

PENGEMBANGAN SISTEM RENEWABLE ENERGI PEMBANGKIT LISTRIK TENAGA SURYA DAN BIOGAS UNTUK MEMBANTU KELOMPOK TERNAK SAPI “SEDYO RUKUN” DUSUN GEDOGAN, DESA SUMBERMULYO, KEC. BAMBANGLIPURO, KAB. BANTUL, YOGYAKARTA

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ABSTRACT

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"Sedyo Rukun" Cattle Group located in RT07 Dusun Gedogan, Sumbermulyo Village, Bambanglipuro District, Bantul Regency, Special Region of Yogyakarta has been established since 2006. But since its establishment 9 years ago the business of this livestock group has not been able to increase the income (prosperity) members of the livestock group significantly. The problem is pointed at the high cost of daily and monthly production on the purchase of daily feed and monthly electricity bill. Therefore, efforts should be made or activities that can minimize the cost of daily and monthly expenses of members. Another urgent problem is the presence of air pollution due to the unpleasant smell of fresh cow dung waste, so in addition to disturbing the comfort of the environment also causes unhealthy environment.

From the discussion with the partners, one approach that is deemed appropriate solution to overcome these problems is to create and develop products applied science and technology related to renewable energy and energy independence of PLTS and Biogas. This is because at least 3 main reasons are: (1) the two applied science and technology products are easy to obtain, easy to care and most importantly, these 2 applied products will empower the abundant potential and natural resources at the partner site, (2) biogas can reduce the level of air pollution due to the smell of fresh cow dung waste, which leads to increased levels of health and environmental comfort around the partners, (3) participate socialize and realize the government program of energy independence and renewable energy.

After the activities of PPM IbM was held since around March 2017 to October 2017, the results obtained as follows. First, it has successfully developed a solar power plant (pico) powered about 300 Watt. This micro PLTS is the main function to turn on 2 water pumps during the day and the led light for street lighting at night. This unit has been operating for about 1 month and has successfully assisted members of the cattle group in the provision of clean water to bathe the cows and process cattle feed. Secondly, we have successfully developed and developed a biogas system that works to utilize and optimize cow dung waste into gas that can be used for cooking. With the application of renewable energy applied can help the group of cattle significantly, including the reduction of electricity bill around 100 thousand rupiah. Then also air pollution due to cow dung waste is also reduced. Rural communities around the partners are becoming more aware and interested in renewable energy products.

Kata Kunci: *renewable energy, solar cells, biogas*