

Nurturing Nutrition in Nairobi

Kenya

University of Florida

Teagan Milford (a. USA, b. University of Florida), Merina Ingram (a. USA, b. University of Florida), Shannon Regan (a. USA, b. University of Florida), Other team member: Raqib Valli (a. Kenya, b. Yale School of Environment).

Nurturing Nutrition in Nairobi aims to alleviate food insecurity at an orphanage by implementing a sustainable farming system that will become a self-sustained operation maintained by the children and our local NGOs for years to come. The goal of this project is to provide nutrient-dense foods, education, and ownership over the farm.

Yale School of Environment master's student, Raqib Valli heard about our local efforts to combat food insecurity through a past Strong Roots Movement member. Raqib reached out to us because he wanted to bring this initiative to his hometown in Nairobi, Kenya to lessen the nutritional deficiencies this community faces. He mentioned to us that he wanted to provide a means of food to local children to improve their educational opportunities and mental and physical wellbeing. Many of these children consume only 5 meals a week and are less likely to attend school because their families need them to work, and the schools do not provide any meals. The two centers he discussed with us have no access to electricity, therefore, access to clean drinking water. After hearing about the many disparities in this community, Strong Roots Movement was eager to make an impact. We met with two local NGOs, one of which has established a relationship with the Ruiru Rehabilitation center that houses orphans from the streets of Ruiru. This center has a 1-acre plot of land that is currently untouched and is the perfect place for a small-scale farm and water harvesting tank. We researched indigenous and nutrient and protein enriched crops that we could grow and harvest with the children to provide them with daily meals. They also have a kitchen that will be used to prepare food. The water harvesting tank does not require electricity and will capture rainwater utilized for irrigation.

The UNHCR describes Nairobi as 'some of the most food-insecure places in the world', representing 'some of the 'most pervasive violations of human rights globally.' 54% of the approximately 5 million residents of Nairobi that live in these informal settlements are children (World Bank, 2017). Darky and Kariuki (2013) found that calcium and protein deficiencies are particularly prevalent amongst this demographic, affecting over 80% of children, handicapping children as they attend school, attempt to find work, and generally escape generational cycles of inequity.

This issue exists through Nairobi and at the Ruiru Rehabilitation Center, which has specifically requested a farm on the Project Gallery page of their website, which can be viewed here: <http://www.ruirukids.org/ongoing-centre-projects/>.

We chose Ruiru Rehabilitation Center because it represents a microcosm of the challenges faced by non-governmental institutions aiming to mitigate suffering in Nairobi. Analyses by a student team member as part of a previous project found that inconsistent funding prevents the school from offering its students a regular daily meal, and attendance has fallen as a result, disproportionately impacting girls, with only 46% of students successfully transitioning to secondary school. At this center, this is an urgent need and desire on the center's part to address these issues. Additionally, the school already has a relationship with our community partner, Team Pankaj, who will assist our team in carrying out the project virtually.

We define peace as maintained equitable well-being for all living persons, where well-being is defined as ability to live a life they value and can comprise cultural heritage, health, access to land and natural resources as well as more material factors such as income-generating opportunities (ICUN).

Our project will contribute to peace by improving the livelihoods of children from poor and under-served communities. Food security is the fundamental aspect of well-being. This project will improve their well-being by addressing hunger and malnutrition through the school farm, which will make the children of the rehabilitation facility more food secure both in 2022 and for years to come.

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Our project will also provide the kids with a valuable education about food systems that can be used to further their ability to access to healthy foods for both themselves and their community throughout their lives.

The Nurturing Nutrition in Nairobi project alleviate food insecurity for the children of Ruiru Rehabilitation Center by building a nutritionally dense farm over 1 acre of land using best management practices which include a water storage tower and drip irrigation system. The farm will be used to reduce hunger and nutrient deficiencies and to provide the kids with interactive education about food systems. The project's implementation will take place over 8-12 weeks, where the farm will be built in the first eight weeks and educational training will take place in the last four.

We are working with Team Pankaj, a nonprofit that is currently working with the center, to build the farm. We will work with this team and consult with Harvesting For Good, another local nonprofit, to design the farm. As of now, the school would like us to grow Cabbage, Onions, Carrots, Plantains, Kale, Spinach, Leeks, Garlic, Runner Beans, Cilantro, Chow Chow (aka Chayote), Bottle Gourd, and Moringa Trees. These are all nutrient dense foods, and the moringa trees are especially useful as they can be used a source of protein, but also for water filtration.

The farm will be made up of in-ground raised row beds with 3-foot-wide raised rows and 1-foot-wide alley depressions. The soil will be tilled and amendments including new soil, cow manure, and fertilizer will be incorporated. Immediately following the creation of the beds, a buckwheat cover crop will be planted to crowd out weeds and increase carbon content before planting the crops. We will use a polyculture cropping systems to increase resource use efficiency, improve root structures in the soil, and reduce pests.

Our community partners Team Pankaj and Harvesting for Good are well established in this community and have successfully brought projects that improve the lively hoods of children within Nairobi. These projects like ours are sustainable and long lasting. With the major contributions from both partners including labor, materials, and educators, they will make sure that the farm is maintained every day and will integrate farm maintenance into the children's recreational activities on the weekends. We plan to meet every week with our partners and the owners of the school to oversee and prepare our project design layout and curriculum for the children to reference. The children will build fruitful relationships with their environment and develop an ownership mentality that will contribute to the success of the farm.

Our community involvement will comprise of educational sessions with the children of the rehabilitation facility to learn about food systems, nutrition, and farm management. Our team will work with teachers and staff at the facility to design an educational curriculum and plan for action that will engage the children in experiential learning activities. They will help take care of the farm and create meals for interactive lessons and will learn more in depth about food systems and nutrition through reading and lecture materials. This will give the kids a sense of ownership over the farm and endow them with valuable knowledge they can use throughout their lives.

We will measure our projects success based on the following metrics: (1), kgs of food grown, (2) percent of daily calcium requirement met via garden harvest, (3) percent of daily protein requirement met via garden harvest, (4) children educated (4) and change in center retention rates. At the end of the summer 2022 implementation, we will measure the amount of food grown, nutrients provided, and record the frequency and attendance of educational sessions. After this, we can assess the project on a quarterly basis. The project is successful if 9000 kg of food are grown every six months, if 20% of the kids

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daily calcium and 30% of their daily protein requirement is met by farm produce, and if school attendance rates have risen or remained steady.

The Nurturing Nutrition in Nairobi project will be sustained in the long-term because we are connected with organizations that operate locally in Nairobi and are committed to this project. The Ruiru Rehabilitation center has been eager to establish a farm for quite some time and Team Pankaj, which already works with the center, has agreed to watch over and maintain the farm by hiring two gardeners for the center. We are seeking farm design advice from Harvesting for Good, who will assure that the farm is equipped with good seeds, material, and best management practices. Team Pankaj has also agreed to stay in touch and provide updates after the summer of 2022.

Budget Narrative: Our funds reflect the costs of materials needed to implement the farm and water harvesting tank in Kenyan shillings. The virtual project allows for more funds to be dedicated to future seeds and materials to be used in the next growing season. Our local NGO partners have confirmed that our budget table is an accurate representation of the cost of resources in Nairobi and have agreed to gather and store these materials in preparation for the project. No other funding efforts are currently being contributed to this project.

Projects for Peace Budget Template

Name: Teagan Milford, Merina Ingram, Shannon Regan
Project Name: Nuturing Nutrition in Nairobi
School: University of Florida

Total Additional Funding:	0
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TOTAL FUNDS REMAINING:

TOTAL EXPENDITURES:
10000

Virtual

Student Expenses					Project Expenses				
Travel (Including Airfare)	Lodging	Communications	Food (Biweekly)	Miscellaneous	Non-Student Travel and Lodging	Direct Equipment and Supplies	Marketing and Event Support	Staffing Costs	Miscellaneous
					\$500	\$400		\$500	
						\$4,000			
						\$847			
						\$36			
						\$2,077			
						\$440			
						\$400			
						\$300			
						\$500			
Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
0	0	0	0	0	500	8600	0	500	0

Total Student Expenses:
0

Total Project Expenses:
10000

Projects for Peace Budget Template

Virtual

Construction	Cost	Seeds	Cost	Other	Cost
Water tower (incl. tank, steel, and pipes) X2	\$2000	Kale seeds X2	\$27	Consultation fee for Harvesting for Good	\$500
Drip-Irrigation System	\$847	Spinach seed x2	\$36	In-country material travel	\$500
20 Bales of hay	\$36	Garlic bulbs X2	\$10		
UREA Fertilizer X2	\$2,077	Leek seeds X2	\$8		
Mulch X2	\$440	Moringa Tree seeds X2	\$5		
Pots X2	\$200	Cabbage seeds x2	\$33		
Compost	\$300	Runner bean seeds x2	\$7		
Misellaneou us Garden Materials	\$500	Bottle gourd seeds X2	\$8		
		Cilantro x2	\$3		
		Carrot seeds X2	\$4		
		Onion seeds X2	\$15		
		plantain seedlings X2	\$44		

This form should be used to prepare your final budget and submitted with your project's final report.