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Utilization of reclaimed asphalt pavement aggregates containing waste from Sugarcane Mill for production of concrete mixes

Surender Singh, G.D. Ransinchung R.N., Solomon Debbarma, Praveen Kumar



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1 **Utilization of Reclaimed Asphalt Pavement Aggregates Containing Waste from Sugarcane**  
2 **Mill for Production of Concrete Mixes**

3 Surender Singh<sup>a</sup>, G.D.Ransinchung R.N.<sup>b\*</sup>, Solomon Debbarma<sup>c</sup> and Praveen Kumar<sup>d</sup>

4 <sup>a</sup>Research Scholar, Department of Civil Engineering, IIT Roorkee, India-247667, email-  
5 surendr.singh38@gmail.com

6 <sup>b\*</sup>Corresponding Author, Associate Professor, Department of Civil Engineering, IIT Roorkee, India-247667, email-  
7 gdranfce@iitr.ac.in Phone No- (O): +91-1332-285584, (R): +91-1332-285136.

8 <sup>c</sup>Research Scholar, Department of Civil Engineering, IIT Roorkee, India-247667, email- solo.debbarma124@gmail.com

9 <sup>d</sup>Professor, Department of Civil Engineering, IIT Roorkee, India-247667, email- pkaerfce@iitr.ac.in

10 **Wordcount - 7856**

11 **Abstract**

12 The present study investigates the potential of waste originating from road sector (RAP) and  
13 agricultural industry (Sugarcane Bagasse Ash) for production of concrete mixes. 5 mixes were  
14 prepared by partial replacing natural aggregates by coarse RAP (CRAP) and fine RAP (FRAP) in  
15 the proportions of 50% and 100%. 3 subsequent mixes were prepared by incorporating 100%  
16 RAP aggregates blended with 10% and 15% Bagasse Ash (BGA) as part replacement of cement.  
17 It was noted that incorporations of FRAP aggregates decreased the fresh, mechanical and  
18 durability properties of concrete significantly compared to CRAP aggregates. Incorporation of  
19 10% BGA was found to enhance the mechanical and durability properties of 100% RAP concrete  
20 significantly. Economic analysis of the considered mixes showed that incorporations of RAP  
21 aggregates blended with BGA can reduce the total cost of 1 m<sup>3</sup> concrete by more than 40% as  
22 compared to conventional concrete. From the present study, it is recommended to replace 10% of  
23 cement by BGA in RAP concrete as this would not only strengthen the pavement but provides  
24 with environmental and economic benefits.

25 **Keywords;** RAP, Bagasse Ash, Cement, Strength, Pavements

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