**Program Introduction**

Makindu Children’s Centre (MCC) is a Non Governmental Organization (NGO) initiated in Kenya in 1998 to serve the essential needs of orphaned and other desperately vulnerable and needy children. Makindu is located along the Nairobi-Mombasa highway approximately 105 miles southeast of Nairobi.

The program provides a support package comprised of six essential services: medical care, nutrition, education, psychosocial counseling, advocacy, and guardian/shelter support. Currently in 2018, MCC is providing all services to 546 children, and accessory services available to an additional 1,200 children.

 One unique concept of the program is that all of the children are cared for in guardian families within the community, utilizing the “kinship care” model. The majority of the guardians are elderly grannies, already caring for grandchildren of their own. Children previously abandoned or disenfranchised are once again valued as part of a family.

Guardians are provided medical care, home based care training, and taught a variety of income-generating skills such as poultry, goat keeping and dairy projects, bee-keeping, basket weaving, candle and soap making.

MCC relies upon the inherent wisdom, support, input, guidance and efforts of these guardians and the local community. This leads to decreased dependency, and improved chances of self-sufficiency of the families and long- term sustainability of the program.

The mission of Makindu Children’s Centre is to provide opportunities for growth and development of orphans and vulnerable children by facilitating their access to basic needs through community collective response.

**Problem statement and justification**

Makindu town lies in a dusty rural region along the busy Nairobi – Mombasa highway. The region is part of the Arid and Semi Arid Lands with highly unpredictable rainfall for meaningful agriculture. Consequently food security is a challenge, especially among the vulnerable population who largely depend on subsistence farming. Besides perennial famine, HIV prevalence is also high. This prevalence is higher in transport corridors such as Makindu, with a subsequent increase in orphans and vulnerable children (OVC). This imposes a huge strain on the community support systems that have traditionally cared for the needs of the OVC.

 The challenge is further complicated by the fact that many of the caregivers must struggle to meet the needs of their own children. The elderly caregivers, often grandmothers, lack the resources and/or necessary physical stamina and energy to provide for the home and follow up on the children’s health, advocacy and education matters. The already limited pool of trained and skilled workers in the community available to assist the children has been further decimated by the same HIV/AIDS crisis. These desperate situations provide a thriving opportunity for child neglect and abuse within the community.

**Solar Power Initiative**

At the national level in Kenya, only 18% of the households live with access to electricity. This access is much lower in rural areas where only 4% of the households have grid electricity, the lowest electricity access rate in the world. Available energy is crucial not only for the attainment of health and education outcomes, but also for reducing the cost of doing business, unlocking economic potential and creating jobs.

Insufficient energy access not only greatly compromises educational attainment, but also causes many deaths and injuries sustained annually due to the use of open fires or wood-burning stoves for cooking. Globally, energy access for all is one of the key drivers of inclusive growth by creating opportunities for women, youths, and children, particularly in rural areas.

**Impact/Outcome Statement**

Our objective is to provide solar energy for all needs of the MCC offices, buildings, and kitchen, as well as powering the center borehole. Both electricity and water companies in Kenya have recently become privatized with no competition, causing both utility prices to sky rocket. This has subsequently paralyzed local villagers and community services such as the local hospital, who can no longer afford to purchase these resources.

 Utilizing the abundant and renewable source of solar energy will present ongoing and sustainable savings in electrical costs to the program, allowing more money available to core services in education, health and nutrition for the children. It will improve the efficiency of center operations, allowing more time in direct interaction with the children and their families. MCC is developing a computer lab, but the current cost of electricity has caused the center to divert finances to core program needs. The improved availability of electricity and money saved would fuel the initiation of this computer lab project.

Eventually, we plan to extend the utilization of the computer lab to local villagers, heightening education, computer skills building, literacy, and literally providing a conduit to the rest of the world. This would represent improved access to resources and potential opportunities to many.

 In addition, we plan to act as an example to the community and our guardians, encourage them to explore and utilize available alternative energy options, and provide trainings and resources for these in the future.

**Borehole** **Introduction**

Globally, 1 in 9 people in sub-Saharan Africa live without access to clean and potable water. This is a daily and crippling challenge, with millions in the rural communities suffering from the lack of something so vital and essential to life. For school aged children particularly, this is a burden that traps them in a cycle of poverty.

Health consequences are also devastating. Even a simple case of gastroenteritis in a child can overwhelm their fragile immune systems and cause serious illness or even death. Last year in Makindu, hundreds of primary school children died due to soil and water borne illnesses; in one village elementary school alone, many children died of bacillary dysentery. Children and women also often bear the burden of walking miles each day to gather water from streams and ponds, full of water-borne pathogens and parasites, causing illness to themselves and their families.

When students are freed from gathering water, they return to class. With proper and safe latrines, girls stay in school through their teenage years. Access to water leads to food security. With less crop loss, hunger is reduced. Schools can feed students with gardens, reducing costs. Time lost to sickness and fetching water is reduced. Lack of available water robs entire communities of their future. Provision of safe water allows people to return to the work of lifting themselves out of poverty.

**Impact/Outcome Statement**

The economic and health consequences from the lack of clean water are undeniably huge. WHO (World Health Organization) estimates that every $1 invested in water and sanitation programs yields up to $12 in economic returns. One child dies every 39 seconds in Sub-Saharan Africa. These figures are staggering, and compelling to affect a change.

The current borehole at MCC is not deep enough to reach the aquifer for potable water, and the pump not strong enough to supply water to the center crops and throughout the entire compound. Therefore, extending the depth another 130 metres and purchasing a stronger pump will greatly improve center functions and efficiency. The current crops providing food to the children could be expanded, and the water could then reach both the kitchen and washrooms. Cooking time would be reduced because water will no longer need to be boiled in preparation. This time saved will allow the center staff to attend to other necessary chores, as they often share duties such as running errands, purchasing supplies, carrying a child to the hospital, washing clothes and bathing the younger children.

The water company in Kenya was recently privatized, monopolizing the market, with the consequence of a substantially increased cost, no longer affordable to many of the local villagers. Money saved from purchase of water could then be available to other core program offerings, such as education, nutrition, and medical care.

The improved sanitation and health benefits would be extended to all of the many guardians, children and local community visiting MCC daily. In addition, our hope is to be able to offer clean and potable water to the community at the previously affordable village price. This would not only serve as a source of income generation for the project and increased sustainability of the MCC program, but also offer this incredibly valuable and essential resource to all community members, potentially reducing illness and saving lives. Access to water can literally break the cycle of poverty and can therefore unlock potential. To pursue a hopeful future, children need water -- every day.

Respectfully submitted by Winnie Barron, MCC co-founder

PRICING ESTIMATES

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **BOREHOLE UPGRADES** | **SOLAR** | **ELECTRIC** | **NOTES** |  |
| Pipes to 210 meters | incl | incl |  |  |
| Cable & other accessories | incl | incl |  |  |
| Purchase, delivery & installation of 3kw, 3hp pump |  $15,000 |  $ 7,500 |  |  |
| Purchase, delivery & installation of 18 solar panels |  $ 3,575 | na |  |  |
| Purchase 3 phase electric generator, install & hookup |  $ 5,700 |  $ 5,700 | for emergency power outages, damage |  |
| **TOTAL** | **$24,275** | **$13,200** |  |  |
| 16% VAT | $ 3,885 | $ 2,115 | State Value Added Tax |  |
| 10% Contingency | $ 2,430 | $ 1,320 | Cost overages, unexpected delays & expenses |  |
| **GRAND TOTAL** | **$30,590** | **$16,635** |  |  |
|  |  |  |  |  |
| COMPLETION TIMELINE | 4 WEEKS | 2 WEEKS |  |  |
| END RESULT | Reliable stable water source for cooking, drinking, washing, irrigation, hygiene | Reliable stable water source for cooking, drinking, washing, irrigation, hygiene |  |  |
| IMPACT | Clean environmentally safe energy. Low/no annual electricity expenses. Unlimited clean potable water.Improved sanitation and hygiene. | Sufficient power to run new pump. Annual electricity costs at least $1,840Unlimited clean potable water.Improved sanitation and hygiene. |  |  |
| \*EXPECTED ANNUAL COST SAVINGS | $ 4,840  | $ 3,000 |  |  |
| EXPECTED LIVES SAVED/GREATLY IMPROVED | Priceless dozens | Priceless dozens |  |  |

\*Electricity to power the existing single phase borehole pump currently costs $1,470 annually. However, in July 2018 the Kenyan Electric Authority approved a change in its billing system and raised prices at least 20-25% effective beginning 2019. Therefore, going forward if we choose an electric pump, the electricity costs are estimated to increase to at least $1,840 annually.

\*Currently MCC purchases water at a monthly cost of $250 ($3000 annually) with prices raising frequently.