geotechnical and Geophysical Site Characterization (ISC'4). Brazil Geocongress-2011
23. **R.K.Panigrahi** and M.S.Rout Hazard Estimation For Rock Slope Failure And Its Remediation - A New Approach, Minetech - 2011, Raipur.
24. **R.K.Panigrahi** and Sudhir Mathur (2010): Rock Engineering Investigations and Remediation of Hill Rock Slope Failure Adjacent to Roadways, Proceeding of International Society of Rock Mechanics (ISRM) and Asian Regional Geotechnical conference, New Delhi.

25. **R.K.Panigrahi** and Sudhir Mathur (2010) : Investigation techniques and Remedial measures for Hill rock slopes, Proceeding of Mine-Tech-2010, Mining Technology-Extraction , Beneficiation for soft and Sustainable Development, Editors- Dr.G.K.Pradhan, Prof.S.Jayanthu and Prof. Monoj Pradhan, 7<sup>th</sup> and 8<sup>th</sup>, May-2010, Bhubaneswar.
26. **R.K.Panigrahi** and Sudhir Mathur (2010) : Geotechnical Investigation for Road Design for Road transportation, Proceeding of Development in Road transportation (DRT-2010), Editors-Prof. M.Panda and Prof. U. Chattaraj, pp- 565-571, 8<sup>th</sup> to 10<sup>th</sup> October, 2010, Rourkela.
27. **R.K.Panigrahi**, U.K.Guruvittal and Sudhir Mathur (2010): Assessment of Unstable Rock Slope- a Critical Review, Proceeding of Sixth International Conference Environment Geo-technology (ICEG) 8<sup>th</sup> to 12<sup>th</sup> November, 2010, India habitat centre, New Delhi.
28. **R.K.Panigrahi**, U.K.Guruvittal and Sudhir Mathur (2010): Genesis of Coal and chemical composition and its significance for use in Road, proceeding of Indian Geotechnical Conference-2010(GEOTRENDZ), IIT, Mumbai.
29. **R.K.Panigrahi** and Sudhir Mathur (2010) : Investigation and remediation of rock slopes, MINETECH-10, Bhubaneswar.
30. **R.K.Panigrahi** and Alok Ranjan and Sudhir Mathur (2009): Bhuskhalan ki ghatna ko rokne thatha kam karne mein sahyaka evam nirnayaka pakhya. (Submitted for publication in Sadakdarpan, Hindi journal).
31. **R.K.Panigrahi**, U.K.Guruvittal, P.S.Prasad and Sudhir Mathur (2008) Geomechanic classification of rocks of Mao landslide at Km.214.240 on NH-39, Nagaland, Published and presented in national symposium on Geoenvironment, Geohazards, Geosynthetics and Ground improvement (4G)- Experience and Practice, 4<sup>th</sup> -5<sup>th</sup> July'08, CSMRS, New-Delhi.
32. **R.K.Panigrahi**, U.K.Guruvittal, P.S.Prasad and Sudhir Mathur (2008) Geomechanic classification of rocks of Mao landslide at Km.214.240 on NH-39, Nagaland, Published and presented in national symposium on Geoenvironment, Geohazards, Geosynthetics and Ground improvement (4G)- Experience and Practice, pp- 275-281, 4<sup>th</sup> -5<sup>th</sup> July'08, CSMRS, New-Delhi.
33. **R.K.Panigrahi**, Sanghapriya and Jai Bhagwan (2004). Natural Disaster Mitigation- An Integrated Approach for Forecasting of Landslides. Proceedings of the World Congress on Natural Disaster Mitigation, Vol. 2., New Delhi, 14-21 February 2004.
34. **R.K.Panigrahi** and Jai Bhagwan(2004):Investgation, and instrumentation for prediction of landslide, Indian Geotechnical Conference-2004, Warangal, India.
35. **R.K.Panigrahi** and Jai Bhagwan(2004) : Geotechnical instrumens for monitoring of slope, International conference on Instrumentation, Pune, India.
36. Kishor Kumar and **R.K.Panigrahi** (2004): Geotechnical Map of Delhi- Input for Micro- zonation, Workshop on Methodology for Seismic Micro-zonation and its application for society, Nov.10-11, 2003, Dehradun (Abstract Accepted and Paper Presented).
37. Kishor Kumar, Pankaj Gupta and **R.K.Panigrahi** (2004): Application of Geographic Information System in understanding mass movement Processes, 7<sup>th</sup> Annual International conference, Map India-2004, New Delhi. (Abstract Accepted and Paper Presented).
38. O.P.Yadav, Kishor Kumar, **R.K.Panigrahi** and Sudhir Mathur (2003). Stabilization of cut slope through the use of soil nailing technique. National Seminar On Disaster Management With Specific Reference to Landslides And Avalanches organized by BRO, October 2003, New Delhi.
39. 26.Kishor Kumar, **R.K.Panigrahi** and Sudhir Mathur and P.K.Sikdar (2003). A Case Study On Filed Investigation And Instrumented Monitoring Of Powari Landslide, Himacahal Pradesh National Seminar On Disaster Management with Specific Reference to Landslides and Avalanches organized by BRO, October 2003, New Delhi.
40. Sukumar saha, **R.K.Panigrahi** and Sudhir Mathur (2003). Analysis of Rainfall Induced Landslides along

NH-39, Proc. of Geotechnical Engineering for Infrastructural Development, Indian Geotechnical Conference- 2003, pp. 409-412, Dec. 18-20, Roorkee.

41. O.P.Yadav, Kishor Kumar, **R.K.Panigrahi** and Sudhir Mathur (2003). Stabilization of cut slope through the use of soil nailing technique. Proceeding of National Seminar on Disaster Management with Specific Reference to Landslides and Avalanches, organized by Border Road Organisation (BRO), pp-65-81, 29<sup>th</sup> October 2003, Vigyan Bhawan, New Delhi.
42. **R.K.Panigrahi**, Jai Bhagwan and N.K.Goyal (2002), Landslide Disaster Management in India, National Symposium on Disaster Management (NSDM-2002), Institute of Advance Technology and Environmental Studies, Human Resource Development Foundation and Natural Resources Development Foundation, Bhubaneswar, India.
43. **R.K.Panigrahi** and Jai Bhagwan (2002), Landslide Hazard Zonation using Remote Sensing and GIS – A New approach, IGC-2002, Allahabad.
44. **R.K.Panigrahi**, Jai Bhagwan, and N.K.Goyal (2002) Landslide Investigation in Himalaya, CSMRS, New Delhi.
45. **R.K.Panigrahi**, Jai Bhagwan, and Sanghapriya, P (2002), Stability of Rock Slopes- A Critical Review, CSMRS, New Delhi.
46. O.P.Yadav, D Mukherjee, N K Sharma and **R.K.Panigrahi** (2001), Jute Geotextiles in Civil Engineering applications – Case studies, National Seminar on Technical Textiles, Ghaziabad, 23-24 Jan, 2001.
47. O.P.Yadav, Kishor Kumar, **R.K.Panigrahi** and Kanwar Singh (2001), Stabilisation Of Cut Slope Through The Use Of Soil Nailing Technique, National Workshop on Reinforcing Technologies for Slope Stabilisation and Kishor Kumar, R.K.Panigrahi and Kanwar Singh (2001), Landslide Hazard Evaluation in North Western Himalaya- Int.Conf. On Civil Engineering, 23-25 July, 2001, Department of Civil Engineering, Indian Institute of Science, Bangalore.
48. O.P.Yadav, Jai Bhagwan and **R.K.Panigrahi** (2001), Risk management of Hill slopes- Adjacent to Roadways, Int.Conf. on Civil Engineering, 23-25 July, 2001, Department of Civil Engineering, Indian Institute of Science, Bangalore.
49. O.P.Yadav, Jai Bhagwan and **R.K.Panigrahi** (2001), Investigation Techniques and Mitigation Measures for slope failure Proc. Of National Seminar on Rock Excavation Technique (ROCKEX-2001), 21-22 September 2001, The Indian Mining and engineering Journal, Bhubaneswar.
50. P.K.Sikdar, Kishor Kumar and **R.K.Panigrahi** (2001), Hazard Mapping for Guiding Development in Hilly Areas, Proc. Of all India Seminar on Infrastructure Development in Uttaranchal Problems and Prospects (IN-D-U-2001), October 11-13, 2001, The Institute of Engineers(India)- Roorkee local center, Roorkee and Department of Civil Engineering, Indian Institute of Technology, Roorkee.
51. O.P.Yadav, **R.K.Panigrahi**, Jai Bhagwan and N K Sharma (2000), Stabilisation of Slope in J & K areas- A case Studies, Proceedings of IGC- 2000, 13-15 Dec. pp401-402, Bombay.
52. Sukumar Saha, **R.K.Panigrahi** and O.P. Yadav(1999), Effect of Initial stress on finite soil layer under strip load -, RockSite – 99, Bangalore.
53. **R.K.Panigrahi**, Jai Bhagwan and P.K.Sikdar (1999), Detailed Investigation and monitoring Techniques for Effective Mitigation of Landslide Hazards, International Symposium on Engineering Geology and Natural Disasters, Katmandu, Oct 1999.
54. Kishor Kumar, **R.K.Panigrahi** and O.P.Yadav (1999), Significance of Geological discontinuity for slope behavior and its failure- Rocksite-99, Bangalore.
55. Kishor Kumar and **R.K. Panigrahi** (1998), Instrumentation, Monitoring and Analysis of Landslides- A Case Study, Fourth International Conference on Case Histories in Geotechnical Engineering, St. Louis, Missouri Rolla, USA, March 98.
56. S. Saha and **R.K. Panigrahi** (1998), Slope Stability Analysis of two Different Slopes using Cuts and Fills (Loads) on Slope Surface-A Case Study, Indian National Conference on Geo- environment, Allahabad, 98.
57. S. Saha and **R.K. Panigrahi** (1998), Computation of Stresses and Development for an Embankment



using Non-Linear Elasto-visco Plastic Model, Indian National Conference on Geo-environment, Allahabad, 98.

58. **R.K. Panigrahi**, D.S. Tolia and S Saha (1988), Landslide Hazard Zonation of Hilly Region Using Remote Sensing and GIS-A New Technique, Indian National Conference on Geo-environment, Allahabad, 98.
59. Sukumar Saha, **R.K. Panigrahi** and O.P. Yadav(1998), Landslide Hazard Mitigation through Slope Stability Analysis using Cuts and Fills ( loads)- A Case Study, Proceedings of International Workshop cum training Programme on Landslide Hazard and Risk Assessment and Damage control for Sustainable Development , Nov. 6-11, 1998 pp 141-151, Vol-II.
60. D.S. Tolia, **R.K. Panigrahi** and S.R. Rao (1997), Lateral Movement of Geogrid Reinforced Soil Retaining Wall- A Case Study, IGC, Vadodra, Dec. 97.
61. P.J. Rao, Kishor Kumar, G.L.S. Babu and **R.K. Panigrahi**(1996), Investigation and Monitoring of Landslide at Powari, IGC, Anna Uni. Chennai, Dec.96.
62. Bindumadhava, **R.K. Panigrahi**, P.J. Rao and N. Venisri (1996), Lateral Movement of the Geogrid Reinforced Soil Retaining Wall, IGC, Anna Uni., Chennai, Dec.96.
63. P.J. Rao, **R.K. Panigrahi**, Kishor Kumar and G.L.S. Babu, (1995), Instrumentation and Monitoring of Slope Movements at Powari Landslide, IGC Bangalore, Dec. 95.
64. **R.K. Panigrahi** and Y R Dhar.(1992), Geotechnical Evaluation for the stability of underground power house cavity at Tehri Dam Project, Garhwal Himalayas, India. ISRM Symposium (Eurock-1992), Chester, UK, 14-17 September 1992, PP 123-128.

d. Other information –

1. Post Graduation Supervision for 4 Students of M.Tech (Applied Geology), Kurukshetra University, Kurukshetra for the following topics:
  - I. Earth Processes responsible for Hill Slope Failure
  - II. Engineering Geological Investigations of Hill Slopes adjacent to Roadways
  - III. Stabilization of Rock Slopes
  - IV. Rock Mass Rating, Slope Mass Rating, Rock Defect Study, Key block Theory, Analysis for characterisation of Rock Slope adjacent to Roadways.
2. Critical Evaluation of Detailed Project Report (DPR) of Mangan Landslides, Sikkim.
3. Critical Evaluation of Tender Document of Hill Slope Stability Study pertaining to Karwar, as a part of Seabird Phase II at Naval Base, Karwar (Project Seabird Phase IIA/RFP: Hill Slope Stability Study, Director General Project Seabird, (NAVY), Ministry of Defence, New Delhi).

e. Other information –

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