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Impacts and Challenges of Solar PV Projects: Home Systems, Battery Charging and Water Pumping

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ABSTRACT
Assessment was conducted on the impacts and challenges on solar PV projects in Bagamoyo District and in Uzi Island, Tanzania. The projects covered include Solar Home Systems, Solar Battery Charging Stations and Solar Water Pumping Systems. Despite wider range of positive socio-economical impacts resulting from Solar PV projects; awareness, technology management and market development issues pose challenges on implementation and operation of such projects. As a result of installed solar PV systems around the study area, there has been an impact on the uptake of solar home systems. However, about 20% of solar home systems installed were found to be inoperative. Among the inoperative systems, public ones constituted a majority share. At least 67% of the solar systems users are satisfied with the solar PV system as the sole source of power for their energy needs. Capacity of users and village technicians towards solar PV systems maintenance was observed to be moderate; therefore the need for service of technicians from outside the villages remained low. Higher cost of replacement for system parts and repeated sabotage, leave vandalized public systems abandoned. About 96% of solar home system users indicated that solar PV systems are still unaffordable despite the existing tax exemption on solar PV equipment. Capacity building for local technicians need to be considered and sense of ownership among beneficiaries of public solar PV projects should be cultivated. Impacts of tax reduction implementation should also be assessed and micro-credit systems be set up to accelerate uptakes of solar PV systems.

Keywords: Solar, photovoltaic, home system, battery charging, water pumping