

## UNDP Afghanistan

### Site Assessment Data

#### Provision of Electricity and Hot Water Systems to Health Facilities in the Western Region

Date: 8-Feb-22

Name of Health Facility, Type	Karnil, BHC
Village, Province, District	Karnil village, Zinda Jan district, Herat Province
Name, phone number of contract person	Ahmad Shahab, 0796061421, Jamaluddin- 0792532727
Assessment Conducted by (UNDP Field Engineer)	Eng. Ebadullah Momand
Distance from Herat, type of road to the health facility	45 Km distance from Herat City (34 Km Asphalt road+11Km Earth road) to HF
GPS Point (Coordinates)	
Review and recommendation of project manager	

S/N	Description	Field Data
1	Existing Power Source (Generator, Solar etc.) and its capacity in kW	Generator with 5.5 KW capacity. 2 solar panel each is 200 watt capacity.
2	Number of rooms in the facility	Main Building of clinic have Totally 9 Rooms, 2 Bathrooms, 1, Corridor, 4 toilet outside of the building in the yard. Residency building: 4 Rooms, 2 bath Total Rooms: 13 Rooms, 4 bath
3	Existing house wiring? Number of power points	The building Have internal wiring but some parts need checkup and maintenance
4	Total electrical load <ul style="list-style-type: none"> <li>- Total number of light bulbs- total Watt</li> <li>- Refrigerator, heater - total Watt</li> </ul>	Main building of Clinic Existing equipments: Bulbs: 22 Refrigrator: 0 Warmer:1 Ceiling fans: 8

	<p>- Any other equipment – total Watt (Use a separate sheet, if required)</p>	<p>AC: 2 Light (for child birth room):1 DR and Midwife residency Building electricity equipments: Bulbs: 14 AC: 2</p> <p>See Annex A for further details and needs.</p>
5	Cables, wiring, conduits, Junction box etc. require maintenance/replacement. If yes, prepare a BoQ.	Need Cable for Generator 30 m, Have wiring inside the building, Need to check up. Toilets don't have sockets. All bulbs and holders are need to be replaced.
6	Existing streetlight in the compound?	Don't have street light. Need it.
7	Total number of staff	8 personals ( 1 MD, 1 Midwife,1 supervisor CHS, 2 vaccinator, 2 guards)
8	Average number of patients per day	70 Patients per day
	Number of Villages under coverage	15 villages/ 1921 HHs/13447 Populations
9	Existing water supply facility, existing plumbing system	<p>Have water supply facility, taking water from village water pipe scheme, but water tank height is more than the water pipe scheme reservoir. Using water of pipe scheme directly and cant reserve it in water tank.</p> <p>Apart from this Clinic has a water pump in the public well, has its cable and pipe from well to the clinic just need to electricity.</p> <p>See Annex C for further details.</p>
10	Existing water boiler? Provide detail (type, capacity, year of installations, lifespan etc.)	<p>Main building of clinic: Have 2 water boiler, 80 liter, 2008.</p> <p>Residency building: 2 Boiler, 80 liter, 2013</p>
11	Functional Water well in the facility. Water depth in the well. Water depth from the surface	<p>Have water well (borehole 40 meter deep, water depth in the well 30 m, water depth from the surface is 10 m) but</p> <p>Have one dug well 15 m deep, water depth from the surface is 10 m.</p> <p>But in water of both well is not potable it's bitter.</p>

		<b>Recommended option:</b> This Clinic has a water pump in the public well in the village, has its cable and pipe from well to the clinic just need to electricity. The water is potable.
12	Capacity of water tank. Insulated or not? Tank height from the surface	1000 liter metal water tank, not insulated. Tank height is 7 meter from the surface.
13	Type of the existing Structure (RCC/load bearing walls)	RCC
14	Type of existing roof (Pitch or Flat)	Have both Pitch roof (Main building of clinic) and flat roof of (Residency building).
15	If the roof is Pitch, how many solar panels can be installed on the south face of the Pitch roof?	The Main building dimension is (17x12.5) m, insulated Metal pitch roof. South face trapezoid area: about 40 sqm.
16	If the roof is flat concrete, how many solar panels could be installed toward the south face?	The residency RCC building flat roof Area: 170 sqm. South face length is 10 m.
17	Does the existing roof is fit for installation of Solar System or Required Maintenance/repairing works?	<p>Yes Both roof are fit for installation of solar system.</p> <p>Concern: The responsible person said "In This area the usually severe wind 120 days in the year and the speed of wind is about 60-65 KM/hr so its notable to consider in design of install solar panel array very stable against the wind on the roof.</p> <p>They told an organization mad a solar energy system some years ago. But due to extreme wind it is damaged completely.</p> <p>Their recommendation was making wall behind of for solar panels. To not face wind directly on the solar panel.</p> <p>See site plane and roof plan for further details.</p>
18	If above answer is yes, prepare BoQ and estimation for the repairing/upgrading	Nil
19	Distance from roof to existing main panel board	<p>From main building roof to electricity board to: 15 m</p> <p>From residency building to main building electricity board: 35 m</p>

20	Dimension of existing building in m. (Use a separate paper for a sketch)	<p>Clinic main building dimensions: Length: 17 m East to west      Width: 12.5 m north to south</p> <p>Residency building dimensions : Length : 18.5 m north to south      width: 11.5 m East to west</p> <p>Annex : sketch</p>
21	Are there any technical obstacles/challenges to affect the installation and implement of the solar system as planned? If yes, provide detailed information, recommendation, BoQ along with photos.	There were no technical obstacle and challenges for installation of solar panel. The responsible person expressed his willingness. <b>The only concern is the wind, have to consider in the design of solar mounting.</b>
22	Is there access to the roof for installations of solar panels	Don't have stable stairs, uses very unstable wooden bladder.
23	Take photos of the facility showing a bird eye view, structures, wirings, existing electrical system and roof	See Annex C for photos

**Surveyors' Comment:** As this clinic is provided basic health services to 15 villages (1921 households) and it is not connected to the grid electricity, have generator but don't have any sponsor for oil consumption and it is not functional. It's suitable to make a solar and hot water system for this clinic.

#### Annex A: Existing electrical appliances load calculation

Karnil BH clinic exciting electrical equipment and energy consumption								
No	Equipment	Existing QTY	Power (watts)	Total Power (Watts)	Hours used per day	Energy used (watt-hours)	KW-Hr per day	Remarks
1	Bulbs	36	15	540				
2	Refrigerators	0	0	0				
3	Water Boiler	2	1500	0				Not functional

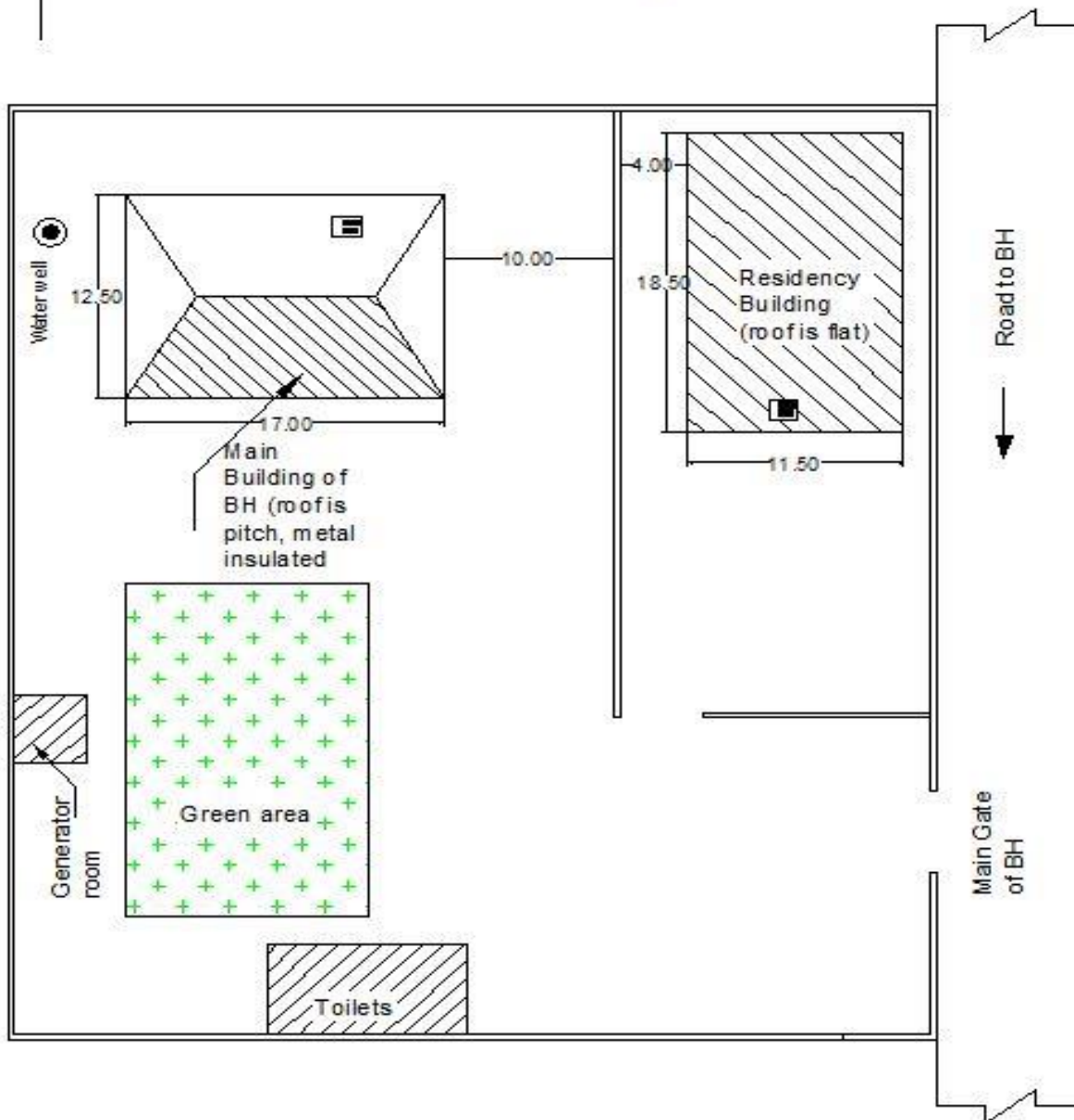
4	Warmer	0	1500	0				
5	Auto Clave	0	1000	0				
6	LCD	1	60	60				
7	Exam light	1	50	50				
8	Fans	8	100	800				
9	Street light	0	-	0				
10	AC	4	1500	4500				
10	Total			5950				

Annex B: Needed electricity load assessment

Karnil BH clinic- Zinda Jan district Needed electrical appliances load assessment								
No	Equipment	QNY	Power (watts)	Total Power (Watts)	Hours used per day	Energy used (watt-hours)	KW-Hr per day	Remarks
1	Bulbs	50	15	750				
2	Refrigerators	1	300	300				
3	Water Boiler		-	0				Solar hot water system will provide hot water
4	Warmer	1	1500	1500				
5	Auto Clave	1	1000	1000				
6	LCD	1	60	60				
7	Exam light	1	50	50				
8	Fans	11	100	1100				
9	Street light	1	100	100				
10	AC	4	1500	4500				
10	Total			7560				



## Karnil Clinic Site plan



Annex C: site photos









