USER NOTES FOR SOLAR PUMPING KITS FOR EMERGENCIES

Three solar pumping kits have been developed for use in emergencies. They are meant to be a quick reference for emergency deployment of a solar pumping kit. The performance ranges indicated on each kit are meant to be a rough guidance and should not be taken to be the actual installed performance. These estimated performance ranges are summarized below, more details are on each emergency kit.

No	Kit	Flow Range [m^3/hr]	Daily flow range [m^3/day]	TDH * range [m]	Lorentz Pump model	Grundfos Pump model	Solar Panels [W]
1	SMALL	1.0 - 2.8	10 - 30	40 - 120	Lorentz PS1800 HR-14H 1.7kW pump	Grundfos SQF 2.5-2 1.4kW pump	615 - 4100
2	MEDIUM	3.5 - 7.0	30 - 70	60 - 140	Lorentz PS4000 C-SJ5-25 4kw pump	Grundfos SP 5A-33 3kW pump	2460 - 9840
3	LARGE	6.0 - 12.0	50 - 100	80 - 180	Lorentz PSk2-9 C-SJ8-44 7.5kW pump	Grundfos SP 9-32 7.5kW pump	6560 - 15580

***TDH – Total Dynamic Head**

In using these kits the following points should be taken into consideration.

⇒ The terms SMALL, MEDIUM AND LARGE do not infer to the solar water pumping (SWP) system sizes available in the industry, but rather to the size in comparison to each other i.e. the naming is purely for distinction of each kit from the other. Selection of the kit sizes was based on what was most widely encountered in field assessments of 140 water schemes in 55 refugee camps and communities. Other smaller and larger SWP solutions are available from different manufacturers. Off the shelf solutions of up to 37kW (motor size) are available from manufacturers such as Grundfos, Lorentz and Franklin.

⇒ The performance estimations shown in the table1 of each kit are based on the Lorentz and Grundfos sizing software. These software programs use long term estimates of solar and meteorological data from accredited sources such as NASA. The Peak Sun Hours (PSH) in this chart is used only as a way to provide a quick reference for your location. Knowing the GPS coordinates of your location, you can look up the PSH from NASA website: https://eosweb.larc.nasa.gov/cgi-bin/sse/grid.cgi?email=skip@larc.nasa.gov.

⇒ A complete kit will be either a Lorentz or Grundfos system. All the items required for each kit are listed under '**kit requirements'**. Except for the pump unit and inverter, all the other accessories are the same for both Grundfos and Lorentz (except where it is indicated in brackets).

⇒ Details on the methodology for calculating the payback period is provided in a separate document under 'economic tool'.

End.

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