23 November 2021

Bettina Baesch Ssemwaka – Head of Component

Energising Development (EnDev)
Energy Solutions for Displacement Settings

Electrification of Health Centers in Displacement Settings

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Electrification of the Health Centers and approach

Concept on why to carry out Electrification of Health Centers:

- Case study on Theory of Change on ‘Energy Results Chain Framework for Health Services’ (WHO of 2014)
- Electricity as an enabler to provide improved health services in displacement settings
- Focus on equipment and light for services, staff safety, communication, possibly disease treatment and prevention, COVID-19 support and prevention

Main considerations:

- Contracting a solar company to carry out solar installation, and Operations and Maintenance (2 years) – (incl. load limiters, remote monitoring tool)
- Minor contribution by Health Centers especially in relation to safety of the system components
- Energy excess and support to run an income generating activity by Health Unit Management Committee

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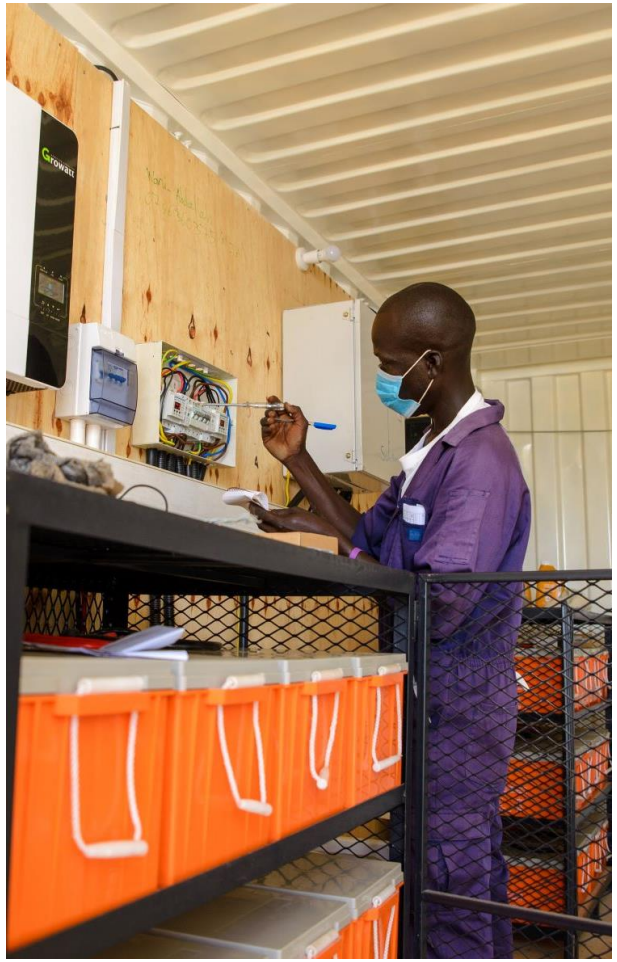
Overview of the 6 selected health centers and target population

Health Facility Name	Refugee Settle-ment	District	Health Facility Level	Managing Authority	No. of Refugees	No. of Hosts	Total No. Catchment Population	System size
Yinga	Imvepi	Terego	III	Ministry of Health (MoH)	10,813	7,351	18,164	2.8 KWp
Ocea	Rhino Camp	Madi Okollo	II	MOH	18,428	3,729	22,157	4.4 KWp
Odoubu	Rhino Camp	Madi Okollo	II	MOH	12,461	4,500	16,961	3.3 KWp
Imvepi	Imvepi	Terego	II	MOH	19,668	3,224	22,892	4.4 KWp
Siripi	Rhino Camp	Terego	III	MOH	13,090	5,500	18,590	3.3 kWp
Ofua	Rhino Camp	Terego	III	Internatio-nal Rescue Committee (IRC)	26,952	4,030 (esti-mated)	30,982 (estimated)	6.6 KWp



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Process steps for Electrification of Health Centers

- Workshop on energy access for Health Centers with in-charges of seven Health Centers, District Local Government, and representative of UNHCR
- Rapid assessment of seven Health Centers to analyse their status and selection of Health Centers for the intervention
- Technical sizing
- Baseline assessment – capturing status quo and check to potentially adjust the sizing
- Solar System Installation
- Preparation of O&M pilots with Health Unit Management Committees

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Technical Sizing Methodology

- All HCs visited by GIZ technical staff as part of assessment
- Audit of current and planned electrical medical appliances
- Planning for additional energy for income generating activity (canteen or restaurant) managed by Health Unit Management Committees

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Technical Sizing - ctnd

Building	Name	Exist on sit	Units	Load in W	Total Instantaneous load ir	Hours at dayligh	Hours at night	Demand during day (Wh)	Demand at night (Wh)
IPD	Oxygen conc.	Yes	2	350	700	1	1	700	700
IPD	Indoor lights	Yes	16	5	80	2	6	160	480
IPD	Security lights	No	2	10	20	0	12	0	240
IPD	Phone charging	Yes	5	5	25	2	2	50	50
IPD	Fan	No	2	50	100	8	0	800	0
OPD	Indoor lights	Yes	14	5	70	6	0	420	0
OPD	Outdoor lights	Yes	6	5	30	0	12	0	360
OPD	Security lights	No	2	10	20	0	12	0	240
OPD	Fridge	Yes	1	120	120	6	6	720	720
OPD	Microscope	Yes	1	30	30	2	0	60	0
OPD	CBC machine(haematology analyser)	No	1	230	230	2	0	460	0
OPD	Gene expert	No	1	100	100	4	0	400	0
OPD	CD4 machine (pima)	Yes	1	20	20	4	0	80	0
OPD	Centrifuge	No	1	600	600	2	0	1200	0
OPD	Laptop	Yes	1	60	60	6	0	360	0
OPD	Desktop computer	No	1	100	100	6	0	600	0
OPD	Printer	No	1	100	100	1	0	100	0
OPD	Fan	No	2	75	150	6	0	900	0
OPD	TV set	No	1	60	60	8	0	480	0
OPD	UPS	No	1	20	20	6	0	120	0
Drug Storage	Deep Freezers	Yes	2	200	400	6	6	2400	2400
Drug Storage	Light bulb	Yes	4	5	20	5	1	100	20

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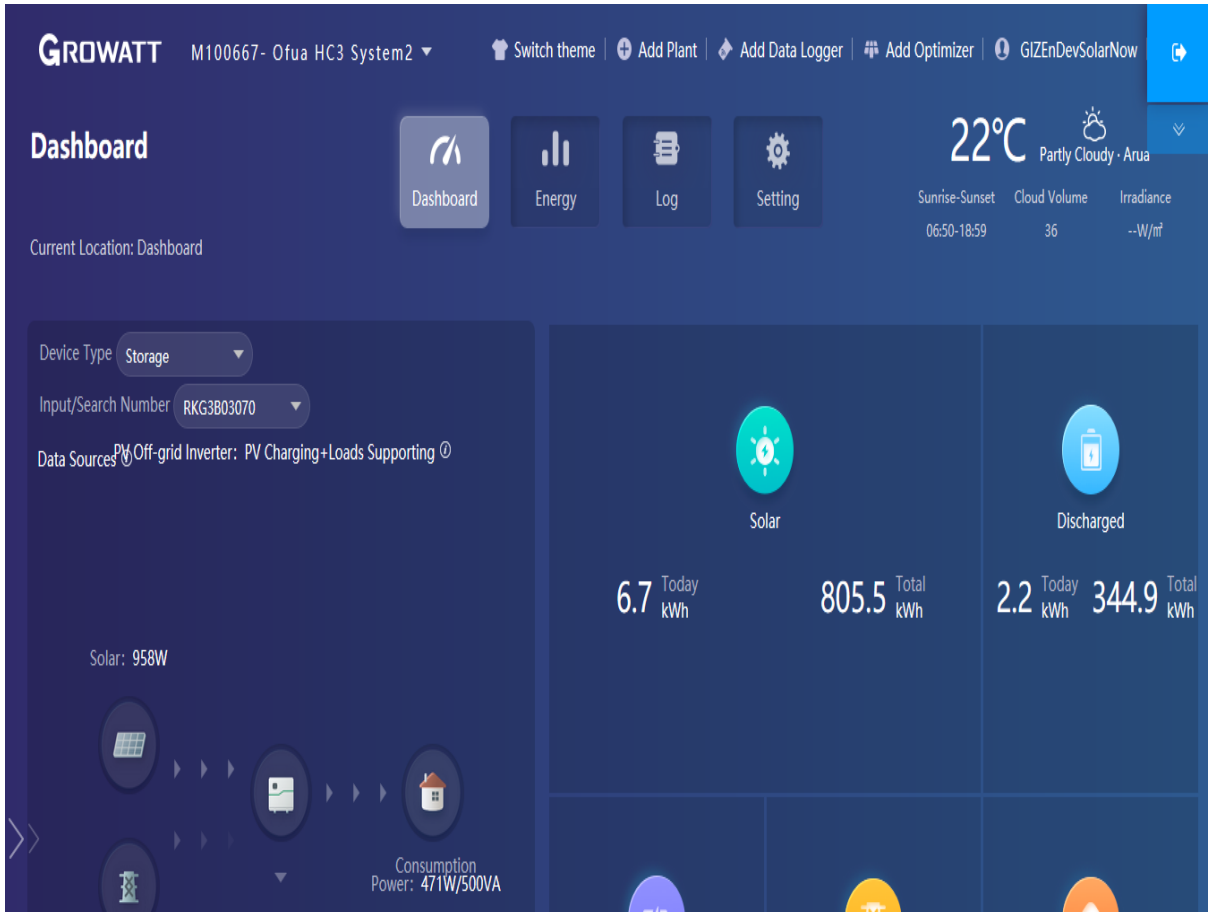
Technical Considerations and Challenges

- Assessment showed different size of solar systems or diesel gensets in place with different levels of functionality.
- Dynamic environment with many partners. Supply and demand kept changing. Several adjustments of system size.
- Remote monitoring and network failures



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Operations and Maintenance (O&M) -

- Income generating activities as a O&M pilot since Health Centers do not have adequate budget to handle these costs.
- All system components also by other partners
- Permissions to do such an activity as Health Centers usually do not carry out IGAs = by-law by sub-counties
- Is this a business model?

Future considerations: UNHCR will globally take up electrification of ‘community facilities’ = social institutions, Uganda might be a good pilot country. Technical sizing of whole facilities as an approach and overall O&M contractor for all solar systems. ‘no support to facilities if O&M is not planned for (include electricity usage measuring devise?)

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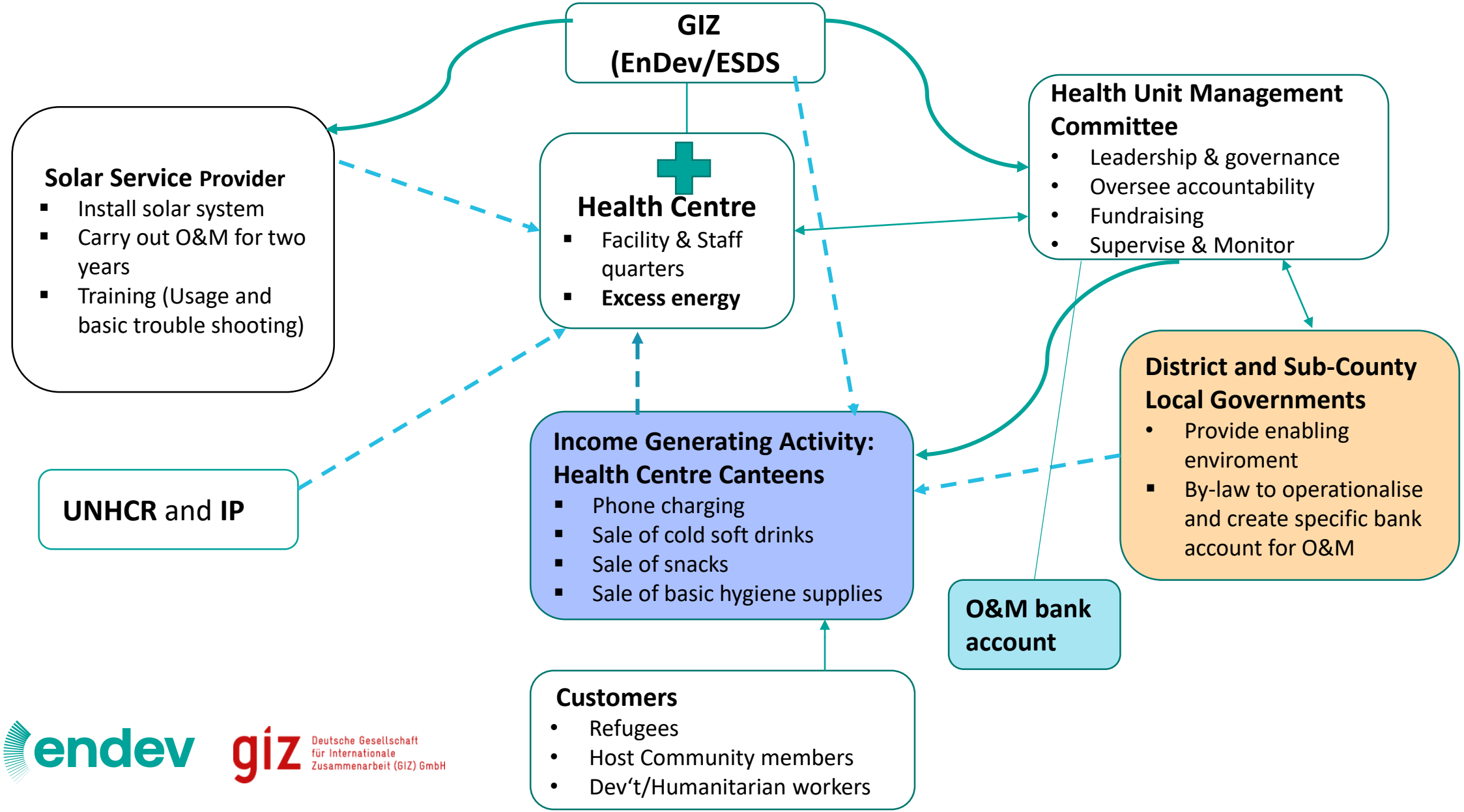
Operations and Maintenance (O&M)



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Thank you for your attention!

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