

BIO-DATA



1. **NAME:** Dr. Vasant G. Havanagi
2. **DESIGNATION:
AND ADDRESS** Chief Scientist & Professor
Geotechnical Engineering Division
CSIR-Central Road Research Institute
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3. **AREAS OF INTEREST**
1. Waste materials for Road construction
 2. Geotechnical investigations
 3. Ground improvement

4. **EDUCATIONAL QUALIFICATIONS:**

Degree	University/Institute	Year of passing	Grade/Division	Specialisation
Ph.D	Indian Institute of Technology, Delhi	2000		Research Topic: Geotechnical Characterisation, Strength and Erosion aspects of fly ash-soil mixtures
M.Tech	Indian Institute of Technology, Kharagpur	1988	CGPA = 8.92 out of 10 (GATE scholarship)	Highway and Traffic Engineering
B.E.	Bangalore university University Visvesvaraya College of Engineering (UVCE)	1986	72.5 % / I class distinction, 8th Rank	Civil Engineering

5. PROFESSIONAL EXPERIENCE:

From	To	Name of organization	Position held
15-7-2016	Till date	CSIR-Central Road Research Institute, New Delhi	Chief Scientist
15-7-2011	15-7-2016	CSIR-Central Road Research Institute, New Delhi	Senior Principal Scientist
15-7-2006	15-7-2011	-do-	Principal Scientist
15-7-2001	15-7-2006	-do	Scientist 'E1'
15-7-1996	15-7-2001	-do	Scientist 'C'
15-7-1991	15-7-1996	-do	Scientist 'B'
10-1-1989	1-7-1991	Consulting Engineering Services, New Delhi	Engineer
OTHER ACADEMIC/RESEARCH EXPERIENCE			
15-7-2011	Till date	AcSIR (Academy of Scientific & Innovative Research)	Professor
10-8-2010	15-7-2011	AcSIR (Academy of Scientific & Innovative Research)	Associate Professor
7-6-1995	31-9-1996	Institute fur Strassenwesen Und Eisenbahnbau, Fakultitat fur Bauingenieurwesen, Ruhr Universitat, Bochum, Germany.	Advanced study and Research (CSIR-DAAD fellowship)- Deputation from CSIR-CRRI

6. MEMBERSHIP TO PROFESSIONAL BODIES:

Professional Society/Organization	Member/Activity
Indian Geotechnical Society	Life member
Indian Geotechnical society, Delhi Chapter	Member Secretary (2010-13) Vice chairman (2013- 2019) -Details of activity in section 15, Page 16.
Indian Roads Congress	<p>Life member</p> <p>Some of the activities in which involved;</p> <ul style="list-style-type: none"> ➤ Member Secretary H-4 committee: Embankment, Ground improvement and Drainage.(2018-21). Prepared and finalized the following documents; <ul style="list-style-type: none"> ➤ IRC:121-2017. Guidelines for Use of Construction and Demolition Waste in Road Sector. ➤ IRC-SP-121-2018. Guidelines for Use of Iron, Steel and Copper Slag in Construction of Rural Roads. ➤ IRC:SP:59 .Guidelines for use of geosynthetics in road pavements and associated works (Under print). ➤ IRC:122-2017. Guidelines for Construction of Precast Concrete Segmental Box Culverts ➤ Sub-committee member-Preparation of Guidelines for Use of Fly ash in Road Embankments Published by Indian Roads Congress as Special Publication (IRC SP: 58 - 2001). ➤ Sub-committee member -Preparation of IRC-PMGSY Manual for Design and Construction Specifications of Rural Roads under Prime Minister Gram Sadak Yojna (IRC-SP20-2002).
Central Public Works Department (Ministry of	<ul style="list-style-type: none"> ➤ Member of the committee for formulation of technical specifications for recycled materials.

Urban Development)	
Ministry of Steel	➤ Task force member for promoting/utilization of slag from Iron and Steel Industries
Indian Concrete Institute	Life member
Supreme court committee for Solid Waste Management	Member

7. ACHIEVEMENTS

(a) HONORS/AWARDS

- **Awarded DAAD scholarship (1995-96)** by German Academic Exchange Service for higher Research and Training in Germany Carried out R&D activities in the University of Bochum, Germany.
- **Awarded Certificate of merit (2000-01)** by Director CSIR-CRRI, as the Institute received CSIR technology prize for utilization of waste materials such as fly ash and other industrial and municipal wastes.
- **Appreciation prize (2007)** received from Director,CSIR-CRRI for research paper publication in SCI journal of Geotextiles and Geomembrane having high Impact factor (3.07) " Inflection point method for predicting settlement of PVD improved soft clay under embankments " Sinha A.K., **Havanagi V.G.**,and Mathur S
- **Deputed to Philadelphia, USA (2009)** by CSIR-CRRI, for presentation of Research paper on 'Copper slag as an alternative material for Road construction' at the 24th International Conference on Solid Waste Technology and Management, held at Philadelphia, USA.
- **Best paper award (2012)** on '**Cement and fiber stabilization of Indian fly ashes**', Kaniraj, S.R., Gayatri,P., and **Havanagi, V.G.**, Proceedings of Conference 'Engineering towards change-Empowering Green Solutions, Kuching Sarawak, Malaysia.

- **Commendation Certificate (2013)** received from **Indian Road Congress (IRC)**, Ministry of Road transport and Highways (MORTH) (2013-14) for publication of paper in Journal of Highway Research Board entitled "**Characterization of Jarofix waste material for the construction of road**" by Sinha A.K, **Havanagi V.G.**, Arora,V.K., Ranjan A., and Mathur.S .
- **Commendation Certificate (2013)** received from Indian Road Congress (IRC), MORTH (2013-14) for publication of paper in Journal of Highway Research Board entitled "**Probable Causes and Corrective Measures of Landslides on Aizwal-Lunglei Road (NH - 54), Mizoram**" by Gupta,P. Sinha,A.K., **Havanagi V.G.** and Mathur S.
- **SKOCH (2017)* Order of Merit Technologies for growth .** 'Utilisation of Jarofix for Road construction". New Delhi.
- **CIDC Vishwakarma (2018) Achievement award** for best construction project 'Utilisation of Jarofix for Road construction". New Delhi
- **SKOCH order of Merit”(2018) award** for the project titled “ Copper slag Solid Waste material for Road construction “ , New Delhi.
- **IRC medal (2018)*. Awarded a medal and citation** for the best research paper titled “Municipal Solid Waste in Road embankment Construction – A case study”. Nagpur.
- **CIDC Vishwakarma (2019). Received a Trophy and Scroll of commendation** from the Board of Governors of Construction Industry Development Council (CIDC) for outstanding contribution to Research and Development under the Category ‘Scientist’. New Delhi.

(b) NATIONAL INVITATIONS

- **Co-Chairman** for a session in the Third Indian Young Geotechnical Engineers Conference, IIT Delhi, March 2011.
- **Key note Speaker** at the ‘National conference on Advances in Geotechnical Engineering’ Aligarh Muslim university, Aligarh, 8th April 2016.
- **Chairman** for a session in ‘International symposium on “Geotechniques for Transportation Infrastructure (ISGTI-2018)”’.
- **Chief guest** for the inaugural session on “Faculty Development Program organized by ADr APJ Adul Kalam Technical university, JSS Academy Noida, U.P.
- **Invited speaker** ‘Work shop on “Landfills and Waste to Resources” , Indian Institute of Technology, Delhi, 19th April 2017.

(c) OTHER HONORS

- Honored to be the **Reviewer of Journal of Hazardous materials**, USA, a SCI Journal.
- Honored to be the **Reviewer of International Journal of Solid Waste Technology and Management**, USA, a SCI Journal.
- Honored to be **Peer Reviewer** of International Journal of Engineering and Technology Research, Open Access online journal.
- Honored to be **Peer Reviewer** of Journal on Advances in civil Engineering materials, USA.
- Honored to be **Peer Reviewer** of Journal on Transportation infrastructure Geotechnology, USA.
- Honored to be the **Reviewer** of Journal of Indian Highways published by Indian Roads Congress, MORTH, New Delhi.
- Honored to be the **Guest faculty** at Indian Academy for Highway Engineers (IAHE) under the Ministry of Road transport and Highways, Cement and Building Materials (NCCBM), Ballabgarh, National Power Training Institute (NPTI), Delhi and at Sriram Institute for Industrial Research, Delhi.

8. RESEARCH AND CONSULTANCY PROJECTS:

A. 1991- TILL DATE, AT CENTRAL ROAD RESEARCH INSTITUTE, NEW DELHI

About **28 years of Research and Consultancy experience** in the areas of Utilisation of Waste materials, Pavement Engineering and materials, Quality audit of highway projects, Material characterisation, Soil stabilisation, Failure investigation of road and landslide prone areas and their remedial measures. Brief details of projects that were carried out is given below:

Sl.No	Title of Project	Project Category	Participating Agencies/Sponsorer
As Project Leader			
1	Use of Processed Municipal Wastes in Road construction – Project	Sponsored Research	Ministry of Environment and Forests, Govt. of India.
2	Quality control supervision of internal	Consultancy	Delhi Development Authority (DDA)

	roads at Dwaraka sub city, New Delhi (Package 2)		
3	Suitability of subgrade soil and design of road pavement constructed near Sarai Kale Khan Bus Depot, New Delhi,	Consultancy	Delhi Development Authority (DDA)Delhi, PWD
4	Utilization of Renolith stabilizer in Road Works – A laboratory feasibility study	Consultancy	Khopali Polymers Ltd., Mumbai
5	Utilization of Birla copper slag and fly ash in Roads and Embankments – A laboratory feasibility study	Consultancy	Indo Gulf Corporation Ltd.
6	Variation in the field density of compacted soil due to variation in the type of sand used in the sand replacement method	In-house	CRR I
7	Design of embankment using hydraulic fill technique from ITO Chungi Junction to old Yamuna bridge New Delhi	Consultancy	PWD, Delhi
8	Design and preparation of technical specifications for the construction of boundary wall of CRR I staff quarter at Maharani Bagh, New Delhi.	In-house	CRR I
9	Relative density criteria for quality control of fly ash embankment fills- Shastri Park, New Delhi	In-house	CRR I
10	Establishment of correlation between SPT ' N' Value, Relative density and shear characteristics for fly ash embankment fills-Shastri park, New Delhi	In-house	CRR I
11	Design and supervision of pond ash embankment from Shastri Chowk to Khajouri Chowk , New Delhi	Consultancy	PWD, Delhi
12	Feasibility study on the use of copper slag in road and embankment construction, Tuticorin.	Consultancy	Sterlite industries, Tuticorin, T.N.
13	Design and construction of field	Consultancy	Sterlite industries, Tuticorin, T.N.

	experimental test track construction using copper slag in the embankment and pavement layers.		
14	Design and construction of Pond ash Railway embankment	Sponsored Research	NTPC, NOIDA
15	Feasibility study of super fine copper slag in land filling and road construction	Consultancy	Birla copper industries, Dahej, Gujrat
16	Development of non destructive equipment for determination of dry density of compacted soils.	In-house	CRRRI
17	Feasibility study of cinder waste material for road construction	Consultancy	Tata Steel, Jamshedpur, Jharkhand
18	Geotechnical study of Jugasalai cinder dump area for building construction	Consultancy	Tata Steel, Jamshedpur, Jharkhand
19	Technical audit of Lucknow -Muzaffarpur National Highway Project (Sub package Leader)	Consultancy	National Highway Authority of India ,NHAI
20	Development of Electro-Mechanical density gauge for determination of In-Situ density.	In house	CSIR
21	Development and Application of Technologies for Sustainable Transportation (SUSTRANS)- WP-9 Innovative technologies for utilization of waste materials for road construction.	Sponsored Research	CSIR
22	Quality assurance of Construction of embankment, subgrade and reinforced earthwall construction Inner ring road (phase-1) from Kuberpur to Fatehabad Road in Agra, u.p	Consultancy	Agra Development Authority
23	Utilization of municipal solid wastes at Ghazipur for embankment construction in proposed widening of NH-24	Sponsored Research	National Highway Authority of India

24	Varanasi Municipal solid wastes for Road embankment construction	Consultancy	National Highway Authority of India
25	Quality assurance of construction of embankment, subgrade, reinforced earth wall construction of inner ring road from Fatehabad to Deori road (Phase 2) , Agra	Consultancy	Agra Development Authority (ADA), Govt. of Uttar Pradesh.
26	Quality Audit of Under Construction Four Laning of Ludhiana-Talwandi Section from 92.000 Km to 170.000 Km of N.H-95	Consultancy	National Highway Authority of India
As Co-Investigator			
1	Investigations for use of fly ash for four laning work of NH-6 from Dankuni to Kolaghat on soft sub soil conditions	Consultancy	RBM-PATI
2	Design and construction of Sarita Vihar fly over Reinforced Approach Embankment using fly ash, New Delhi	Consultancy	Delhi Development Authority (DDA) Delhi, PWD
3	Inflection point method of PVBD stabilized soft sub soil	In-house	CRRRI
4	Feasibility study of Jarosite and Jarofix waste material for construction of embankment and sub grade.	Consultancy	Hindustan Zinc Ltd. Chittorgarh & Udaipur
5	Field experimental test track section construction of cement stabilized road at Wagha border, Amritsar	In-house	Rohan and Rajdeep Pvt. Limited, Amritsar
6	Theoretical analysis for prediction of settlement in soft clay deposits treated with PVD.	In-house	In-house
7	Laboratory investigation of RBI-81 cementation material for road construction	Consultancy	Legend innovative Pvt. Ltd. New Delhi
8	Laboratory feasibility study of Nanostad polymer as a soil stabilizer.	Consultancy	UB Engg. Pune, Maharastra
9	Laboratory feasibility study of steel slag,	Consultancy	Goa Pollution control board, Goa

	for construction of embankment and pavement layers.		
10	Experimental test track construction using Jarofix in embankment and sub grade layers of road at Chittorgarh.	Consultancy	Hindustan Zinc Ltd. Chittorgarh & Udaipur
11	Suitability of sand material as Capillary cutoff for Road construction.	Consultancy	Public Works Department, Jajjar, Govt. of Haryana.
12	Pavement Design of Two Lane Road adjacent to NH-24 near Hindon River, Ghaziabad	Consultancy	Irrigation Department, Govt. of Uttar Pradesh
13	Design of Capillary cutoff and improvement of sub grade layers for the construction of Thanesar dhand to Khanouri road	Consultancy	Public Works Department, Kaithal, Govt. of Haryana
14	Geotechnical characterization of soil for a defence project	Consultancy	Garrison Engineers, Military Engineering Service (MES), New Delhi
15	Investigation and characterization of GSB sample from Varanasi-Aurangabad section of NH-2 for six laning project	Consultancy	National Highway Authority of India
16	Construction of Road over municipal solid waste dump, Siddhartha Vihar, Ghaziabad (U. P.)	Consultancy	UP housing and Vikash Parishad, Gaziabad, Govt. of Uttar Pradesh.
17	Vetting of pavement design proposed with geocrete stabilized layer	Consultancy	Public Works Department, Kanpur, Govt. of Uttar Pradesh
18	Ground Improvement measures over soft organic soil in the northern campus of NIT Manipur, Langol, Imphal	Consultancy	Central Public Works Department (CPWD), Imphal, Manipur
19	Sub soil Investigation for the construction of box culvert, VUP and flyovers at Agra Inner Ring Road phase II (UP).	Consultancy	Agra Development Authority (ADA), Govt. of Uttar Pradesh.
20	Design, Construction, and Performance study of Jarofix experimental road section on Chittorgarh-Udaipur road section.	Consultancy	Hindustan zinc limited, Chittorgarh, Rajasthan

21	Design and construction of phosphogypsum road at Paradeep	Consultancy	Paradeep phosphate Ltd. Orissa
22	Feasibility of chrome slag in Embankment, Subgrade and sub base layers of Road construction	Consultancy	Balosore Alloys, Limited, Orissa
As Team member			
1	Characterization of coal ashes from thermal power plants of UPRVUN Ltd. Characterization of coal ashes from Harduaganz thermal power station (U.P.)	Consultancy	UPRVUN Ltd
2	Design and Construction Supervision of Nizamuddin Approach Embankment using Fly ash	Consultancy	Delhi Development Authority (DDA) Delhi, PWD
3	Feasibility study on the use of Kimberlite tailings in road works	Consultancy	NMDC Ltd., Panna, M.P
4	Instrumentation and Monitoring on PVBD improved soft clay under embankment at Visakhapatnam.	Consultancy	NHAI
5	Ground improvement measures for widening of industrial bypass road, Visakhapatnam	Consultancy	Vizag Port Trust
6	Route alignment designs in the hilly region at Manal mines, Rajban	Consultancy	Cement Corporation of India, Rajban
7	Technical audit of different PMGSY roads	Sponsored Research	Controller Auditor General (CAG)
8	Remedial measures for slope treatment of high approach embankment of under passes on NOIDA-Greater NOIDA expressway	Consultancy	IRCON International Ltd.
9	Geotechnical investigation and design of pond ash embankment for Kalindi Bypass road, New Delhi	Consultancy	PWD, Delhi

10	Suitability of sand material for Capillary cutoff	Consultancy	PWD Haryana
11	Technical audit of NHDP projects viz. Tuni-Anakapalli and Jaipur- Kishangarh road sections	Consultancy	CAG, New Delhi
12	Investigation and remedial measures for drainage of Parallel Taxi Track at Air force Station at Car Nicobar	Consultancy	Military Engineering Service, Car Nicobar
13	Protection of cut slopes along approach roads and railway lines and stabilization of the proposed dumping sites at J&K	Consultancy	IRCON (I) Ltd
14	Quality audit and quality supervision of DMRC Roads	Consultancy	DMRC
15	Development of management system for maintenance, planning and budgeting of high speed corridors (Supra Institutional Project) Sub module - study of landslide problem along high speed corridors.	Sponsored Research	Institutional project SIP-30
16	Erosion control measures for link and border roads at Rann of Kutch, Gujarat- Report submitted to CPWD	Sponsored Research	CPWD
17	Design and development of technical specifications for approach embankment/wing walls-Under the project Development of prototype mobile Bride inspection unit at MAREDO	Sponsored Research	DST
18	Network project on Engineering of structure against natural and other disasters.	Sponsored Research	CSIR
19	Agro based Geotextile system for efficient road Drainage (COR 0013 A2) / Pilot project on construction of Rural roads under PMGSY with Jute Geotextiles.	Sponsored Research	NRRDA and JMDC, Kolkata

20	Experimental test track construction using construction demolition waste at Burari, New Delhi.	Consultancy	CPWD, Delhi
21	Investigation of roads in Visakapatnam Port area	Consultancy	Visakapatnam Port Trust
22	Field soil investigation and design of high pond ash embankment on soft ground (Kalindi Bye-pass road from Kalindi Colony to Kalindi Kunj New Delhi)	Consultancy	DDA, New Delhi
23	Supervision of pile construction and pile load tests for construction of bridge superstructure, Faridabad	Consultancy	PWD, Harayana
24	Evaluation of F. S. Technology Emulsion for Soil Stabilization	Consultancy	FS Roads Consulting Pvt. Limited, New Delhi
25	Investigation and recommendation for landslide/subsidence at km 173.5 km on Aizwal-Lunglei road (NH-54), Mizoram.	Consultancy	BRO, New Delhi
26	Feasibility study of using zinc slag as fine aggregate for construction of embankments, granular sub base, cement concrete and bituminous layers, Chittorgarh, Rajasthan.	Consultancy	Hindustan Zinc Ltd. Chittorgarh
27	Technical Audit of Golden Quadrilateral roads	Consultancy	CAG, New Delhi
28	Distress evaluation of the Runway at Calicut International Airport'	Consultancy	Airport Authority of India, Calicut
29	Quality assurance of construction of eastern approach embankment & guide bund of signature bridge	Consultancy	Delhi Tourism & Transport Development corporation (DTDC)
30	Quality monitoring and assurance for the construction of 3 lane fly over at Merut Tiraha, NH 58, Ghaziabad, UP	Consultancy	Ghaziabad development authority (GDA), Govt. of Uttar Pradesh

31	Feasibility study of Nanostad polymer stabilizer	Consultancy	U B Engineering Ltd. Pune, Maharashtra.
32	Experimental test track construction using cement stabilization, Amritsar-Wagha Border Road, Punjab.	Sponsored Research	Rohan –Rajdeep Pvt. Limited, Amritsar, Punjab
33	Studies on Utilisation of Air cooled Blast Furnace Slag in Road Making	Sponsored Research	RDCIS, Ispat Bhawan
34	Design and construction of Eastern Approach Embankment to Signature Bridge Across Yamuna River, Wazirabad	Sponsored Research	DTTDC (Delhi Tourism Transport and Development Corporation)
35	Feasibility Study of Foundry Sand Waste Materials for Road Construction.	Consultancy	The Institute of Indian foundrymen, New Delhi
36	Jarofix as a Retained Fill for Construction of Flyover Approach Road.	Consultancy	Hindustan Zinc Limited, Chittorgarh, Rajasthan.
37	Technical Evaluation of Enzyme based solution for stabilization in Road construction.	Consultancy	M/s Virentiatech Pvt. Ltd., New Delhi.

(B) 1989 – 1991 AT CONSULTING ENGINEERING SERVICES PVT. (INDIA) LTD., NEW DELHI.

As a design engineer, carried out feasibility study and detailed engineering design of various Asian Development Bank and World Bank funded National and State highway projects. The existing two lane highways were widened to 4 lane divided highways. Involved in some of the 4 laning road projects viz. Bangalore-Hosur, Varanasi-Shakthinagar, Kakinada-Kathipudi, Sambalpur-Sundergarh.

- Involved in Route alignment and Geometric design, Pavement structural design including overlay design, Bill of quantities & cost estimations.
- Carried out various field surveys viz. Road inventory & condition surveys, Culvert and Bridge surveys, Roughness surveys, Traffic surveys, Field density tests, Benkelman beam studies for overlay design. Also involved in quality control supervision of Earthwork, Granular sub base, Water Bound Macadam and Bituminous base and wearing courses.

9. RESEARCH PUBLICATIONS

A. INTERNATIONAL JOURNALS

1. Sinha A.K, **Havanagi V.G.** and Shahu J.T. (2019). Stabilized jarofix waste material for road construction, International Journal of Pavement Engineering, 10.1080/10298436.2019.1652299 .
2. Sinha A.K, **Havanagi V.G.** and Shahu J.T (2019).Construction and performance of jarofix waste material embankment. Proceedings of the Institution of Civil Engineers- Construction materials <https://doi.org/10.1680/jcoma.18.00003>
3. Sinha A.K., **Havanagi V.G.** and Shahu J.T (2018)*. Characterization of jarofix for usage in geotechnical projects. Proceedings of the Institution of Civil Engineers – Geotechnical Engineering. 171(5). pp 439-450.
4. Sinha A.K, **Havanagi V.G.**, Arora, V.K., Ranjan A., and Mathur S. (2012) Recycling Jarofix waste as a construction material for embankment and sub grade. International Journal of Solid Waste Management, vol. 38(3), pp 169-181.
5. Sinha, A.K. **Havanagi V.G.** and Mathur S. (2009). An approach to shorten the construction period of high embankment on soft soils improved with PVD., Journal of Geotextiles and Geomembrane, Vol. 27(6), pp 488-492.
6. Sinha, A.K. **Havanagi, V.G.**, and Mathur S. (2007). Inflection point method for predicting settlement of PVD improved soft clay under embankments. Journal of Geotextiles and Geomembrane, Vol. 25, 336-345.
7. **Havanagi V.G.**, Mathur, S., Prasad P.S. and Kamaraj, C.(2007). Feasibility of copper slag-fly ash-soil mix as a road construction material. Journal of Transportation Research Board, Vol 2. No.1989, 13-20..
8. Kaniraj, S.R. and **Havanagi, V.G** (2001). Behaviour of cement stabilized fiber reinforced fly ash-soil mixtures. Journal of Geotechnical and Geoenvironmental Engineering, ASCE, 127(7), 574-584.
9. Kaniraj, S.R. and **Havanagi, V.G** (2001). Correlation analysis of laboratory compaction of fly ashes. Practice Periodical of Hazardous, Toxic and Radoactive Waste Management, ASCE, 5(1), 25-32.
10. Kaniraj, S.R. and **Havanagi, V.G** (1999) Geotechnical characteristics of fly ash-soil mixtures, Journal of Geotechnical Engineering (South-East Asian Geotechnical Society), 30 (2) 129-145.
11. Kaniraj, S.R. and **Havanagi, V.G** (1999) Compressive strength of cement

stabilised fly ash soil mixtutre, Cement and Concrete Research, 29, 673-677.

B. NATIONAL JOURNALS

1. Sinha A.K., Shankar, R., Kumar.B., and **Havanagi V.G.** (2020). Recycling of foundry sand waste material for construction of concrete road. Journal of Indian Roads Congress, New Delhi, India (Under print).
2. Sinha A.K., Vasantryao, and **Havanagi V.G.** (2019). Strength and performance of fuming furnace slag concrete for road construction Journal of Indian Roads Congress, New Delhi, India.(Under print)
3. Parvati G.S.,Sinha A.K. and **Havanagi V.G.** (2019). Red mud-fly ash mix as an embankment fill material. Journal of Indian Roads Congress, Vol. 47(3), pp 20-25.(Selected paper from ISGTI conference-2018).
4. Parvati, G.S., **Havanagi V.G.**, V.K.Kanaujia,Sinha A.K (2018). Ground improvement for the construction of road over soft organic soil- A case study. The bridge and structural Engineer, Vol. 48 (2), pp. 70-80.
5. Sinha A.K, **Havanagi V.G.** (2018)*. Soil stabilization by liquid based stabilizer. Indian Highways. Indian Roads Congress. Vol.46 (3), pp 11-22.
6. **Havanagi V.G.**, Sinha A.K., Parvathi G.S, Chandra S. (2017). Municipal solid waste in Road embankment construction - A case study', Journal of Indian Roads Congress, Paper No.669, 79-90.
7. Sinha A.K. and **Havanagi V.G.** (2016). Construction and performance study of cement stabilized road – A case study, Indian Highways, Vol.44(5),pp 27-38.
8. Sinha A.K, **Havanagi**, V.G. Ranjan, A., Mathur S. and Kanaujia V.K. (2015). Stabilised cinder waste material for construction of pavement layers. Indian Highways, Vol. 31(3), pp 43 - 49.
9. **Havanagi**,V.G. Sinha A.K. and Ranjan A. (2015). Fine copper slag as an alternative marginal material for road construction, Indian Highways,, Vol 44(1),pp 25-33
10. Sinha A.K, **Havanagi**, **V.G**, Arora,V.K. Ranjan A. and Mathur S. (2013). Characterization of Jarofix waste material for the construction of road. Journal of Highway Research Board, Indian Road Congress, Vol. 6 (2), pp 35-43.
11. Gupta, P. Sinha A.K, **Havanagi V.G.** and Mathur S. (2013). Probable Causes and

Corrective Measures of Landslides on Aizwal-Lunglei Road (NH - 54), Mizoram. Journal of Highway Research Board, Indian Road Congress, Vol. 6 (2), pp 44-51.

12. Sinha A.K, **Havanagi V.G**, Ranjan A. and Mathur S. (2013). Steel slag waste material for the construction of road. Indian Highways, Vol. 41(10), pp 15-22.
13. **Havanagi V.G**, Sinha A.K, Kanaujia, V.K. Ranjan A. and Mathur S. (2013) Cinder waste material for the construction of road. Indian Highways, vol. 41(4), pp 69-72.
14. **Havanagi V.G**, Sinha, A.K., Arora V.K. and Mathur S. (2012). Design and Stability analysis of copper slag embankment. Indian Highways, vol. 40(10), pp 17-23.
15. **Havanagi V.G**, Sinha A.K. and Mathur S. (2012). Design and structural evaluation of pond ash embankment. Indian Highways, vol. 40(7), pp 39-48.
16. **Havanagi V.G**, Sinha,A.K. Gupta P. and Mathur S.(2011). Investigation and remedial measures of Hnathial landslide, Mizoram Journal of National Institute of Disaster Management Vol. 5(2) pp 201-212
17. Sinha, A.K. **Havanagi V.G.** and Mathur S. (2010) “ Powder based inorganic stabiliser for construction of sub-base and base layers of road pavement”, Indian Highways, Vol. 39(1), pp 33-44.
18. **Havanagi, V.G.**, Prasad, P.S, Guruvittal, U.K. and Mathur, S. (2006). Feasibility of utilization of copper slag-fly ash-soil mixes for road construction. Highway Research Bulletin, Indian Roads Congress. No.75, pp 59-75.
19. Mazumdar, M and **Havanagi, V.G.** (1994) Utilisation of beach sand in sand-asphalt-sulphur mixes Journal of Institution of Engineers, 75, 166-170

C. INTERNATIONAL CONFERENCE

1. Sinha, A.K. **Havanagi V.G.** (2018). Jarofix Waste Material in Embankment Construction. International symposium on geotechnics of transportation infrastructure, New Delhi, Vol.2, pp 211-222.
2. Parvathi.G.S., Sinha A.K, **Havanagi V.G.** (2018)*. Analysis of distressed geosynthetic reinforced soil wall – A case study, Proceedings of International conference on Pavements and computational approaches, CSIR-CRRI, New Delhi, Vol.1.pp 25-32.

3. Arora,V.K. **Havanagi** V.G. and Sinha A.K. (2013). Characterisation of copper slag and jarofix waste materials for road construction. Proceeding of international conference on world academy of science and technology. International science index issue 84, Melbourne, Australia, pp 1353-1358.
4. **Havanagi**, V.G. Sinha A.K. and Mathur S. (2011). Construction of embankment using copper slag waste material. Proceedings of International conference on reducing the carbon footprint in road construction, New Delhi, India, Vol.1, pp 99-106
5. **Havanagi, V.G.**, Sinha A.K., Prasad, P.S., Seetaramanjaneyulu, K. and Mathur, S. (2009).Copper slag as an alternative material for road construction. Proceedindings of conf. on Solid Waste Technology and Management, Philadelphia,USA, 133-144.
6. Sinha, A.K., **Havanagi V.G. and Mathur S.** (2009). Settlement of soft clays with prefabricated vertical drain. Proceedings of International symposium on ground improvement technologies and case histories, Singapore, Singapore Geotechnical Society, Vol. 1 pp 345-351.
7. Sinha A.K , **Havanagi, V.G.** Mathur S. and Guruvittal U.K. (2009). Investigation and design of pond ash road embankment. Proceedings of 2nd International conference on CPT 10, May California, USA, Vol. pp 336-341.
8. **Havanagi V.G.**, Mathur, S. and Sinha,A.K. (2005). Construction of fly ash embankment in flood zone of river yamuna – A case study Proceeding of International Conference on Fly ash Utilization Programme New Delhi, Vol. VIII, 7.1-7.11.
9. Mathur S., **Havanagi, V.G.** and Guruvittal U.K. (2004). Design and construction of reinforced approach embankment using pond ash. Proc. Of Vth international conference on case histories in geotechnical engineering. No.8.20.
10. Mathur Sudhir., Vittal U.K., **Havanagi, V.G.** and Sinha A.K. (2003). Design and construction of reinforced approach embankment using pond ash, Proceedings of 3rd International conference on fly ash utilization and disposal, Vol1, VI 3.9 – VI 4.5.
11. Kaniraj, S.R. and **Havanagi, V.G** (1996) Fly ash and fly ash-soil mixture for embankment construction, Proc. Second International Conf. in Environmental Geotechnics Osaka, Japan, 757-762.

D. NATIONAL CONFERENCE

1. **Havanagi V.G.**, Sinha A.K and Parvathi G.S. (2018). Characterization of phosphogypsum waste for road construction, Proceedings of Indian Geotechnical conference, Bangalore, (Paper ID:TH-09-009).
2. **Havanagi V.G.**, Sinha A.K., Parvathi G.S, Chandra S. (2017). Characterization of Municipal solid waste for Road embankment construction, Proceedings of the Conference 'New technology for Road construction', 9-10th December, Lucknow, U.P, pp 64-78.
3. Sinha,A.K. **Havanagi V.G.**and Arora V.K. (2015).Stress-strain behaviour of stabilised jarofix waste material, Proceedings of Indian Geotechnical Conference, Pune.
4. Kanaujia,V.K. Sinha A.K, Prasad P.S. and **Havanagi V.G.** (2014). Design of capillary cutoff for rural road. Proceeding of Indian geotechnical conference, Kakinada, pp 1155 - 1158.
5. Sinha A.K, **Havanagi V.G.** and Arora V.K. (2014). Experimental study of jarofix embankment model. Proceeding of Indian geotechnical conference, Kakinada, pp 1469-1474.
6. Sinha A.K, **Havanagi V.G.**, Prasad P.S. and Kumar K. (2014). Stabilisation of tunnel muck yard at Jammu & Kashmir rail link. Proceeding of Indian geotechnical conference, Kakinada, pp 2033 - 2037.
7. Sinha A.K, **Havanagi V.G**, and Mathur S. (2013). Construction of Cement Stabilized Road at Amritsar. Proceeding of Indian geotechnical conference, Roorkee, pp 1-5.
8. Sinha A.K, **Havanagi, V.G** Ranjan, A. Mathur S. and Singh B.K. (2013). Characterization of Jarosite Waste Material for Road Construction. Proceeding of Indian geotechnical conference, Roorkee, pp 1-4.
9. **Havanagi,V.G.** Sinha, A.K. Guruvittal U.K., Mathur S. (2013). Utilization of Fly Ash for Road Construction-CRRI Experiences. Proceeding of national seminar on Utilisation of Fly Ash in Geotechnical Structures, Bhubaneswar, Odisha, pp 85-103.

10. Sinha A.K, **Havanagi V.G.**, and Mathur S. (2013). Construction of Cement Stabilized Road at Amritsar. Proceeding of Indian geotechnical conference, Roorkee, pp 1-5.
11. **Havanagi V.G**, Sinha A.K, Arora V.K. and Mathur S. (2012). Waste materials for construction of road embankment and sub grade. Seminar on cement concrete roads and white-topping (need of the hour for a scintillating tomorrow), CSIR-CRRI, August, Sovenier, pp 35-40.
12. **Havanagi V.G**, Sinha A.K, Ranjan,A. Kanaujia V.K. and Mathur S. (2012). Super fine copper slag waste material for embankment construction. Published in CSIR-CRRI diamond jubilee conference, vol. 1, pp 50-52.
13. Kanaujia,V.K. **Havanagi V.G**, Sinha A.K and Mathur S. (2012). Suitability of granular materials for capillary cutoff. Published in CSIR-CRRI diamond jubilee conference, vol. 1, pp 106-109.
14. Sinha A.K, **Havanagi V.G**, Ranjan A. and Mathur S. (2012). Recycle of steel slag waste material in the construction of road Suitability of granular materials for capillary cutoff. Published in CSIR-CRRI diamond jubilee conference, vol. 1, pp 09-93.
15. Sinha,A.K. **Havanagi V.G**, Prasad,P.S. Kumar K. and Mathur S. (2012). Design of tunnel muck yard at Jammu & Kashmir rail link. Published in national conference and field study on landslide management, Nainital, March.
16. Sinha A.K, **Havanagi,V.G** Ranjan A. and Mathur S. (2012). Steel slag waste material used in the construction of embankment and sub grade. Proceeding of Indian geotechnical conference, New Delhi, Vol.2, pp 874-877.
17. **Havanagi V.G**, Sinha A.K, Ranjan A. and Mathur S. (2012). Characterisation of super fine copper slag for construction of embankment. Proceeding of Indian geotechnical conference, New Delhi, Vol.2, pp 878-881.
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22. **Havanagi, V.G.**, Sinha A.K., Mathur S., and Prasad, P.(2008). Experimental study on the use of copper slag wastes in embankment and pavement construction. Proc. Conference on National symposium on Engineering of ground and environmental geotechniques, Hyderabad, 259-264.

23. **Havanagi, V.G.**, Sinha A.K., Mathur S. (2008). Quality control of compacted fills by sand replacement method using unstandard pouring materials. Proceedings of Indian Geotechnical Conference , 2008, Bangalore.

24. Sinha, A.K. **Havanagi V.G.** and Mathur,S (2008). Continuous stage construction of high embankment on soft ground improved with PVD. Proc. Conference on National symposium on Engineering of ground and environmental geotechniques, Hyderabad, 192-197.

25. Guruvittal, U.K. Prasad,P.S. N.K.Sharma, Sinha A.K ,**Havanagi V.G.** and Mathur S. (2008). Designing ground improvement techniques in soft clay areas. Proceeding of Geosymposium, CSMRS, 4- 5th July, New Delhi pp 350-356.

26. **Havanagi, V.G.**, Sinha A.K. and Kanaujia V.K. (2006). Relative density criteria for quality control of coal ash embankment fills. Proceedings of Indian Geotechnical Conference, Chennai, pp 871-874.

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28. **Havanagi, V.G.**, and Kaniraj, S.R. (2004). Erosion studies on fly ash-soil-cement mixtures. Proceeding of National symposium on advances in Geotechnical Engineering, Indian Institute of Science, Bangalore.

29. Vittal U.K., **Havanagi, V.G.**, Mathur, S. and Sikdar, P.K. (2002). Evaluating fly ash as alternative construction material for road embankments, Proc. Of National Semi. On Road Transportation in India:Emerging Trends and Techniques, Sept 12-13, Kharagpur, 3.73-3.84.

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31. Deep Chandra and **Havanagi, V.G** (1999) Salient design aspects of highway by pass Proceedings of Indian Geotechnical Conference, Calcutta.
32. Murthy, A.V.S.R., Guruvittal U.K. and **Havanagi, V.G** (1998) Construction of road embankments using fly ash Proc. of conf. On Fly ash Disposal and Disposition - Beyond 2000 A.D., Kanpur, India.
33. Kaniraj, S.R., **Havanagi, V.G** and Jain R (1998) Behaviour of fibre reinforced soil and fly ash Proc. of National Workshop on Reinforced of Ground and slopes, Kanpur, India.
34. **Havanagi, V.G** and Guruvittal U.K. (1998) Utilisation of fly ash in road and embankment, Proc. of seminar on Environmental Management of Thermal Power Station NTPC, Ramagundam India.
35. Murthy, A.V.S.R. and **Havanagi, V.G** (1997) Use of coir fabrics in civil construction projects, Proc. of Seminar on Coir Geotextile, Coimbtore, India.
36. **Havanagi, V.G.**, Guruvittal U.K. and Murthy, A.V.S.R (1995) Use of fly ash for embankment construction, Proc. of National Symp. On Power Plant Fly ash Utilisation and Waste Heat Recovery System, Hyderabad India, 97-102.
37. **Havanagi, V.G.** and Murthy, A.V.S.R (1994) Solid waste management-Indian scenario, Proc. of 26th Regional Science Conference, Udyambag, belgaum, India.

E. ARTICLES IN MAGAZINES

1. Sinha A.K, Vinoth S., Ravi Shankar, **Havanagi V.G.** (2020). Characterisation of foundry sand waste material for road construction. Article published in the Magazine New Building Materials & Construction World (NBM&CW).
2. Sinha A.K, **Havanagi V.G.**, and Parvathi S.(2019). Utilization of waste materials in Road Construction, Article published in the Magazine New Building Materials & Construction World (NBM&CW).
3. Sinha A.K, **Havanagi V.G.** and Kanaujia V.K. (2018). Insitu investigation of cinder mound for building construction - a case study. Article published in the

Magazine New Building Materials & Construction World (NBM&CW), Vol. 23(9) pp 144 – 158.

4. **Havanagi V.G**, Sinha A.K. and Mathur S. (2011). Use of geosynthetic material for reinforced earth wall construction. An article published in the Magazine, Civil Engineering and Construction Review (CE&CR), Vol. 17(3) pp 232 – 243.
5. Sinha A.K, **Havanagi V.G**, Arora V.K. and Mathur S. (2012). Construction of embankment and sub grade using Jarofix (Zinc ore waste) – A case study. An article published in the Magazine, Civil Engineering and Construction Review (CE&CR), Vol. 25(3), pp 98-103.

10. DEPUTATION/VISITS ABROAD

- Deputed to Ruhr University, Bochum Germany for higher Research and Training in Germany (DAAD fellowship by German Academic Exchange Service). (June 1995- October, 1996).
- Deputed to Philadelphia, USA for presentation of Research paper on 'Copper slag as an alternative material for Road construction' at the 24th International Conference on Solid Waste Technology and Management, held at Philadelphia, USA.

11. CONTRIBUTION TO BOOKS/CODES:

S I. N o	Authors	Title of the chapter/N o.of pages	Year of Pubn .	Title of Book/Code	Count ry	Edition No.	Publis her
1	Sinha A.K, Vasant G Havanagi and Sudhir Mathur	Book: Chapters - 9 Pages - 50	2010	Design and construction methods of high embankment on soft soil	India	CRR I 02	CSIR-CRR I
2	IRC-75- Sub committee Technical member	Code of Practice Pages:136	2015	Guidelines for the Design of High Embankments	India		IRC
3	IRC:121-2017 Honorary Secretary-H4	Code of Practice	2017	Guidelines for Use of Construction	India		IRC

	Technical committee	Pages:25		and Demolition Waste in Road Sector			
4	IRC:122-2017 Honorary Secretary-H4 Technical committee	Code of Practice Pages:15	2017	Guidelines for Construction of Precast Concrete Segmental Box Culverts	India		IRC
5	IRC:SP:121 Honorary Secretary-H4 Technical committee	Code of Practice Pages:40	2018	Guidelines for Use of Iron, Steel and Copper Slag in Construction of Rural Roads	India		IRC
6	Ravi Sundaram, Jagdish Shahu, Vasant Havanagi	Book, Vol.1 Pages: 702	2019*	Edited a book on Geotechniques of Transportation Infrastructure	India	ISBN 978-981-13-6701-4 (eBook)	Springer
6	Ravi Sundaram, Jagdish Shahu, Vasant Havanagi	Book, Vol.2 Pages: 703	2019*	Geotechniques of Transportation Infrastructure (Proceedings of International symposium)	India	ISBN 978-981-13-6713-7 (eBook)	Springer

12. PATENTS GRANTED/APPLIED FOR :

Sl. No.	Title	Country	Filed on (Patent No.Date)	Granted on (Date)	Names of other inventors
1	Development of Electro-Mechanical Field Density Gauge	India	No.0063NF2014 Dated: 27-5-2015	Awaited	Dr. Vasant G Havanagi Dr. Anil Kumar Sinha Rajesh Rana Yogender Singh Kumar S. C Saha Dr. S. Gangopadhyay

13. DISSERTATIONS SUPERVISED

1. Ph.D

1. Title - **Strength and deformation behaviour of Jarofix waste material in the construction of embankment'**,

Institute: National Institute of Technology, Kurukshetra.

Year : 2015

2. Post-Graduation (M.Tech)

1. Title - **'Mechanistic characterization of cement stabilized fly ash mixes**

Institute: . CSIR-CRRI- PGRPE, AcSIR program

Year : 2014

2. Title - **Stabilization of fly ash-sand mixtures**

Institute: Institute fur Strassenwesen Und Eisenbahnbau, Ruhr Universitat, Bochum, Germany

Year : 1996

3. Title - **Behavior of fiber reinforced fly ash-soil mixtures**

Institute: Indian Institute of Technology

Year : 2000

4. Title - **Erosion study of stabilized fly ash-sand mixtures**

Institute: Indian Institute of Technology

Year : 2000

14. MAJOR EVENTS ORGANIZED AS LEADER / COORDINATOR:

As "**Honorary Secretary**" of Indian Geotechnical Society, Delhi chapter, organized following Conferences/Workshops for the benefit of the society.

- ✓ 'Third Indian Young Geotechnical Engineers Conference, IIT Delhi, March 2011.
- ✓ Workshop on pile foundations, CSMRS, Sep.2011.
- ✓ Workshop on 'CPT and its use for the Geotechnical investigations' on 4th April 2012.

- ✓ Workshop on 'Geotechnical investigation and case studies', CSIR-CRRI, Sep. 2012.
 - ✓ IGS-Ferroc Terzaghi Oration, IIT Delhi, October 2012.
 - ✓ Seminar on Geoenvironmental Engineering, IIT Delhi, March 2013.
- **Organizing member** of the 'Indian Geotechnical Conference-2012 held at New Delhi between 13th – 15th December 2012.
- **Organizing member** for "National Get together on Road Research and its Utilisation", CSIR-CRRI, March 2012.
- As **Vice Chairman/Chairman of Indian Geotechnical Society**, Delhi chapter Organized following workshops/conferences.
- ✓ Workshop on "Geotechnical Investigation and Analysis", CSIR-CRRI, Feb. 2014.
 - ✓ "Solutions for Geohazards and Slope protection" CSIR-CRRI, September 2014.
 - ✓ "Demonstration of Laboratory testing Equipments for Geotechnical and Building Materials", AIMIL (I) Ltd., December 2014.
 - ✓ IGS Delhi Chapter - AMITY University Seminar on "Geotechnical Engineering" Amity University, Jan. 2015.
 - ✓ "Testing and modeling of Geomaterials", CSMRS, New Delhi, April 2015.
 - ✓ Workshop on "Geotechnical Engineering" at CSIR-CRRI, New Delhi, September 2015.
 - ✓ "Smart, sustainable, & resilient civil infrastructure development", Northcap University, Guragaon, Sept 2016.
 - ✓ Workshop on "New technologies in Geotechnical Engineering", Sept. 2016.
 - ✓ One Day Technical Seminar on "Latest GPR Technologies", AIMIL, Delhi, Feb. 2017.
 - ✓ "Underground Excavations in Difficult Ground Conditions: Issues & Challenges", CBIP, Delhi, April 2017.
 - ✓ Workshop on "Landfills and Waste-To- Resources", IIT, Delhi, April 2017.
 - ✓ One day workshop at CSIR-CRRI on Emerging Areas in Geotechnical Engineering, 25th September, 2017.
 - ✓ Workshop/ presentation on '2D and 3D geotechnical tools for settlement Analysis" by Dr Thames Yacoub, President Rocscience at IIT Delhi, 31st January 2018.
- **Vice Chairman** for organizing **International symposium** on "Geotechniques for Transportation Infrastructure (ISGTI-2018)"

15. COLLABORATION WITH INDUSTRY AND OTHER GOVERNMENT ORGANIZATIONS. As discussed earlier number of R&D projects were carried out sponsored by Government departments/Industry/Private organizations. A list of these organizations has been given below.

1. Agra Development Authority (ADA), Agra, Uttar Pradesh.	2. Agriculture department, Government of Bihar
3. ATA Engineering Ltd., GVMM Estate, Ahmadabad, Gujarat.	4. BALCO, Vedanta Resources Bhubaneswar, Orissa.
5. BALCO, Vedanta Resources, Korba, Chattisgarh.	6. Balosore Alloys Limited, Balosore, Orissa
7. Birla copper industries, Dahej, Gujarat	8. Border Roads Organisation (BRO)
9. Bradken India Pvt. Ltd., Coimbatore, Tamil Nadu.	10. Brakes India Pvt. Ltd. Sholinghur, Vellore, Tamil Nadu
11. Comptroller and Auditor General of India (CAG), New Delhi	12. Central Public Works Department (CPWD), Imphal/New Delhi.
13. CSIR-AMPRI, Bhopal, Madhya Pradesh	14. Delhi Development Authority (DDA) New Delhi
15. Delhi Metro Rail Corporation (DMRC), New Delhi	16. Department of Science & Technology (DST), New Delhi
17. F. S. Technology Pvt. Ltd., New Delhi	18. Goa Pollution Control Board, Goa.
19. Hindustan Zinc Limited (HZL), Chittorgarh, Rajasthan	20. HINDALCO, Aditya Birla Group, Renukoot, Uttar Pradesh.
21. Hinduja Foundries Ltd. Innore, Chennai, Tamil Nadu.	22. Indian Institute of Technology, Delhi and Mumbai.
23. Indian Geotechnical Society (IGS), New Delhi	24. Indian Roads Congress (IRC), New Delhi
25. Infrastructural Leasing & Financial Services (IL & FS), New Delhi	26. IRCON International Limited., New Delhi
27. Konkan Railway Corporation Limited (KRCL), Mumbai	28. Legend Innovative Pvt. Ltd., New Delhi
29. KABA Infratech Pvt. Ltd. New Delhi	30. Ministry of Road Transport and Highways (MoRTH), New Delhi.
31. Jute Manufacturers Development Council (JMDC), Kolkata, West	32. National Highway Authority of India (NHAI), New Delhi

Bengal	
33. Mohit Steel Industry Pvt. Limited, Goa	34. National Rural Road Development Agency (NRRDA), New Delhi
35. New Delhi Municipal Corporation (NDMC), New Delhi	36. National Institute of Technology (NIT) Kurukshetra, Haryana.
37. National Institute of Technology (NIT) Imphal, Manipur	38. National Thermal Power Corporation (NTPC), NOIDA, Uttar Pradesh
39. Indian Academy of Highway Engineers (IAHE), NOIDA, Uttar Pradesh.	40. Public Works Department (PWD) Haryana
41. Paradeep Phosphate Limited (PPL) Paradeep, Orissa.	42. Ratan Engineering Pvt. Ltd., RIICO Indl. Area, Bhiwadi, Alwar, Rajasthan
43. Visakapatnam Port Trust (VPT), Visakhapatana, Andhra Pradesh.	44. Rohan and Rajdeep Pvt, Amritsar, Punjab.
45. PWD, Kanpur dehat, Uttar Pradesh	46. Southern Alloy Foundries Pvt. Ltd. GNT Road, Chennai, Tamil Nadu.
47. RDSO, Lucknow, Uttar Pradesh.	48. Tata Steel Limited, Ranchi, Jharkhand
49. Se Forge Limited, Coimbatore, Tamil Nadu	50. The Institute of Indian Foundrymen, New Delhi
51. Sterilite Industries, Tuticorin, Tamil Nadu.	52. Urban Development and Town & country planning, Kolkata, West Bengal.
53. Texamaco (Belgharia), Kolkata, West Bengal	54. Uttar Pradesh Housing and Development Board, Lucknow, Uttar Pradesh.
55. U.B Engineering, Pune, Maharashtra.	56. Universal Auto foundry Ltd., Jaipur, Rajasthan

16. IMPORTANT ADMINISTRATIVE RESPONSIBILITIES

- Member, CSIR-CRRI Management Council (2011-2013).
- Represented CSIR-CRRI Hon Secretary, IGS Delhi Chapter (2011-15).
- Member of screening committee for short listing of candidates for Ph.D Program (Engineering and Science), 27th May 2013
- Group Co-ordinator, Ground improvement, Geotechnical Engineering Area (2014-16).
- Selection committee member for recruitment of Project fellows/Project Assistants 10-12th June 2015.
- Core Group & Task Force Member ISO Implementation (2014-16)
- Core group member for official Language implementation committee (राजभाषा समिति) (2014-16).
- Represented CSIR-CRRI, Vice Chairman, IGS Delhi Chapter (2015-17).
- Represented CSIR-CRRI, Chairman, IGS Delhi chapter (2017 till date)
- Course-Co-ordinator and Laboratory Co-ordinator of AcSIR PGRPE program (2011-2016).
- As a Work package Leader Co-ordinated the activities of WP-9 (12th five year plan project under “SUSTRANS”) (Utilisation of waste/marginal materials for Road construction).
- Member Investment committee, for taking appropriate decisions for the investment of laboratory reserves (2018-till date).
- Chairman of T&PC formulated for procurement of “Large size cyclic Triaxial equipment”(2015-16).
- Chairman of Housing Allotment Committee (HAC) for allotment of accommodation available at MBSQ and MBSA (2018-till date).
- Chairman of T&PC formulated for procurement”/fabrication of “Mobile cold mix plant” used for field construction.
- As Chairman (T&PC) member, involved in decision making process for purchase of equipments/procurement of services as per CSIR-purchase /GFR rules (2019-till date).

17. TECHNICAL REPORTS

1. Report (1999). Utilization of Fly ash in Eastern Approach Embankment for second Nizamuddin Bridge, Public Works Department, New Delhi.
2. Report (2000). Use of Municipal wastes in Road Construction. Final Report, Ministry of Environment and Forests, New Delhi.
3. Report (2000). Characteristics of Pond ash and Bottom ash for use in Sarita Vihar fly over approach embankment, Gammon India Ltd., Mumbai.
4. Report (2000). Design and construction of fly ash embankment from Dankuni to Kolaghat road section on NH-6, Department of Science and Technology, New Delhi,
5. Report (2001). Sub-soil investigation and foundation recommendations for bridges on Palam drain in Dwarka sub city, Delhi Development Authority, New Delhi.
6. Report (2001). A report on the suitability of subgrade soil and design of road pavement near Sarai Kale Khan Bus Depot, PWD, New Delhi,
7. Report (2001). Construction of Sarita Vihar fly over Reinforced Approach Embankment using fly ash, Delhi Development Authority, New Delhi.
8. Report (2002) Characterization of coal ashes from thermal power plants of UPRVUN Ltd. Characterization of coal ashes from Harduaganz thermal power station (U.P.), UPRVUN Ltd.
9. Report (2003). Quality control supervision of internal roads at Dwarka sub city, New Delhi, Delhi Development Authority, New Delhi.
10. Report (2003). Utilization of Renolith stabilizer in Road Works – A laboratory feasibility study, Khopali Polymers Ltd., Mumbai.
11. Report (2003). Design of embankment using hydraulic fill technique from ITO Chungi Junction to old Yamuna bridge New Delhi, PWD, Delhi
12. Report (2004). Instrumentation and Monitoring on PVBD improved soft clay under embankment at Visakhapatnam, National Highway Authority of India, Vizag.
13. Report (2004) Utilization of Birla copper slag and fly ash in Roads and Embankments – A laboratory feasibility study, Indo Gulf Corporation Ltd
14. Report (2004). Route alignment designs in the hilly region at Manal mines, Rajban Cement Corporation of India, Rajban, H.P.
15. Report (2004) Report on “Feasibility study of Fine Copper Slag (Super slag) in road and structural fill applications”. Hindalco Industries Limited, Gujarat, India

16. Report (2004). Remedial measures for slope treatment of high approach embankment of under passes on NOIDA-Greater NOIDA expressway, IRCON International Ltd, Noida.
17. Report (2004). Jute geotextiles in Rural road construction under PMGSY projects, JMDC, Kolkata
18. Report (2005). Feasibility study on the use of Kimberlite tailings in road works, NMDC Ltd., Panna, M.P
19. Report (2005). Geotechnical investigation and design of pond ash embankment for Kalindi Bye-pass road, New Delhi, PWD, Delhi.
20. Report (2005). Technical audit of different PMGSY roads, Controller Auditor General (CAG).New Delhi
21. Report (2006). Design and supervision of pond ash embankment from Shastri Chowk to Khajouri Chowk , New Delhi, PWD, Delhi
22. Report (2006). "Soil investigation and design of high embankment on soft ground" (Kalindi Kunj bye pass road). DDA, New Delhi.
23. Report (2006). "Feasibility study on the use of copper slag wastes in road and embankment construction". Sterlite Industries Tuticorin, Tamil Nadu
24. Report (2006). "Investigation and recommendation for landslide/subsidence at km 173.5 km on Aizwal-Lunglei road (NH-54)" near Aizwal, BRO, Mizoram.
25. Report (2006). "Agro based geotextiles system for efficient road drainage"-NRRDA, New Delhi.
26. Report (2007). "Erosion control measures for link and border roads at Rann of Kutch, Gujarat"-CPWD, Gujarat
27. Report (2007). "Feasibility study of RBI 81 cementations material for road construction". Submitted to M/s Legend innovative Pvt. Ltd., New Delhi.
28. Report (2007). "Instrumentation and monitoring on PVBD improved soft clay under embankment". Vizag Port Trust, Visakhapatnam.
29. Report (2007). "Feasibility study on the use of imperial smelting furnace zinc slag as fine aggregate for construction of embankments, granular sub base, cement concrete and bituminous layers". Hindustan zinc limited Chittorgarh, Rajasthan.
30. Report (2007). "Feasibility study of F.S Technology emulsion cementations material for road construction". FS Roads Consulting Private Limited, New Delhi.
31. Report (2007). "Technical audit of NHAI GQ highway project, Kishangarh to Jaipur". CAG, New Delhi.
32. Report (2007). "Technical audit of Tuni-Anakapalli, BOT (Annuity project)-". Submitted to CAG, New Delhi.

33. Report (2008). "Design of coal ash Railway embankment". NTPC, NOIDA.
34. Report (2008) "Ground improvement measures for widening of industrial bypass road Visakhapatnam". Visakhapatnam Port trust, Visakhapatnam.
35. Report (2008). "Investigation and remedial measures for drainage of Parallel Taxi Track at Air force Station at Car Nicobar". Military Engineering Service, Car Nicobar.
36. Report (2008). "Supervision of pile construction and pile load tests for the construction of bridge superstructure", NTPC, Faridabad. PWD, Haryana.
37. Report (2008) Feasibility study on the use of Sterilite copper slag wastes in Road and Embankment construction, Sterilite Industries Limited, Tuticorin
38. Report (2009). "Design specifications for construction of experimental test tracks using copper slag". Sterlite Industries Tuticorin. Tamil Nadu
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