**Dr. Surender Singh**

Assistant Professor, BSB-231-C,

Transportation Engineering Division

Dept. of Civil Eng., Indian Institute of Technology Madras, Chennai-600036, India

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**EDUCATIONAL DETAILS**

**Indian Institute of Technology** Roorkee, IND

*PhD. Civil Engineering**Sept, 2018*

**National Institute of Technology** Kurukshetra, IND

*M.Tech (****1st Div. with Honors,****), Civil Engineering May 2015*

**Deenbandhu Chhotu Ram University of Science and Technology** Murthal, IND

*B.Tech (****1st Div. with Honors,****), Civil Engineering May 2013*

**RESEARCH INTERESTS**

**●** Pavement Material Characterization **●** Recycled Aggregates **●** Agricultural & Industrial Waste **●** Sustainable Cement Concrete Mixes **●** Concrete Pavements **●** Design & Construction of Pavements

**TEACHING EXPERIENCE**

Indian Institute of Technology, Madras April 2019- To Date

Amity University, Noida Aug 2018- April 2019

**HONORS & AWARDS**

**RILEM** Youth Council Member representing South Asian Countries 2021

Executive Committee Member of **Indian Concrete Institute** (ICI) Chennai Centre 2020

Indian National Academy of Engineering (**INAE**) Innovative Student Project

**National Award** in Doctoral Category 2019

**Honorary** Student **Membership** for 5 years by **INAE** 2019

Indian Roads Congress (**IRC**) **National Award**; *Bihar PWD Medal* 2017

Branch Topper’s Fellowship 2010, 2011, 2012, 2013

Indian Army Merit Certificate 2006, 2007

**JOURNAL EDITOR**

**Topic Editor:** Organic Waste Aggregates in Cementitious Composites: Enhancing Sustainability in Civil Infrastructure, *International Journal of Frontiers in Built Environment* 2020

**JOURNAL REFEREE**

* Construction and Building Materials **●** Journal of Cleaner Production **●** ASCE Journal of Materials in Civil Engineering **●** ASCE Journal of Transportation Engineering-Part B **●** International Journal of Pavement Engineering **●** International Journal of Pavement Research and Technology **●** Case Study in Construction Materials **●** Journal of the Institute of Engineers (India): Series A: Engineering Review

**RESEARCH PROJECTS**

**A New Framework of High Value Added Zero-Waste Recycling of Concrete from Construction and Demolition Waste** *July 2019 - July 2021*

Project under Department of Science & Technology (DST): UKIERI Role: Co-PI

**Roller Compacted Concrete Pavements for Sustainable Rural Roads** *April 2019- April 2021*

Project under New Faculty Initiation Grant, IIT Madras **Role: PI**

**Suitability of Low-Cost, Low-Carbon Roller Compacted Concrete Pavement for Rural**

**Roads** *Nov 2019- Nov 2022*

Project under New Faculty Seed Grant, IIT Madras **Role: PI**

**Inducing Sustainability through Construction & Demolition Waste in Roller Compacted Concrete Pavements**  *Jan 2020- Jan 2021*

Project under Exploratory Research Project, IIT Madras **Role: PI**

**FELLOWSHIP/MEMBERSHIP**

Indian Concrete Institution (**ICI**) Executive Committee Member

**RILEM** Affiliate Member

Indian National Academy of Engineering (**INAE**) Student Member

Indian Roads Congress (**IRC**) Life Member

Indian Concrete Institution (**ICI**) Life Member

**INVITED TALKS**

**Invited Speaker in MHRD**-**SPARC** Workshop on Sustainability and durability of concrete structures with by-products and recycled materials, IIT Madras 2020

**Guest Lecture** in Indian Institute of Coal Management (IICM) workshop on Construction and Maintenance of Rigid and Flexible Pavements, **IICM Ranchi** 2020

**Invited Speaker** in Workshop on Valorization of Construction and Demolition Waste**, Brunel University, London** 2019

**Invited Speaker** in **Indian Concrete Institution** Workshop on Sustainable Concrete Pavements, ICI-Kochi Chapter, Kerala 2019

**Invited Speaker** in **Indian Concrete Institution** Seminar on Use of Alternative Aggregates for Concrete Construction, ICI-Chennai Chapter, IIT Madras 2019

**Expert Lecture** in **RILEM-ICI Doctoral Course on Advanced Concrete Technology,** IIT Madras, Chennai 2019

**Invited Speaker** in **Indian Roads Congress** Regional Workshop on Quality Control, New Materials and Techniques in Road Sector, IIT Roorkee 2019

**Invited Speaker** in 5th Concrete Research in India (CRI) Symposium, IIT Madras. 2019

**Expert Lecture** on Recycling of Pavement Materials for Construction of Concrete Pavements in 40th training program organized by IIT Roorkee under Pradhan Mantri Gram Sadak Yojna (**PMGSY**), Rural Engineering Department, Uttar Pradesh, 2018

**PEER-REVIEWED PUBLICATIONS IN REPUTED JOURNALS**

1. **Surender Singh**, and G.D.Ransinchung R.N, (2020), “Laboratory and Field evaluation of RAP for cement concrete pavements”, *Journal of Transportation Engineering Part B: Pavements*, **American Society of Civil Engineers**, ASCE. Vol. 146, Issue 2, pp. 04020011-1 to 04020011-11. DOI: 10.1061/JPEODX.0000162.
2. Solomon Debbarma, G.D. Ransinchung R.N. and **Surender Singh**, (2020), “Improving the properties of RAP-RCCP mixes by incorporating supplementary cementitious mineral admixtures as part addition of Portland Cement”, *Journal of Materials in Civil Engineering*, **American Society of Civil Engineers**, ASCE, Vol. 32, Issue 8, pp. 04020229-1 to 04020229-12. DOI: 10.161/(ASCE)MT.1943-5533.0003283.
3. Solomon Debbarma, G.D. Ransinchung R.N. and **Surender Singh**, (2020), “Zinc waste as a substitution of portland cement in roller compacted concrete pavement mixes containing RAP aggregates”, *Journal of Materials in Civil Engineering*, **American Society of Civil Engineers**, ASCE, Vol. 32, Issue 8, pp. 04020207-1 to 04020207-12. DOI: 10.1061/(ASCE)MT.1943-5533.0003278. In Press.
4. Kumari Monu, G.D. Ransinchung R.N., G.S. Pandey and **Surender Singh**, (2020), “Performance Evaluation of Recycled Concrete Aggregates and Reclaimed Asphalt Pavements for Foam Mix Asphalt Mixes”. *Journal of Materials in Civil Engineering*, **American Society of Civil Engineers**, ASCE, Vol. 32, Issue 10, pp. 04020295-1 to 04020295-12. DOI: 10.161/(ASCE)MT.1943-5533.0003356. In Press.
5. Solomon Debbarma, G.D. Ransinchung R.N. **Surender Singh** and Surya K. Sahdeo (2020) “Utilization of industrial and agricultural wastes for productions of sustainable roller compacted concrete pavement mixes containing reclaimed asphalt pavement aggregates”, *Resources, Conservation & Recycling*, **Elsevier**, Vol. 152. DOI: 10.​1016/​j.​resconrec.​2019.​104504.
6. Solomon Debbarma, Selvam M. and **Surender Singh**, (2020), “Can Flexible Pavements’ waste (RAP) be utilized in Cement Concrete Pavements? – A Critical Review”, *Construction and Building Materials*, **Elsevier**, Vol. 259. DOI: 10.1016/j.conbuildmat.2020.120417
7. Ran Bir Singh, Solomon Debbarma, Navanit Kumar and **Surender Singh**, (2020), “Hardened State Behaviour of Self-Compacting Concrete Pavement Mixes containing Alternative Aggregates and Secondary Binders”, *Construction and Building Materials*, **Elsevier**. Vol. 266, Part A. DOI: 10.1016/j.conbuildmat.2020.120624
8. Solomon Debbarma, G.D. Ransinchung R.N. and **Surender Singh**, (2019), “Suitability of various Supplementary Cementitious Admixtures for RAP inclusive RCCP mixes”, *International Journal of Pavement Engineering*, **Taylor and Francis**. DOI: 10.1080/10298436.2019.1703981, In Press.
9. Kumari Monu, G.D. Ransinchung R.N., **Surender Singh** and Gaurav Singh Raghav, (2019) “Recycling of Waste Originating form Flexible Pavements for Bound-Base Courses of Flexible Pavements”, *The Journal of Solid Waste Technology and Management*. Vol. 46 Issue 3, pp. 394-408.
10. **Surender Singh**, G.D.Ransinchung R.N. and Monu Kumari, (2019) “Sustainable Lean Concrete Mixes Containing Wastes Originating from Roads and Industries”, *Construction and Building Materials*, **Elsevier**, Vol. 209, pp. 619-630. DOI: 10.1016/j.conbuildmat.2019.03.122.
11. Solomon Debbarma, **Surender Singh** and G.D. Ransinchung R.N., (2019) “Laboratory Investigation on Fresh, Mechanical and Durability Properties of RCCP containing RAP.” ***Journal of Transport Research Record***, Vol. 2673 (10), pp. 652-662. TRR. DOI: 10.1177/0361198119849585.
12. **Surender Singh**, Monu Kumari, and G.D.Ransinchung R.N, (2019), “Laboratory investigation of RAP for various layers of flexible and concrete pavement*”, International Journal of Pavement Engineering*, **Taylor and Francis**. DOI: 10.1080/10298436.2019.1567920. In Press.
13. **Surender Singh**, G.D.Ransinchung R.N., and Praveen Kumar, (2019), “Feasibility study of RAP aggregates in cement concrete pavements” *Road Materials and Pavement Design*, **Taylor & Francis**, Vol. 20, Issue 1, pp. 151-170. DOI: 10.1080/14680629.2017.1380071.
14. Solomon Debbarma, G.D.Ransinchung R.N., and **Surender Singh**, (2019), “Feasibility of Roller Compacted Concrete Pavement containing different fractions of Reclaimed Asphalt Pavement”, *Construction and Building Materials*, **Elsevier**, Vol. 199, pp. 508-525. DOI: 10.1016/j.conbuildmat.2018.12.047.
15. Kumari Monu, G.D.Ransinchung R.N., and **Surender Singh**, (2019), “Effect of long term ageing on properties of RAP inclusive WMA Mixtures” *Construction and Building Materials*, **Elsevier**, Vol. 206, pp. 483-493. DOI: 10.1016/j.conbuildmat.2019.02.087
16. **Surender Singh**, G.D.Ransinchung R.N., and Praveen Kumar, (2018), “Performance evaluation of RAP concrete in aggressive environments”, *Journal of Materials in Civil Engineering*, **American Society of Civil Engineers**, ASCE, Vol. 30, Issue 10, pp. 04018231-1 to 04018231-12. DOI: 10.1061/(ASCE)MT.1943-5533.0002316.
17. **Surender Singh**, Dhawal Shintre, G.D.Ransinchung R.N., and Praveen Kumar, (2018), “Performance of fine RAP concrete containing flyash, silica fume and bagasse ash”, *Journal of Materials in Civil Engineering*, **American Society of Civil Engineers**, ASCE, Vol. 30, Issue 10, pp. 04018233-1 to 04018233-11. DOI: 10.1061/(ASCE)MT.1943-5533.0002408.
18. **Surender Singh**, G.D.Ransinchung R.N., and Praveen Kumar, (2018), “Laboratory Investigation of Concrete Pavements containing Fine RAP Aggregates”, *Journal of Materials in Civil Engineering*, **American Society of Civil Engineers**, ASCE, Vol. 30, Issue 2, pp. 04017279-1 to 04017279-9. DOI: 10.1061/(ASCE)MT.1943-5533.0002124.
19. **Surender Singh**, and G.D.Ransinchung R.N, (2018), “Durability Properties of Pavement Quality Concrete Containing Fine RAP” *Advance*s *in Civil Engineering Materials*, **American Society of Testing Materials**, ASTM Internationals. Vol. 7, Issue 1, pp. 271-290, DOI: 10.1520/ACEM20180012.
20. **Surender Singh**, G.D.Ransinchung R.N., Kumari Monu, and Praveen Kumar, (2018), “Laboratory Investigation of RAP Aggregates for Dry Lean Concrete Mixes”, *Construction and Building Materials*, **Elsevier**, Vol. 166, pp. 808-816, DOI: 10.1016/j.conbuildmat.2018.01.131.
21. **Surender Singh**, G.D.Ransinchung R.N., Solomon Debbarma, and Praveen Kumar, (2018), “Utilization of reclaimed asphalt pavement aggregates containing waste from Sugarcane Mill for production of concrete mixes”, *Journal of Cleaner Production*, **Elsevier**, Vol. 174, pp. 42-52, DOI: 10.1016/j.jclepro.2017.10.179.
22. Kumari Monu, G.D.Ransinchung R.N., and **Surender Singh**, (2018), “A Laboratory Investigation on Dense Bituminous Macadam containing different fractions of coarse and fine RAP” *Construction and Building Materials*, **Elsevier**, Vol. 191, pp. 655-666, DOI: 10.1016/j.conbuildmat.2017.10.017.
23. **Surender Singh**, G.D.Ransinchung R.N., and Praveen Kumar, (2017), “Effect of mineral admixtures on fresh, mechanical and durability properties of RAP inclusive concrete”, *Construction and Building Materials*, **Elsevier**, Vol. 156, pp. 19-27, DOI: 10.1016/j.conbuildmat.2017.08.144.
24. **Surender Singh**, G.D.Ransinchung R.N., and Praveen Kumar, (2017), “An economical processing technique to improve RAP inclusive concrete properties”, *Construction and Building Materials*, **Elsevier**, Vol. 148, pp. 734-747, DOI: 10.1016/j.conbuildmat.2017.05.030.
25. **Surender Singh**, G.D.Ransinchung R.N., and S.M. Abraham, (2016), “Feasibility of RAP in rigid pavement slab - A review”, *Journal of the Indian Road Congress*, IRC, Vol. 77, Issue 1, pp. 315-322.
26. **Surender Singh**, G.D.Ransinchung R.N., S.N. Sachdeva, Praveen Kumar, and M. Parida, (2016), “Effect of modulus of subgrade reaction on thickness of rigid pavement- A case study”, *Journal of Indian Road Congress*, IRC, Vol. 76, Issue 4, pp. 239-248.

**CONFERENCE PROCEEDINGS/PRESENTATIONS**

1. **Surender Singh**, (2020). “Recycling of Asphalt Concrete Waste for Concrete Pavement Application: An Indian Experience”. *40th Cement & Concrete Science Conference*, 74th RILEM Week, University of Sheffield, Sheffield, United Kingdom, August 31- September 04.
2. Solomon Debbarma, **Surender Singh** and G.D. Ransinchung R.N., (2019). “Laboratory Investigation on Fresh, Mechanical and Durability Properties of RCCP containing RAP.” *98th Transport Research Board (TRB) Annual Meeting*, Washington D.C., USA, January 13-17.
3. Solomon Debbarma, G.D. Ransinchung R.N. **Surender Singh** and Surya K. Sahdeo, (2019) “Utilization of waste materials for productions of sustainable roller compacted concrete pavements – A review”, *5th Conference of Transportation Research Group of India*, Bhopal, India. December 18-21.
4. G.D.Ransinchung R.N., **Surender Singh**, and S.M. Abraham, (2016), “Feasibility of reclaimed asphalt pavement in rigid pavement construction”, Proc Engineering Challenges for Sustainable Future, Zawai, CRC Press, Taylor & Francis Group, ISSN: 978-1-138-02978-1. *Presented* in 3rd *International Conference on Civil, Offshore and Environmental Engineering*, ICCOEE 2016, Malaysia. August 15-17, 2016.
5. **Surender Singh**, Shreya Pandey, G.D.Ransinchung R.N., and Praveen Kumar, (2017), “Effect of Service and Stockpiling Life on Properties of RAP Aggregates”, *National Conferences on Roads and Transport*, (NCORT-2017), IIT Roorkee, India. October 14-15.
6. **Surender Singh**, and S.N.Sachdeva, (2015), “Design of a rigid pavement with different conditions of subgrade and sub-base”, *National Conference on Technological Innovations for sustainable infrastructure* (TISI-2015), NIT Calicut, India. March 13-14.
7. **Surender Singh**, and S.N.Sachdeva, (2015), “Thickness Requirement of a Rigid Pavement with varying Conditions of Subgrade, Sub-Base, and Shoulders”, *National Conference on Advances in Engineering, Technology & Management.* MMU Mulana, India. April 04.
8. **Surender Singh**, and S.N.Sachdeva, (2014), “Analysis of Design of a rigid pavement with subgrades of varying strength”, *Emerging Paradigms and Practices in Global Technology, Management & Business issue* (NIT-MTMI). NIT Hamirpur, India. December 22-24.
9. Rajiv Chauhan, and **Surender Singh**, (2013), “Seismic Microzonation- A study”, *National Conference Geotechnical and Geoenvironmental Aspects of Wastes and Their Utilization in Infrastructure Projects*, GNDEC Ludhiana, India. Feb 15-16.

**STUDENT GUIDANCE**

* Rohit Prajapati, PhD. Scholar, Ongoing
* Selvam M., Ph.D. Research Scholar, Ongoing
* Md. Shoeb Amer Ali Khan, Ph.D. Research Scholar, Ongoing
* Mamatha Kasuri, MS Research Scholar, Ongoing
* Rameesa Jahan, M.Tech Scholar, Ongoing
* Jayasuriya, M.Tech Scholar, Ongoing
* Vidthya Poornachandar, M.Tech Scholar, Ongoing
* Rishabh Dane, M.Tech Scholar, 2019