

**GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
LOK SABHA
UNSTARRED QUESTION NO.5684
TO BE ANSWERED ON 26/7/2019**

USE OF BOTTOM ASH

5684. SHRI LAVU SRI KRISHNA DEVARAYALU:

Will the Minister of SCIENCE AND TECHNOLOGY विज्ञान और प्रौद्योगिकी मंत्री be pleased to state:

- (a) whether Centre for Applied Research and Development of Neyveli Lignite Corporation and Vellore Institute of Technology has successfully used bottom ash from power plants as an alternative to sand;
- (b) if so, the details of research in this regard;
- (c) whether bottom ash and cement mix is more stronger than sand and cement mix, if so, the details thereof; and
- (d) the manner in which the Government is planning to propagate this in the field of construction?

ANSWER

**MINISTER OF HEALTH AND FAMILY WELFARE; MINISTER OF SCIENCE AND TECHNOLOGY; AND MINISTER OF EARTH SCIENCES
(DR. HARSH VARDHAN)**

**स्वास्थ्य और परिवार कल्याण मंत्री; विज्ञान और प्रौद्योगिकी मंत्री; और पृथ्वी विज्ञान मंत्री
डॉ. हर्ष वर्धन**

- (a) & b): Yes, Neyveli Lignite Corporation *India* Limited (NLCIL) and Vellore Institute of Technology (VIT) University had jointly undertaken the R&D project “Utilization of Bottom Ash for the replacement of river sand” during the year 2011-2014. Under R&D project, bottom ash samples of NLCIL power stations were studied for the suitability to use as an alternative to sand. The physical and chemical properties of bottom ash were tested. The bottom ash can be used in concrete / solid block and the effect of unburnt carbon in construction mix was also tested. The Bottom ash from Thermal Power station-I Expansion of NLCIL was found suitable as alternative material for sand as partial replacement (up to 50%). Based on the results, an experimental building was constructed at Neyveli and the performance was also evaluated. The study result proves that bottom ash is suitable for construction applications and it can be used as a partial replacement of fine aggregates and it is being utilized in the construction activities of NLCIL.
- (c) It is observed that the mixture of cement, Fly ash, 50% Bottom ash gives strength which is equivalent to control mix (Cement, Fly ash, sand). The bottom ash concrete shows better performance in terms of strength, shrinkage and as well as the durability.
- (d) The bottom ash properties vary from power station to power station due to coal / lignite mineral content and unburnt carbon content. Hence, specific study is required by the concerned power station to find its suitability in the field of construction.
