Fulbright Global Flex Award

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Michigan State University professor among 10 worldwide to receive Fulbright Global Flex Award – his work will improve rural power in Ethiopia and China

A Michigan State University College of Engineering professor will advance off-grid electric power applications in rural China and Ethiopia after receiving a Fulbright Global Flex Award.

Abraham Engeda, a professor of mechanical engineering, will use the prestigious worldwide honor to support two years of power generation research in remote parts of the two countries.

“The main aim of the research is to develop, design, and test very low head hydro-turbine genset with low environmental impacts and to transfer the technology to Ethiopia and China for rural off-grid electric power application,” Engeda said. “The project will be carried out in cooperation with the Chinese Academy of Sciences and Addis Ababa University in Ethiopia.”

Engeda said the proposed electric power genset (generator system) will be a compact dam-less and self-contained single unit. It will consist of a hydraulic turbine with variable pitch blades.

“The unit will operate at heads of 1.5 – 3.0 meters and be able to produce 100 – 500 kilowatts of electrical power,” Engeda explained. “The term 'low impact' refers to hydropower units that require very little to no civil engineering work, like dam and waterways structures, and are easy to install and operate by offering a high degree of reliability. They are significantly reduced civil works that are a reliable, silent, directly driven permanent magnet generator with variable speeds suited for low head application and no social and environmental impacts.”

Leo Kempel, dean of the MSU College of Engineering, noted the significance of this Fulbright Award.

“This is a new, and I would say even more prestigious award than the traditional Fulbright program,” Kempel said. “Professor Engeda is one of only about 10 Fulbright Global Flex Scholars selected in 2016 to visit multiple regions of the world. It is a tribute to his and MSU's reputation for research excellence and international service.”

Engeda is an expert in turbomachinery, including power plant cooling, experimental thermo-fluids, turbomachinery flow analysis and design, gas turbine and biogas. He is a fellow of the American Society of Mechanical Engineers (ASME) and a recipient of the ASME Fluid Machinery Award.

The Fulbright Global Flex Scholars Award is funded by the U.S. Department of State. It helps U.S. academic and professional experts engage in regional or trans-regional research and teaching through visits to multiple countries.

Related Website: Fulbright Global Flex Award
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