

**Technical study to install an improved village water system (HVA) for rural populations using solar power as an energy source- case of Foula in Odienné area, Ivory Coast.
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The study focuses on drinking water in Foula, a non-electrified village in Department of Odienné (northwest of Côte d'Ivoire). The objective of this work is to realize a technical study to install an improved village water system (HVA) for the village of Foula using solar power as an energy source. This will integrate all villages with 1000 to 4000 inhabitants in the improved village water projects even if they are not connected to the national network power. We collected data, analyzed and sized the various works of the HVA system. The solar photovoltaic system and its batteries are being dimensioned. The detailed study was carried out and the characteristics of the works to be constructed were determined. Thus, the needs of the population of Foula were evaluated at different horizons and give respectively 39+ 57 and 82 m³ d based on a population of 1,314 inhabitants updated with a growth rate of 2%. Water tower will have a 20 m³ capacity and will be placed on a metal base 10 m high. Borehole has a pumping flow rate of 4.5 m³ h. There is a necessity to get a pump which is 1.1 kilowatts power to pump water from the borehole to the water tower on the basis of the total pressure of 45 m. The distribution of water will be at 4 fountains with two spouts. The pipeline network is made of PVC pipes with different diameters sized according to the pressure in each section. The solar system requires 14 modules of 250 Watt-peak each for the operation of the pump. However, because of changes in climate conditions and the concern to ensure continuous water service, the recommended storage capacity of the batteries is 1250 Ah. This equates to 150 Ah battery 9-48 V

