

# Curriculum vitae

## M. L. Sharma

Professor, Department of Earthquake Engineering, IIT Roorkee,  
Roorkee – 247667, India



### Personal Data

Name: M. L. Sharma  
Born: Dec. 09, 1962, Uttar Pradesh, India  
Nationality: Indian  
Address: Department of Earthquake Engineering, IIT Roorkee,  
Roorkee – 247667, India  
Professional affiliation: Professor, Department of Earthquake Engineering  
Indian Institute of Technology Roorkee, Roorkee, India  
Phone number(s): (+91) 1332 285536 (Landline)  
(+91) 9412075062 (Mobile)  
(+91) 1332 276899 (Fax)  
Email: [sharmamukat@gmail.com](mailto:sharmamukat@gmail.com)

### Education

1992 Ph.D., in Earthquake Engineering, University of Roorkee, India  
1985 M. Tech., in Applied Geophysics, , University of Roorkee, India  
1982 Bachelor of Science from Meerut University, India

### Employment Record

Since 8 May, 2008 Professor, Department of Earthquake Engineering, Indian Institute of  
Technology Roorkee, India  
28 Sep, 2004 – 8 May, 2008 Associate Professor, Department of Earthquake Engineering, Indian  
Institute of Technology Roorkee, India  
09 April, 1996 – 28 Sep, 2004 Assistant Professor, Department of Earthquake Engineering, Indian  
Institute of Technology Roorkee, India  
26 June, 1986 – 09 April, 1996 Lecturer, Department of Earthquake Engineering, Indian Institute of  
Technology Roorkee, India  
27 Dec, 1985-26 June, 1986 Scientist B, Department of Earthquake Engineering – University of  
Roorkee, India

### Research Interests

*Engineering Seismology, Seismic Microzonation, Seismic Hazard Assessment, Strong Ground Motion  
Prediction*

## Languages

Hindi – mother tongue, English – fluent.

## Fellow of Professional Bodies

- **FISET** : Fellow of Indian Society of Earthquake Technology, F-45
- **FIGS** : Fellow of Indian Geotechnical Society, F-501
- **FIGU** : Fellow of Indian Geophysical Union, Hyderabad, F-232

## Life member of Professional Bodies

- **Life Member** : Fellow of Indian Society of Earthquake Technology, LM-386
- **Life member** : Indian Society of Engineering Geology, LM-1426
- **Life Member** : Association of Exploration Geophysicists, Hyderabad-M1022-88
- **Life Member** : American Geophysical Union, USA, M-821600

## Annual member of Professional Bodies

- **Member** : Seismological Society of America, USA
- **Member** : Earthquake Engineering Research Institute, USA

## Administrative-Technical responsibilities (out side IITR)

- **President** : Indian Society of Earthquake Technology Roorkee (2017-2019)
- **President** : Indian Society of Earthquake Technology Roorkee (2015-2017)
- **Vice President** : Indian Society of Earthquake Technology, Roorkee ( 2013-2015)
- **Vice President** : Indian Society of Earthquake Technology, Roorkee ( 2011-2013)
- **Secretary** : Roorkee Chapter, Indian Society of Earthquake Technology,(1999-2014)
- **Associate Editor** : ISET Journal of Indian Society of Earthquake Technology, (2007-2009, 2009-2011, 2011-2013, 2013-2015, 2015-2017)
- **Member**: International Editorial Review Board, International Journal of Geotechnical Earthquake Engineering (IJGEE), DOI: 10.4018/IJGEE, ISSN: 1947-8488, EISSN: 1947-8496 , 2012-2016

## Administrative-Technical responsibilities (within IITR)

- **Dean** : Finance and Planning, IIT Roorkee
- **Chairman** : 15<sup>th</sup> Symposium on Earthquake Engineering, 2014
- **Convenor**, Adhoc committee on management of Sri Saraswati Mandir, IIT Roorkee 2016-17
- **Head of the Department**: Department of Earthquake Engineering, IIT Roorkee (2012-16)
- **Organising Chairman** : Joint Entrance Examination (Advanced), IIT Roorkee, 2019
- **Chairman** : Joint Entrance Examination (Advanced), IIT Roorkee, 2018
- **Chairman** : Joint Entrance Examination (Advanced), IIT Roorkee, 2017
- **Vice Chairman** : Joint Entrance Examination 2010-11, IIT Roorkee
- **Vice Chairman** : Joint Entrance Examination 2011-12, IIT Roorkee
- **Chief Advisor Sports** : Sports Association, IIT Roorkee (2010-2013)

- **Sports advisor:** Gym, Sports Association, IIT Roorkee (2010-2013)
- **Sports advisor:** Squash, Sports Association, IIT Roorkee (2010-2013)
- **Warden:** Govind Bhawan, University of Roorkee (2001-2004)
- **Warden:** Ravindra Bhawan, University of Roorkee (1998-2001)

### **Chairing Sessions**

1. Engineering Geology conference, IIT Delhi, 2015, IGS from gopal dhawan
2. Indian Geophysical Union, Kurukshetra, 2014-15 from dinesh

### **International visits**

<b>Sl. No.</b>	<b>Dates</b>	<b>Institute and country</b>	<b>Purpose</b>
1	Jan 04-12, 2018	Taiwan	Project work for Taiwan Project
2	Jan 09-14, 2017	Santiago, Chile	Presented a paper on STOCHASTIC SIMULATION OF STRONG GROUND MOTIONS FOR WESTERN HIMALAYA REGION by Neha Kumari, M. L. Sharma and I. D. Gupta at 16WCEE  Attended Executive committee meeting of International Association of Earthquake Engineering as National Delegate from India in Santiago, Chile
3	March 12-18, 2016	NCREE, Taiwan	Seismic hazard assessment of nuclear power plants, Observer to Level 3 SHA
4	Jan 23-30, 2016	NCREE, Taiwan	MoES research project
5	Sept 20-22, 2015	Nepal	To attend and chair a session in seminar on "Seismic Evaluation and Retrofitting on pre & post-Earthquake", organized by Nepal Engineers Associates (NEA) and Society of Consulting Architectural and Engineering Firms (SCAEF), September 21, 2015, Kathmandu, Nepal.
6	Aug. 02-09, 2015	Singapore	12th Annual Meeting on AOGS
7	Janu. 27-31, 2015	Taipei, Taiwan	Research Project Work (NCREE)
8	Sept 28- Oct 04, 2014	NTU, Singapore	Academic/Project discussion
9	March 08-10, 2014	Taipei	Project work for Taiwan Project
10	March 10-16, 2014	Singapore	Project discussions
11	Sept. 24- 28, 2012	Lisbon, Portugal	Presentation of papers in 15 World Conference on Earthquake

			Engineering, Lisbon, Portugal
12	July 08- 14, 2012	St. Petersburg Moscow Russia	Part of the delegation for collaboration for Indo-Russian scientific exchange programme.
13	May 27- June 06, 2012	Norway	Project work
14	08-10-2010 to 08-04-2011	Mexico	MoES research project work with UNAM
15	22-10-2010 to 20-11-2010	Schengener-Staaten	
16	07-06-2009 to 20-06-2009	Schengener-Staaten	
17	24-12-2008	China	Presentation of papers in 14 World Conference on Earthquake Engineering, Beijing, China
18	20-09-2007 to 30-09-2007	Schengen- statene	
19	10-10-2006 to 16-10-2006	Taiwan	To present paper in 4th Int. Conf. Earthquake Engineering, Taipei, Taiwan
20	12-06-05 to 18-06-2005	Norway	Research Project work at NORSAR and NGI, Norway
21	06-06-05 to 11-06-2005	Switzerland	To check the strong ground motion instruments at GEISIG, Switzerland
22	12-12-2004 to 05-01-2005	Schengen- statene	
23	09-12-2004 to 09-06-2005	U.K.	Project work
24	July 29-August 12, 2004	Canada	Presentation of papers in 13 World Conference on Earthquake Engineering, Vancouver, British Columbia, Canada
25	Oct-1988	U.K.	Earth Data Ltd for Telemetry equipment to be deployed under DST project in Garhwal region
26	Sept-Oct, 1989	Potsdam, Germany	One month UNESCO course on seismology and seismic hazard assessment in Postdam

### **Major Research Projects**

1. Development of Indiginions Earthquake Early Warning System, IMPRINT2, SERB, DST, 2019-2022, New Delhi 3.00 Crores
2. Earthquake Early Warning System, **(PI)**, Uttarakhand Government, **2017-2019**, (Rs. 3.20 Crores)
3. Seismological Network Around Tehri Region **(PI)**, THDC India Ltd., Rishikesh, **2016-2019**, (Rs.

285.5 Lacs)

4. Strong Motion Network Around Tehri Region **(PI)**, THDC India Ltd., Rishikesh, **2016-2019**, (Rs. 43.7 Lacs)
5. Site Characterization and Attenuation Studies for Garhwal-Kumaun Himalaya and Delhi Region**(Co-PI)**, Funded by Ministry of Science and Technology, New Delhi, **2015-2018 (Rs. 23.24 Lacs)**
6. Operation and Strong motion Accelerograph in Tehri and Koteshwar, THDC India Ltd., Rishikesh, **2015-2016**, (Rs. 30.91 Lacs)
7. Seismological Network Around Tehri Region **(PI)**, THDC India Ltd., Rishikesh, **2013-2016**, (Rs. 287.72 Lacs)
8. Indo Norwegian programme on earthquake engineering (Co-PI), NORSAR, Norway, **2011-2015**, (1182000 NOK)
9. Strong motion network in NCT region**(Co-PI)**, DST New Delhi, **2011-2014**, (Rs. 45.81Lacs)
10. Probabilistic seismic hazard assessment and estimation of strong ground motion for Delhi region (PI), EREC, New Delhi, **2011-2013**, (Rs. 5.70 Lacs)
11. Source modeling and generation of strong motion : A case study of Sumatra earthquake of Dec 26, 2004 (Co-PI), DAE, BRNS, **2011-2013**, (Rs. 15.86 Lacs)
12. Estimation of site effects and ground motion in Delhi and Mexico city using strong ground motion data and preparation of near real time shake map **(Co-PI)**, DST, New Delhi, **2010-2013** (Rs. 14.61 Lacs)
13. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, **2010-2013**, (Rs.171.00 Lacs)
14. Shear Wave Velocity profiling in NCT, Delhi using MASW technique (PI), EREC New Delhi, **2009-2011**, (Rs.50.00 Lacs)
15. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, **2007-2010**, (85.31 Lacs)
16. Indo Norwegian programme on earthquake engineering (Co-PI), NORSAR, Norway, **2006-2011**, (621264 NOK)
17. Seismological network around Tehri region (Co-PI), THDC, Rishikesh,**2004-2007**, (Rs.97.24 Lacs)
18. Indo Norwegian Program of institutional Corporation on Earthquake Engineering (Co-PI), NORSAR Norway, **2004-2006**, (Rs.33.95 Lacs)
19. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, **2001-2004**, (Rs.85.96 Lacs)
20. Seismological network around Tehri region (Co-PI), THDC, Rishikesh, **1998-2001**, (Rs.85.28 Lacs)
21. Application of DIF-SAR to investigate critical deformation regimes in Garhwal Kumaon Himalaya

- related to earthquakes and landslide (PI), DST New Delhi, **1997-1999**, (Rs. 15.75 Lacs)
22. Broadband Seismograph Network for Modelling of earthquake source & upper crust in the GarhwalKumaon Himalaya region. (PI), DST New Delhi, **1996-1998**, (Rs. 24.96 Lacs)
  23. **1995-1996** : SAR interferometry for mapping land subsidence due to mining in Jharia Coal Field, Jharkhand, (Co-PI), DST New Delhi
  24. Study of Shallow earthquakes in Indian region using Differential SAR Interferometry, (PI), AICTE, New Delhi, **1994-1995**, (Rs. 10.00 Lacs)

### ***Major Consultancy Projects***

1. Assessment Of Vibrations and to establish the Structural Soundness/Integrity of the Existing Buildings over the Underground Corridor from Central Secretariat to Kashmere Gate of DMRC, Delhi Metro Rail Corporation Ltd., New Delhi, **2017-2018**, (Rs. 28.75 Lacs)
2. Uttarakhand Disatser Recovery Project Vetting of technical reports, data analysis reports, survey finding reports for Risk assessment studies, Uttarakhand Disaster Recovery Project, PI, Uttarakhand Government, **2016-2019**, (Rs. 160.00 Lakhs)
3. Seismic Hazard Assessment for South India, DRIP, CWC, New Delhi, **2016-2018**,(Rs. 82.44 Lacs)
4. Processing, Analysis and Interpretation of the Seismological Data and Preparation of Annual Technical Report based on one year Data Recording, NTPC KOL Dam, Himachal Pradesh, **2016-2017**, (Rs. 17.25 Lacs)
5. Assessment of Lateral Load Pile Capacities for harduaganj Thermal Power Station, Aligarh, UP., Head of Civil Dept., Joshiba JSW Power Systems Pvt. Ltd., Gurgaon, **2016-2017**, (Rs. 60.11 Lacs)
6. Seismic hazard studies for infield pipe line route (west block) M.P., Reliance Industries Ltd, **2015-2018**, (Rs. 27.36 Lacs)
7. Operation and Maintenance of Six Stations Seismological Network around Kol Dam Site, NTPC, KOL Dam Himachal Pradesh, **2015-2018**, (Rs. 17.10 Lacs)
8. Operation and Maintenance of Six Stations Seismological Network around Ettalin And Attulni Dam Site, **Arunachal Pradesh**, **2015-2018**, (Rs. 45.6 Lacs)
9. Operation and Maintenance of five Stations Seismological Network around Lakhwar Hydro Electric Project Uttarakhand, Uttarakhand Jal Vidhut Nigam Ltd., Lakhwar Bhawan, Dakpathar, Dehradun, **2015-2016**, (Rs. 62.97 Lacs)
10. Operation of Strong Motion Accelerographs in Tehri & Koteshwar, THDC India Ltd., Rishikesh, **2015-2016**, (Rs. 10.26 Lacs)

11. Operation and Maintenance of Six Stations Seismological Network around Kol Dam Site, NTPC, **KOL Dam Himachal Pradesh, 2014-2017, (Rs. 20.22 Lacs)**
12. Kalpasar multipurpose scheme, Kalpasar Department, Govt. of Gujarat, **2014-2016, (Rs. 8.98 Lacs)**

### **Recognition**

- Member: Dam Safety Review Panel, Central Water Commission for UJVNL.
- Member: Taskforce, Uttarakhand Disaster Recovery Project, Govt. of Uttarakhand, 2016-2018
- Chairman: Strong motion instrumentation, Bhakra Beas Management Board, 2015-2017
- Member: International Editorial Review Board, International Journal of Geotechnical Earthquake Engineering (IJGEE), DOI: 10.4018/IJGEE, ISSN: 1947-8488, EISSN: 1947-8496 , 2012-2016
- Alternate Member: CED-39- Earthquake Engineering Sectional Committee, Bureau of Indian Standard, New Delhi, 2012-2016
- Member: National committee on site specific design earthquake parameters, CWC, New Delhi, 2012-2016
- Member: HPSDMA, Govt. of Himachal Pradesh, Disaster Management Cell, Shimla, 2012-2016
- Member: Committee on Indira Sagar Polavaram Project, Irrigation & CAD Department, Govt. of Andhra Pradesh, 2012-2016
- Member: Koyna Tremor Sub Committee (KTSC), Dam Safety Organization, Nashik, 2012-2016
- Member: Advisory group for preparation of upgraded earthquake hazard maps, NDMA, New Delhi, 2012-2016
- Member: Project Advisory Committee on Seismicity and Earthquake Precursors, Ministry of Earth Sciences, New Delhi, 2012-2016
- Co-author of the Guidelines for preparation and submission of site specific seismic study report of river valley project to national committee on seismic design parameters, Central Water Commission, Government of India.
- Reviewer: many national and international journals

### **Awards:**

- A.S. Arya-IIT Roorkee Disaster Prevention Award-2012, IIT Roorkee
- Best paper award for the year 2011-12, Wadia Institute of Himalayan Geology, Dehradun

## **PhD guided**

### **Completed- 19**

1. **R. Kumar**, Earthquake occurrence in India and its use in seismic hazard estimation using probabilistic methods, 2007
2. **Anupam Tyagi**, Physics of the earthquake sources and development of expert system for earthquake prediction, 2007
3. **Javed Ahemed Naqash**, Microzonation of megacities, 2008
4. **Navin Pareek**, Landslide Hazard Zonation in Garhwal Himalaya using remote sensing techniques, 2008
5. **Shipra Malik**, 3D Crustal velocity structure Modelling of Garhwal Himalayas, 2009
6. **Girish C. Joshi**, Estimation of uncertainties in probabilistic seismic hazard analysis, 2009
7. **Atanu B**, Surface Displacement Measurement Studies using DInSAR in a Part of Himalayas, 2013
8. **Ashish Herbendoo**, Stochastic Modeling of Ground Motion for Indian Himalaya Region, 2013
9. **Ranjit Das**, Probabilistic Seismic Hazard Assessment for Northeast India Region, 2013
10. **Pushpa Chaudhary**, Simulation of Strong Ground Motion Using Semi Empirical Modelling Technique, 2014
11. **Rakhi Bhardwaj**, Algorithm for Earthquake Early Warning System, 2014
12. **Neeti Bhargava**, Math Modelling for Earthquake Prediction through Animal Abnormal Behaviour, 2014
13. **Col. A. K. Srivastava**, Seismic Microzonation of an Urban Habitat, 2014
14. **Rajeev Sachdeva**, Prediction of Strong motion parameters using ANN, 2015
15. **Narsihma**, Seismic risk assessment due to slope failures, 2016
16. **Vaneeta Devi**, Time Frequency Analysis of ground motion time history of microearthquakes (2019)
17. **Chhavi**, Seismic Hazard Assessment using extreme statistics, 2019
18. **Ritu Raj Nath**, Seismically induced Landslide Hazard Zonation, 2019
19. **Manoj Kuri**, Studies on landslide movements in parts of Himalaya in Uttarakhand using DINSAR techniques, 2019

### **Submitted**

20. **Shweta Bajaj**, Seismic Hazard Assessment
21. **Neha**, Prediction of Strong Ground Motion
22. **Sunil Saini**, Source Characterization in Himalayas

### **In progress**

23. **Devi Lata Pegu**, Seismic hazard and risk assessment for NE Indian region.
24. **Priyanka Sharma**, Liquefaction studies for large deformations in deep soils.
25. **Rajni Modi**, Local Earthquake Tomography
26. **C Lalla Wama**, Seismic hazard and risk assessment in NE India
27. **Deepak Rawat**, Landslide studies
28. **Mayuri**, Seismic Risk Assessment
29. **Deepak Jhangra**, Estimation of crust and upper mantle thickness
30. **Mudit Srivastava**, Site characterisation
31. **Arun Tyagi**, Landslide and earthquakes



## M. Tech

- Completed- 66
- Ongoing- 03

## Master's Degree Supervision:

1. **Ayushmaan Sharma**, Conditional Probability Assessment in Himalayas, 2019
2. **Sahil Gulab Angural**, Near Field Ground Motion Effects in GMPEs, 2019
3. **Ashish Bahuguna**, Strong Ground Motion Analysis from Himalayas, 2019
4. **Vickyson Naorem**, Risk informed Urban Planning, 2019
5. **Akanksha Agarwal**, Time Dependent Seismic Hazard Assessment, 2018
6. **Ali Ahmed Khan**, Reservoir Induced Seismicity (RIS) due to Tehri Dam, 2018
7. **Arun Tyagi**, Land Slide Hazard Zonation in Garhwal Himalaya, 2018
8. **C LALLA WMA WMA**, Seismic Hazard and Risk Assessment for NE India, 2018
9. **Rinku**, Site Amplification and Attenuation Studies for Himalayan Region, 2018
10. **Ritesh Kumar Rai**, Site Amplification Case Study, 2018
11. **Vivek Singh Yadav**, Induced Seismicity, 2018
12. **Vivek Bhardwaj**, Seismic hazard assessment for Uttarakhand, 2018
13. **Bhanu Pratap Chamoli**, Development of Earthquake Early Warning System, 2018
14. **Singh Jalesh Santosh**, Estimation of bed rock depth using GPR, 2017
15. **Harshvardhan Singh**, Scaling Laws in Himalayas, 2017
16. **Kuldip Khichar**, Site Amplification & Attenuation Studies for Garwal-Kumaun Himalaya & Delhi Region, 2017
17. **Rishi Grewal**, Seismic Risk Assessment of Srinagar city, Jammu and Kashmir, COEDMM, 2017
18. **Gautam Kumar**, Estimation of bed rock using GPR, 2016
19. **Ashish Kumar Verma**, Generation of Shake maps, 2016
20. **Rahul Kumar**, Seismic hazard analysis with moment release constraint in Kumaoun and Garhwal region, 2016
21. **Saurabh Kumar Mangal**, Evaluation of dynamic response of deep soils, 2016
22. **Ankita Prasun**, Seismic Risk Assessment due to Scenario Earthquake – A case study for Bihar Nepal 1934 Earthquake, 2016
23. **Ishan Roy**, Methodology for generation of Shakemaps for Delhi region, 2015
24. **Deepika Sayana**, Deep soil effect, 2015
25. **Phibe Khalko**, Seismic Hazard assessment, 2015
26. **Shivani Chauhan**, Disaster management plan for Bihar, 2015
27. **Shivani Singh**, Effect of deep soils on strong ground motion, 2014
28. **Vaddi Monica**, Seismic Hazard estimation for south India, 2014
29. **Smita Singh**, Ground motion simulation using modified semi empirical methodology, 2014
30. **Mod Ahemad**, Amplification of strong ground motion due to deep soils, 2013
31. **Akhilesh Singh**, Seismic Hazard and Risk Assessment for Indo-Gangetic plains, 2013
32. **Chibi Rajram**, Earthquake Early Warning System for North India, 2013
33. **Rebecca RC**, Evaluation of strong ground motion prediction equations, 2012
34. **Nitesh Patel**, Earthquake Early warning system, 2012
35. **Saurabh Vijay**, Advances in SAR interferometry, 2012
36. **Harish Shinde**, Seismic Microzonation of Chandigarh City, 2011

37. **Manu Mohan**, A Neural Network Approach for Earthquake Early Warning System, 2011
38. **Amarjeet Birajdar**, Attenuation relationship for spectral displacement for Himalayan region, 2011
39. **Abhishek**, Integrated Geo exploration over Solani Knee band, NW Himalaya, 2010
40. **Venu Gopal**, Comparison of site specific PGA using neural networks and regression models, 2010
41. **A. Panchal**, Determination of design ground motion parameters for displacement based design, 2010
42. **Mansi Kulkarni**, Seismic Hazard Assessment using Non Poissonian Models, 2010
43. **Jainish Kotadia**, Development of spectral attenuation relationship for Indian region, 2007
44. **Shiva Kumar**, Application of artificial Neural Network for prediction of spectral acceleration in site specific, 2006
45. **Ravindra Golia**, Estimation of cumulative and conditional probabilities in Himalayas, 2006
46. **Anshul Kumar**, Seismic microzonation of rural areas, 2005
47. **Prashant Ambulkar**, Development of methodology for insurance tariff against earthquakes, 2005
48. **Shivani Sharma**, Reflection of seismic waves from non-welded interfaces, 2005
49. **Murugavel Raja**, Automatic Phase Picking of Seismic Signals using ANN, 2005
50. **Sonal Gupta**, Dem generation from SAR interferometry, 2005
51. **A. Ahemad**, Development of Automatic Phase pickers for earthquakes, 2004
52. **Atanu Bhattacharya**, Estimation of strong ground motion in Himalayas using strong ground motion and SRR data, 2004
53. **J. Niwas**, Development of world wide GIS earthquake based system, 2003
54. **Pratim Sil**, SAR interferometry studies in Jharia Coal fields, 2003
55. **G. C. Joshi**, Seismic hazard analysis and risk computation, 2002
56. **K. Samba S Rao**, Seismic microzonation of Delhi, 2002
57. **Satendra Saini**, Development of attenuation relationship for Himalayan region using Indian Strong motion array data, 2002
58. **S. K. Gupta**, Remote sensing application in seismic hazard studies, 2001
59. **M. Khan**, Seismic hazard Analysis using GIS, 2001
60. **R. G. K. Nath**, Development of Attenuation relationship for Indian Region, 2000
61. **Venkata Raju**, Seismic hazard Analysis using Artificial Neural network, 2000
62. **S. Panda**, Design of an 10-storied building in NE India at location C, Maharashtra, 1999
63. **R. G. K. Nath**, Design of an 10-storied building in NE India at location B, Meghalaya, 1999
64. **Amit Sahu**, Design of an 10-storied building in NE India at location A, Assam, 1998
65. **Umakant Singh**, Design of an 8-storied reinforced concrete office building in NE India, 1998
66. **R. Gautam**, Background noise characteristics of ground using broad band seismometer, 1998
67. **Kiran Pal**, Fabrication of interface unit between seismometer and recorder, 1998
68. **Kh. Ibophisak Singh**, Seismological studies and design of Earth and Rockfill dam, 1995
69. **R. Verma**, Determination of coda magnitude of local earthquakes, 1991
70. **A Ghosh**, Automatic earthquake recognition, 1990
71. **Pravesh Gupta**, Design and Fabrication of an instrument for the measurement of ground conductivity, 1989

#### Conference Organised

- **Chairman** : A New Perspective on Natural Hazard, Risk & Insurance, *A workshop on challenges and innovations, May 2018*

- **Co-Chairman** : 6<sup>th</sup> International Conference on Recent Advances in Geotechnical Earthquake Engineering, 2016, Greater Noida
- **Organizing Secretary** : 14<sup>th</sup> Symposium on Earthquake Engineering, 2010
- **Organizing Secretary** : 13<sup>th</sup> Symposium on Earthquake Engineering, 2006,
- **Organizing Secretary** : 12<sup>th</sup> Symposium on Earthquake Engineering, 2002
- **Organizing Secretary** : Indo Norwegian Workshop, 2012

#### **Collaboration:**

- Indo Norwegian Project (2003-2015)
- Indo Taiwanese Project (2013-2015)
- Indo Mexican project on site characterization in New Delhi, 2009-2011.
- Indo Norwegian Project on seismic Risk Assessment, 2006-2010
- Indo Norwegian Programme on Institutional Cooperation on Earthquake Engineering, 2003-2006
- Seismic Hazard estimation of KGDVI site, NGI, Norway
- Seismic Hazard estimation of KGDIII site, NGI, Norway
- Conducted UNESCO Course on Seismology and Seismic Risk Assessment, Nov 04 to Dec 06, 1993; 30 participants from 23 countries and faculty from 3 countries participated

#### **Books Authored:**

- M.L. Sharma, Manish Shrikhnade and H. R. Wason (2018). Advances in Indian Earthquake Engineering and Seismology: Contributions in Honour of Jai Krishna,
- Proceedings, 15<sup>th</sup> Symposium on Earthquake Engineering – 15SEE, 2014, Vol I, pp 1-438, Published by Department of Earthquake Engineering, IIT Roorkee.
- Proceedings, 15<sup>th</sup> Symposium on Earthquake Engineering – 15SEE, 2014, Vol II, pp 439-1135, Published by Department of Earthquake Engineering, IIT Roorkee.
- Proceedings, 14<sup>th</sup> Symposium on Earthquake Engineering- 14SEE, Vol I, 2010, pp1-690 , Published by Department of Earthquake Engineering, IIT Roorkee
- Proceedings, 14<sup>th</sup> Symposium on Earthquake Engineering- 14SEE, Vol II, 2010, 691-1459, Published by Department of Earthquake Engineering, IIT Roorkee
- S. Gupta, M. K. Arora, M. L. Sharma (2006). Surface displacement studies using differential SAR interferometry: an overview, Disaster forewarning diagnostic methods and management, Kogan, Felix; Habib, Shahid ;Hegde, V. S.;Matsuoka, Masashi, SPIE, ISBN 0819465194
- Proceedings, 13<sup>th</sup> Symposium on Earthquake Engineering – 13SEE, Vol I, 2006, pp 1-616, Published by Department of Earthquake Engineering, IIT Roorkee.
- Proceedings, 13<sup>th</sup> Symposium on Earthquake Engineering- 13SEE, Vol II, 2006, 617-1468, Published by Department of Earthquake Engineering, IIT Roorkee
- Proceedings, 12<sup>th</sup> Symposium on Earthquake Engineering – 12SEE, 2004, Vol I, pp 1-713, Published by Department of Earthquake Engineering, IIT Roorkee.
- Proceedings, 12<sup>th</sup> Symposium on Earthquake Engineering- 12SEE, 2004, Vol II, 714-1587, Published by Department of Earthquake Engineering, IIT Roorkee.
- A report on Chamoli Earthquake of March 29, 1999, 2000, Published by Department of Earthquake Engineering, University of Roorkee.

### **Educational Movies:**

1. Fault Plane Solution, 45 min, EERC, Roorkee
2. Tsunami Part-I, 30 min, EERC, Roorkee
3. Tsunami Part-II, 30 min, EERC, Roorkee
4. Tsunami Part-III, 30 min, EERC, Roorkee
5. Earthquake Magnitude Intensity Part-I
6. Earthquake Magnitude Intensity Part-II
7. Seismological Instrumentation, 30 min, EERC Roorkee
8. Chi Chi Earthquake Museum Taiwan, 10 min
9. Seismograph, 15 min

### **Recent publications in journals:**

#### **Journals - 96**

1. Nath, R. R., M. L. Sharma and Arun Tyagi(2020). Review of the current practice on inclusion of seismicity in landslide susceptibility zonation: A case study for Garhwal Himalaya, *Himalayan Geology*, 41(2), 222-233.
2. Kanaujia, Jyotima, S. Mitra, S. C. Gupta and **M. L. Sharma** (2019). Crustal anisotropy from shear-wave splitting of local earthquakes in the Garhwal Lesser Himalaya, *Geophysical Journal International*, 219(3), 2013-2033.
3. Bajaj, S. and **M. L. Sharma** (2019). Modeling Earthquake Recurrence in the Himalayan Seismic Belt Using Time-Dependent Stochastic Models: Implications for Future Seismic Hazards, *Pure and Applied Geophysics*, <https://doi.org/10.1007/s00024-019-02270-9>.
4. Das, Ranjit, **M. L. Sharma**, H. R. Wason, Deepankar Choudhury, Gabriel Gonzalez (2019) A Seismic Moment Magnitude Scale, *Bulletin of the Seismological Society of America*, Vol. 109 (4), 1542-1555.
5. Mittal, Himanshu, Yih-Min Wu, **M. L. Sharma**, Benjamin Ming Yang and Sushil Gupta (2019) Testing the performance of earthquake early warning system in northern India, *Acta Geophysica*, Vol. 67(1), 59-75.
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#### **Project List:**

##### **Year 2017-2018**

1. Site Specific Design Earthquake Parameter Studies for Rishikesh-Karanpryag new BG Rail line Project in Uttarakhand, Rail Vikas Nigam Ltd, Rishikesh, 17.04.2017 to 31.03.2019, 1,38,00,000.00
2. Site Specific Design Earthquake Parameter Studies for Doongri Dam, Navnera Barrage & Kunnu Barrage in Rajasthan, M/s WAPCOS Limited Gurgaon, 22.05.2017 to 31.03.2020, 27,60,000.00
3. Site Specific Seismic Design Parameters Study for Mawblei Hydro Electric Project in West Khasi Hills, District, Meghalaya, Meghalaya Power Generation Corporation Ltd. Meghalaya, 30.06.2017 to 31.03.2019, 13,80,000.00
4. Site Specific Seismic Design Parameters Study for Chheligada Dam Project, Odisha, Bhubneshwar, Water Resources, Odisha, Bhubaneswar 13.07.2017 to 31.03.2020, 13,80,000.00
5. Site Specific Seismic Design Parameters Study for Myntdu Leshka Stage-II HEP, in West Jaintia Hills District Meghalaya, Investigation Division –I Meghalaya Power Generation Corporation Limited, 24.10.2017 to 31.03.2020, 13,80,000.00

6. Site Specific Seismic Design Parameters Study of 04 Dams components i.e (1) Chakarpur Dam (2) Madia dam (3) Semraghat weir and (4) Dehra dam of Bina complex Irrigation and Multipurpose Project of Distt. Sagar (M.P.), Water Resources Division Rahatgarh Distt. Sagar (M.P.), 31.10.2017 to 31.03.2020, 28,32,000.00
7. Site Specific Seismic Design Parameters Study for Ujh (212 MW) Multipurpose Hydro Electric Project, District Kathua, Jammu & Kashmir, Jammu and Kashmir State Power Development Corporation Office of the Geologist, Geological Division 480-F Nitco Lane, Talab Tillo, Jammu, 31.10.2017 to 31.03.2020, 14,16,000.00
8. Site Specific Seismic Design Parameters Study for Song Dam in Dehradun, Research & Planning Block Dehradun, 13.12.207 to 31.03.2020, 14,16,000.00
9. Site Specific Seismic Design Parameters Study for Sunni dam Project, Himachal Pradesh, Design Himachal Projects Satluj Jal Viduth Nigam Limited Shakti Sadan, Shanan Complex, Shimla, 28.12.207 to 31.03.2020, 14,16,000.00
10. Seismic Hazard Studies for Shimla By Pass Project in Himachal Pradesh, Enterprises Limited, Shimla, 03.01.2018 to 31.03.2021, 63,72,000.00
11. Site Specific Seismic Design Parameters Study for Bhanupli-Bilaspur-Beri New Railway Line, Chandigarh Himachal Pradesh, JGM/Project, RVNL, Railway Recruitment Board Building, Railway Colony, Near Chandigarh Railway Station, Chandigarh, 21,476000.00

#### **Year 2016-2017**

1. Site Specific Seismic Design Parameters Study for Patratu Thermal Power Plant Project at District Ramgarh, Jharkhand, NTPC Limited, Noida (U.P.) - 201 307, 27.04.2016 to 31.03.2018, 9,16,000.00
2. Seismic Hazard Assessment for South India, Central Water Commission, New Delhi, 31.03.2016 to 31.10.2017, 82,44,000.00
3. Assesment of Lateral Load Pile Capicities for Harduaganj Thermal Power Station Aligarh, U.P. , Toshiba JSW Power Systems Pvt. Ltd., Gurgaon,13.05.2016 to 30.03.2017, 6,01,125.00
4. Site Specific Design Earthquake Parameters Studies for Nyera Amari-I & II Integrated Hydro Electric Project in Bhutan,Druk Green Power Corporation, PThimpu, Bhutan, 16.05.2016 to 31.03.2019, 18,00,000.00
5. Site Specific Seismic Design Parameters Study for Lower Tizu Hydro Electric Project in Nagaland, Government of Nagaland, Department of Power (T&G), Kohima Nagaland, 30.05.2016 to 31.03.2018, 1374000.00
6. Site Specific Seismic Design Parameters Study for Zungki Hydro Electric Project in Nagaland, Government of Nagaland, Department of Power (T&G), Kohima Nagaland, 30.05.2016 to 31.03.2018, 1374000.00
7. Site Specific Seismic Design Earthquake Parameters Study for Oju Hydro Electric Project (about 1878MW), Arunachal Pradesh, Oju Subnasiri Hydro Corporation Pvt. Ltd., New Delhi, 30.05.2016 to 31.03.2019, 1374000.00
8. Site Specific Design Earthquake Parameters Study for Chhatru HEP (126 MW) , Distt Lahaul & Spiti in Himachal Pradesh- reg. updation, Head (Planning & Monitoring), DCM Shriram Infrastructure Limited, Shimla (HP), 30.05.2016 to 31.03.2018, 687000.00
9. Site Specific Seismic Design Parameters Study for New Project from Indian Oil Corporation Limited, Bongaigaon Refinery, Dist. Chirang in Assam, Indian Oil Corporation Ltd., Bongaigaon Refinery, Assam, 19.07.2016 to 31.09.2019, 13,80,000.00

10. Site Specific Design Earthquake Parameters Study for Sirkari Bhyol Rupsiabagar HEP, Uttarakhand, Uttarakhand Jal Vidyut Nigam Ltd., 01.08.2016 to 31.03.2019, 13,80,000.00
11. Site Specific Design Earthquake Parameters Study for Talong Londa Hydro Electric Project in Arunachal Pradesh-Reg., additional Probabilistic Seismic Hazard Assessment (PSHA) Study, GMR Londa Hydropower Private Limited, New Delhi, 08.08.2016 to 31.03.2019, 6,90,000.00

#### **Year 2015-2016**

1. Site Specific Design Earthquake Parameter Study for Lower Kalnai HEP, District Doda, Jammu & Kashmir, M/s Coastal Projects Limited, A-102, Sector-65, Noida – 201307 (U.P.) (India), 17.04.2015 to 31.03.2018, 12,00,000.00
2. Site Specific Seismic Design Parameters Study for Chausa Thermal Power Plant Project (2x660MW) at District Buxar in Bihar, M/s SJVN Thermal Private Limited, 17.04.2015 to 31.03.2018, 0 8,98,880.00
3. Site Specific Seismic Design Parameters Study for Hiramandalam reservoir of B.R.R Vamsadhara project of Phase -II of Stage -II in Srikakulam Dist of Andhra Pradesh, Water Resources Department, Govt. of Andhra Pradesh, 11.08.2015 to 31.03.2018, 13,68,000.00
4. Site Specific Design Earthquake Parameters for Vyasi Hydro Electric Project in Uttarakhand, - reg. updation, Uttarakhand Jal Vidhut Nigam Limited, Near ST. Marry School, Dakpathar (Dehradun), 0.08.2015 to 31.03.2018, 6,84,000.00
5. Site Specific Seismic Design Parameters Study for Vrindavan Chandrodaya Mandir at Vrindavan, District Mathura Uttar Pradesh, Vrindavan Chandrodaya Mandir Bhaktivedanta Swami Marg, Vrindavana,
6. Seismic hazard studies for infield pipe line route (west block) M.P. , Reliance Industries Ltd, 07.10.2015 to 31.03.2018, 27,36,000.00
7. Site Specific Seismic Design Parameters Study for Harduaganj Thermal Power Plant Project (1x660 MW) at District Aligarh, Uttar Pradesh, Toshiba JSW Power Systems Pvt. Ltd, 01.10.2015 to 31.03.2018, 9,12,000.00
8. Site Specific Design Earthquake Parameters Study for Upper Marsyangdi Hydro Electric Project in Nepal -Reg. additional Probabilistic Seismic Hazard Assessment (PSHA) Study, GMR Consulting Services Private Limited, 03.11.2015 to 31.3.2018, 6,84,000.00
9. Site Specific Design Earthquake Parameters Study for Upper Karnali Hydro Electric Project in Nepal -Reg. additional Probabilistic Seismic Hazard Assessment (PSHA) Study, GMR Consulting Services Private Limited, 03.11.2015 to 31.3.2018, 6,84,000.00

#### **Year 2014-2015**

1. Subtask D: To Finalize the Design of Seismic Network, Kalpasar Department Govt. of Gujarat, 25.03.2014 to 31.03.2016, 8,98,880.00
2. Site Specific Design Earthquake Parameter Study for Shutkari Kulan Hydroelectric Project in District Ganderbal, Jammu & Kashmir, Shapoorji Pallonji Infrastructure Capital Company Limited, 04.07.2014 to 31.03.2018, 12,00,000.00
3. Site Specific Design Earthquake Parameter Study for Bursar Hydroelectric Project (1200 MW), Jammu & Kashmir - reg. updation, NHPC Limited, 09.09.2014 to 31.03.2017, 8,00,000.00

4. Site Specific Design Earthquake Parameters for Hydro Electric Project in Uttarakhand, -Reg. Updation, Uttarakhand Jal Vidhut Nigam Limited, Lakhwar Bhawan, Dakpathar (Dehradun), 13.10.2014 to 31.03.2017, 674160.00
5. Site Specific Design Earthquake Parameters Study for Kuri-I Hydro Electric Project in Bhutan, Druk Green Power Corporation, 30.10.2014 to 31.03.2017, 12,00,000.00
6. Operation & Maintenance of Six Stations Seismological Network around Kol Dam Site For Second year, NTPC, KOL Dam Himachal Pradesh, 01.11.2014 to 31.03.2017, 20,22,480.00
7. Site Specific Design Earthquake Parameters Study for Kwar Hydro Electric Project in J&K-Reg. additional Probabilistic Seismic Hazard Assessment (PSHA) Study, Chenab Valley Power Projects Pvt. Ltd, 03.12.2014 to 31.03.2017, 6,00,000.00
8. Site Specific Seismic Design Parameters Study for Durgapur Power Plant Project -III(2x20MW) at Durgapur Steel Plant Premises in West Bengal, NTPC-SAIL Power Company Pvt. Ltd, 02.01.2015 to 31.03.2018, 8,98.880.00
9. Site Specific Seismic Design Parameters Study for Ramagundam Power Plant Project in Karimnagar District at Andhra Pradesh, NTPC Limited Engineering, 02.01.2015 to 31.03.2018, 8,98.880.00
10. Site Specific Design Earthquake Parameters Study for Kholongchu Hydro Electric Project in Bhutan -Reg. additional Probabilistic Seismic Hazard Assessment (PSHA) Study, Kholongchhu, HEP Bhutan, 02.02.2015 to 31.03.2018, 6,00,000.00
11. Site Specific Design Earthquake Parameters Study for Tagurshit Hydro Electric Project in Arunachal Pradesh-Reg. Additional Probabilistic Seismic Hazard Assessment (PSHA) Study, Larsen & Toubro Hydropower Limited, 19.02.2015 to 31.03.2018, 6,74,160.00
12. Site Specific Seismic Design Parameters Study for Parnai (3x12.5 MW) Hydro Electric Project in Jammu & Kashmir, M/s Patel Engineering Ltd., 24.03.2015 to 31.03.2018, 12,00,000.00
13. Site Specific Seismic Design Parameters Study for Pudimadaka Power Plant Project in Visakhapatnam District at Andhra Pradesh, NTPC Limited, 24.03.2015 to 31.03.2018, 8,98,880.00

#### **Year 2013-2014**

1. Site Specific Design Earthquake Parameters Study of Bhakra HEP, Himachal Pradesh, reg. updation, B&B Design Directorate, BBMB, 17.04.2013 to 31.03.2016, 6,74,160.00
2. Deployment and Maintenance of Seismological Network around Kol Dam Project, Himachal Pradesh, 1st component of study-installation, Operation 7 Maintenance of Network Around Koldam for 1st year of recording , NTPC, KOL Dam, Himachal Pradesh, 26.03.2012 to 31.05.2014, 20,22,480.00
3. Site Specific Design Earthquake Parameters Study for Nikachhu HPP in Trongsa District, Bhutan, Lammeyer International (India) Pvt. Ltd, 18.04.2013 to 31.03.2016, 13, 48,320.00
4. Site Specific Design Earthquake Parameters Study for Luhri HEP, Himachal Pradesh, reg. updation, Satluj Jal Vidyut Nigam Limited, 22.04.2013 to 31.03.2016, 6,74,160.00
5. Site Specific Design Earthquake Parameters Study of Umngot HEP in East Khasi Hills District, Meghalaya, reg. updation, Meghalaya Energy Corporation Ltd., Umiam, 07.05.2013 to 31.03.2016, 6,74,160.00

6. Site Specific Design Earthquake Parameters Studies for Ganol Small Hydro Electric Projects (3x7.5MW), West Garo Hills District, Meghalaya, Meghalaya Power Generation Corporation Limited, 09.05.2013 to 31.03.2016, 13,48,320.00
7. Special Investigation for Evaluation of the Seismic Forces as per the IRG-6 on major Bridges of Kiratpur Near Chok Section of NH-21 in Himachal Pradesh, M/s IL & FS Transportation Networks Ltd, 24.06.2013 to 31.03.2017, 22,47,200.00
8. Site Specific Design Earthquake Parameters Study for Dugar Hydro Electric Project, District Chamba, Himachal Pradesh, AF-Consult India Pvt. Ltd, 01.08.2013 to 31.03.2017, 13,48,320.00
9. Site Specific Seismic Design Parameters Study for 45 MW Phangchung Hydro Electric Project in Arunachal Pradesh, PACHI Hydro Power Project Ltd., 13.08.2013 to 31.03.2017, 13,48,320.00
10. Site Specific Design Earthquake Parameters Study for Dibbin HEP (120MW), West Kameng District of Arunachal Pradesh reg. Updation, M/s KSK Energy Ventures Ltd, 03.09.2013 to 31.03.2017, 3,37,080.00
11. Site Specific Seismic Design Parameters Study for Rourkela Expansion Power Plant Project at SAIL Premises in Rourkela (Orissa), NTPC-SAIL Power Company Pvt., Ltd., 19.09.2013 to 31.03.2017, 8,98,880.00
12. Site Specific Design Earthquake Parameter Studies for Par, Turu & Dardu Hydro Electric Project in Arunachal Pradesh, M/s Mytrah Energy (India) Limited, 28.11.2013 to 31.03.2017, 28,09,000.00
13. Site Specific Design Earthquake Parameter Studies for 92 MW Jidu Hydro Electric Project in Arunachal Pradesh, M/s SMEC India Pvt. Ltd., 29.11.2013 to 31.03.2017, 13,48,320.00
14. Seismological Network Around Tehri Region, THDC India Ltd., Rishikesh, 30.12.2013 to 24.10.2016, 53,93,280.00
15. Site Specific Design Earthquake Parameters Study for Renukaji Dam Project at Dadahu, district, Sirmour, Himachal Pradesh, Renukaji Dam Project, HPPCL, Dadahu, 08.01.2014 to 31.03.2017, 13,48,320.00
16. Site Specific Design Earthquake Parameters Study for Pemashelpu HEP in Arunachal Pradesh reg. Updation, Mechuka Hydro Power Pvt. Ltd., 08.01.2014 to 31.03.2017, 6,74,160.00
17. Site Specific Design Earthquake Parameters Study for Pauk Hydro Electric Project in Arunachal Pradesh Reg. Updation, Velcan Energy Pvt. Ltd., 28.02.2014 to 31.03.2017, 6,74,160.00
18. Site Specific Seismic Design Earthquake Parameters Study for New Ganderbal Hydro Electric Project, District Ganderbal, Jammu & Kashmir, Government of Jammu and Kashmir, Power Development Corporation, Geological, 28.02.2014 to 31.03.2017, 12,00,000.00
19. Processing, Analysis and Interpretation of the Seismological Data for First Year Study and Preparation of Annual Technical Report, NTPC Kol Dam Himachal Pradesh, 04.03.2014 to 31.03.2016, 16,85,400.00

#### **Year 2012-2013**

1. Site Specific Design Earthquake parameters Study For Chhattisgarh Thermal power project, MB power (Chhattisgarh) Ltd., 27.02.2012 to 30.06.2013, 8,82,400.00
2. Site Specific Studies for Khurja Super Thermal Power (2x660 MW) at Khurja, Distt. Bulandshahar (U.P) , THDC India Ltd., 02.05.2012 to 31.03.2015, 8,98,880.00
3. Site Specific Design Earthquake parameters for Thana Palun HEP (141 MW) of HPPCL in River Basin of Himachal Pradesh, Himachal Pradesh Power Corporation Ltd. Dist. Hamirpur, 16.04.2012 to 31.03.2014, 6,61,800.00
4. Site Specific Design Earthquake parameters Study for Tato-II Hydro Electric Project, SNC Lavalin Eng. Pvt. Ltd. Mahipalpur, 16.04.2012 to 31.03.2014, 6,61,800.00

5. Site Specific design Parameters studies for Lower Yamne(88 MWo & Lower Yamne II (90 MW) HE Projects in Upper Siang District of Arunachal Pradesh, Yamne Power Private Ltd. Hyderabad, 20.04.2012 to 31.03.2015, 20,22,780.00
6. Site Specific Design Earthquake parameters Study for Lower Kopli HE (3x50MW)Project –reg. Updation, Assam Power Generation Corporation Ltd., Guwahati, 22.05.2012 to 31.03.2015, 6,74,160.00
7. Soil Profiling using MASW for triveni Mahadev Hydro Electric Project in Himachal Pradesh, Himachal Pradesh Power Corporation Ltd, 6.07.2012 to 31.03.2014, 11,23,600.00
8. Site Specific Design Earthquake Parameters for 96 MW Ronignichu Hydro Electric Project in Sikkim, Madhya Bhart corporation Ltd., 05.07.2012 to 31.03.2014, 13,48,320.00
9. Site Specific Design Earthquake Parameters for Etalin & Attunli HE Project- reg updation, Etalin Hydro Electric Power Company Ltd., Gurgaon, 09.07.2012 to 31.03.2014, 6,74,160.00
10. Site Specific Design Earthquake Parameters for Triveni mahadev HEP in Himachal Pradesh, Himachal Pradesh Power Corporation Limited, 10.07.2012 to 31.03.2014, 6,74,160.00
11. Site Specific Design Earthquake Parameters for Ratle in Kisthwar Dist. J&K, Updation, GVK Ratle HEP, Pvt. Ltd., 09.07.2012 to 31.03.2014, 6,74,160.00
12. Site Specific Design Earthquake Parameters for Miyar HEP in Himachal Pradesh, Updation, Miyar HEPower Company Ltd., 30.07.2012 to 31.03.2014, 6,74,160.00
13. Site Specific Design Earthquake Parameters for Chango Yanthang HEP in Himachal Pradesh, Updation, Malan Power Company Ltd., Bhilwara, 09.08.2012 to 31.03.2014, 6,74,160.00
14. Lecture Notes for ToT in Bihar, BMTPC, New Delhi, 04.07.2012 to 31.03.2013, 2,80,900.00
15. Site Specific Design Earthquake Parameters study for Devsari HEP, Uttarakhand, Updation, SJVN Limited, 03.09.2012 to 31.03.2014, 6,74,160.00
16. Site Specific Design Earthquake Parameters study for for Multi Product SEZ in Village Mota Layia, District Kutch, Gujarat, IL & FS Energy Development Company Ltd., 11.09.2012 to 30.06.2013, 8,98,880.00
17. Specific Design Earthquake Parameters study for for Seli HEP Himachal Pradesh-Reg Updation, Seli Hydero Electric Power Company Limited, 17.09.2012 to 31.03.2014, 6,74,160.00
18. Specific Design Earthquake Parameters study for for Etalin HEP Arunachal Pradesh-Reg Updation, M/s Jindal Paower Limited, 08.10.2012 to 31.03.2014, 6,74,160.00
19. Specific Design Earthquake Parameters study for for Nakthan HEP (520 MW) in Distt. Kullu, Himachal Pradesh, M/s Himachal Pradesh Power corporation Ltd, 05.10.2012 to 31.03.2014, 13,48,320.00
20. Specific Design Earthquake Parameters study for for Rapum HEP in Arunachal Pradesh, Rapum Hydro Electric Project Pvt., Ltd, 10.10.2012 to 31.03.2014, 6,74,160.00
21. Specific Design Earthquake Parameters study for Kantangshri HEP in Arunachal Pradesh, Kantangshri Hydro Electric Project Pvt., Ltd, 17.10.2012 to 31.03.2014, 13,48,320.00
22. Site Specific Design Earthquake parameters Studies for Shongtong Karchham HEP Himachal Pradesh reg. Updation, Himachal Pradesh Power Corporation Limited, 26.11.2012 to 31.03.2014, 6,74,160.00
23. Site Specific Design Earthquake Parameters for Kirthia-I at Gulabgarh, District Kishtwar (J&K), Govt. of J&K, Power Development Corporation, 07.01.2013 to 30.03.2015, 13,48,320.00
24. Site Specific Design Earthquake Parameters Studies for Dikchu HEP project (96 MW), Sikkim, Haridwar Infarastructure Ltd, 23.01.2013 to 31.03.2015, 13,48,320.00
25. Site Specific Design Earthquake Parameters for Sawalkot HEP Stage-I (1406 MW) J&K, Hindustan Construction Company Ltd, 20.02.2013 to 31.03.2015, 13,48,320.00
26. Site Specific Design Earthquake Parameters for Naying HEP, Arunachal Pradesh\_ reg. Updation, Naying DSC Power Limited, 28.02.2013 to 31.03.2015, 6,74,160.00



27. Site Specific Design Parameters Study for Mawphu Hydro-Electric Project, Meghalaya, North Eastern Electric Power Corporation Ltd, 06.03.2012 to 31.03.2015, 13,48,320.00
28. Site Specific Design Earthquake Parameters Study for Chirgaon-Majhgaon Hydro Electric Project (60 MW), Distt. Shimla, Himachal Pradesh, Himachal Pradesh Power Corporation Ltd, 11.03.2013 to 31.03.2016, 13,48,320.00
29. Site Specific Design Earthquake Parameters Study for Bilhaur STPP at Kanpur, U.P., NTPC Ltd, 25.03.2013 to 31.03.2016, 8,98,880.00

#### **Year 2011-2012**

1. Site Specific Design Earthquake Parameters for Seli HEP located across river Chenab in district Lahul & Spiti, Himachal Pradesh, Seli Hydro Electric Power Company Ltd., 03.03.2011 to 31.03.2013, 8,82,400.00
2. Seismological Network Around Tehri Region, THDC, Reshikesh, Uttarakhand, 25.10.2010 to 24.10.2013, 43,01,700.00
3. Seismic Hazard Assessment for an upcoming ATC Tower at New Delhi, Delhi International Airport Limited, 13.04.2011 to 31.03.2013, 8,82,400.00
4. Site Specific Design Earthquake Parameters Study for Power Plant Structures at Bundelkhand District Chhatarpur, Madhya Pradesh, NTPC Limited, 11.04.2011 to 31.03.2014, 5,51,500.00
5. Site Specific Design Earthquake Parameters Study for Tiuni-Plasu Hydroelectric Project (72MW) in Dehradun district. , Irrigation Department, 27.05.2011 to 31.03.2014, 13,23,600.00
6. Soil Performing using MASW Test for Tiuni-Plasu Hydroelectric Project in Dehradun Distt, Irrigation Department, 27.05.2011 to 31.03.2014, 8,42,400.00
7. Site Specific Design Earthquake Parameters Study for Dikhu HE Project (165 MW) Nagaland, Manu Energy Systems Pvt. Ltd., 27.06.2011 to 31.03.2014, 8,82,400.00
8. Site Specific Design Earthquake Parameters for the 4HEPs in Tawang Basin, Arunachal Pradesh, M/s SEW Energy Limited, 11.07.2011 to 31.03.2012, 11,03,000.00
9. Site Specific Studies for Subansiri Middle Hydroelectric Project, Arunachal Pradesh, SNC-Lavin, Engineerin India Pvt. Ltd., 25.07.2011 to 31.03.2013, 8,82,400.00
10. Site Specific Studiey for Nalo Hydero Electric Project (360 MW) in Arunachal Pradesh, Energy Infratech Private limited, 11.08.2011 to 31.03.2015, 13,23,600.00
11. Site Specific Studiey for Kynshi-I Hydero Electric Project (300 MW) in Meghalaya, Energy Infratech Private limited, 11.08.2011 to 31.03.2015, 13,23,600.00
12. Site Specific Design Earthquake parameters for Rangit Hydro Electric Project stage-II (66MW) in Sikkim, Sikkim Hydro Power Ventures Limited, 21.09.2011 to 31.03.2011, 13,23,600.00
13. Site Specific Design Earthquake parameters study for Kopili Hydro Electric Project (3x50MW), Assam, Assam Power Generation Corporation Limited, 20.09.2011 to 31.03.2013, 8,82,400.00
14. Determination of Shear Wave Velocity for Site Specific Study for Thana Plaun HEP, Himachap Pradesh Power Corporation Ltd., 14.10.2011 to 31.03.2014, 11,03,000.00
15. Site Specific Design Earthquake parameters study for Power Plant Structures in Khargaon District of M.P., N.T.P.C. Limited Noida, 2010.2011 to 31.03.2014, 8,82,400.00
16. Site Specific Design Earthquake parameters for Lachung, Bhimkyong and bop HE project Site Sikkim for Updation., Lachung Hydro power Private limited, 14.10.2011 to 31.03.2013, 18,19,950.00
17. Site specific seismic parameters study for Rihand concrete Gravety Dam at Pipri U.P., Irrigation Deptt. Rihand Dam Civil cell, Pepri, Distt. Sonebhadra, UP, 11.11.2011 to 31.03.2013, 5,51,500.00
18. Site specific design earthquake parameters study for Gongri Hydro Electric Project (144mw) in Arunachal Pradesh, M/s Dirang Energy Pvt. Ltd., 29.11.2011 to 31.03.2014, 13,23,600.00

19. Seismological Studies Around GULF of Khambhat Development Project, Subtask A: Preparation of document containing outline & description of methodologies to be adopted for the seismological studies including recommending experts/organizations for various types of special studies, Kalpsar Department, Govt of GUJARAT, 17,64,800.00
20. Seismological Studies Around GULF of Khambhat Development Project, , Subtask B: Evolution of the proposal submitted by GERI, Vadodara, Kalpsar Department, Govt. of GUJARAT, 8,82,400.00
21. Seismological Studies Around GULF of Khambhat Development Project, Subtask C: To examine and finalize the specifications and functioning of the equipment, Kalpsar Department, Govt. of GUJARAT, 11,03,000.00
22. Seismological Studies Around GULF of Khambhat Development Project, Subtask D:Discussions and field visits, Kalpsar Department, Govt. of GUJARAT, 4,41,200.00
23. Soil Profiling using Multi Spectra Analysis of Surface Wave (MASW), of Barrage Foundation at Bowala Nand Prayag HEP Site, Chamoli, Uttarakhand, Uttarakhand Jal Vidyut Nigam limited, 01.03.2012 to 31.03.2015, 8,82,400.00
24. Site Specific Design Earthquake Parameters Study for Power Plant Structure at Narsinghpur District of Madhya Pradesh, NTPC Limited, Noida, 27.02.2012 to 30.06.2013, 8,82,400.00
25. Site Specific Seismic Study for Katwa STPP (2x800MW) West Bangal., NTPC Limited, Noida, 16.02.2012 to 31.03.2015, 8,82,400.00
26. Site Specific Seismic Design parameters for Kolodyne Stage-II HEP , NTPC Limited, Noida, 16.02.2012 to 31.03.2015, 13,23,600.00
27. Site Specific Studies for Seismic Design Parameters for Kynshi-II HE Project (400 MW) in Meghalaya, Jaypee Meghalaya Power Ltd., 16.02.2012 to 31.03.2015, 13,23,600.00
28. Site Specific Design Earthquake Parameters for Such Khas and Reoli Dugli Hydro Electric Project, H.P., L&T Power Development Ltd., 16.02.2012 to 31.03.2015, 22,06,000.00
29. Site Specific Studies for Seismic Design Parameters for Dhaulasidh Hydro Electric Project on Rever Beas (66MW), Himachal Pradesh, SJVN Limited, 16.02.2012 to 31.03.2015, 13,23,600.00
30. Site Specific Design Parameters Study for Power Plant Structure at Trincomali, Sri Lanka, NTPC Limited, Noida, 12.03.2012 to 30.09.2013, 13,23,600.00
31. Site Specific Design Parameters Study for Tehri Pumped Storage Plant Uttarakhand, Hindistan Construction Co. Ltd. Mumbai, 22.03.2012 to 31.03.2015, 8,82,400.00

#### **Year 2010-2011**

1. Site Specific Seismic Design Parameters study for 2x600 MW Thermal Power Plant Structure at Pegadapalli Distt. Andhra Pradesh, The Singareni Collieries Company Limited, Kothagudem (A. P.), 14.04.2010 to 31.03.2013, 5,51,500.00
2. MEQ data processing, interpretation and report preparation of earthquake data generated for the year 2009, for study of seismogenic sources around the Subansiri Lower H. E. Project, NHPC Ltd., 10.05.2010 to 31.03.2013, 7,16,950.00
3. MEQ data processing, interpretation and report preparation of earthquake data generated for the year 2008, for study of seismogenic sources around the Subansiri Lower H. E. Project, NHPC Ltd., 10.05.2010 to 31.03.2013, 7,16,950.00
4. Site Specific Design Earthquake parameters Studies for 4 HEPs in Tawang Basin Arunachal Pradesh, SEW Energy limited, 07.05.2010 to 31.03.2013, 13,23,600.00
5. Probabilistic Seismic Hazard Analysis for Utkal Alumina Refinery Site Orrisa, Liaison Office Hyderabad , 26.04.2010 to 31.03.2013, 8,82,400.00
6. Site Specific Design Earthquake Parameters Study for Tagurshit HEP, Arunachal Pradesh, Larsen & Toubro Limited, 21.05.2010 to 31.03.2013, 5,51,500.00

7. Site Specific Design Earthquake Parameters Study for Chango Yangthang HEP, Himachal Pradesh, Bhilwara Energy Limited, 21.05.2010 to 31.03.2013, 5,51,500.00
8. Site Specific Design Parameters study for Tipang Hydro Electric Project (45 MW) in Arunachal Pradesh, IL & FS Energy Development Company Limited, 02.06.2010 to 31.03.2013, 5,51,500.00
9. Site Specific Design Earthquake Parameters Study for Miyar Hydro Electric Project in Himachal Pradesh, Miyar Hydro Electric Power Company Ltd, 22.07.2010 to 31.03.2013, 5,51,500.00
10. Site Specific Design Earthquake Parameters Study of Jameri HEP, Arunachal Pradesh, KSK Energy Ventures Limited, 23.07.2010 to 31.03.2013, 5,51,500.00
11. Site Specific Design Earthquake Parameters Study for 4000 MW Tilaya Ultra Mega Power Project at Tilaiya, Jharkhand, Jharkhand Integrated Power Ltd., 12.08.2010 to 31.03.2013, 5,51,500.00
12. Site Specific Design Earthquake Parameters Study for Etalin & Attunli Hydroelectric Projects at Arunachal Pradesh, SNC-Lavalin Engineering India Pvt. Ltd., 12.08.2010 to 31.03.2013, 8,82,400.00
13. Site Specific Design Earthquake Parameters for Study for Kholongchu HEP (468 MW), Trashiyangtes, Bhutan, Energy infratech Pvt. Ltd., 12.10.2010 to 31.03.2013, 8,82,400.00
14. Site Specific Design Earthquake Parameters for Study for Kalai -II, HEP, Arunachal Pradesh, Larsen & Toubro Limited, 12.10.2010 to 31.03.2013, 9,92,700.00
15. Site Specific Design Earthquake Parameters Study for Chitrangi Power Project, Madhya Pradesh., Business Development Group, Reliance Power, 01.11.2010 to 31.03.2013, 5,51,500.00
16. Site Specific Seismic Design Parameters study for Thana Plaun HEP (141 MW) of HPPCL in River Basin of Himachal Pradesh, Himachal Pradesh Power Corporation Limited, 08.11.2010 to 31.03.2013, 5,51,500.00
17. Site Specific Design Earthquake Parameters Study of Dinchang HEP Arunachal Pradesh, KSK Energy Ventures Ltd., 09.11.2010 to 31.03.2013, 8,82,400.00
18. Site Specific Design Earthquake Parameters for Seismic Design of Power Plant Structures for Auraiya Gas Power Project, Stage-II (1400 MW), NTPC Limited, Noida, 8.11.2010 to 31.03.2013, 5,51,500.00
19. Site Specific Design Earthquake Parameters for Seismic Design of Power Plant Structures for Faridabad CCPP, Stage-II (1050 MW), NTPC Limited, Noida, 23.11.2010 to 31.03.2013, 5,51,500.00
20. Site Specific Seismic Study for Seismic Design of Power Plant Structures for Ratanagiri Power Station Stage -II, Phase-I (1500 MW), Ratanagiri Gas and Power Private Limited, 23.11.2010 to 31.03.2013, 5,51,500.00
21. Site Specific Design Earthquake Parameters Study for Devsari HEP (252 MW) in Uttarakhand, SJVN Limited, 19.01.2011 to 31 .03.2013, 5,51,500.00

#### **Year 2009-2010**

1. Site Specific Design Earthquake Parameters Study for Sainj HEP, Himachal Pradesh, Himachal Pradesh Power Corporation Ltd., 12.03.2009 to 31.03.2012, 5,61,800.00
2. Site specific seismic design parameters for Kashang HEP (243 MW), Himachal Pradesh Power Corporation Limited, 26.03.2009 to 31.03.2012, 5,61,800.00
3. Stability Analysis of Concrete Dam of Bunakha HEP in Bhutan, Tehri Hydro Development Corporation Ltd., Rishikesh, 01.04.2009 to 31.03.2012, 16,00,000.00
4. Seismic Hazard Study offshore Bay of Bengal of Myanmar, Bakat Geotechnics Pte Ltd, Singapore, 21.04.2009 to 31.03.2010, 4,98,074.00
5. Site Specific Design Earthquake Parameters Study for Bajoli Holi Hydroelectric Project (H.P.), SNC-LAVALIN Engineering India Pvt. Ltd., New Delhi, 03.04.2009 to 31.03.2012, 5,51,500

6. Site Specific Seismic Study for Talcher TPS Expansion (2x660 MW), NTPC Limited, NOIDA, 13.04.2009 to 31.03.2012, 5,51,500.00
7. Site Seismic Study for Singrauli Super Thermal Power Project (stage-III) (1x500MW), NTPC Limited, Noida, 03.04.2009 to 31.03.2012, 5,51,500.00
8. Site Specific design EQ parameter studies for Sissiri H. E. Project in Arunachal Pradesh, Soma Sissiri Hydro Private Limited (SPV), New Delhi, 28.03.2009 to 31.03.2012, 5,51,500.00
9. Site Specific Design Earthquake Parameters Study for Pauk West Siang HEP Project in Arunachal Pradesh, VELCAN Energy, New Delhi, 13.03.2009 to 31.03.2012, 5,51,500.00
10. Site Specific Seismic Design Parameters for Naying Hydro Electric Power Project (1000 MW), in West Siang Distt. Of Arunachal Pradesh, Naying DSC Power Limited, New Delhi, 22.05.2009 to 31.03.2012, 5,51,500.00
11. Site Specific Design Earthquake Parameters Study for Kudgi Super Thermal Power Project(400 MW) at Bijapur District of Karnataka, N.T.P.C. Limited Noida, 12.03.2009 to 31.03.2012, 5,51,500.00
12. Study for Site Specific Seismic Design Parameters for Hutong-II Hydro Electric Power Project (1250 MW) in Arunachal Pradesh, Mountain Fall India Pvt. Ltd., New Delhi, 21.06.2009 to 31.03.2012, 5,51,500.00
13. Site Specific Seismic Study of Bina Complex Irrigation and Multipurpose Project of Distt. Sagar (M.P), 21.06.2009 to 31.03.2012, 8,27,250.00
14. Site Specific Design Earthquake Parameters Study for Yamne River Basin HEP, Arunachal Pradesh, Aquagreen Engineering Management (P) Ltd., New Delhi, 08.07.2009 to 31.03.2012, 5,51,500.00
15. Probabilistic Seismic Hazard Studies for Nyabarongo Hydro Electric Project, Rawanda, Angelique International Limited, New Delhi, 08.07.2009 to 31.03.2012, 6,61,800.00
16. Site Specific Design Earthquake Parameters Study for Dhamwari Sunda HE Project, Himachal Pradesh, TCE Consultancy Engineers Ltd., New Delhi, 03.07.2009 to 31.03.2012, 5,51,500.00
17. Site Specific Design Earthquake Parameters for IFFCO Kalol Unit, Indian Farmers Fertiliser Co-operative Ltd., Kolkata, 11.08.2009 to 31.03.2012, 5,51,500.00
18. Site Specific Earthquake Parameter study for Upper Marsyangdi-2 HE Project, Nepal, GMR Energy Limited, 29.07.2009 to 31.03.2012, 8,42,400.00
19. Site Specific Design Earthquake Parameters Study for Nyamjang Chhu HEP, Twang Distt. Arunachal Pradesh, Bhilwara Energy Limited, Noida, 06.08.2009 to 31.03.2012, 5,51,500.00
20. Site Specific Earthquake Parameter study for Upper Karnali HE Project, Nepal, GMR Energy Limited, New Delhi, 29.07.2009 to 31.03.2012, 8,42,400.00
21. Site Specific Design Parameters for Teesta –II HEP, Sikkim, Aquagreen Engineering Management Pvt. Ltd. Mathura Road, New Delhi, 01.09.2009 to 31.03.2012, 5,51,500.00
22. Site Specific Seismic Design Parameters for Seismic Design of Power Plant Structures for Marakkanam Super Thermal Power Project(4000 MW), NTPC Ltd., Noida, 01.09.2009 to 31.03.2012, 5,51,500.00
23. Site Specific Design Earthquake Parameters Study for Luhri Hydro Electric Power Project on River Satluj (775 MW) in H.P, Satluj Jal Vidyut Nigam Limited, 15.09.2009 to 31.03.2012, 5,51,500.00
24. Site Specific Design Earthquake Parameters Study for Hirong Hydro Electric Power Project (500MW) in Arunachal Pradesh, Jaypee Ventures Pvt. Ltd., 10.09.2009 to 31.03.2012, 5,51,500.00
25. Geophysical Studies at Jalam Tamak HEP, THDC Ltd., Ganga Bhawan, Pragatipuram Bypass Road, Rishikesh, 22.10.2009 to 31.03.2012, 8,27,250.00
26. Site Specific Seismic Design Earthquake Parameter Study for Lithang Hydro Electric Project, Sikkim, KHC Lethang Hydro Project Private Ltd., Noida, 12.10.2009 to 31.03.2012, 5,51,500.00

27. Site Specific Seismic Study for Gajmara Super Thermal Power Project (4x800 MW), NTPC Limited, Noida, 09.11.2009 to 31.03.2012, 5,51,500.00
28. Site Specific Seismic Design Earthquake Parameter Study for Palais Raoyale, Mumbai, M/s Taylor Devices India Pvt. Ltd., 20.11.2009 to 31.03.2012, 5,51,500.00
29. Site Specific Design Earthquake Parameters Study for Pemashelpu River Basin HEP Project in Arunachal Pradesh, Aquagreen Engineering Management Pvt. Ltd., Mathura Road New Delhi, 27.11.2009 to 31.03.2012, 5,51,500.00
30. Site Specific Seismic Studies for NHDC 1320 MW Reva Thermal Power Project, M.P., NHDC Ltd., NHDC Parisar, Shyamla Hills, Bhopal, 17.12.2009 to 31.03.2012, 5,51,500.00
31. Study for Site Specific Seismic Design Parameters for Kalai-I Hydro Electric Power Project (1450 MW) in Arunachal Pradesh, Mountain Fall India Pvt. Ltd., New Delhi, 05.01.2010 to 31.03.2012, 5,51,500.00
32. Site Specific Design Earthquake Parameter Studies for Nafra HEP, Arunachal Pradesh, Sew Nafra Power Corporation Pvt. Ltd., Hyderabad, 08.01.2010 to 31.03.2012, 5,51,500.00
33. Site Specific Design Earthquake Parameters for Bowala Nand Prayag HEP, Chamoli, Uttarakhand, Uttarakhand Jal Vidyut Nigam limited., 18.01.2010 to 31.03.2012, 5,51,500.00
34. Analysis of ground improvement for laying of Railway Infrastructure over deposit of coal ash in Anpara, Distt. Sonbhadra, RITES Limited, 04.03.2010 to 31.03.2013, 16,54,500.00
35. Field Studies of ground improvement for laying of Railway Infrastructure over deposit of coal ash in Anpara, Distt. Sonbhadra., RITES Limited, 04.03.2010 to 31.03.2013, 27,57,500.00

#### **Year 2008-2009**

1. केन बेतवा लिकं परियोजना की विस्तृत परियोजना प्रतिवेदन ;डी0 पी0 आर0द्ध तैयार करने के सम्बंध में राष्ट्रीय जल विकास अभिकरण, सुरेश नगर, ठाटीपुर, मध्य प्रदेश, 21.01.2008 to 31.03.2011, 5,61,800.00
2. Seismic Stability Analysis of Mullaperiyar Dam-Part-I, Irrigation, Kozhikode-20, 26.02.2008 to 31.03.2010, 3,37,080.00
3. TATO-II Hydroelectric Project-Site Specific Study For Establishing Seismic Parameter, SNC-Lavalin Engineering India Pvt. Ltd., New Delhi, 24.04.2008 to 31.03.2010, 5,61,800.00
4. Site Specific Design Earthquake Parameter Study of Demwe Upper and Demwe Lower Project (1200 MW) Lohit District, Arunachal Pradesh, 06.05.2008 To 31.03.2011, 8,42,700.00
5. Site Specific Seismic Design Parameters for Seismic Design of Power Plant Structure at Meja Tehsil of Allahabad in Uttar Pradesh, NTPC Limited, 7, New Delhi – 110 003, 06.05.2008 To 31.03.2011, 5,61,800.00
6. Site Specific Design Earthquake Parameters for Tanda Thermal Power Project, U.P., NTPC Limited, 7, New Delhi-110 003, 30.04.2008 To 31.03.2011, 5,61,800.00
7. Site Specific Seismic Design Parameters for Panan Hydro Electric Project, North Sikkim, Himagiri Hydro Energy Private Limited, New Delhi, 12.05.2008 To 31.03.2011, 5,61,800.00
8. Site Specific Seismic Study for 4000 MW Krishnapatnam Ultra Mega Power Project (KUMPP) Nellore, Andhra Pradesh, Reliance, Coastal Andhra Power Limited, 15.05.2008 To 31.03.2011, 5,61,800.00
9. Site Specific Earthquake Parameter Study for the Ramganga Barrage, Badaun Irrigation Scheme, U. P. , Flood Works Board, Bareilly (U.P.), 29.05.2008 To 31.03.2011, 5,61,800.00
10. Seismological Network Around Tehri Region, THDC, Reshikesh, Uttarakhand, 25.10.2007 To 31.12.2010, 30,33,720.00
11. Site Specific Seismic Design Parameters for Anpara-D, Thermal Power Project, Anpara, Sonbhadra (U.P.), B.H.E.L. Power Sector, Project Engineering , Management, 16.06.2008 To 31.03.2010, 5,61,800.00

12. Seismic Analysis of Bhakara Dam: Hazard Analysis, Director Design, Bh, Beas Design Dte, BBMB, Nangal Township, Nangal, 01.08.2008 to 31.03.2010, 5,61,800.00
13. Evaluation of shear wave velocity of Ranjit Sagar Dam, Director, Ranjit Sagar Design Organization, IB,PB, Chandigarh, 16.10.2008 to 31.03.2010, 5,61,800.00
14. Site Specific Seismic Study using Probabilistic Approach for 330 MW Shrinagar HEP, Alaknanda Hydro Power Company Ltd., 30.07.2008 to 31.03.2010, 5,61,800.00
15. Site Specific Design Earthquake Parameters Study of Dibbin HEP (130MW) , KSK Dibbin Hydro Power Pvt. Ltd., Hyderabad, 01.08.2008 to 31.03.2010, 5,61,800.00
16. Site Specific Study for establishing parameters, Kuthar HEP (260MW), JSW Energy Limited, New Shimla, 19.08.2008 to 31.03.2010, 5,61,800.00
17. Site Specific Seismic Design Parameters for Parwan Major Irrigation Project near village Akawad, Distt. Jhalawar, Rajasthan, S&I (W.R.) Division, Jhalwar , 25.08.2008 to 31.03.2011, 5,61,800.00
18. Study for Site Specific Seismic Design Parameters for Shongtong Karcham HEP, Himachal Pradesh Power Corporation Limited, Sundernagar, 01.10.2008 to 31.03.2012, 5,61,800.00
19. केन बेतवा लिकं परियोजना की विस्तृत परियोजना प्रतिवेदन हेतु प्रस्तावित मकोडिया बाँध क्षेत्र का भूकम्पीय अध्ययनए National Water Development Agency, Shahpura, Bhopal (M.P.), 01.10.2008 to 31.03.2011, 5,61,800.00
20. Rehabilitation & Retrofitting of Pre Independence Building of FRI, Dehradun, Paryavaran Bhawan, CGO Complex, Lodhi Road New Delhi, 10.11.2008 to 09.11.2011, 33,67,200.00
21. Site Specific Seismic Study of Tilaiya Dam, Jharkhand, Jharkhand Integrated Power Limited, New Delhi, 01.12.2008 to 31.03.2011, 8,98,880.00
22. Site Specific Seismic Design Parameters for Seismic Design of Power Plant Structures at Solapur District of Maharashtra State, NTPC Ltd., Noida, 05.12.2008 to 31.03.2011, 5,61,800.00
23. Site Specific Design Earthquake Parameters Study for Power Plant Structures at MTPS, KANTI, Kanti Bijlee Utpadan Nigam Limited, Muzaffarpur Thermal Power Station, Bihar, 01.12.2008 To 31.03.2011, 5,61,800.00
24. Review of Seismic Design Spectra for Kochi LNG Terminal of Petronet LNG Ltd., Petronet LNG Limited, New Delhi – 110 001, 29.12.2008 to 31.03.2010, 1,10,837.00
25. Site Specific Seismic Study for 76 MW Phata Byung Hydro-Electric Project, Lanco Hydro Energies Pvt. Ltd., Udyog Vihar, Gurgaon, 14.01.2009 To 31.03.2011, 5,61,800.00
26. MASW Profiling for Phuentsholing City, Bhutan, Norwegian Geotechnical Institute, Norway, 14.01.2009 To 31.03.2011, 9,90,070.00
27. Shear Wave Velocity Determination for Shongtong-Karchham HEP, Himachal Pradesh, Himachal Pradesh Power Corporation Limited, Kinnaur (H.P.), 03.03.2009 To 31.03.2010, 5,61,800.00
28. Site specific design earthquake parameters study for Chhatru Hydroelectric Project, DCM Shriram Infrastructure Ltd., New Shimla (H.P.), 13.01.2009 To 31.03.2011, 5,61,800.00
29. Site specific design earthquake parameters study for Malari Jelam & Jelam Tamak HEP, UK., Tehri Hydro Development Corporation Ltd., Bhagirathipuram, Tehri Garhwal, 07.01.2009 To 31.03.2011, 8,42,700.00

#### **Year 2007-2008**

1. Site specific Seismic parameter Study for Bhimkyong HE Project (Sikkim), Stage II, Chung Thang Hydro Power Pvt. Ltd., Noida, 19.03.2007 to 31.03.2010, 3,36,720.00
2. Site specific Seismic parameter Study for Bop HE Project (Sikkim), Stage III, Teesta Hydro Power Pvt. Ltd., Noida, 19.03.2007 to 31.03.2010, 3,36,720.00
3. Site specific Seismic parameter Study for Lachung chu (Sikkim) Hidro Project Stage –I, Lachung Hydro Power Pvt. Ltd., Noida, 19.03.2007 to 31.03.2010, 3,36,720.00

4. Site specific design earthquake parameters for NMSEZ Project Area, Navi Mumbai, Navi Mumbai SEZ Pvt. Ltd., Navi Mumbai, 20.03.2007 to 31.03.2010, 5,61,200.00
5. Site specific design earthquake parameter for project site near Mundra 4000 MW Project at Mundra, The Tata Power Company Limited Matunga, Mumbai, 13.04.2007 to 31.03.2010, 5,61,800.00
6. Site specific design earthquake parameter for Jakhol Sankri H.E. Project, Lahmeyer International (India)Pvt. Ltd., Gurgaon, 01.05.2007 to 31.03.2010, 5,61,200.00
7. Site Specific Design Earthquake Parameters for Magdechhu H. E. Project, Bhutan, NHPC, Ltd., Faridabad, 02.07.2007 to 31.03.2010, 5,61,800.00
8. Site Specific Seismic Studies for Rammam Hydro Electric Project (HEP), Stage – III West Bengal, NTPC Hydro Limited, Noida, 03.07.2007 to 31.03.2010, 5,61,200.00
9. Seismic Hazard Studies for Krishna Godavari Basin in Regard to laying of Gas Pipe Line, Norwegain Geotechnical Institue OLSO, Norway, 28.04.2006 to 31.03.2008, 4,48,700.00
10. Site Specific Seismic Studies for Seismic Design of Power Plant Structures for Anta-II Super Thermal Power Project (200/2400MW), NTPC Ltd., Noida, 17.07.2007 to 31.03.2010, 5,61,800.00
11. Site Specific Design Earthquake Parameters for Study of 70 MW Budhil HE Project, Distt. Chamba, H.P., M/s Lanco Green Power Private Limited, New Delhi, 23.07.2007 to 31.03.2010, 5,61,800.00
12. Site Specific Seismic Studies for Singoli Bhatwari HEP in Uttarakhand, Larsen & Toubro Limited, Channai, 03.08.2007 to 31.03.2010, 5,61,800.00
13. Studying of the effectiveness of ground improvement technique and possible lequification potential for 2X500 MW Anpara D Thermal Power Station., U.P. Rajya Vidyut Utpadan Nigam Ltd., Lucknow (U.P.), 10.08.2007 to 31.03.2009, 33,70,800.00
14. Site Specific Design Earthquake Parameters for Alaknanda Hydero Electric Project, Chamoli Distrect., GMR(Badrinath) Hydro Power Generation Pvt. Ltd., Bangalore, 06.08.2007 to 31.03.2010, 5,61,800.00
15. Seismic Program in Uri Tehsil of J & K., Environics Trust, 33 B, Third Floor, Saidullajab, M. B. Road, New Delhi, 21.08.2007 to 31.03.2010, 1,12.360.00
16. Liquefaction Potential of Barrage Foundation for for Singoli Bhatwari HEP in Uttarakhand, Larsen & Toubro Limited, New Delhi, 03.08.2007 to 31.03.2008, 56,180.00
17. Site Specific Design Earthquake Parameters study for Jamrani Dam, Superintending Engineer, Irrigation Works Circle, Haldwani, 17.09.2007 to 31.03.2010, 5,61,800.00
18. Site Specific Study for the Proposed N.U.H.E Project, ME. SEB Dehal, Meghalay State electricity Board Project, Dehal, Dist Meghalay, 04.10.2007 to 31.03.2010, 5,61,800.00
19. Study for Site Specific Design Parameters for Rupsiabagar khasiabara H.E.P. Project, Uttarakhand, Chief Engineer, Water & Power Consultancy Services (India) Ltd., New Delhi, 12.10.2007 to 31.03.2010, 5,61,800.00
20. Site Specific Seismic Study for Sasan Ultra Mega Power Project, M.P., Sasan Power Limited, Reliance Energy Ltd., Noida, 31.10.2007 to 31.03.2010, 5,61,800.00
21. Specific Design Earthquake Parameters for Rampur Hydro Electric Project, Satluj Jal Vidyut Nigam Limited, Shimla, 27.11.2007 to 31.03.2010, 4,49,440.00
22. Site Specific Study of Shahpur 2x600 MW Thermal Power Project, Reliance Energy Limited, Mumbai, 30.11.2007 to 31.03.2010, 5,61,800.00
23. Site Specific Study – Jangi Thopani Powari HE Project (960MW), Himachal Pradesh, Barkel Kinnaur Power Pvt. Ltd. Shimla, Himachal Pradesh, 02.01.2008 to 31.03.2010, 5,61,800.00

24. 330 MW Shrinagar Hydro Electric Project – Specific Design Earthquake parameters for the Project Site – Reg, Alaknanda Hydro Power Company Limited, Dehradun, 02.01.2008 to 31.03.2010, 5,61,800.00
25. MEQ data processing, interpretation and report preparation for MEQ data collection during Dec. 2006 to Dec. 2007 for study of seismogenic source surround the SLP, NHPC Ltd., Subansiri Lower H. E. Project, Gerukamukh, Distt. Dhemaji, Assam, 03.03.2008 to 31.03.2010, 5,61,800.00

#### **Year 2006-2007**

1. Site Specific Design for Earthquake Parameter for Road Bridge Over River Brahmaputra on NH-31, Guwahati, National Highway Authority of India, New Delhi, 31.03.2008, 4,40,800.00
2. Site specific seismic study for seismic design of power plant structures for Darlipali STPP (3200 ME), NTPC Ltd., Noida, 16.07.2006, 4,48,960.00
3. Site specific study for establishing seismic parameters for bhairon Ghasti Phase-I, HE Project (UA), LAVALIN, New Delhi, 01.08.2006, 5,61,200.00
4. Site Specific Design Earthquake Parameters for Teesta Stage III HE Project, Sikkim, ERUDITE, Engineers, Pvt Ltd., Gurgaon, Haryana, 31.03.2009, 5,61,200.00
5. Site Specific Analysis of Wazurabad Bridge, ERUDITE, Engineers, Pvt Ltd., Gurgaon, Haryana, 31.03.2009, 4,48,960.00
6. Site Specific Seismic Studies for Seismic Design of Power Plant Structure for Badarpur, Thermal Power Project Stage III, (2x490 MW), National Thermal Power Corporation Ltd. New Delhi, 31.10.2009, 5,61,200.00
7. Site Specific Seismic Studies for Seismic Design of Power Plant Structure for Proposed Joint Venture Thermal Power Project at Jhajjar, Haryana (3x500MW), National Thermal Power Corporation Ltd. New Delhi, 31.09.2009, 5,61,200.00
8. Site Specific Seismic Studies for Seismic Design of Power Plant Structure for Rajive Gandhi CCPP, Stage II (3x650MW), National Thermal Power Corporation Ltd. Noida, 31.03.2009, 5,61,200.00
9. Site Specific Design Earthquake Parameter for Six Railway Bridges on Katra –Quazigund Rail Link, J&K., RITES Ltd., Gurgaon, 31.03.2009, 12,50,000.00
10. Site Specific Design Earthquake Parameters for Maneri HE Project, Uttarkashi , Uttaranchal Jal Vidyut Limited, Maneri, Uttarkashi, 5,61,200.00
11. Site Specific Seismic Studies for Lara Integrated Thermal Power Project (400MW), Distt. Raigarh, Chattisgarh, National Thermal Power Corporation Ltd. Noida, 4,48,960.00
12. Site Specific Design Earthquake Parameters for Rosa Thermal Power Plant Shahajanpur (U.P), Utility Energytech Engineers Pvt. Ltd., Lucknow, 5,61,200.00
13. Site Specific Seismic Studies for Lata Tapovan H.E. Project (ITI MW) in Uttaranchal, NTPC Hydro Ltd., Noida, 3,92,840.00
14. Site Specific Design Earthquake Parameters for Malana Stage-II, HE Project (HP), ERUDITE, Engineers, Pvt Ltd., Gurgaon, Haryana, 4,48,960.00

#### **Year 2005-2006**

1. Site-Specific Design Parameter Studies for Vishnugad Pipalkoti Hydro-Electric Scheme, Tehri Hydro Development Corporation Ltd. Rishikesh (U.A.), 07.02.2005- 31.03.2008, 4,40,800.00
2. Pre dispatch inspection of seismic logical equipment manufactures works, Switzerland, M/s Gujarat Engineering Research Institute, Narmadea Water Resources and Water Supply Deptt. Govt. of Gujarat, Vadodara, 31.03.2006, 2,75,000.00
3. Site Specific Design Parameter for Pakal Dul Power H. E. Project, National Hydroelectric Power Corporation Ltd. Distt. Doda , J & K, 09.03.2005-31.03.2007, 2,20,400.00



4. Site Specific Design Earthquake Parameters for Chutak H.E. Project Distt. Kargil, NPPC Ltd. A Govt. of India Enterprises Chutak H.E. Project Mini Village Kargil (Ladakh), 22.06.2005- 31.03.2008, 4,40,800.00
5. Site Specific Design Earthquake Parameters for Dikrong H.E. Project Arunachal Pradesh /Pare, Consulting Engineering Services (India) Pvt. Ltd. New Delhi, 28.06.2005- 31.03.2007, 4,40,800.00
6. Site Seismic Design of Power Plant Structure for Farakka STPP Stage III (1X500 Mw) Murshidabad in West Bengal, NTPC Ltd. Noida, 15.04.2005-30.04.2007, 4,40,800.00
7. Site Specific Study of Seismic Design Parameters for Koteswar, H.E. Project, THDC Ltd. Bhagirathi Bhawan Tehri Garhwal, 23.04.2005-31.03.2008, 2,20,400.00
8. Site Specific Design Earthquake Parameter for Shahpurkandi Dam Project Punjab, Ranjit Sagar Dam Construction Board, Chandigarh, 22.03.2005-31.03.2007, 4,40,800.00
9. Site Specific Design Earthquake Parameter for Kotlibhel HE Project Stage IA, NHPC Ltd., Devprayag, Tehri Garhwal (U.A), 12.08.2005-31.03.2008, 3,30,600.00
10. Site Specific Design Earthquake Parameter for Kotlibhel HE Project Stage IB, NHPC Ltd., Devprayag, Tehri Garhwal (U.A), 12.08.2005-31.03.2008, 3,30,600.00
11. Site Specific Design Earthquake Parameter for Kotlibhel HE Project Stage II, NHPC Ltd., Devprayag, Tehri Garhwal (U.A.), 12.08.2005 -31.03.2008, 3,30,600.00
12. Site Specific Design Earthquake Parameter for Siang Lower HE Project, Arunachal Pradesh, NHPC Ltd., Lower Siang Project, Pasighat, Arunachal Pradesh, 12.09.2005-31.03.2008, 3,30,600.00
13. Testing of Seismological Instruments for GERI., Gujarat Engg. Research Institute, Vadodara, 30.08.2005- 31.03.2007, 12,12,200.00
14. Site Specific Design Earthquake Parameter for Kiru Kwar, Ratle & Shamnot H.E. Project, J&K, NHPC Ltd., J&K, 31.03.2008, 13,22,400.00
15. Site Specific Design Earthquake Parameter for Bav HE project, Maharastra, NHPC Ltd., Devraukh, Maharastra, 10.10.2005- 31.03.2008, 4,40,800.00
16. Site Specific Design Earthquake Parameter for Talong H.E. Project, Arunachal Pradesh, Consulting Engineering Services (India) Pvt. Ltd. New Delhi, 31.03.2008, 4,40,800.00
17. Site Specific Seismic Studies for Seismic Design of Power Plant Structure for Bongaigaon, Thermal Power Project (2x250 MW), NTPC Ltd., Noida, 31.03.2008, 4,40,800.00

#### **Year 2004-2005**

1. Site Specific Seismic Studies for Seismic Design of Power Plant Structure for JHANOR GANDHAR CCPP, Stage-II, Phase-II (650 MW), Bharuch in Gujarat, NTPC, Noida, 15.06.2004 to 31.12.2005, 4,32,000.00
2. Site specific design earthquake parameter for chenab & anjikhad railway bridges for katra-lahoe section of Udampur-SrinagarBaramula Rail Link Project in J&K Region, Chief Project Manager, Konkan Railway Corp. Ltd., Belapur, Mumbai, 15.06.2004 to 31.12.2005, 6,48,000.00
3. Site Specific Design Earthquake Parameters for Lakhwar and Vyasi Project, NHPC Ltd., Dakpatthar, Dehradun (UA), 15.06.2004 to 31.03.2006, 6,48,000.00
4. Site Specific Design Earthquake Parameters for Karcham Wangtoo HE Project-1000 MW (H.P.), M/s Jaypee Ventures Ltd., Ghaziabad (U.P.), 15.07.2004 to 31.03.2006, 4,32,000.00
5. Site Specific Seismic Studies for Seismic Design of Power Plant Structure for NTPC-GPCL Joint Venture Thermal Power Project (1000MW) at Pipavav in Gujarat, NTPC, Noida, 15.08.2004 to 31.12.2006, 4,32,000.00
6. Site Specific Design Earthquake Parameter for Debang Multipurpose Project, NHPC Ltd. Debang Valley Arunachal Pradesh, 01.12.2004 to 31.03.2006, 4,40,800.00

7. Installation Monitoring Data Acquisition Interpretation and Preparation of Report of MEQ Instruments for Seismic Monitoring in Subansiri Lower Project, National Hydroelectric Power Corporation Limited, Subansiri Lower H.E. Project Gerukamukh Via Gogamukh Distt. Dhemaji Assam, 31.03.2008, 3,85,700.00
8. Seismological Network around Tehri Region, THDC, Rishikesh, 24.10.2007, 17,35,650.00

**Year 2003-2004**

1. Site-Specific Design Earthquake Parameter Studies of Kishanganga HE Project, J&K, NHPC, Faridabad, Haryana, 31.03.2007, 4,32,000.00
2. Site-Specific Design Earthquake Parameter Studies of Uri-II HE Project, J&K, NHPC, Faridabad, Haryana, 31.03.2007, 4,32,000.00
3. Site specific seismic studies for ministry of railways NTPC Nabhinagar joint venture thermal power project, NTPC Noida, 15.06.2005, 4,32,000.00
4. Site specific Seismic Studies for NTPC-TNEB Joint Venture Thermal Power Project at Ennore, NTPC Noida, 15.06.2006, 4,32,000.00
5. Site Specific Seismic Studies for Seismic Design of Power Plant Structure for National Capital Power Project, State-II (1x490MW)-Dadri, U.P. , NTPC, Noida, 31.03.2007, 4,32,000.00
6. Site Specific Seismic Studies for Seismic Design of Power Plant Structure for expansion of Bhilai Power Project (2x250MW)-BESCL, Bhilai Electric Supply Company Pvt. Ltd., New Delhi , 31.03.2007, 4,32,000.00
7. Site Specific Seismic Studies for Seismic Design of Power Plant Structure for Korba Super Thermal Power Project, Stage-III (1x500MW) in Chhattisgarh, NTPC Noida , 31.03.2007, 4,32,000.00
8. Site Specific Design Earthquake Parameter Omkareshwar Project (M.P.), Jai Prakash Industries Ltd., New Delhi, 31.08.2005, 4,32,000.00
9. Cross Borehole Tests at the ASCS Project Site at Bhatinda, Project Director, ASCS, Space Application Centre, Isro Ahmedabad, 3,54,832.00
10. Site Specific Seismic Studies of Loharinag Pala Hydro Electric Project (4x130MW), NTPC, Noida, 14.09.2005, 4,32,000.00
11. Site Specific Seismic Studies for Tapovan Vishnugad Hydro Electric Project (3x120MW), NTPC, Noida, 14.09.2005, 4,32,000.00
12. Site Specific Design Earthquake Parameter for Bursar HE Project, National Hydro Electric Power Corporation, Kishtwar, 31.12.2005, 4,32,000.00
13. Site Specific Design Earthquake Parameter for 192 MW Allain Duhangan hydro Electric Project, Kullu, HP, AD Hydro Power Ltd., Bhilwara, Nodia , 31.12.2005, 4,11,500.00
14. Site specific seismic survey for Koba East Project , Bharat Heavy Electrical, Kolkata , 31.03.2006, 4,32,000.00
15. Study of local Seismicity of the region around KOL Dam HE Power project (Himachal Pradesh), NTPC, Kol Dam Hydro Electric Power Project, Distt.-Bilaspur (H.P.), 31.01.2009, 57,24,000.00
16. Site specific seismic studies for seismic design of power plant structure for maula thermal power project (2x500 MW) Nagpur, NTPC Noida , 31.03.2006, 4,32,000.00

**Year 2002-2003**

1. Earthquake Parameter Studies for SERLUI 'B' Hydel Project (12MW), Executive Engineer SERLUI 'B' Dam Division Govt. of Mizoram, Bilkhawthlir, 4,00,000.00
2. Specific Design Earthquake Parameter Studies for Sew Stage-II Project (J&K), Sewa Hydroelectric Project Stage-II (J&K) Khairi Distt. Chamba, 3,79,000.00
3. Preparation on Site Specific Design Earthquake Parameters of Dhanikari Project Adaman Islands, NHPC Faridabad, 4,00,000.00
4. Site Specific Seismic Studies for Seismic Design of Power Plant Structures for Kahalgaon Super Thermal Power Project Stage-II (2x660MW) in Bihar, National Thermal Power Corporation ,Noida, 4,00,000.00
5. Seismic Design Parameter for Chamera HE Project Stage-II, National Hydro Electric Power Corpn. Ltd., Chamera Hydroelectric Project Stage-III Dharwala Distt. Chamba, 4,00,000.00
6. Seismic Design Parameter of Nimoo Bizgo & Chutuk Project, NHPC, Faridabad, 4,20,000.00
7. Determination of Site Specific Seismic Design Earthquake Parameter for Ujjayanta Place Agartalla, Govt. of India, Agartala Division No. 1, Agartala, 4,20,000.00

**Year 2001-2002**

1. Site Specific Earthquake Parameters Studies for Three Sites Siang and Subansri Basins Arunachal Pradesh, M/s National Hydro Electric Power Corp. Ltd., Itanagar, 11,98,000.00
2. Micro-Earthquake Investigations in Siang and Subansri Basins Arunachal Pradesh-Feasibility and Background Noise Survey, North Eastern Electric Power Corp. Ltd., Itanagar, 5,00,000.00
3. Studies for Seismic Design Parameters for Parbati Project Stage III, National Hydro Electric Power Corp., Sainj, 1,00,000.00
4. Evaluation of Earthquake Parameters of Site of Bargi Dam and its Appurtenant Structures, M/s Narmada Valley Development authority Government of Madhya Pradesh, 4,00,000.00
5. Study Reservoir Seismicity Employing Micro-Earthquake Investigations around Kameng Hydro-Electric Project, North Eastern Electric Power Corp. Ltd., Shillong, 57,70,000.00
6. Seismic Design Parameters Studies for proposed Teesta Low Dam HE Project Stage-III at West Bengal, National Hydroelectric Power Corp. Ltd., Faridabad, 2,00,000.00
7. Seismic Design Parameters Studies for proposed Low Dam HE project Stage-IV at West Bengal, National Hydroelectric Power Corp. Ltd., Faridabad, 2,00,000.00
8. Microearthquake monitoring Equipment for NHPC HE Project in Siang and Subansiri Basins, Arunachal Pradesh, National of Hydroelectric Power Corp. Itanagar (Arunachal Pradesh), 61,08,000.00

**Year 2000-2001**

1. Determination of Site Specific Earthquake Parameters for Tuivai H.E. Project Mizoram, M/s North Eastern Electric Power Corp. Ltd, New Delhi, 3,00,000.00
2. Site Specific EQ Parameter for Damme and Kameng Hydro Electric Project, Arunachal Pradesh, M/s North Eastern Electric Power Corp. Ltd, New Delhi, 2,50,000.00

3. Site Specific Earthquake Parameters for TESTA H.E. Project Stage-V East Sikkim, M/s National Hydro Electric Power Corp. Ltd., Singtam E-Sikkim, 4,00,000.00
4. Site Specific Earthquake Parameters for Parvati H.E. Project State-II Kullu H.P.,M/s National Hydro Electric Power Corp. Ltd., Bhuntar, 4,00,000.00
5. Updation of Site Specific Earthquake Parameters for Seismic Design for Koldam Hydro Electric Project, M/s National Thermal Power Corp. Ltd., Noida, 3,00,000.00
6. Site Specific Earthquake Parameters for Design for Power Plant Structure of Talcher Stage-II, M/s National Thermal Power Corporation Ltd., Noida, 4,00,000.00
7. Site Specific Earthquake Parameters for Design of Myntdu Leshka H.E. Project Meghalya NE, India, Meghalya State Electricity Board, 3,00,000.00
8. Site Specific Seismic Studies for North Karanpura, M/s National Thermal Power Corp. Ltd, Noida, 4,00,000.00
9. Site Specific Seismic Studies for Barh Supper Thermal Power Project, M/s National Thermal Power Corp. Ltd, Noida, 4,00,000.00
10. Discussion on Earthquake Parameters, M/s Jai Prakash Industries , New Delhi, 20,000.00

#### **Year 1999-2000**

1. Seismic Velocity Design Parameters for Middle Vaitarna Dam, Municipal Corp. of Briham Mumbai, 3,00,000.00
2. Site Specific studies for Stage II North Chennai Thermal Power Project, M/s Asea Brown Boveri Ltd., New Delhi, 3,00,000.00
3. Ghatghar Pumped Storage Scheme R.C.E. Dam Study of Earthquake parameters, Tata Consulting Engineering Mumbai, 2,83,500.00
4. Determination of site specific parameters for Rihand super Thermal Power Project State II, NTPC, New Delhi, 3,00,000.00

#### **Year 1998-1999**

1. Determination of site specific parameters for Seismic Design of Power Plant Structures, NTPC, Noida, 7,50,000.00
2. Determination of Site Specific Parameter for Seismic Design of Structure for Sipat Thermal Power Project, National Thermal Power Corporation, Noida, 2,50,000.00
3. Seismic Studies for Kalpong H.E. Project, National Hydro Elective Power Corporation Ltd., Faridabad, 2,50,000.00

#### **Year 1997-1998**

1. Seismic studies of lower Kopili H.E. Project, NPEEPCO Ltd., Shillong, 2,00,000.00
2. Design Earthquake Parameter for Concrete Dam, GSWs, Mawphtang, 2,00,000.00

#### **Year 1996-1997**

1. Consultancy Service for Establishing Seismic Design Parameters for Entire Jamnagar Refinery Project Complex, M/s Refinery Petroleum Ltd., Mumbai, 1,20,000.00

#### **Year 1995-1996**

1. Earthquake Parameters Studies for Off share structure of Refinery, 1,00,000.00
2. EIA studies of the proposed Mahadege Hydel Project on the Ecology of Goa, NEERI, Nagpur, 1,00,000.00
3. Charges for carrying out the Earthquake Parameters Studies, Tata Consulting Engineers, Mumbai, 1,20,000.00
4. Processing of data in respect of Tilt Meters Installed at Harabagh of BSL Project & the Water Tube Tiltmeter in unit Bag-6 of Bhalra Right Power Plant, Director, BRMb, Nagat, 40,000.00
5. A1 Arish Project, BHEL, BHEL, New Delhi, 2,00,000.00

**Year 1994-1995**

1. Determination of Earthquake Parameters of Bridges site over River Ravi at Basohli (J&K), 1,00,000.00

**Year 1993-1994**

1. Renuka Dam Project Seismic Studies, Xen, Renuka Investigation Division, HPSEB, Dedahu, 80,000.00

**Summary:**

<b>Major Research Projects</b>	<b>24</b>
<b>Major Consultancy Projects</b>	<b>12</b>
<b>Awards</b>	<b>2</b>
<b>Ph.d. Guided</b>	Completed : <b>19</b> Submitted: <b>03</b> Ongoing : <b>09</b>
<b>M.Tech</b>	Completed : <b>66</b> Ongoing : <b>03</b>
<b>Conference Organised</b>	<b>06</b>
<b>Books Authored</b>	<b>11</b>
<b>Education Films</b>	<b>09</b>
<b>Publications</b>	Journals: <b>96</b> Conferences/Workshop/Seminars: <b>159</b>
<b>Technical Reports</b>	<b>499</b>

## M. L. Sharma

Professor, Department of Earthquake Engineering, IIT Roorkee,  
Roorkee – 247667, India



Prof. M. L. Sharma has more than 32 years of experience in teaching, research and consultancy in the area of Earthquake Engineering. In addition to regular teaching he has prepared many films on Earthquake Engineering and participated in short term courses and international projects on earthquake engineering. Prof. Sharma has rendered expert advice to more than 400 engineering sites in India and abroad regarding the seismic hazard and risk assessment. The engineering projects include major HE projects, dams, nuclear power plants, thermal power plants, bridges, high rise buildings etc. He has successfully attempted to analyse and quantify the uncertainties in final hazard estimates using PSHA. His work on seismic hazard assessment and soil characterizations has led to the seismic microzonation of National Capital Region of Delhi. Based on the seismic hazard assessment and soil characteristic studies carried out by Prof. Sharma, the seismic microzonation of Dehradun city, Srinagar city (J&K), and Phuentsholing city in Bhutan has also been carried out which is further being used for seismic risk assessment in terms of money and death tolls.

His long association with the strong ground motion program of Department of Science and Technology has resulted in development of strong ground motion attenuation relationship for the horizontal and vertical PGA based on Indian Strong Motion data which was upgraded to spectral attenuation relationship. The relationship has been extensively used to estimate seismic hazard in India and worldwide.

Prof. Sharma played key role in the deployment of the first Digital Telemetered Seismological Sample Array in Garhwal Kumaoun Himalaya in 1985-86 in India with the aim to study present seismic status and RIS around Tehri dam. The acquired high quality digital data was used to estimate the source parameters for the first time using digital data in this region and the Seismic Moment Magnitude relationship for the Garhwal Himalaya was proposed by Prof. Sharma in 1994. Based on the data collected by these arrays, including Kol (2015-17), Lakhwar (2016-17) and Tehri (2009-2017) 3-Dimensional velocity structure was proposed for Garhwal Himalaya.

Prof. Sharma played key role in MOU for Kalpasar studies where he is the PI of the three major schemes for Kalpasar project in Gujarat (2012-2018).

Prof. Sharma has also played key role in MOU between Madhya Pradesh and Uttarakhand for the seismic instrumentation of the dams under DRIP program of CWC. This MOU is being signed on Sept 15, 2017 in Bhopal.

Prof. Sharma introduced the studies based on SAR interferometry for the deformation estimations and has been instrumental in starting the use of GIS/GPS related earthquake studies and application of SAR differential interferometry for shallow earthquake. The convergence rates between Ganga and Yamuna Tear near the Himalayan Frontal Fault has been estimated using this methodology.

To initialize the EEW in India, IIT Roorkee was the first institute to deploy 84 sensors in seismic gap region of Garhwal Himalaya with the help of Ministry of Earth Sciences in 2015. This project was thus successfully completed in March 2017 but no measures were taken to issue the warning to public.

Subsequently, in May 2017 Government of Uttarakhand sanctioned a project to IIT Roorkee for maintenance of present earthquake early warning system, installation of 100 additional sensors covering Kumaun region, installation of sirens in SEOC at Dehradun and all district HQs of Uttarakhand and installation of 100 sirens in cities of Dehradun and Haldwani. It will be the first instant when EEW will go public.

He has been actively associated with many international programs specially with Norway, Mexico and Taiwan for disaster mitigation. The lessons learnt through many damage surveys of moderate earthquake carried out by him have resulted in advice for future in form of many of his international publications. Based on the contributions by Prof. Sharma in disaster mitigation he has been awarded the A. S. Arya-IITR Disaster prevention award -2012. He is Fellow of Indian Society of Earthquake Technology and Indian Geotechnical Society. Presently he is also the Vice president of ISET