

**Aquitaine –Karnataka collaboration
Scientific Project for Pre-PhD student exchange
Scientific Proposal**

Project Title	Design of Biogas Digester, Burner and Production of Biogas from Paper Waster with Cow dung	
Scientific domain	Energy Engineering , Mechanical Engineering	
Summary (ca. 10 lines)	<p>Achieving solutions to possible shortage in fossil fuels and environmental problems that the world is facing today requires long-term potential actions for sustainable development. In this regard, renewable energy resources appear to be one of the most efficient and effective solutions. Biogas has globally remained a renewable energy source derived from plants that use solar energy during the process of photosynthesis. Being a source of renewable natural gas, it has been adopted as one of the best alternatives for fossil fuels after 1970's world energy crisis. Various wastes have been utilized for biogas production and they include amongst others; animal wastes, industrial wastes , food processing wastes , plant residues etc. Many other wastes are still being researched on as potential feedstock for biogas production. Paper wastes are one of such wastes being considered as a potential feed stock.</p> <p>The purpose of this work is to design a prototype digester and burner using a simple experimental unit to analyze the physicochemical properties such as volatile solids, nutrients and energy content and carbon to nitrogen ratio and also the gas flammability during the Lag period, cumulative and mean volume of gas production for the wastes, Total Viable Count (TVC) for the Pure and Waste blend and compare it with when paper waste alone is used.</p>	
Student profile wished	Mechanical Engineering, Thermal Engineering, Energy Engineering	
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Timing & duration for project (give approximate ranges)	From 3 to 6 Months, any time of the year	
Selected Publications	<ol style="list-style-type: none"> 1. Adeleke OO, 2009, Converting Waste Paper to Biogas, a Class-room Project. Bioapplications initiative. Showing workable strategies of solving human problems using Natures solutions. Accessed from http://bioapplications.blogspot.com. 2. Ofoefule, Akuzuo U., Nwankwo, Joseph I., Ibeto, Cynthia N. Biogas Production from Paper Waste and its blend with Cow dung , Advances in Applied Science Research, 2010, 1 (2): 1-8 	

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