Relief Society of Tigray Came with the Future Generation of Power Source

Zesilase Geday (Mekell)

When I got the invitation for inauguration ceremony entitled as **'Big pump brings big change in the Remote Area'** my usual impression of novelty about Relief Society of Tigrai (RST) comes to my mind. One can assume that constructing of 76 solar panels set in deep gorge to generate 21 KW Power is the simplest one. However, the innovativeness of such simple constructing solar panels is on its complexity and the utility that one cannot imagine it?

The extent of complexity in the installation of the solar power for pumping tap water from the deep gorge the highland dwellers begins from the topography the area. By the way, such a solar power water pump is the first ever in the country not only in its complexity it required but also the space of 76 solar panels that allows turn out 21 KW power make visible by Relief Society of Tigray and Glimmer of Hope. In case of the topography, Gonok village in found in northern Ethipia, Tigray region in Genti Tabia of Hintalo Wajerat wore at about 85 km far from south of mekelle city and at about 45 Km southeast of the wereda town, Adigudem. It is border village to Afar region Gonok village enjoys a moderate climate .The annual rainfall average is 600mm and the average temperature is 28 c. The current population of the village is 2941 and 4,429 livestock.

The project performs with the submersible pump with a capacity of 200 meter head & a discharge of 4.5 liter/second is installed in the 90 meter deep well at the position of 50 meter below the ground level . it is used to lift water from the well to the 50 m^3 reservoir located at the highest elevation using the energy

form the solar panels. Then water is conveyed from the reservoir each water points (distribution points) and cattle troughs through pipelines using gravity. It takes about 2.5 hours for the pump to fill the reservoir and once the reservoir gets full, it is enough to satisfy the community's 24 hours water demand or consumption. That means the pump is operating once every 24 hours for about 2.5 hours at a time.

Thus, solar pumps are clean and climate friendly sources of energy especially to area like Gonok that does not have other

alternative source of energy. REST and A Glimmer implemented a solar powered rural piped water supply system in Gonok. The project focused on improving access to water for domestic use targeting 399 households including 38% female headed and with a total beneficiary of 2941 people and 4,429 livestock. The village already has got social facilities, a primary school with staff residence; health post and clean water all are implemented with the support of A Glimmer of Hope.

Moreover, the 90m deep well drilling, Construction of a guard house, Supply and installation of submersible pump, Supply and installation of solar power sources, Supplying and installation of 7,818 meters long pipeline system along necessary fittings & valves with construction of 10 gully crossing structures construction of 18 anchorage blocks are among the Major outputs of the project. In addition, Construction of 50 m3 reinforced concrete sand of 18 anchorage blocks, water points and two hand washing facilities, 3 cattle troughs, two pressure breakers , with 5 m3 capacity each of WA SHCO office are also the most amusingly vivid achievements of the project. WA SHCO and water Board establishment and training Provision of spare parts and tools all of which are aimed to facilitate the of the project and thereby ensure sustainability of the service .

The Immediate outcome shows that the project has been operational and serving 429 Households for domestic use. Women and girls (who bear the burden of water collection) have particularly benefited from it. On average they can now save 1.5 to 3 hours of their time per day, which can be invested in productive and other family care and family affairs.

Moreover, Women are enjoying with the project for getting potable water close to their villages. By this project 54 people (50% men and 50% women)were trained on operation and maintenance (O&M) of the strucfure, and Hygiene (S&H) in each distribution sites.The project has eliminated the use of unsafe water form unprotected water sources in deep valleys and long distances. The water distribution point are located close to communities, school and health post as result of it women and children travel short distances to access water.

The ceremony was elevated by the gift from the dwellers of Gonok to the leaders of Glimmer of Hope

Though Relief Society of Tigray and Glimmer of Hope are concerned to the project sustainability, it cannot assure out of the stake of the society. So, it is taken cautiously management committees are in place to oversee operation maintenance and security. A Technician is recruited to oversee the technical aspects a tariff of 30 cents per jerri-can is fixed as per the Bylaw of the water Board. As part of routine maintenance, solar panels are cleaned weekly, regular checks on the switch, fuse replacement. Regular monitoring of water quality in the wells to safe guard the heath of the communities is crucial. (Chlorine is used to treat the water)

There are many scholars and leaders of different fields in the inaugural ceremony. Ato Teklawini Assefa: Chief Executive Director of REST and all representatives of Donors from Glimmer of Hope. The nations well known economists Welday Ameha (Phd) and Tekea (Phd) are also among the elite scholars in the field ceremony. These scholars are mesmerized by the project with the concern of its sustainability. They underlined that Relief Society of Tigray is in the right track of the future generation of solar power source to make visible projects in remote area such as Gonok.

To conclude and make it as simple as the description of the innovative project of Relief Society of Tigray and Glimmer of Hope the summary table I found from the brusher.

Variable	Description
Type of system	Domestic water supply(pump + gravity)
Type of pump	Lorentz submersible (model c-sj30-22)
Power Range	21 KW
Number of solar panels	76
Controller/control panel	Direct coupling
Flow rate per day	Maximum 38m3/hour or 912 m^3/day per day
Total head	Maximum 200m
Riser pipe	HDPE 2.5 inch
Cost	A Glimmer 7.000.000 Eth Birr ,REST 600.000 birr and community 550.000 Birr total 8,150,000 birr