Algorer Rural Education STEM (ARES) Initiative

Country of Project Implementation: Sudan, Africa
Project Leader: Osama Elbashir – University of Florida, USA
Other members:
Mohamed Elbashir- University of Florida, USA
Ahmed Mohamed- Sudan, Abdulatif Alhamad University of Technology
Salah Mohamed – Sudan, Abdulatif Alhamad University of Technology

Goals of the Project:

We will create a 2-week STEM summer science camp where students will be able to learn basic biology, chemistry, and physics concepts in a traditional classroom setting and engage in hands-on laboratory experiences. The first goal is to cover at least 5 different topics from each subject that will serve as an extension to keep the information to their level. The second goal is to provide the Alkory primary/middle school with classroom supplies ranging from PPE equipment computers to basic writing tools. These two goals will ultimately help guide the classroom to better suit STEM learning with the addition of these essential tools.

Proposal Narrative:

During a visit to Sudan in 2018, we stayed in a friend's house in my mother's hometown of Marawe, Sudan. This was a rural town made up of mostly farmers and laborers. We were able to learn about the area which is the ancestral home for our family as members of the Shaigiya tribe. During that time my grandmother told us about the Alkory Elementary/Middle School for girls. In 2016, she had worked to collect donations for the school for renovations due to severe flooding from previous years. We decided to visit the school and spoke with the teachers there who further told us about their needs in-depth. We now want to design an educational program that would provide the necessary resources and inspire these young women to seek further education at the high school and college levels.

According to UNICEF, 49% of girls in Sudan are missing out on primary education. A large contributing factor to this disparity is Sudan's inegalitarian view of women. Its legal code is based on the restrictive Sharia law and government control by National Congress Party, a religious-based political group, who for the past 30 years has become a detriment to the country's views on women's education. It's of no surprise that Sudan has a large gap in literacy and school enrollment between boys and girls. Other factors contributing to this include lack of qualified female teachers, low household income, and large household size. In addition, women's education is viewed as secondary to their roles as housewives and many young girls are discouraged from pursuing careers in STEM.

The Alkory Elementary/Middle School for girls is in the Town of Marwe some 200 miles from Khartoum the capital of Sudan. Built in the early 1960s, this all-girl school services the community of Marwe and nearby towns. About 350 young girls attend the school for primary education from grades 1-8. Sadly, the girl's education system is disproportionately neglected by the government with classrooms in the school lacking essential classroom supplies. Sudan is currently undergoing political, economic, and social changes as it is in a transitional government stage that will decide its future. The ideal time to invest is now because the next generation, students in school now, are going to determine the future of the country as it rebuilds.

Peace means to be free of struggles of war, poverty, inequality, and all fears that endanger or hinder a person's potential. To guarantee all people freedom and harmony where all needs are met, the focus is on expanding and preserving that peace for the future. The girls we are targeting are about to make an important decision where they decide if they want a career in STEM or humanities. While most choose to go into humanities the project is to encourage these young girls to continue their education in STEM to close the education gap between the sexes. This encouragement can potentially lead to developing strong women that will prove women can pursue STEM. Ultimately changing the Sudanese view of women in education to break the current gender stereotypes.

Project Description:

The curriculum will be developed here in the U.S through a series of steps and approvals. First, the topics of the students will be identified in their 1st and 2nd-year textbooks. Next, we will research possible experiments procedure and protocols to go along with their learning objectives. Then, a cost analysis of the required materials and place of procurement for each experiment will be done. Afterward, we select the two best experiments to be reviewed by an advisor. Our advisors for this project include professors from the University of Florida that have experience in developing lesson plans. They all have experience teaching and creating lesson plans which will

ensure they are teaching the objective we are aiming for. Finally, the teachers in Sudan will review the experiments and have final approval to ensure it is appropriate for the students.

All supplies that will be used in the camp will be bought here in the United States and then shipped overseas to university student contacts. These contacts will be entrusted with making sure that all the supplies make it to the school and are set up properly for the students. They will oversee the program with the teachers and make sure all safety protocols with the equipment are taken to ensure that there are no accidents. The STEM summer program will help students develop critical learning skills and reinforce science concepts that they have studied during the school year. Activities during the science camp may inspire and encourage students to step out of their comfort zone and take charge of their learning. The camp will introduce students to careers in the STEM field before high school. We also plan on bringing a few speakers to talk with the kids about career paths (doctors, nurses, scientists, and engineers) to give them role models to hopefully look up to.

One of our biggest strengths is our ties to the Town of Marawe and its community. All our family are originally from the and are part of the Algorer community. As members of the Shaigiya tribe, we have a personal connection to the community and know that this program can be used to change minds of the people there. We believe that this project will be feasible because we have received strong support from the school administration and their full approval as well as support from our own extended family in Sudan. This will make labor costs low and allow for most of the funds to be used for the experiments to focus on the students.

Assessment and Sustainability

In our project, we will conduct entry and exit surveys to measure the impact of the program on the student's opinions on continuing a career path in STEM. These surveys will also include comprehension questions to see if the program reinforced the information taught during the two weeks. We will also take feedback from the teachers and the students to see what they like and don't like to modify the program for future years.

One of our goals is to take the utmost care in making sure that this project can be easily replicated and with the supplies, we are providing to the school will last for multiple years. Our aim is that the summer STEM program can continue for at least 2 more years if funded and we receive positive community feedback. We will take extra care in selecting products with good reviews and lifetime warranties to ensure their longevity of them. We have left funds in our budget proposal for unexpected costs and the purchasing of perishable materials for experiments for the following years.

Lastly, the materials we will provide can be used throughout the year by teachers such as laptops, classroom projectors, and screens. Lastly, the school functions as a community center and serves as a tutoring center for students during high school entrance exams. The materials we provide may help aid the school in completing these supplementary functions. For example, computers can be lent out to students studying for their high school entrance exams. The classroom projector can be used during community events and meetings. In the end, it will be up to the school administrators to use these educational materials as they see needed.

Budget Narrative:

To support our proposed project, we will dedicate 90% ($9,000) of the funds to purchasing the equipment and supplies. In addition, 100% of the funds will be used to fund project expenses and there will be no student travel or lodging expenses since the project will be completed virtually. In our budget, we left approximately $1,400 to support the resupplying of perishable and expendable materials. Our most expensive item will be the AmScope B120C Binocular Compound Microscope. We chose this model over cheaper options because of this model's reliability, reviews, and warranty. We aim to purchase high-grade science products that come from reputable companies with warranties so that we have a guarantee of the value in the long run. To support computer literacy $2,235 will be used to purchase laptop computers and $350 for a classroom projector these items can be used during the program and throughout the school year. Lastly, we will work to get donations for some of these supplies to help expand the budget.

Projects for Peace Budget Template

Name: Osama Elbashir, Mohamed Elbashir
Project Name: Algorer Rural Education STEM (ARES) Initiative
School: University of Florida

Total Additional Funding:	0	

Project for peace grant 10000
Total Funding Avilable 10000

TOTAL FUNDS REMAINING:
0

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**
0	0	0	0	0	Free Lunch for Stu	300	5 x AmScope B120C Siede	1149.95	Student Awards	150	Volunteer professional translator	0	Shipping a	650
							1 x HP DeskJet 4155e All-	119.89			Volunteer Teachers	0		
							15 x HP laptops with arab	2235						
							1 x viewsonic 3800 Lume	350						
							15x Microbiology Media T	300						
							10 x prepared microscope	138.9						
							Chemistry glassware	300						
							2 x Dry Chemical Class A E	118						
							5 x Physics Lab Kit	885						
							3 x Biology science kits	477						
							Writing Supplies	400						
							Refill kits for Physics, che	1371.26						
							5 x MicroChem Kit	1055						
Total	**Total**	**Total**	**Total**	**Total**		**Total**		**Total**		**Total**		**Total**		**Total**
0	0	**0**	0	**0**		300		**8900**		150		**0**		650

Total Student Expenses:
0

Total Project Expenses:
10000

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