

GAMA BIOGAS, biogas electrical power from cow droppings

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The Agricultural Training, Research and Development Station is developing biogas electrical power that is produced from anaerobic fermentation of cow droppings in a closed digester.

As an educational institution that has the concept of Education for Sustainable Development (EfSD) in various integrated agricultural researches, the 7R concept is implemented in learning process. 7R means reduce, reuse, recycle, refill, replace, repair and replant. One of the researches being developed is the popular biogas purification. Biogas is not only produced of cattle droppings but also other organic waste. KP4 of UGM with researchers Dr. Ambar Pertiwiningrum, Dr. Wiratni and Iwan Setiawan ST, developed biogas purification technology of CH₄ until it reaches high purity level that can increase combustion calories and make biogas as an alternative to petrol in generators.

The research under the coordination of the National Excellence Research by KP4 employs existing organic waste. The purification biogas can be used as electrical power and, in its development, it can be contained in 3 kg and 12 kg Elpiji gas tubes. Other positive result of this research is the level of methane gas that has reached 80-85%. KP4 has a closed digester measuring 5m³ that can supply energy for a 1000 watts genset by some 3000-5000 watts for 5 hours. It can also be used to replace petrol to prevent the machine from getting easily corroded. It even makes the machine more stable and durable.

To protect the novel technology, a patent will be applied for under the name of "GAMA BIOGAS". According to Head of KP4, Dr. Ir. Cahyono Agus DK., MSc., patent registration is vital to protect the technology from being manipulated by others. Cooperation opportunities with the National Nuclear Agency and Indonesian Science Institute have been established to develop this technology further.

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