

Curriculum Vitae of Shri U.K.Guruvittal



1. Name: U.K.GURUVITTAL

2. Office Address: Chief Scientist,
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3. Areas of Interest: Geotechnical Engineering, Pavement Materials, Rural Roads

4. Educational Qualification

Degree	Year of Passing	University/ Institute	Subject	Division/ Class/Grade
Higher level Diploma in S&T	1989	BITS, Pilani	R&D Management, Computer Applications, Instrumentation	8.5 CGPA out of 12
M.E (Civil – Highway Engineering)	1987	Bangalore University	Highway Engineering	First Class with Distinction
B.E (Civil – Transportation Engineering)	1985	Bangalore University	Civil Engg. degree subjects with special emphasis on Transportation Engineering	First Class

5. Professional Experience

Starting from	Upto	Position Held	Organisation
July 2013	Continuing	Chief Scientist	Central Road Research Institute,
July 2007	July 2013	Sr Principal Scientist	

July 2002	July 2007	Scientist E II	New Delhi - 110025
July 1997	July 2002	Scientist E I	
July 1992	July 1997	Scientist C	
July 1987	July 1992	Scientist B	

6. Membership of Professional Bodies / Technical Committees

- i) Life Member, Indian Roads Congress, New Delhi
- ii) Member, Indian Geotechnical Society, Delhi Chapter
- iii) Member, Indian Society for Rock Mechanics and Tunnelling Technology
- iv) Member, Ground Improvement, Embankment and Drainage committee (H4) of IRC
- v) Member, Solid Waste Management Sectional Committee, Bureau of Indian Standards
- vi) Member, Standing Technical Advisory Committee (STAC) of Municipal Corporation of Greater Mumbai

In the past I have served in following technical committees

- i. Co-Chairman of Indian Geotechnical Society, Delhi Chapter for two year period 2008–09
- ii. Nominated as Special Invitee/ Technical Expert of Audit Board Constituted by Government of India for Performance Audit of Public-Private Partnership (PPP) Projects of NHAI (2008)
- iii. Member of Expert Committee to draft rules on Construction and Demolition waste management, Ministry of Environment and Forests, Government of India (2014)
- iv. Member of Fly ash Resource Centre, State Pollution Control Board, Government of Odisha (2015)
- v. BIS Committees - WRD 25: Geosynthetics Sectional Committee and TXD 30: Geotextiles and Industrial Fabrics Sectional Committee, and CED 43, 'Soil and Foundation Engineering Sectional Committee'
- vi. Member of 'Expert Committee to formulate Guidelines for Construction of Saline Embankments', constituted by National Institute of Disaster Management, Delhi (2007)
- vii. Served as Member of FICCI Task Force on Technical Textiles, Served as a member of 'Experts Committee for compiling Specifications for Technical Textiles', constituted by the Textile Commissioner, Ministry of Textiles, Government of India
- viii. Indian Roads Congress (a) Disaster Management Committee (b) Rural Roads Committee (c) Sub-Committee of Rigid Pavements (d) Identification, Monitoring and Research Applications Committee (e) Accreditation Committee

7. Achievements:

a) Honours/ Awards/ Significant Achievements

- Received Indian Geotechnical Society (IGS) Delhi Chapter Leadership Award in September 2015 for significant contributions made in the field of Geotechnical Engineering
- R&D Paper entitled 'A Laboratory Study of Construction and Demolition Waste for Use in Road Works' jointly authored by S/Shri U.K. Guruvittal, Smt.Farhat Azad, J. Ganesh, Binod Kumar and Sudhir Mathur, published in IRC Highway Research Journal, Volume 5 No.1 has

been awarded 'Commendation Certificate' by the Indian Roads Congress. The award was presented in the 74th IRC Annual Session at Guwahati on 19 Jan 2014.

- Indian Geotechnical Society bestowed Shri R.N. Prasad Biannual award in Dec 2013 for the paper entitled, 'Investigation and Design for Restoration of Hill Slope in Mizoram' published in the Indian Geotechnical Journal, Vol.41, No.4, October 2011 (pp.215-225) authored by S/Shri R.K.Panigrahi, U.K.Guruvittal, P.S.Prasad, Sudhir Mathur and Dr.Pankaj Gupta. This paper was adjudged as the best paper on 'Slope Stability and Land Slides'.
- Paper entitled '*Gujarat ke Kachwale tatvarti ilakhe me bandh ka nirman*' authored by S/Shri U.K.Guruvittal, Alok Ranjan and P.S.Prasad, Published in Sadak Darpan, Ank 9, (pp 17-21), 2013 received Best Hindi Paper Award in CRRI for 2012-13
- Contributed significantly towards 'Utilisation of fly ash in Road works' leading to acceptance of the material by the road construction industry successfully demonstrated its usage in many projects and formulated IRC guidelines. Ministry of Power, Ministry of Environment and Forests and Department of Science & Technology, Government of India jointly gave 'National Award for Fly ash Utilisation' in the area of R&D for Use of Fly ash in Roads and Embankments to Central Road Research Institute (2005). I have received CSIR Technology Prize-1999 for R&D work and Demonstration for Utilisation of Waste Materials especially Fly ash for Roads and Embankments Construction, awarded During CSIR Foundation Day Celebrations (26.9.1999). The R&D paper entitled 'Experiences of Fly ash Road Embankment Demonstration Projects' authored by U.K.Guruvittal and Sudhir Mathur was given the 'Best Paper Award' in the Fly ash India – 2005, International Congress held at Delhi, Organised by Fly ash Utilisation Programme, Department of Science and Technology in Dec 2005

b) Research Projects

More than 34 years of professional experience in the areas of Geotechnical Engineering, Pavement engineering and materials, Rural Roads, Material characterisation, Quality control and quality audits, Soil stabilisation, Rigid and Semi-rigid pavements and Utilisation of waste materials. The undersigned has worked as Coordinator/ Project Leader/Team Member in many R&D and Consultancy projects covering the areas mentioned above.

i) Technology Mission - Fly ash Utilisation and Disposal

A project sponsored by Department of Science & Technology, Government of India, the focus of the project was demonstration and dissemination of technologies for utilisation of fly ash in various fields, in which Roads and Embankments was given major thrust. Demonstration road and embankment stretches have been constructed and utilisation of fly ash has received a major boost due to success of demonstration projects. The important activities undertaken in this project were:

- (a) Construction of approach embankment using fly ash at Second Nizamuddin Bridge: This was a pioneer project in the field of fly ash utilisation in road embankment works. CRRI task was to provide design, construction methodology and guidance regarding utilisation of fly ash for construction of 1.9 km long, 6 to 8 m high eastern approach embankment for newly constructed

Indo-Japan Friendship Bridge at Nizamuddin in Delhi. The project has been unique of its kind since for the first time in the country fly ash embankment has been constructed in a flood zone and no reinforcements have been used. I was involved in the various activities of this project, such as project formulation, material characterisation and quality control operations during construction.

- (b) Construction of demonstration roads using fly ash: For using fly ash in road pavements, demonstration projects were taken up in Karnataka and also in U.P. The performance of such tracks was monitored and found to be very good. The undersigned was involved in various activities like, selection of the site, testing of construction materials and design of pavement, construction supervision, preparation of project report, etc.
- (c) Preparation of specifications for use of fly ash in embankment construction: The Indian Roads Congress constituted a committee to draft Guidelines on use of fly ash for embankment construction. The undersigned as a member of this committee, played a key role towards drafting of these specifications based on the experiences gained on the use of fly ash as an embankment fill material. These guidelines have been published as a special publication by IRC.
- (d) Other activities undertaken in this project include, organising of Experience Sharing Meets, Preparation of Video films depicting usage of fly ash in road works, preparation of brochures on utilisation fly ash, etc.

ii) **Pradhan Mantri Gram Sadak Yojana**

Under the aegis of Ministry of Rural Development, Govt. of India has launched PMGSY project to connect all the villages with population of 500 and above with all-weather roads. The undersigned has been involved in various activities of this project like evaluation/scrutiny of project estimates prepared by various state PWDs during initial years, Preparation of Guidelines for Design and Construction of Rural Roads, Conducting work-shops training programmes for the PWD personnel to bring the awareness about appropriate construction techniques, etc.

- iii) **Failure investigation studies for Mumbai city roads**: Mumbai City Corporation has successfully adopted use of cement concrete pavement on a wide scale since 1990s. Such pavements have proved their worth against copious rains which Mumbai gets every year and varied type of city traffic, inadequacy of drainage, etc. The undersigned was involved in the studies to design cement concrete pavements when this work was taken up by Municipal Corporation in 1990s. The pavement design was carried out after conducting city wide field studies and analysis.
- iv) **Pavement evaluation studies on airfield pavements**: This project was taken up by CRRRI to structurally evaluate the airfield pavements of about 20 airports across the country. Structural evaluation of existing pavements was carried out and airfield pavements were evaluated as per ACN/PCN method. Design of suitable type of overlay wherever necessary was also done and a technical report was prepared based on the results of the investigations.
- v) **Use of sintered lightweight fly ash aggregates for road works**: Lightweight aggregates can be made by using fly ash. This project was taken up to evaluate usage of such aggregates in road works. Extensive laboratory tests conducted on such aggregates and aggregate-soil mixes indicated that such aggregates can be used in lower layers of the pavement.

- vi) **Instrumentation and Monitoring of soft clay subsoil treated with band drain (PVD) at Visakhapatnam Port Connectivity Road:** To ensure faster and congestion free connectivity to Visakhapatnam Port, NHAI has recently constructed Visakhapatnam Port Connectivity Road. A stretch of about 4.5 km length in this road passes through areas having soft marine clay sub-soil. The marine clay in this stretch has low shear strength and high compressibility characteristics and extends to an average depth of 10 m below the existing ground level. To accelerate the rate of consolidation polymeric vertical drains (Band Drains) were installed at a spacing of 1.15 m in a triangular grid pattern. Instrumentation of the stretch and monitoring of consolidation process was carried out by CRRI team for which undersigned was Project Leader. The outcome of the project showed that observational techniques for construction control of embankment over soft soil are immensely useful for determining degree of consolidation and safety of surcharge application. After achieving the desired degree of consolidation, construction of road pavement layers was taken up and the road has been opened to traffic.
- vii) **Erosion Control Measures for Roads in Rann of Kutch, Gujarat:** The Central Public Works Department (CPWD) and National Building Construction Corporation (NBCC) have been entrusted the responsibility of constructing roads in the Rann of Kutch area of Gujarat. This area is unique in its characteristics – Desert type of climate with very low annual rain but sudden downpours of high intensity for a short duration, very high salt content in soil, near total absence of any vegetation except few pockets, silty type of soil which is highly prone for erosion, sea water which ingresses and regresses the flat bowl type of landscape leaving inland marshy and swampy dotted with small to very large salt water bodies, etc. During the monsoon of 2006, unprecedented rainfall occurred in the Rann of Kutch. As a result, large areas were inundated and flood waters overtopped the roads at many locations causing heavy damage to the pavement, shoulders and embankment slopes. Hence CPWD and NBCC requested CRRI to carry out field studies and suggest remedial measures for prevention of erosion. CRRI team undertook extensive field investigations of about 430 km length of road stretch to record the damages suffered by the road pavement/embankment each kilometer wise, and after detailed field and laboratory studies, a slew of measures which should be taken up to control erosion of embankment side slope have been suggested. The rehabilitation works have been implemented in most of the road stretches and work is in progress in the remaining stretches.
- viii) **Use of various other waste materials in road works:** The undersigned has worked in several projects in which use of various waste materials like steel slag, processed municipal waste, construction demolition waste, cinder, copper slag, etc in road works was investigated. These projects focussed on characterisation of waste materials for determination of its engineering, physical and chemical properties, stabilisation of such wastes using cement or lime, and design of appropriate pavement sections incorporating such waste materials. Test sections were constructed in collaboration with state PWDs and such sections have shown satisfactory performance.
- ix) **Quality Audit/ Quality Control of Road Projects**
- (a) Consultancy Service for Quality Audit of Lucknow – Muzaffarpur National Highway Project (LMNHP; 8 Contract packages)

As part of restructured loan of Lucknow - Muzaffarpur National Highway Project, funded through World Bank, NHAI undertook an 'Independent Quality Audit' of 8 packages in the state of Uttar Pradesh from Lucknow to UP-Bihar Border on NH-28 (East-West Corridor under National Highway Development Project). This assignment was carried out by CSIR-Central Road Research Institute. Various tasks carried out by me included interactions with NHAI/ Contractor and Supervision Consultant Team Leader and members, extensive review of project documents including quality control records, physical inspection of project roads, recording visual observations, studying previous quality audit reports, reviewing contract and quality plan documents, assessing non compliances, reviewing actual field testing data carried out by CRRI teams, preparing project report, incorporating suggestions received from NHAI, etc.

(b) Preparation of Guidelines for Technical Audit of National Highway Works under NHDP

This document was prepared by CRRI for technical audit of NHDP works which was taken up by Comptroller & Auditor General (CAG) office so that technical aspects of the road works can be verified/ checked for adherence to specified standards and contract documents. The undersigned as Team Member actively contributed towards compilation of these guidelines through literature review, collation of information / data and taking part in review meetings held with expert committee.

(c) Technical Audit of Construction Packages 20 and 21 (Agra – Gwalior Section) of North-South Corridor of NHDP and Surat-Manor Tollway Project

CAG / Indian Audit and Accounts Department sponsored different projects on auditing of several NHDP works in which the undersigned led the field team and also contributed towards various other project activities. The undersigned contributed towards laboratory testing work and prepared project reports which were submitted to CAG. In a similar manner, undersigned made significant contributions for field investigations, laboratory testing work and compilation of report for technical audit of road projects identified in Agra-Gwalior section of NHDP.

(d) Quality Inspection and Technical Audit of PMGSY Roads

This project was taken up in five states and the undersigned as 'Team Leader' took up field inspection and quality audit of PMGSY roads in one state. The undersigned also contributed towards laboratory testing work on collected pavement material samples, took part in technical discussions with client, analysis of results and recommendations to be made regarding quality aspects.

(e) Performance Audit of Public Private Partnership (PPP) Road Projects of NHAI

I was 'Team Leader' for field team and took up various activities like extensive visual pavement condition survey of the entire stretch for recording the pavement defects, test pit observation for collecting material samples, determining in-situ density and moisture content, layer thickness, Benkelman Beam deflection testing and roughness measurement of the stretch. Based on the results of field and laboratory tests, project report was prepared. Government of India nominated the undersigned as 'Technical Expert/ Special Invitee' of Audit Board for Performance Audit of NHAI PPP projects. In this capacity, the undersigned interacted with top management of NHAI and CAG office and I have given my inputs to the audit board for preparing the document on Performance audit of NHAI PPP projects.

x) Preparation of Data-Base of Conventional/ Waste/ Marginal Materials for Construction of Embankment and Pavement Layers

Large scale infrastructural development is being carried out in the country in the form of National Highway Development Program (NHDP) and Pradhan Mantri Gram Sadak Yojana (PMGSY) program. Use of good earth and conventional hard stone aggregates for road construction adversely affects our environment and deposits of conventional aggregates are depleting very fast. Hence the development of green and sustainable roads with locally available marginal aggregates and waste material will not only protect our environment but also reduces the cost of construction. Hence it is very essential to have a compiled data of waste/marginal materials available in different parts of the country, which would help the authorities to explore the possibilities of their usage in different layers of road pavement. This project was taken up to prepare material database (conventional as well as locally available/ marginal materials) in four districts (Bhagalpur and Darbhanga in Bihar and Jabalpur and Gwalior in Madhya Pradesh) as a pilot project. Extensive interactions were held with executing agency (PIU) and Public Works Department engineers, Mining Department officials, Industrialists, Consultants representatives, STAs, etc to gather information about locally available materials in these districts. Based on information collected, many types of locally available materials like river sand, brick bats, iron ore mine overburden (OB) material, stone quarry overburden material, soft rock (Phyllite), fly ash, etc have been characterised and a project report has been submitted to sponsoring agency namely NRIDA.

xi) Design of Ground Improvement Measures for Soft Soil Areas

Soft marine clay deposits are found in coastal areas of the country. Black cotton soil found in central parts of India poses multiple problems while constructing roads. Projects to design ground improvement measures and mitigate effects of BC soil on road infrastructure were completed in Mumbai, Chennai and Vijayawada.

xii) Design of Slope Stability Improvement / Rockfall Improvement Measures in Zirakpur-Parwanoo (Himachal Pradesh) Four laning Work

M/s Himalayan Expressway Ltd have constructed four lane road between Zirakpur (near Chandigarh) and Parwanoo, enroute to Shimla. Bypass section of this new alignment is being constructed in hilly terrain involving embankment construction of height upto about 20 m and slope cutting upto 25 m. Stability of road side slopes in this project was analysed using software. The analysis showed that even though slopes are safe under normal serviceability conditions, when saturation/ earth quake conditions are considered, the slopes had factor of safety less than one. Hence, passive protection measures like provision of steel rope net/ cable panel, turfing with netting, ISMB fencing, etc were suggested at different locations. Implementation of suggested remedial measures have been successfully completed and road is open to traffic operations.

c) Research Publications

Journal Publications / Articles in Periodicals (2008 onwards)

1. U.K.Guruvittal, Prof Satish Chandra, Manoj Kumar Shukla and V.K.Kanaujia, 'Mud Concrete Blocks for Pedestrian Footpath', Published in Indian Highways, Volume 49, No 03, Indian Roads Congress, March 2021, pp 11-18
2. U.K.Guruvittal and Dr G.Bharath, 'Road Pavement Design in Frost Prone Areas', Published in New Building Materials & Construction World, New Delhi, November 2020, Volume 26, Issue 5, pp 48-54
3. U.K.Guruvittal and V.K.Kanaujia, 'Use of Industrial wastes / By-products in Road Works', Published in Civil Engineering & Construction Review, New Delhi, September 2020, Volume 33, No. 9, pp 30-35
4. M.Vinoth, Dr P.S.Prasad and U.K.Guruvittal, 'Performance Analysis of PLAXIS Models of Stone Columns in Marine Clay', Published in Indian Highways, Volume 47, No 10, Indian Roads Congress, October 2019, pp 25-30
5. U.K.Guruvittal and V.K.Kanaujia, 'Experimental Study on Tunnel Excavation Muck for Road Construction', Published in New Building Materials and Construction World, Volume 24, Issue 3, Sep 2018, pp 100-106
6. Prof Satish Chandra, U.K.Guruvittal and M.N.Nagabhushana, 'Common Problems and Solutions for Rural Road Shoulder Construction and Maintenance', Published in Indian Highways, Indian Roads Congress, Volume 45, No 11, November 2017, pp 41-46
7. U.K.Guruvittal, 'Problems Associated with Road Construction in Cold Climatic Areas', Published in Civil Engineering and Construction Review, Volume 30 (11), November 2017, pp 58-62
8. U.K.Guruvittal, 'Major Changes Incorporated in First Revision of MORD Specifications and their Impact', Published in Civil Engineering and Construction Review, Volume 29, No 7, July 2016, pp 48-52
9. U.K.Guruvittal and Dr. S.Gangopadhyay, 'Feasibility of Using Locally Available Materials for Rural Road Construction', Published in Civil Engineering & Construction Review, New Delhi, Volume 28, No 2, Feb 2015,
10. U.K.Guruvittal and Dr. S.Gangopadhyay, 'Recent R&D Achievements of CSIR-CRRI in Road Transportation Sector', Published in Current Science, Bangalore, India, Volume 108, Feb 2014
11. U.K.Guruvittal and P.S.Prasad, 'Design and Construction of Road Embankment Using Fly ash in Waterlogged Area', Published in 'New Building Materials and Construction World', New Delhi, Volume 18, Issue 10, September 2013

12. U.K.Guruvittal, Sudhir Mathur and B.M.Sharma, 'Technical Inspection of Some Rural Roads and Suggestive Measures for Improvement', Published in 'New Building Materials and Construction World', New Delhi, Volume 18, Issue 10, April 2013
13. U.K.Guruvittal, Alok Ranjan and P.S.Prasad, '*Gujarat ke Kachwale tatvarti ilakhe me bandh ka nirman*' Published in Sadak Darpan, Ank 9, (pp 17-21), 2013 received Best Hindi Paper Award in CRRRI for 2012-13
14. U.K.Guruvittal, Farhat Azad, J.Ganesh, Binod Kumar and S Mathur, 'Use Of Construction & Demolition Waste For Road Works – An Experimental Study', IRC Highway Research Journal, New Delhi, India, Volume 5, No 1, Jan 2012 (Received Commendation Certificate from IRC)
15. Dr.S.Gangopadhyay and U.K.Guruvittal, 'R&D in Road Transportation Sector – CSIR-CRRRI Contributions', Published in New Building Materials and Construction World, September 2011, pp 25-30
16. R.K.Panigrahi, U.K.Guruvittal, P.S.Prasad, Sudhir Mathur and Pankaj Gupta, 'Investigation and Design for Restoration of Hill Slope in Mizoram', Published in Indian Geotechnical Journal, 41 (4), Oct 2011, pp 215-225 (Received Shri R.N. Prasad Biannual award from IGS)
17. As Alok Ranjan, U.K.Guruvittal and Sudhir Mathur, '*Mitti Ke Bhu-abiyantrik Guno ke Nirdharan Me Kan-Akar Evam Akruti Ka Mahatva – Ek Adhyayan*', (Paper in Hindi) Published in Sadak Darpan, Ank 8, 2012, pp 33-39
18. R.K. Panigrahi, U.K. Guruvittal, P.S. Prasad and Sudhir Mathur "Geological and geotechnical investigations for remedy of slope failure problem at Km 214.240, of NH – 39 in Nagaland", Indian Highways, June 2010
19. Sudhir Mathur and U.K.Guruvittal, 'Time to Change the Fabric of Our Roads', Published in the Journal of Construction Week, September 2009
20. Dr.S.Gangopadhyay, U.K.Guruvittal and S.Mathur, 'Geosynthetic Usage in Road Works – Few Case Studies', Published in Indian Highways, Indian Roads Congress, New Delhi, June 2009
21. U.K.Guruvittal and Sudhir Mathur, 'Fly ash Usage for Road Construction – A Decade of Success', Published in Civil Engineering and Construction Review, New Delhi, February 2008, pp 22 – 29
22. P.V.Pradeep Kumar, U.K.Guruvittal, J.B.Sengupta, N.K.Sharma and S.Mathur, 'Influence of Crushing Process on Aggregate Shape, Paper submitted for publication in Civil Engineering and Construction Review, New Delhi, May 2008

Conference/ Symposium Publications

1. U.K.Guruvittal " Common Problems and Solutions for Rural Road Shoulders", National Conference on PMGSY Revisited, Organised by NRIDA in New Delhi, Dec 2019

2. Shahbaz Khan, M.N.Nagabhushana, U.K.Guruvittal and Devesh Tiwari, 'Use of Fly ash in Cemented Base Layer', Published as Poster Paper in International Conference on Pavements and Computational Approaches (ICOPAC 2018), Nov 2018
3. M.Vinoth, P.S.Prasad and U.K.Guruvittal, 'Performance Analysis of PLAXIS Models of Stone Columns in Soft Marine Clay', Published in International Symposium on Geotechnics of Transportation Infrastructure (ISGTI 2018), April 2018
4. Shahbaz Khan, M.N.Nagabhushana and U.K.Guruvittal, 'Use of Fly ash in Low Volume Roads', Published in 18th IRF World Road Meeting (WRM), Nov 2017
5. P.S.Prasad, U.K.Guruvittal, K.Sitaramanjaneyulu and M.R.Madhav, 'Remedial Measures for Upheaval of PQC Panels Adjacent to Piers of Monorail in Mumbai', Published in 5th International Conference on Forensic Geotechnical Engineering, IISc, Bangalore, Nov 2016
6. U.K.Guruvittal and I.K.Pateria, 'Using Locally Available Materials in Road Construction - Problems and Possibilities', Published in National Conference on Fifteen Years of PMGSY, Organised by Transportation Engg Group, IIT, Roorkee, August 2016
7. U.K.Guruvittal and R.K.Swami, 'Iron and Steel Slag for Rural Road Construction', Published in National Conference on Fifteen Years of PMGSY, Organised by Transportation Engg Group, IIT, Roorkee, August 2016
8. V.K.Kanaujia, A.K.Sinha, V.G.Havanagi and U.K.Guruvittal, 'Investigation and stability analysis of embankment bund', Published in Indian Geotechnical Conference, Organised by Indian Geotechnical Society, Pune, December 2015
9. A.K.Sinha, V.G.Havanagi and U.K.Guruvittal, 'Instrumentation and monitoring of embankment on soft soil', Published in National Symposium on Advances in Instrumentation, Geo Monitoring and Validation, Organised by Central Board of Irrigation and Power, New Delhi, July 2015
10. U.K.Guruvittal, 'Construction & Demolition Waste - Laboratory Feasibility Study and Field Usage', Workshop on C&D Waste, JNTU, Hyderabad, Feb 2015
11. Jai Bhagwan and U.K.Guruvittal, 'Use of Marginal Materials for Rural Road Construction - Some Recent Initiatives', Indian Geotechnical Conference, Kakinada, December 2014
12. U.K.Guruvittal, 'Waste materials Usage in Road Works', Conference on New and Innovative Materials, MITS, Gwalior, Sep 2014
13. U.K.Guruvittal, 'Sustainable Technologies for Rural Road Construction', Seminar on Technologies for Sustainable Rural Development - Having Potential for Socio economic Upliftment, AMPRI, Bhopal, July 2014
14. U.K.Guruvittal, P.S.Prasad, Kishore Kumar and S Mathur, 'Rock fall Mitigation Studies for NH 22 – A Case Study', Indian Geotechnical Conference, Roorkee, Dec 2013

15. U.K.Guruvittal, ' Innovative Application of Geotechnical Engineering Practices in Road Works' College of Engineering, Trivandrum, Dec 2013
16. U.K.Guruvittal, ' Use of Fly ash in Road Making', Workshop on Fly ash Management and Utilisation, Odisha State Pollution Control Board, Bhubaneswar, June 2013
17. U.K.Guruvittal, 'Road Construction in Rann of Kutch – CRRI Experiences', Symposium on Geopractices, JNTU, Hyderabad, Nov 2012
18. U.K.Guruvittal, 'Investigations on Premature Failure of Airport Concrete Pavement', Seminar on cement concrete roads and white-topping -Need of the hour for a scintillating tomorrow, CRRI, New Delhi, Aug 2012
19. U. K. Guruvittal, 'Use of Marginal Materials and Fly ash in Road Works', Work shop on New and Non-Conventional Materials/technologies for use in Rural Roads Construction, NRRDA, New Delhi, Feb 2012
20. U. K. Guruvittal, P.S. Prasad and Sudhir Mathur, 'Construction of Road Embankment using fly ash in water logged area : A case study', National Conference on fly ash, DST and C-FARM, Hyderabad, Dec 2011
21. U.K.Guruvittal, 'Gravel Surfaces for Rural Roads', Workshop on 'Sustainable Technologies for Road Construction in North-East', NEIST and CRRI, Jorhat, Sep 2011
22. U.K.Guruvittal, 'Large volume usage of fly ash in road works – An over view', Workshop and Consultation Programme on Fly ash Utilisation, Sriram Institute of Industrial Research, New Delhi, July 2011
23. R.K.Panigrahi, U.K.Guruvittal and Sudhir Mathur, 'Assessment of Unstable Rock Slope – A Critical Review', Published in 6th International Congress on Environmental Geotechniques, Organised at Delhi, Nov 2010
24. P.S. Prasad, Dr.Kishor Kumar, U.K.Guruvittal and Sudhir Mathur, 'Regeneration of Debris flow and Landslide, on National Highway – 39 Near Kohima, Nagaland, India', Published in International Symposium on Forensic Geotechnics of Vibratory and Natural Hazards, Organised at IIT-Bombay, Mumbai, Dec 2010
25. U.K.Guruvittal and Sudhir Mathur, 'Enhancement of Haul Road Serviceability by Using Fly ash', Published in National Seminar on 'Fly Ash an Opportunity for Mining Sector', Organised in Aug 2010, New Delhi
26. U.K.Guruvittal, Alok Ranjan, R.K.Swami and Sudhir Mathur, 'Kali Kapas Mitti ka Sthirikaran Aevam Aise Kshetron se Gujarnewali Sadako ki Marammat Samagri' (Paper in Hindi), Published in Nirman Surabhi – National Conference, Nirman Samagriyan:Vision 2030, Organised by CRRI, May 2010

27. V.K.Kanaujia, U.K.Guruvittal, J.Ganesh and Sudhir Mathur, 'Electrical Resistivity Technique for Ground Characterisation – A Case Study', Published in Third Indian Young Geotechnical Engineers Conference, Organised by Indian Geotechnical Society – Delhi Chapter, Delhi, March 2011
28. J.Ganesh, U.K.Guruvittal, Kanwar Singh and Sudhir Mathur, 'New Earth Reinforcement Method by Geobags', Published in International Conference on 'Developments in Road Transportation (DRT-2010)', Organised at NIT Rourkela, October 2010
29. Dr.S.Gangopahyay, U.K.Guruvittal and Sudhir Mathur, 'Public Private Partnership Road Projects – Some Pertinent Issues', Published in the National Seminar on 'Public Private Partnership in Highway Sector', Organised by Indian Roads Congress at New Delhi, Aug 2009
30. Dr.S.Gangopadhyay, 'Impact of Road Transportation on Climatic Change', Published in IRC Council Meeting, Held at Kodaikanal, June 2009 (Actively contributed towards compilation of this paper)
31. U.K.Guruvittal, P.S.Prasad and S.Mathur, 'Construction of road embankments over marine clay deposits – Significance of instrumentation for monitoring consolidation', Published in the Conference on Trends and Advances in Transportation Engineering (TREAT-2010), organised by Bangalore University Highway Engineering Alumni Association, March 2010
32. U.K.Guruvittal and Sudhir Mathur, 'Innovative Use of Waste Materials for Road Infrastructure', Published in the Souvenir brought out on the occasion of National Get-Together on Road Research and Its Utilisation, Organised by CRRI, March 5-6, 2010, New Delhi
33. U.K.Guruvittal, P.S.Prasad and S.Mathur, 'Remedial Measures For Lowering Ground Water Table At Pantnagar Airport', Published in IGS Conference, Held at Warangal, Feb 2010
34. U.K.Guruvittal, Sudhir Mathur and P.S.Prasad, 'Investigations on Failure of Reinforced Earth Embankment', Published in the National Conference, Workshop and Exposition on Trends in Road Making Materials, Methods and Machines for Quality, Economy and Speed, Organised by Lakshmi Narain College of Technology, Raisen Road, Bhopal, 21st and 22 April 2007
35. U.K.Guruvittal, Sudhir Mathur and A.K.Sinha, 'Sub-soil Investigation and Recommendations for Construction of Kalindi Bypass Embankment', Published in the Silver Jubilee Conference on Geotechnical Engineering Experiences and Practices – Geotechnica 2007, organised by Indian Geotechnical Society, Delhi Chapter at Delhi on 18th and 19 May 2007.
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Drafting Work of Indian Roads Congress (IRC) Codes and Specifications

The undersigned has been an active member of Indian Roads Congress since 1987. I have contributed immensely towards formulation/ drafting of various IRC codes and also for other organisations, brief details of which are given below:

1. IRC Special Publication 46-1997, Steel Fibre Reinforced Concrete for Pavements
2. IRC Special Publication, IRC SP: 59-2002, Guidelines for Use of Geotextiles in Road Pavements and Associated Works
3. IRC Special Publication, IRC SP: 58-2002, Guidelines for Use of Fly ash for construction of road embankments
4. IRC Special Publication, IRC SP: 20-2002, Rural Roads Manual – Compilation of chapters on Pavement materials and Use of waste and marginal materials for road construction
5. Guidelines on Saline Embankments – Member of expert committee for drafting the guidelines – Published by NIDM (2007)
6. Indian Roads Congress Special Publication:89 – Guidelines for Soil and Granular Material Stabilisation Using Cement, Lime and Fly ash (2010)
7. Recommended practice for treatment of embankment and hill slopes for erosion control (IRC 56:2011)
8. Indian Roads Congress Highway Research Board, State of the Art Report 21, Use of Jute Geotextiles in Road Construction and Prevention of Soil Erosion/ Landslides (2012)
9. Guidelines for Road Construction in Cyclone Prone Areas – Principal author, Published by NDMA (2013)
10. Indian Roads Congress Special Report 23, State of the Art: Design and Construction of Rockfall Mitigation Systems, (2014)
11. Indian Roads Congress code, IRC 75 – Guidelines for the Design of High Embankments (2015)
12. Quality Assurance Handbook for Rural Roads, Published by Ministry of Rural Development (2016)
13. Indian Roads Congress code, IRC 121 – Guidelines for Use of Construction and Demolition Waste in Road Sector (2017)

14. Indian Roads Congress Special Publication:59 – Guidelines for Use of Geosynthetics in Road Pavements Associated Works (2019)

d) Any Other Information

I was formerly Head, Geotechnical Engg Division, CSIR-CRRI during 2012-14, and again from 2016-18. I was assigned the responsibility of Group Leader, Waste and Marginal Materials from April 2002 to March 2004. The undersigned has been involved in various other activities like organising and imparting training to in-service engineers from various other organisations in the country, organising various seminars/work-shops, etc. I have been Course-Coordinator for several training programmes being organised by CRRI for in-service engineers. I have been a Faculty member for AcSIR.