Project Title: Improving Lighting for Vulnerable Populations

	Project Summary	Indicators	Means of Verifications	Risks and Assumptions
Impact	•Improved quality life for vulnerable households through access to energy	•Number of people with improved access to solar lanterns •The figure includes other end users, such as individuals who live in the same household	•Multiply the number of units sold by the average household size in the market to get the number of end beneficiaries. 100 solar lanterns x 5 people per household = 500 end beneficiaries	•One product purchased per household (and one product can benefit multiple people) •Gender and age dynamics may cause certain members of the household to have access to the lanterns while others do not (e.g., a man might not allow women or children to use it)
Outcomes	• Positive environmental, socioeconomic outcomes. • Less pollution exposure. Cost savings. • Enhanced opportunities for productivity and income generation	•One potential benefit is that solar lanterns improve personal safety and security at nighttime, in terms of the number of incidences of petty crime •Another potential benefit of solar lanterns (as a replacement for kerosene lamps) is the reduced incidence of fires that result from kerosene lamps tipping over	•For solar lanterns which have no operating cost (i.e., free sunlight), the cost savings accruing to a household equals the annual expenditure on traditional sources of fuel. Cost savings resulting from switching to a solar lantern = annual expenditure on kerosene — USD 0.00 operating cost for solar lantern (free sunlight). • An indication of the amount of additional income that has accrued to end users (porters, rangers, local guides) by virtue of other informal income-generating activity, as a result of extra hours of light (access to solar lanterns)	•Kerosene and other traditional fuels are more expensive than renewable sources of energy when speaking about solar lanterns • Another assumption is that increased hours of lighting will enable children to study more hours in the evening and thus improve learning outcomes • There is anecdotal evidence of educational benefits accruing from solar lanterns, but the evidence tends to be difficult to use because there is limited data on the long-term relationship between fuel replacement, access to lighting, and educational outcome
Outputs	•Clean energy generation capacity of the product	•Amount of potential clean energy generated over the lifetime of the product for all products during the reporting period, measured in number of kW or kWh	•Multiply the number of units by the average annual energy capacity of the product, and then by the average lifetime of the product to get total clean energy generation capacity of the product. 100 units x 10 kWh per day x 365 days per year x 3 years average lifetime of product = 1095000 kWh	•A product creates impact over its useful life (currently estimated to be three years for solar lanterns
Inputs	Solar lanterns. Portable lanterns that are powered by solar panels. Typically provide light for 4 to 8 hours, replacing polluting and inefficient kerosene lanterns and supplying basic lighting to household			