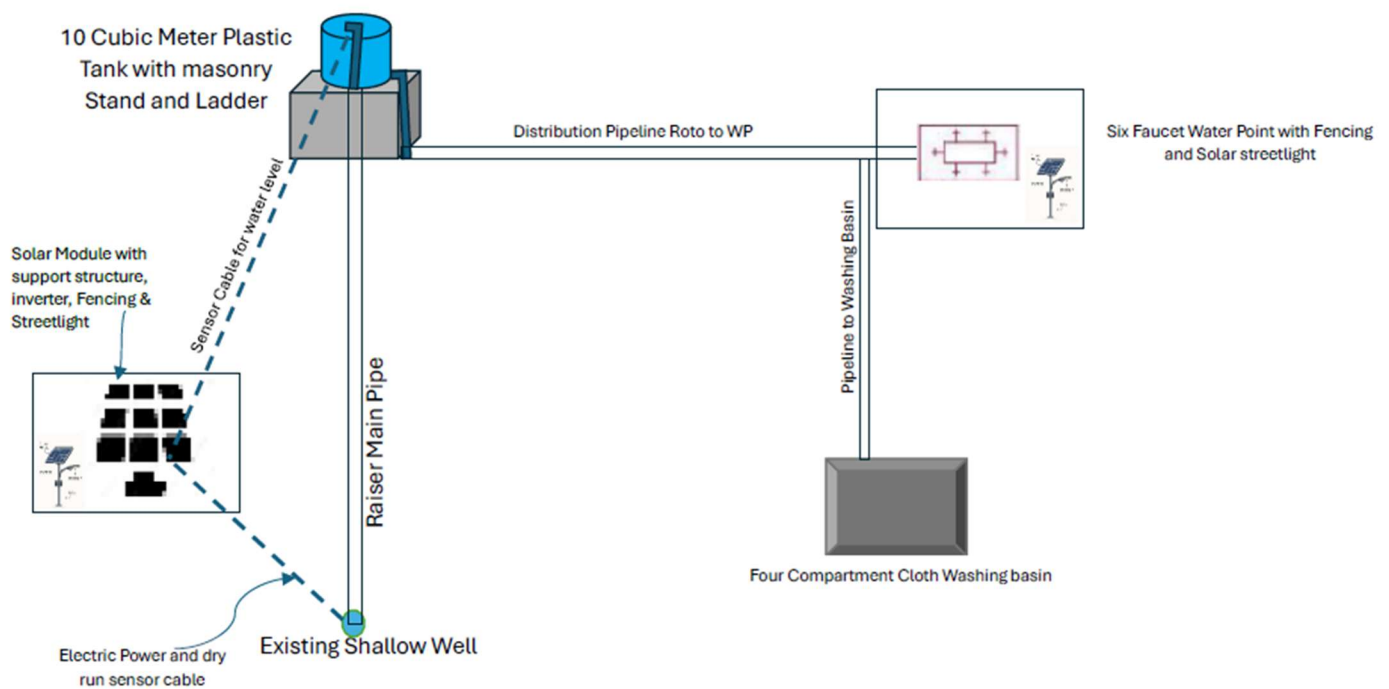




TECHNICAL ASSESSMENT REPORT FOR SOLARIZATION OF SHALLOW WELLS WITH SQFLEX IN KELTE-AWULALO, HINTALO & DEGUA TEMBEN WOREDA



GOAL ETHIOPIA
WASH UNIT
Addis Ababa, Ethiopia

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1. Background

GOAL has received a Cost Modification award from the U.S. Department of State (USG/DOS) to deliver integrated emergency relief and early recovery assistance for crisis-affected populations

across Ethiopia. The grant supports multi-sectoral interventions in Tigray, Afar, Amhara, Oromia and Somali regions, with Water, Sanitation and Hygiene (WASH) included as a core program component.

The WASH component is designed to deliver mutually reinforcing interventions across the water supply, sanitation and hygiene sub-sectors. Within this scope, GOAL will rehabilitate and upgrade water infrastructure in fourteen (14) selected kebeles located across Tigray, Somali, Oromia and Afar regions. (While the overall program footprint includes Amhara, the targeted water-supply construction and solarization activities will be concentrated in these four regions.) Planned water activities focus on converting conflict-affected and diesel-dependent systems to sustainable, solar-powered solutions. Key interventions include:

- Solarization of motorized deep wells (installation of PV arrays, power electronics and controls, and integration with existing pump sets or new solar pumps where required).
- Installation of solar pumping systems on existing shallow wells where appropriate.
- Rehabilitation and minor civil works to restore intake, storage and distribution components damaged or degraded during the crisis.
- Site assessments, borehole testing and water-quality monitoring to confirm technical viability and public health safety prior to installation.

Following the conflict, water-supply coverage in the region fell sharply. Government capacity for managing and monitoring WASH systems was weakened, creating a serious obstacle to sustaining services. The war caused widespread humanitarian needs across all woredas and damaged many public facilities.

To respond, GOAL Ethiopia secured a grant under cost modification from USG, DOS Foreign Assistance Office to expand water access in Kelte-Awulalo, Hintalo and Degua Temben woredas and to improve living conditions for the thousands who currently lack safe drinking water. The grant supports ten SQFlex solar installations for shallow wells and the solarization of two deep wells across the three woredas. A technical needs assessment was completed, and this document concentrates on the solarization of shallow wells through the installation of solar pumping technology to provide more sustainable, low-maintenance water supplies.

2. Objective:

The main objective of the Field visit and technical assessment was to determine whether those selected shallow wells have a potential to produce enough amount of water that could allow installation of solar SQFlex, assess the current capacity of WASH committee and identify any gaps related with WASH service management that needs improvement, collect primary and secondary data related with water demand borehole data and Water quality.

Upgrading each shallow well with an SQFlex solar pumping system will convert the site into a durable, low-maintenance water supply. The upgrade includes supply and installation of an SQFlex 1.4 kW solar pump with its complete control and protection package; four solar panels to power the pump (615 W / 0.615 kW per panel); a secure, reinforced concrete base and mounting for the panels; and construction of a masonry tank seat for a 10,000-litre plastic water tank. The distribution system will include six faucet water points and a four-compartment masonry clothes-washing basin.

For site safety, security and nighttime visibility, the solar array and water point will be enclosed by a protective fence and be fitted with a solar-powered streetlight. Installation works will also cover electrical wiring, earthing, pump controller setup, float/level switch installation, overflow and drainage provisions, and connection of the tank outlet to the tap-stands.

Additional scope to ensure long-term performance and community benefit:

- Civil works and site grading to provide stable drainage, vehicle access for maintenance, and accessible approaches for people with reduced mobility.
- Anticorrosion and vandal-resistant mounting for panels and components.
- Post-installation water quality testing and disinfection to confirm safe potable water.
- Hand-over documentation, a spare-parts list, and simple operating manuals for the WASH committee.
- Refresher training for the WASH committee on basic electrical safety, pump operation, routine preventive maintenance, record-keeping, and financial management for O&M funds.
- A short warranty and a plan for periodic technical supervision and preventive maintenance by GOAL and the Regional Water Bureau.

These measures together will increase yield and reliability, reduce manual pumping effort, improve safety and hygiene at the water point, and make the scheme more sustainable for the served community.

3. Data Collection Methods

The technical assessment was conducted in coordination with woreda water office, regional water bureau and GOAL Ethiopia WASH Technical Teams. Two stage Data collection techniques were employed in the selected kebeles and woreda water office. Discussion with Tigray Regional Water Bureau representative, Woreda water office representative and kebele WASH committee was carried out to acquire data related with water service provisions and water scheme management.

4. Assessment of Shallow Wells

An integrated site assessment and data-collection exercise was carried out at the selected shallow wells in Kilete-Awulalo, Hintalo, and Degua Temben woredas. The functionality and physical condition of each water scheme were evaluated, and the collected data will guide the solarization and improvement of the community water systems. The following tables indicate the well data of each of the sites:

Woreda	Kileteawelalo	Kileteawelalo	Kileteawelalo	Kileteawelalo	Hintalo
Kebele	Aynalem	Tahtay Ade Kisandid	Tahtay Ade Kisandid	Saza	Fiker Alem
Site Name	Gawa #3	Dengorzo	Egamat	Mariam Keyih School	Adi Shiwashu
GPS	Latitude 13.76155 Longitude 39.5635 Elevation 1977.3	Latitude 13.82095 Longitude 39.60441 Elevation 2033.57	Latitude 13.81670 Longitude 39.60594 Elevation 2015.09	Latitude 13.9594 Longitude 39.5507 Elevation 2298.46	Latitude 13.22601 Longitude 39.469291 Elevation 2029.75
Details	Well depth 48 M Yields 2.5 l/s Total benefices 700 Pump position 32 m Static Water Level: Artesian Length from Well to Reservoir and Distribution: 130 m	Well depth 48 M Yields 1.5 l/s Total benefices 1050 Pump position 39 m Static Water Level: 20 m Length from Well to Reservoir and Distribution: 160 m	Well depth 42 M Yields 3 l/s Total benefices 1000 Pump position 33 m Static Water Level: 6 m	Well depth 48 M Yields 3 l/s Total benefices 1000 Pump position 32 m Static Water Level: 6 m Length from Well to Reservoir and Distribution: 160 m	Well depth 48 M Yields 1 l/s Total benefices 900 Pump position 30 m Static Water Level: 3

Woreda	Hintalo	Hintalo	Degua Temben	Degua Temben	Degua Temben
Kebele	Mesanu	Waza Adi Awuna	Hadnet	Mahbereslasie	Selam
Site Name	Adi Bashay	Keyih Hamed	May Agam	Denbe Duri	May Aba Werku
GPS	Latitude 13.2674451 Longitude 39.469291 Elevation 2029.75	Latitude 13.034328 Longitude 39.565565 Elevation 2324.39	Latitude 13.73186 Longitude 39.2342 Elevation 2330.2	Latitude 13.665017 Longitude 39.1208 Elevation 2527.1	Latitude 13.681965 Longitude 39.194603 Elevation 2211.88
Details	Well depth 48 M Yields 1 l/s Total benefices 1000 Pump position 30 m Static Water Level: 3 m	Well depth 45 M Yields 1 l/s Total benefices 1000 Pump position 35 m Static Water Level: 20m	Well depth 45m Yields 2l/s Total benefices 1000 Pump position 28m Static Water Level: 18m	Well depth 55 M Yields 2l/s Total benefices 1050 Pump position 39m Static Water Level: 17m	Well depth 60M Yields 2l/s Total benefices 1075 Pump position 49m Static Water Level: 32m

4.1. Degua Temben Woreda

4.1.1. May Agam Shallow Well-Hadinet Kebele

This shallow well is the only water source for Hadinet kebele and currently serves 200 households. The well is 45 m deep with the pump set at 28 m. An active WASH committee of seven members (three women and four men) manages the scheme, and each household contributes 10 birr per month to support operation and maintenance. The well-estimated yield is 2 L/s; it requires upgrading to reliably meet demand. There is existing space to install solar panels, a storage tank, and a public water point. GOAL will carry out well development in collaboration with the Regional Water Bureau.

Shallow Well	Location		BH-Depth	Pump Position	Casing	Status
May Agam	Lat. 13.73186	Long. 39.2342	45m	28m	5"	F

NB: F- Functional



Figure 1 May Agam Shallow Well

4.1.2. Denbe Duri Shallow Well - Mahbereselase Kebele

The site's geographic conditions make access to water difficult for the community: there are no nearby alternative sources, and households would need to travel more than 8 km round-trip to reach other handpumps. The shallow well is drilled to 55 m with the pump set at 39 m and has an estimated discharge of 2 L/s – sufficient to serve the target population of about 1,050 people once upgraded.

The scheme is managed by a community WASH committee (WASHCO) of six members (three women and three men) who monitor household water use and collect contributions for operation and upkeep. The community contributes 120 birr annually for maintenance and guard fees. There is adequate space at the site to install solar panels, a storage tank, and a water point; solarizing the system will improve water access and eliminate the physical labor required by manual hand-pumping.

Shallow Well	Location		BH-Depth	Pump Position	Casing	Status
Denbe Duri	Lat. 13.665017	Long. 39.12081	55m	39m	5"	F

Note: F- Functional



Figure 2 Denbe Duri Shallow Well

4.1.3. May Aba Werku Shallow Well - Selam Kebele

Currently the water scheme is non-functional due to a mechanical failure of the handpump. As a result, community members – especially women and children – must travel long distances to fetch water from neighboring kebeles. This increases the time women spend collecting water, limiting their ability to participate in income-generating activities, and places extra physical and safety burdens on young children. The shallow well is 60 m deep with the pump positioned at 49 m and an estimated discharge of 2 L/s. Because the pump is set so deep, the handpump frequently breaks and requires excessive force to operate. Considering it serves roughly 1,075 people and experiences repeated failures, the system needs upgrading and solarization to provide reliable, low-effort access to water.

Shallow Well	Location		BH-Depth	Pump Position	Casing	Status
May Aba Werku	Lat. 13.681965	Long. 39.194603	60m	49m	5"	NF

NB: NF- Non-Functional



Figure 3 May Aba Werku Shallow Well

4.1.4. Recommendations:

- Install and commission SQFlex solar pumping systems with all necessary accessories at each selected shallow well to meet community water demand and improve service delivery.
- Increase yield and water quality by carrying out well-development works on the May Agam (Hadinet kebele) and May Aba Werku shallow wells, in collaboration with the Tigray Regional Water Bureau.
- Ensure water safety by conducting bacteriological testing to international standards, implemented by GOAL Ethiopia in coordination with the Tigray Regional Water Bureau.

- Provide refresher training for WASH committee members on service delivery, financial management, and operation & maintenance.

4.2. Hintalo Woreda

4.2.1. Adi Shiwashu Shallow Well- Fiker Alem Kebele

This shallow well, located in Fiker Alem kebele, is managed by a six-member community WASH committee (three women and three men). The committee monitors household water use and collects a monthly contribution of 20 ETB from each household for scheme management. The functional scheme reliably serves over 900 people. The well is drilled to 48 m with the handpump set at 30 m and an estimated discharge of 1 L/s. Based on Ethiopian Standard one hand pump serves only 500 individuals and hence with upgrading of shallow well hand pumps to solarized systems it can serve for more than 1,000 individuals. There is sufficient space around the site to install the infrastructure required for the planned upgrades. As the well discharge is enough and there is space for installation of the structures upgrading of this scheme will reduce burden and increase accessibility of water supply for the 900 beneficiaries. For water-quality management, trained kebele water technicians perform chlorination every three months, with oversight and support from the woreda water office.

Shallow Well	Location		BH-Depth	Pump Position	Casing	Status
Adi Shiwashu	Lat. 13.22601	Long. 39.469291	48m	30m	5"	F

Note: F- Functional



Figure 4 Adi Shiwashu Shallow Well

4.2.2. Adi Bashay Shallow well- Mesanu kebele

This is a functioning water scheme serving Mesanu kebele and is expected to meet the needs of approximately 1,000 people. The community has established a rationing rule to shorten waiting times: each household may collect up to 60 litres per day (three 20-litre jerrycans). The borehole is drilled to 48 m, with the handpump set at 30 m with a discharge of 1 l/s.

Demand remains high and many residents still walk long distances to obtain water from other sites or from rivers. Converting this scheme to a solar-driven system would increase reliability, reduce queuing and long collection trips, and lessen pressure on household members – particularly women and children – who currently spend considerable time fetching water. There is enough space around the well for the structures to be installed.

Shallow Well	Location		BH-Depth	Pump Position	Casing	Status
Adi Bashay	Lat. 13.267445	Long. 39.46929	48m	30m	5"	F

Note: F- Functional



Figure 5 Adi Bashay Shallow Well

4.2.3. Keyih Hamed shallow well - Waza Adi Awuna Kebele

This is a scheme that is located on the side of a valley that has all seasonal rivers. The communities are living in a mountainous area, and this scheme is their main source of clean drinking water. It serves 1,000 individuals. There is an active WASH Committee (WASHCO) composed of three (3) females & three (3) males. The shallow well has a depth of 45m, and the pump is positioned at 35m with a discharge of 1 l/s. The community, due to queuing time, is alternatively using water from a nearby river, and this has exposed them to water-borne & related diseases. There is enough space around the well to install the upgraded structures.

Shallow Well	Location		BH-Depth	Pump Position	Casing	Status
Keyih Hamed	Lat. 13.034328	Long. 39.565565	45m	35m	5"	F

NB: F- Functional



Figure 6 Keyih Hamed Shallow Well

4.2.4. Recommendations:

- Install and commission SQFlex solar pumping systems with all necessary accessories at each selected shallow well to meet community water demand and improve service delivery.
- Increase yield and water quality by carrying out well-development works on the Adi Shiwashu Shallow Well (Fiker Alem kebele) and Adi Bashay shallow well (Mesanu Kebele), in collaboration with the Tigray Regional Water Bureau.
- Ensure water safety by conducting bacteriological testing to international standards, implemented by GOAL Ethiopia in coordination with the Tigray Regional Water Bureau.
- Provide refresher training for WASH committee members on service delivery, financial management, and operation & maintenance.

4.3. Kilte – Awelaelo Woreda

4.3.1. Gawa #3 Shallow Well – Aynalem Kebele

This shallow well, located on the outskirts of Wukero town, currently provides water to the local community and has sufficient yield potential to meet demand. An active six-member WASH committee (three women and three men) effectively manages the scheme, which serves about 700 beneficiaries.

The artesian well is drilled to 48 m, with the pump set at 32 m, and an estimated discharge of 2.5 L/s. Growing demand has led to long queues and some residents travelling to other water points. Solarizing the system would boost supply reliability, shorten waiting times, and free up community members—especially women and children—to participate more in income-generating activities and other productive pursuits. The water tank seat will be constructed at a distance of 100m from the shallow well site.

Shallow Well	Location		BH-Depth	Pump Position	Casing	Status
Gawa 3	Lat. 13.76155	Long. 39.5635	48m	32m	5"	F

NB: F- Functional



Figure 7 Gawa #3 Shallow Well

4.3.2. Dengorzo Shallow Well- Tahtay Adi Kisandid Kebele

This shallow well is found at the Outskirt of Wukro Town and the shallow well is used by 1050 individuals. The users have said that the amount of water they collect on average daily is 4 Jerrycans or 80L on morning & afternoon & there is long waiting. They are creating additional loads in other sites, and their demand is not met. There is active WASH committee composed of three (3) females and three (3) males. To ensure the operation and maintenance the committee is collecting monthly contributions & this is deposited in the shared Bank account created by the committee. For the safety of the beneficiaries the water tank and water collection structures will be installed at a distance of

130 meters from the borehole crossing the main road under the bridge. Hence, anchor support structures are required below the bridge for the pressure main.

Shallow Well	Location		BH-Depth	Pump Position	Casing	Status
Dengorzo	Lat. 13.82095	Long. 39.60441	48m	39m	5"	F

NB: F- Functional



Figure 8 Dengorzo Shallow Well

4.3.3. Egamat Shallow Well - Tahtay Adi Kisandid Kebele

This Shallow well is not functional due to hand pump mechanical failure. It was serving 1,000 individuals in the community. Currently, the communities are travelling long distances to get water from the adjacent kebele. And also, they are fetching water from adjacent river water. This has caused, Women's and children's to walk long distance to collect water from other sources. The WASH committee is composed of 3 males and 3 Females. The shallow well is drilled to a depth of 42 meters and the pump is installed at a depth of 33 m. The well has a good discharge of 3 l/s which is suitable for upgrading the system. The upgrading work will be done on spot as there is enough space for the construction and installation of the structures.

Shallow Well	Location		BH-Depth	Pump Position	Casing	Status
Egamat	Lat. 13.81670	Long. 39.60594	45m	33m	5"	NF

NB: NF- Non-Functional



Figure 9 Egamat Shallow Well

4.3.4. Mariam Keyih School Shallow Well - Saza Kebele

This shallow well is not functional, It was drilled up to 48m depth before the Northern Conflict but was not installed with hand pump. The well drilling data indicated that the well has a good discharge (3l/s) and if constructed can be used by the community & nearby Primary school students. The communities reached 200 HHs & the students coming from different other nearby kebelles reached up to 600 students. Solarization of this System will solve the communities walking long distance to collect water & also give mothers more time for income generating activities & reduce children's , who are sent to collect water most of the time, defaulting from school. As the well is not in use since drilling well development and well head structure is critical. GOAL will do well development in collaboration with the regional Water Bureau. The water tank and other structures will be installed 50meters from the shallow well.

Shallow Well	Location		BH-Depth	Pump Position	Casing	Status
Mariam Keyih	Lat. 13.9594	Long. 39.5507	48m	39m	5"	NF

NB: NF- Non-Functional



Figure 10 Mariam Keyih Shallow Well

4.3.5. Recommendations:

- Install and commission SQFlex solar pumping systems with all necessary accessories at targeted sites to meet community water demand and improve service delivery.
- Ensure water safety by conducting bacteriological testing to international standards, carried out by GOAL Ethiopia in coordination with the Tigray Regional Water Bureau (TRWB).
- Include approximately 130 m of new transmission main pipeline for each of Gawa 3 Shallow Well (Aynalem kebele) and Dongorzo Shallow Well (Tahtay Adikisandid kebele) as part of the SQFlex solarization works. Provide pipe support anchors for the Dongorzo transmission main where it runs under the bridge to prevent movement and damage.
- Deliver refresher training for WASH committee members on service delivery, financial management, and operation & maintenance.
- Increase yield and improve water quality by carrying out well-development works on two shallow wells Egamat Shallow Well (Tahtay Adi Kisandid kebele) and Mariam Keyih Shallow Well (Saza kebele) in collaboration with the Tigray Regional Water Bureau.

Electrical data for SQFlex Pump		Electrical data for SQFlex CU200 control unit	
Power input - P ₁	1.4 kW	Power consumption	5W
Rated voltage AC	1 x 90-240 V at 50/60Hz	Rated voltage AC	1 x 90-240 V at 50/60Hz
Rated voltage DC	30-300 V	Rated voltage DC	30-300 V
Rated current	8.4A	Enclosure class: IP55	
Rated speed	3600RPM	Additional Features:	
Length of cable	2m	Water reservoir is full (level switch)	
Pump outlet	1 1/4"	Pump is running	
Outside Diameter	3 inch	Input power	
Additional Features:		Dry running	
Helical rotor pump		No contact to pump	
Built-in electronics, easy installation		overvoltage	
Reliable water supply		overtemperature	
Low operating costs		overload	
Dry-running protection		Insufficient energy supply.	
Built-in motor protection			
High Efficiency			
Maximum Power Point Tracking (MPPT)			
Built-in sand shield			

Figure 11 SQFlex Solar System Specification

5. Sustainability of Shallow Wells

- Measured yield vs. demand: Baseline assessments indicate a conservative minimum well discharge of 1 L/s ($\approx 3.6 \text{ m}^3/\text{hr}$ or $\sim 36 \text{ m}^3/\text{day}$, assuming 10 hours/day pumping). Average beneficiaries per scheme are $\sim 1,000$, so at 20 L/c/d the aggregate demand is $20 \text{ m}^3/\text{day}$, comfortably below the assessed minimum yield.
- Pump selection & operational margin: We will deploy SQFlex solar pumps sized to deliver up to $25 \text{ m}^3/\text{day}$ at 45 m head (Figure 12). Although some wells can yield more, the chosen pump capacity intentionally aligns with demand to avoid unnecessary stress on the aquifer while still meeting user needs.
- Automatic protection: Each installation will include dry-run sensors/low-level cutoffs to stop the pump if groundwater falls below safe thresholds, and controller/timer logic to cap daily operating hours.
- Measurement & record keeping: A water meter will be fitted at the pump discharge; the operator will keep daily logbooks recording pumped volume and operating hours. These records enable straightforward comparison of actual abstraction against the safe-yield and agreed operating schedule.
- Monitoring & oversight:

- Daily: WASHCO and the on-site operator manage day-to-day operations and enforce schedules.
- Monthly: The kebele water expert inspects logbooks, checks flow meter readings and verifies sensor operation.
- Quarterly: Technical monitoring and performance checks will be carried out by the Woreda and Regional Water Bureaus.

By matching pump capacity to conservative yield estimates, installing automated protections and metering, and combining daily community management with monthly and quarterly technical oversight, will minimise the risk of excessive withdrawal and maintain the long-term sustainability of the shallow wells.

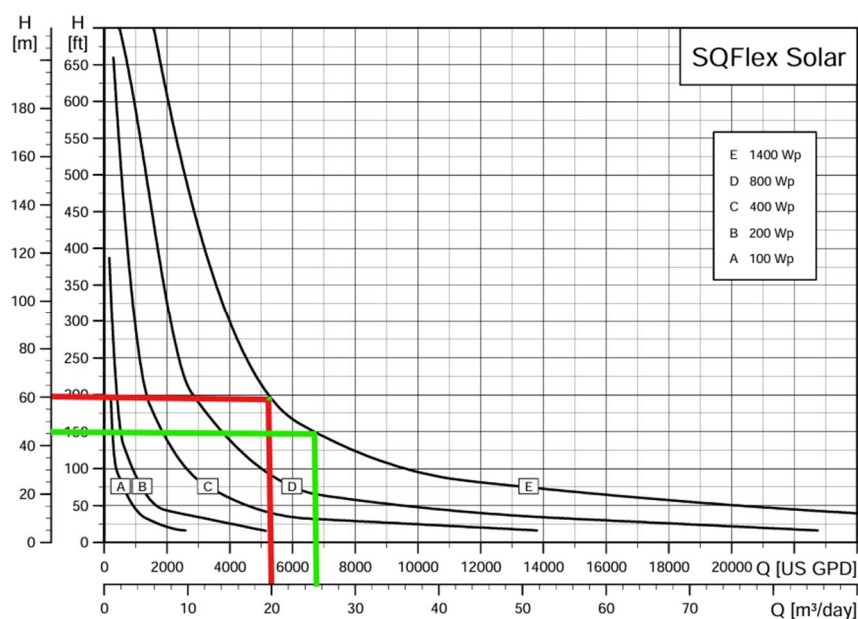


Figure 12 SQFlex Solar Pump Performance curve.

6. Shallow well site details

All the sites selected for solarization are drilled shallow wells with a depth range from 42 to 60 meters; and the Egamat and May Aba Werku sites are not hand dug wells. The details of the proposed shallow well sites for solarization is as follows:

Woreda	Kebele	Site Name	GPS Location	Depth (m)	Pump Position (m)	Casing size (inch)	Estimated Discharge l/s
Kileteawelalo	Aynalem	Gawa #3	Latitude 13.76155 Longitude 39.5635	48	32	5"	2.5
	Tahtay Ade Kisandid	Dengorzo	Latitude 13.82095 Longitude 39.60441 Elevation 2033.57	48	39	5"	1.5
	Tahtay Ade Kisandid	Egamat	Latitude 13.81670 Longitude 39.60594 Elevation 2015.09	42	33	5"	3
	Saza	Mariam Keyih School	Latitude 13.9594 Longitude 39.5507 Elevation 2298.46	48	32	5"	3
Hintalo	Fiker Alem	Adi Shiwashu	Latitude 13.22601 Longitude 39.469291 Elevation 2029.75	48	30	5"	1
	Mesanu	Adi Bashay	Latitude 13.2674451 Longitude 39.469291 Elevation 2029.75	48	30	5"	1
	Waza Adi Awuna	Keyih Hamed	Latitude 13.034328 Longitude 39.565565 Elevation 2324.39	45	35	5"	1

Woreda	Kebele	Site Name	GPS Location	Depth (m)	Pump Position (m)	Casing size (inch)	Estimated Discharge l/s
Degua Temben	Hadnet	May Agam	Latitude 13.73186 Longitude 39.2342 Elevation 2330.2	45	28	5"	2
	Mahbereslasie	Denbe Duri	Latitude 13.665017 Longitude 39.1208 Elevation 2527.1	55	39	5"	2
	Selam	May Aba Werku	Latitude 13.681965 Longitude 39.194603 Elevation 2211.88	60	49	5"	2

7. Streetlights and mitigation measures for protection risk

Solar streetlighting is installed primarily to protect solar equipment and improve site security – not to promote or normalise nighttime water collection. Lighting at distribution points should reduce theft and vandalism of the solar assets and improve personal safety for those passing near the site, while community rules and active management must prevent the unintended consequence of encouraging water collection after dark (which can increase resource strain and personal safety risks, especially for women and children). To minimize potential protection risks

- There will be clear community rules enforcing collection of water limited to daytime hours only.
- Targeted sensitization: run community sessions emphasising why night collection is discouraged (safety, sustainability, risk to assets), and explain the function of the lighting (asset protection and safer transit) so this is not perceived as permission to collect water after dark. Pay special attention to women's groups and vulnerable households.
- On handover the WASHCO agrees to enforce daytime-only water collection, recruit and support a guard/operator responsible for asset protection, maintain the lighting, and report any security or protection incidents immediately to the WASHCO and local authorities. Training on roles, incident reporting and protection referral pathways will be delivered during handover.

8. Clarification on Number of Beneficiaries

The number of beneficiaries for the shallow wells is the total number of people who have access to water supply from the shallow well water supply. It is estimated based on the number of Households collecting and paying water collection fees and each household have an average of five members. The daily users from the water systems and the water requirements from each system on a daily basis are given as follows:

Woreda	Kebele	Site Name	Beneficiary		Water Requirement (m3/d)
			HH	Individual	
Kileteawelalo	Aynalem	Gawa #3	140	700	14
	Tahtay Ade Kisandid	Dengorzo	210	1050	21
	Tahtay Ade Kisandid	Egamat	200	1000	20
	Saza	Mariam Keyih School	200	1000	20
Hintalo	Fiker Alem	Adi Shiwashu	180	900	18
	Mesanu	Adi Bashay	200	1000	20
	Waza Adi Awuna	Keyih Hamed	200	1000	20
Degua Temben	Hadnet	May Agam	200	1000	20
	Mahbereslasie	Denbe Duri	210	1050	21
	Selam	May Aba Werku	215	1075	21.5