Project Proposal

Solar Energy Units for Learning and Earning

Houses Constructed for Flood 2022 Affected Households

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b.	Type of the organization (CBO/NGO/ Private sector/Others – specify)	NGO
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1. Project Rationale/Need Justification:

Pakistan has an acute energy crisis that it cannot resolve dramatically. This crisis reflects years of underinvestment and partly implemented reforms. The government has taken steps to address the problem, but a far more comprehensive package of solutions is required which can be brought through alternative energy particularly in far flung areas. The problem becomes severe during the summers. Large numbers of users have to be disconnected from the energy supply system to prevent overloading the generating stations (load shedding). On occasions the urban dwellers had to suffer load shedding of 8-10 hours every day. During the same time rural consumers suffered it for up to 20 hours at a stretch. And the other hand, Pakistan has high potential of renewable energy sources. A very large part of the rural population does not have the facility of electricity because they are either too remote or it is found too expensive to connect their villages to the national grid station. Pakistan being in the sunny belt is ideally located to take advantage of solar energy. This energy sources is widely distributed and abundantly available in the country.

Umerkot is the poorest district of the country located in Southern region of Sindh Province of Pakistan. It consists of barren tracts of sand dunes covered with thorny bushes. The population of the district is 860,000. The 49 percent population is non-muslim that is Hindu, and most of them (74 percent) are low cast, almost 74 percent of them are living under the poverty line with literacy rate of only 6 percent.

According to the recent Multiple Indicator Cluster Survey (MICS) Pakistan findings that district Umerkot has 72.9% coverage of electricity which is less than district Mirpurkhas 79.2% coverage.

Providing power grids to the rural areas had not been possible in the past because their sparse rural populations would not make the endeavor cost-effective, which is all the more daunting during Pakistan's current energy crisis. The inaccessibility and lack of infrastructure makes it even more challenging to supply power to 10 villages from the grid. Now, not only this project wills provide a cheap and sustainable source of energy, it has had a transformative impact on communities. The families are no longer solely dependent upon the sun as a source of light and can work more and hence earn more and for children to learn more as well. People no longer have to travel long distances and pay exorbitant rents to charge their cell phones. Moreover, grassroots campaigns such as this can have large scale impacts. This project will be the perfect example of what small, underdeveloped communities need in Pakistan. The villages impacted by the project will be empowered to cater to their own energy needs from within the community and are no longer dependent on outside sources to provide them with light.

There is a bad socio-economic and education condition is very poor, most of the people work as seasonal agricultural worker, daily wage laborers, some women do work skill work and some are in government jobs. Due to lack of availability of income resources and electricity, people have been using wood as fuel resulting in more deforestation and health issues.

The proposed product solar energy cells/plates, lanterns, battery and fans will cost the community nothing for a day but also enhances the efficiency of light to earn more and learn more by increasing productive hours for household male, female and children for education. This immeasurable resource will be utilized like any other model place. Solar energy will not just provide electricity to the mud-and-straw houses of remote villages, but also will emission expenses on lighting and cooking in the night.

The proposed intervention will be of ARTS Foundation to incorporate and install solar cells as alternative energy as model to raise awareness in communities towards the usage of alternative energy which is cost effective for the community and environment friendly and sustain it.

2. How is proposed project realigned with organization's vision/mission and previous work experience?

Advocacy, Research, Training and Services (ARTS) Foundation is a not for profit, and an indigenous civil society organization established on January 30, 2008 by a group of young motivated community development professionals, researchers, media persons, human rights activists and concerned citizens. ARTS Foundation envisions socially just, economically sound, and culturally a participatory society, which understands the potential and skills without gender discrimination to develop and manage institutions at grass roots level for sustainable development. ARTS Foundation mission is to enlarge social, economical, institutional, and individual development options for the benefit of rural and semi urban area women, girls, youth and children through creating, strengthening, and supporting common platforms in order to carry out sustainable development.

The ARTS Foundation has been in partnership with national, international donors and government as well, the donors included British Council, USAID (CVP and AFP/NRSP), Sindh Education Foundation, Habib University Foundation, Associated Country Women of World, Maypole Fund, NATPOW and Action Aid.

The ARTS Foundation has installed 100 solar system units in Tharparkar. In project designing phase, the ARTS Foundation is in consultation with the Mirpurkhas Solar Power Electric as well to have sound local context based technical and communities' knowledge and challenges with regard to solar as well.

3. Project Objectives and Key Outputs/Activities

Project Objective(s):

1. To provide alternate energy to 300 vulnerable households of off-grid 10 remote villages through solar energy in district Mirpurkhas;
2. To provide increased productive hours to 1929 male and female workers and peasants along study and homework to 3217 boys and girls of 300 beneficiary households.

4. Implementation Methodology

The *Solar Energy Unit for Learning and Earning Project* will be carried on by Advocacy, Research, Training and Services (ARTS) Foundation to provide alternate energy through solar system to 3 villages of the Union Councils Dengan Bhuragri of Taluka Kot Ghulam Muhammad, District Mirpurkhas. All the villages are more than 45 Kilometers away from National grid and seem no sign of electrification through national grid in future till five to ten years. The average household size of the each village is 45 and through this project average 15 houses/families will be selected from each village for solar system.

The *Solar Energy Unit for Learning and Earning Project* will be carried on in four phases in order to effectively implement the project, ARTS Foundation proposes to implement the project in given below phases;

Phase I – Inception
Phase II – Implementation
Phase III – Branding and Marking
Phase IV – Documentation

Phase I - Project Inception

1.1BoD Orientation and Consent

The ARTS Foundation will organize the BoD meeting to get consent the members of the BoD of both the organizations and will give a detailed orientation on the project, its activities, outputs, outcomes and the monitoring mechanism involved along with the sustainability of the intervention post project.

1.2Formation of Project Committees

The ARTS Foundation will nominate the individuals from both organizations and form the 3 project committees i.e. Project Recruitment Committee (PRC), Project Procurement Committee (PPC) and Project Implementation Committee (PIC) to handle the project more effectively and efficiently. The GlobalGiving will be notified of the project committees with authorized signatures from both of the organizational heads.

<u>Phase II – Project Implementation</u>.

2.1Baseline Survey of Villages and Households

The Project Team will design two baseline survey forms i.e. one for village and other for households to assess and cover information such as historic background / establishment year of the village, reasons/roots causes of no electricity in the village, distance of national grid from the village, number of women and men doing business/skill work in the village and children going to school from the village etc. the other form will note down the household level details for the identification of the most needy/deserving households/families to have solar system in their houses. The information collected through the baseline survey will be analyzed and findings report will be compiled and shared as well during the project opening ceremony. The selection of the villages and households will be made through the baseline survey findings.

The villages and the households will be selected keeping in the given below criteria;

Village selection criteria

- Village without electricity from the national grid
- Village without any other agency support for Solar Energy
- Village without social development support i.e. health, education, road and water supply
- Village is inhabited by poor and needy communities
- Villagers are willing to sign MoU with project implementing organizations
- Villages are willing to form Solar Energy System Management Committee

Household selection criteria

- # women headed households i.e. widow women, divorced women, orphan women/girl headed and minority households
- # of skilled persons (men and women) in the household
- # children going to school from the household
- # persons with disability or chronic illness
- # elder persons in the household
- # low income household i.e. monthly family income below Rs.20,000/month
- # poor household structure i.e. mud and straw made house
- Household head is ready to sign MoU with Solar Energy System Management Committee
- Household head is ready to attend training

2.2Broad Based Community Meetings

The Project Team will organize a series of Broad Based Community Meetings (BBCM) in selected villages in order to sensitize, mobilize and organize village communities and direct project beneficiaries for solar energy system, get consent and fully involve the communities in the project. In the BBCM a Solar Energy System Management Committee (SESMC) will be formed for long term sustainability and continuity of the project.

2.3Formation of Solar Energy System Management Committees

The Project Team will form at least 10 Solar Energy System Management Committees (SESMC) in the project target villages by engaging one member from each Solar Energy System household. The SESMC will be responsible to aware and mobilize the target households to manage and maintain the solar system in the households. The objective of the SESMCs formation will be to organize the

community for their mutual benefits and help each other to get maximum benefit to earn more and children will learn more through solar energy system. The SESMCs will be responsible for overall activities and maintenance of the project in the target villages.

2.4Organizing Project Opening Ceremony

The Project Team will organize a district level project opening ceremony at district headquarter at Mirpurkhas to highlight about the project interventions and the effectiveness of the intervention to improve productive hours of village communities through the project. The public representatives, district administration, civil society organizations, community and media representatives will also be invited in the ceremony.

2.5Signing of MoUs with Solar Energy System Management Committees

The Project Team will formally sing a Memorandum of Understanding (MoU) with 10 Solar Energy System Management Committees (SESMC) formed in all project target villages in order to carry forward activities i.e. mobilization, capacity building, installation and maintenance of Solar Energy System at village and household as well. The SESMC will be responsible to aware and mobilize the target households to manage and maintain the solar system in the village and households.

267Basic Technical Training (BTT) for Project Beneficiaries

The Project Team along with Technical Expert will organize 6 one day basic technical trainings for 150 household beneficiaries having around 20-25 trainees in each training. A total of 150 participants, will participate in all trainings. The training content include introduction of product and specifications; warranty guidelines; precautions and support; repair and maintenance. The participants will be involved in demo installation and will be given orientation about the switching on/off and regular maintenance of the lights, plates, battery etc.

2.7Advance Technical Training (ATT) for Potential Mechanics

The ARTS Foundation will ensure for advance technical training for 20 potential mechanics' and 1 technical expert at the time of contract with the supplier company of solar products for advance repair and maintenance of solar products, to be distributed under the project. This experiential training will be organized in-house/factory where they will deal the practical situation. The residential training will help these mechanics not only provide services to the project beneficiaries at door step but will also increase their fold of indirect beneficiaries, which will certainly increase their income, promote the solar energy use for more earning and children learning by increasing productive hours.

2.8Procurement of Household Solar System

The ARTS Foundation will execute a competitive tender process for the procurement of Household Solar System under this project. In this regard, 05 members Project Procurement Committee (PPC) will evaluate the tender in consultation with GlobalGiving Team. The PPC, while procuring the solar systems will ensure quality and price at key qualifying criteria, it will ensure the successful bidder has agreed for one-year maintenance at household level and repair warranty for all solar products. The given below set of the system will be procured by the reputable firms/companies i.e. Sogo, Inverex, NS, SK, Max Power, Hwk, Green Solar through competitive bidding process;

- 1 Solar panel 150 w (with one year warrant by NS, SK, Inverex or Max Power)
- 1 Charge controller 20 A (with one year warranty by Sogo)
- 1 Battery 50 Ah (six months warranty by Hwk)
- 1 Full Size Fan 32 w (with one year warranty by Sogo/NS)
- 2 Led Lights 12 w/each (one year warranty by Green Solar or Nizam)
- Wiring including Installation Charges

The procurement process will be toed in following steps:

- (a) Constitution of Project Procurement Committee by ARTS Foundation

- (b) Preparation of Procurement Notice, Procurement Document and Advertisement in the
- newspaper
- (c) Receiving Bids through Competitive Bid process
- (d) Evaluating the Bids as per the criterion defined in the Procurement Document
- (e) Selection of Successful Bidder
- (f) Issuance of Purchase Order to Successful Bidder

2.10Installation of Solar System in Selected Houses

The ARTS Foundation will install 150 Solar System in Houses through the selection made on pre-decide set parameters. The given below set of the system will be installed at households:

- Solar panel 150 w (with one year warrant by NS, SK, Inverex or Max Power)
- 1 Charge controller 20 A (with one year warranty by Sogo)
- 1 Battery 50 Ah (six months warranty by Hwk)
- 1 Full Size Fan 32 w (with one year warranty by Sogo/NS)
- 2 Led Lights 12 w/each (one year warranty by Green Solar or Nizam)
- Wiring including Installation Charges

Phase III – Project Branding and Marking

3.1Installation of Solar System in Selected Houses

The ARTS Foundation believes that visibility is vital for both promotion and accountability of any development intervention.

The ARTS Foundation will install sign plaques/boards at the Entrance of Villages, the GlobalGiving branding tags in the shape of stickers will be placed on Solar Plates

Sign Boards at the Entrance Point of Village: at the entrance point ARTS Foundation proposes a 4x6 ft standard size iron structured sign boards to be placed for visibility, mentioning the Name and Logo of GlobalGiving and ARTS Foundation; title and geographical coverage of the project; target beneficiary and duration of the project.

The ARTS Foundation will adhere to GlobalGiving communication guidelines for branding and visibility, and in this regard the details of all locations of sign boards, size and the matter to be displayed on.

3.2Media Campaign

The ARTS Foundation will develop a comprehensive media campaign through the below means;

- 4- press releases in Sindhi, English & Urdu newspapers
- 03 press clippings such as project opening ceremony, solar distribution ceremony and project closing ceremony
- 03 Sign Boards for targeted villages
- 300- Stickers

Phase IV - Project Documentation

4.1Monthly Progress Reports, Monthly Expenses Reports, EMMP and Work Plans

The Project Staff will submit the prepare and submit Monthly Work Plans (MWP), Monthly Progress Reports (MPR), Monthly Expenses Reports (MER) and EMMP on the templates provided by GlobalGiving Team and will share the progress of each month in programs as well as in finance and the work plans for the forthcoming month in order to enhance the understanding of GlobalGiving Team on the project and the activities accomplished as per the timelines mentioned in the monthly work plans and progress reports.

4.3Submission of Project Closeout Plan & Project Completion Report

The Project Staff will submit the project closeout plan as the deadline for the project completion

will be approaching for the feedback of GlobalGiving Team and in continuation of that the Project Staff will submit the Final Project Completion Report on the template as provided by the GlobalGiving Team for their feedback, input and further approval.

Item	Specifications
Solar Plate	150 watt – 1 year warranty by NS, SK, Inverex, Max Power
Led Lights	12 watts – 1 year warranty by Green Solar, Nizam
Full Size Fan	32 watts – 56" by Sogo, NS
Charging Controller	20 A by Sogo
Battery	50 by Hwk
Wiring, Board and Labor Charges	Lump Sump

Renewable Energy Projects have the benefits over conventional energy resources projects that don't emit any effluents, pollutants and residues. The renewable energy technologies are considered to be most environmental friendly technologies which are very much supportive in reducing emissions and developing healthy environment. All over the world, renewable energy projects have been implemented to avoid dependency over the conventional resources which have been a source of effluent emissions and endangering the environment. The international organizations are institutes including financing organization have been encouraging such projects that utilize renewable energy technologies for power generation.

With the use of solar energy "clean energy" for power generation, the rate of emission of Green House Gases (GHG) would come down. This would improve environmental conditions which in turn improve health conditions. There is no need to take any measures for the pollution control and hence no expenditure is involved to take any precaution for the mitigation of Green House Gases (GHG) emission in this project. It is a clean energy project.

- Access to electricity
- Access to communication & information facilities
- Access to new technology
- Improved living conditions
- Improved health conditions
- More working hours
- Increased social interaction
- Better exam results