

Family Digester in Palestine

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Palestine has a good potential for biogas production. One Palestinian family living in rural areas owns at least three cows where each cow gives 12-16 kg dung per day. This amount produced 24.5 kg biogas per month instead of accumulation and pollute the surrounding which is equivalent to one C₄H₁₀ gas bottle, since heat value of CH₄ is $\frac{1}{2}$ heat value of C₄H₁₀. biogas production experiments were implemented in Palestine under the conditions: T= 35C, pH value = 6-7, and retention time = 10-60 days. The Economic evaluation of these digesters shows that the cost of 1 m³ biogas equal 1.5NIS. so the family digester (floating drum digester) with 3.5 m³ volume saved 4180NIS per year with simple payback period less than one year, so building home biogas plants especially in rural communities applicable to Encourage rural families to use renewable energy to save money and reduce the pollution especially organic waste pollution in addition to Produce rich and expensive fertilizer . The Methodology is to Build home biogas digesters for 15 rural families with 3.5m³ volume (the dilution ratio is 1dung:1water) that Palestinian families own cows with an average of 3 cows per family with 400-800kg weight And cow gives 10-15 kg dung per day, The appropriate family digester design in Palestine is floating drum digester .Expected Results were 1- established 15 floating digester with 3.5 m³ size,2-produced 4.98m³bigas/day for each family that equivalent 2390 NIS/year cost for each family, 3-Produced 11.5 ton/year fertilizer for each family that equivalent 2363 NIS/year cost for each family, 4- the benefit from each digester =4180NIS/year with simple payback period reaches to 9 months .

Appreciations:((AIRD): Association For Integrated Rural Development, C: Celsius degree, C₄H₁₀ Butane gas., m Centimeter.,CH₄ Methane Gas, Kg Kilo gram, Km: Kilo meter, m:meter, NIS New Israeli shekel, pH Acidity degree value)