Ref. Executive summary of the completed project
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Project title: **Design and Development of Truck Mounted Mobile Coal Sampler for Instant Coal Ash & Moisture Analyser at Site from Railway Wagon** Project No.: **GAP/MT/MOC/89/2011-12**	Executive Summary: The demand for energy is expected to increase by 95% by 2030. Since inception coal has been fulfilling the power requirement of the nation and it will remain India's main energy source as we are third rich in producing coal in the world. Grades of coal play important role in deciding the cost of the energy. In our country about 59% energy is produced by thermal power plants with coal being its sole and primary fuel. Apart from thermal sectors all large scale metal melting blast furnaces and steel melting shops for example run on the energy supplied by burning coal or either by utilizing or transforming coal into suitable forms to make use of the high calorific value it supplies (for example Coal gas). In the context of coal quality monitoring, when we discuss this in commercial terms these three agencies i.e coal producers, coal controller and coal users come into picture. Coal quality examination with proper proximate analysis to obtain the exact value of moisture, ash content along with GCV of the produced/supplied coal at source/destination for optimization of resources is obligatory. Moreover, delays or any intermittency in the supply of quality coal in the furnaces of thermal power station & steel plant is undesirable which makes the online methodology the need of the hour for every heavy industry indulged in mass production using coal as the source of energy. Sampling and analysis are the two components for coal quality assessment. In this very project there has been demonstrated design and development of mechanism for collecting the true representative of coal sample from the railway wagon /truck at site from where coal is being dispatched / received. The representative coal sample which then undergoes step by step analysis to give the instant results of ash and moisture contents with the newly developed nuclear technique methods with dual gamma rays transmission which gives impeccable results in no time. Technically this method is fast, accurate and economical and also

	solves the problem of coal quality monitoring encountered by Industries with surge efficiency. To achieve this target the Government of India, Ministry of Coal, has sanctioned the project in two phases (ie. Phase-I & Phase-II) with the following objectives: **Phase – I**: To establish the feasibility of nuclear technique method with dual-gamma-ray transmission for analysis of coal for ash and moisture content. **Phase - II**: Design & development of integrated Truck Mounted Mobile Coal Sampler for instant coal ash & moisture analysis. The objective for the phase one of the project has been successfully completed and proved the feasibility of the nuclear technique method with Dual-gamma-ray Transmission for analysis of coal ash and moisture content. It has resulted into a fruitful outcome and the technology has given satisfactory output values of coal ash and moisture content within the permissible range. The second phase i.e to Design & development of integrated Truck Mounted Mobile Coal Sampler for instant coal ash & moisture analysis has been also successfully completed. The objective of developing the coal sampler which can find unbiased random samples from the truck/ wagon on the site has been fulfilled. A full scale Truck Mounted Mobile Coal Sampler for Instant Coal Ash & Moisture Analyser at Site from Railway Wagon / Truck was designed and developed and fabricated. This equipment was incorporated with all other equipments, installed and given successful coal analysis results with closer estimates during field trial at various mines of SCCL. This cost effective developed equipment/product would be helpful at large to reduce the cost of electricity, thus in turn beneficial to the society.