Inquiring Systems, Inc.

"Ethical and Sustainable Ecosystem Management"

Mums for Mums stands
"On the side of mum in need"

Mums for Mums

ISI for the Ethiopia-USA Collaborative Groasis Waterboxx Food By Youth Project

Progress Report and Expansion of Time and Cost

August 2014

Mekelle, Tigray, Ethiopia.

Propose of the Project

To develop, through direct action and personal involvement, a practical and worthwhile methodology that will enhance the understanding and capability of children, both in the United States and in Ethiopia, towards learning how to grow and produce plants that will provide some portion of their food needs.

Overview and Description of the 'Food by Youth Project'

- The Project shall undertake a Tree-planting program with 100 students from the El Verano Elementary School in Sonoma, CA USA and 100 students from the Selam Elementary School in Wukro, Ethiopia.
- The students will each receive one Groasis waterboxx and one fruit tree and plant the trees in proximity to their home, in the school compound or on the nearest beekeeping training site/nursery that is associated with this project.
- A selection of ten compatible fruit tree species will be planted in each country.
- The schools will employ the Groasis Waterboxx technology and teach the students how to plant using this resource.
- After training, the students will be provided with a Waterboxx and then take the boxes to their homes/school site and will each plant the selected trees they have received.
- After the planting process has been accomplished, typically within a week, the staff from the University will evaluate the plantings and undertake a data collection and control process for the plantations at each home/site.
- Success and failure rates of planting quality will be registered. In correct plantings will be replanted under the supervision of the staff but with the student undertaking this replanting process.
- The participating students will also receive further science-based information pertaining to specific aspects of plant production including, but not limited to: condensation, photo-synthesis, water capillary processes, plant nutrition, growing mediums, fertilizer and related topics.
- In this manner the project will enhance each participants understanding and appreciation of the scientific and practical aspects of producing food as well as real benefits derived from eating organic, fresh and local non-processed food.

- The Project will especially focus on the social and cultural challenges that occur when transferring knowledge from teachers to students and, as expected, how this knowledge will be usefully and functionally transferred to their parents.

Summary of key Accomplishments and Successes

Linkage Establishment/Partnership

Mums for Mums and Inquiring Systems Inc. introduce though Zwedi Abadi.

Inquiring Systems, Inc. (ISI)

Inquiring Systems, Inc. (ISI), a 501(c) (3) nonprofit corporation founded in 1978 with the overall charitable purpose of "improving the human condition" by providing "ethical and sustainable ecosystem management services" for NGO's, nonprofit organizations, ethically-directed business entities, local communities, government agencies and countries throughout the world. Integrated into our comprehensive business management services are the most appropriate and compatible training and technical assistance required to obtain long-term economic viability, self-sufficiency and sustainability for the projects, the people, the communities and for the ecosystems with which we are involved. ISI is committed to ethical implementation of constructive social change by using an **Inquiring Systems Approach** to problem-solving and decision-making that translates good intentions into practical, effective and worthwhile outcomes while achieving our client's mission, goals and objectives

Mums for Mums

Mums for Mums is a local charitable NGO established in May 2001 in Mekelle, Tigray to tackle the problem of poverty in young, single and destitute woman and to help her to become self-reliant and avoid a life of dependency and destitution. The NGO was established by W/ro Tebereh W/Gabriel, the founder and Board Member, together with a group of concerned citizens who saw the growing numbers of young mums with children begging on the streets of Mekelle and read reports of the growing numbers of young women turning to prostitution in order to feed themselves and their families. The young woman, who has little education and no saleable skills, has no alternative except to resort to begging and prostitution because there is no other support mechanism available to her.

Mums for Mums' approach to helping such young woman to get out of the cycle of poverty and insecurity is based on providing her with the means to earn a regular income through skills training, but it does not stop there: Mums for Mums' program is a holistic one, tackling all aspects of vulnerability in the livas of such woman , for example by providing revolving loans, and training on basic nutrition and food preparation focusing on the easily available and highly nutritious cactus, as well as potato and sweet potato.

With little knowledge or control over her sexual practice a marginalized woman from this group becomes vulnerable to STIs, in particular to HIV/AIDS, and to multiple, often unwanted, pregnancies. So, Mums for Mums also educates about sexual and reproductive health so that the vulnerable woman can protect herself from multiple often unwanted pregnancies and HIV/AIDS/STIs. For those women already infected with HIV/AIDS, and their families, Mums for Mums provides help so as to facilitate the best possible quality of life.

In addition to the Executive Director and staff, Mums for Mums has a general Assembly and a board consisting of seven members, all serving voluntarily. The Board meets quarterly based, and is the organization's highest authority. The powers and duties of the Board include:

a. together with the executive director and planning and program director manager formulate internal guidelines and directives
b. Develop policies for the organization's operations.
c. Advice on the allocation of funds and property.
d. Follow up and controlling the overall activities, and guiding the program at higher levels.

VISION

To see a mother who is self-reliant, self-sufficient and who can look after herself and her children.

MISSION:

To help empower vulnerable mother and her children through economic and social support, with the emphasis on creating a better and sustainable livelihood for the young single mum and her children living under the poverty line by offering daily assistance, such as skills training to enable her to be employed or self-employed; and support to enable her to assert her reproductive rights.

GOALS:

- To help empower vulnerable woman through social and economic support.
- To help the young single and destitute mum to get out of the vicious cycle of poverty and help herself and her children by acquiring livelihood-enhancing skills so as to create self-reliance.

Conduct Discussion

Mums for Mums conduct discussion with ISI through email and telephone and came to consensus about the partnership on the project and also made a discussion with Selam Elementary school leaders and responsible government bodies

Memorandum of Understanding/Agreement signing

- Mums for Mums signed memorandum of understanding/project agreement with Inquiring system, Inc and also signing memorandum of understanding with Selam primary school Wukro. After the agreement signing with this two party
- Mums for Mums sign amendment with Project signatory Bureaus namely:
    1. The Tigray national Bureau of Plan and finance, Core process Aid Coordination,
    2. Bureau of Labour and social affairs
    3. Bureau of Women's affairs
    4. Bureau of Health and
    5. Tigray Regional TVET

Reason for project amendment: After the agreement assigned between Mums for Mums and responsible government body Mums for Mums received a project **ISI for the Ethiopia-USA Collaborative Groasis Waterboxx Food By Youth Project for a** duration of 9 months to a year. For this purpose Mums for Mums need amended the project. Details of activities and the budget are to be amended.

Develop Plan of Action and Budget

Mums for Mums with ISI finalize plan of action and budget breakdown based on that ISI release the first instalment and the last instalment and Undertake purchasing process equipments like laptop, projector and other accessories including:

Sensitization/familiarization workshop

Purpose of the workshop

The aim of the workshop was to show all our stakeholders the significance of waterboxx technology and how it can assure food security of our country with the rapid population growth rate.

Fig:1 Delegates at the workshop

Based on the project action plan Mums for Mums was conducted **sensitization workshop**. The workshop has conducted on December 7/2013 at Mums for Mums Head quarter, Mekelle. There were 57 participants out of them 15 are females. Participants of the workshop from Tigray Region Council, Bureau of Plan and Finance, Director, Teachers and students from Selam school, Teachers and students from the three other cluster schools of Wukro city, City administrative office, Wukro city education office, Wukro Agricultural college, St. merry Agricultural college and representative of the community to Selam elementary school.

The workshop commenced with an introduction provided by Ato Ashenafi Asmelash, Executive Director of Mums for Mums, who welcomed delegates to the workshop and outlined the activities and aims for the day. Moreover, after the opening speeches were made by Ato Tsige Hilemariam, Board Director of Mums for Mums Ato Ashenafi Asmelash continues his presentation on the overview of Mums for Mums and purpose and overall objectives of food by youth project.

Fig: 2 Ato. Ashenafi Asmelash (Executive Director of Mums for Mums) during his welcoming speech

Next to Ato Ashenafi presentation through demonstration Dr. Gebremedhin woldewahid, (Tigray region coordinator of Livestock and irrigated value chain for Ethiopian smallholders (lives) project) presented the

significance of waterboxx technology and how to undertake the plantation process using the waterboxx technology. And he was answered a number of questions asked by the participants of the workshop.

Fig: 3 Dr.Geberemdhin Woldewahib during his demonstration on the waterboxx technology

Discussion and preparation stakeholders plan of action with all participants which is handled by Dr. Eyasu Abreha, Director General of Tigray Agricultural Research institute (TARI) and finally he said that they are willing to cooperate with Mums for Mums on the implementation of food by youth project.

Fig: 4 Dr. Eyasu Abreha(Director General of Tigray Agricultural Research institute) during discussion with participants

Finally, closing remark was forwarded Representing Government of the regional state of Tigray by w/ro Nigsty W/Rufael deputy house of speakers (House of Representatives). Moreover, she said that the

regional government is on your side and keep up your efforts on the implementation of food by youth project.

Fig: 5 W/Ro Nigsty W/Rufael during her closing remark

Final the workshop completed by establishing of a Regional technical working group the member of the technical working group composed from Tigray Regional State Bureau of Agriculture, Tigray Agriculture institution, Wukro Education office, Selam Primary School, Mums for Mums, other government and nongovernmental organization.

In addition Mums for Mums has accomplished the following:

1. Capacity Building Training on Waterboxx technology with Students and Teachers at Selam School

We have hosted training with two experts, Mereseit Hadush Hailu, a Horticulturalist from Mekele Agricultural Research Center, and Niguse Abebe, an Agronomist working with Mekelle Agricultural Research Center. There were 10 administrators and teachers and over 130 students in attendance. The training was on the characteristics of each fruit plant selected for the project.

On Saturday March 1, 2014 Mums for Mums conduct a capacity building training on Waterboxx technology with students and teachers at Selam School. 130 students and 10 teachers in total attended this workshop.

100 students and 6 teachers from Selam School, 10 students and 1 teacher from Millennium cluster school, 10 students and 1 teacher from Kisanet cluster school and 10 students and 1 teacher from Semaetat cluster school.

Fig. 6. Ato Ashenafi Asmelash Executive Director of Mums for Mums During his opening speech

The training began at 9am with the project coordinator (Dawit) welcoming speech and invitation the Executive Director of Mums for Mums Ato Ashenafi Asmelash to the stage to put his opening remark of the capacity building training and the overall objectives of the project following his speech Mereseit Hadush Hailu, a Horticulturalist from Mekelle Agricultural Research Center, presenting on the different types of fruit trees available. She briefly talked about the following trees: Apple, Pear, Avocado, Fig, and Orange. Going into more detail for each tree such as how many meters above sea level the tree could grow, what kind of climate the tree would grow best in, what other plant the tree could hybrid with, and how to care for and plant the tree. For example, the first fruit tree we learned about was the Apple tree.

- Apple trees grow best above 1,800 meters above sea level
- When the tree is planted, it must be planted deeply
- You can hybrid an Apple tree with a bean
- There are 2,000 hybrids
- Lemon is essential for the plant

Following Mereseit's presentation, we heard from Niguse Abebe; an Agronomist working with Mekele Agricultural Research Center. Niguse presented on Orange, Mango, Guava, and Grapevine. He went more in depth with how many years a tree can produce fruit, where the trees are typically found, what

temperatures and how much rainfall the tree can survive with, exactly how deep and how big in diameter to plant the tree, and what type of chemicals help the plant to give off a better production. The first fruit tree we learned about from Niguse was the Orange tree.

- Orange trees give production for 50 years
- They are mostly found growing in Asai
- The Orange tree can survive 25-30°C
- It grows best between 0-1500 meters above sea level
- It needs between 750-1200 mm of rainfall
- When planting an Orange tree, it must be 50cm deep by 50 cm in diameter
- When the Orange tree is growing, give it more Uria or Phosphet in order for it to give off more production

To wrap up the morning portion of the training, students and teachers watched a video on how the Waterboxx works and the process of planting a tree using the Waterboxx. Following the video Dawit, Mereseit, and Niguse demonstrated how to put the Waterboxx together in front of participants and answered questions about it and the project.

Fig. 7 Presentation on the different types of fruit trees

In the afternoon Mereseit gave a technical session at St. Mary's on how to graft a Sour Orange tree. She showed us how to do Bud Grafting and Clipped Grafting. In order to do Bud Grafting you need two Sour

Orange trees. You cut the leaves off the bottom 3 inches of the seedling, and then take a small section of the tree stem from plant number 2. You then cut a small slit in the bottom of the first plant and insert the piece of plant number 2 into the slit. After wrapping the grafter section, it will grow together.

Fig.8 participant during the training on the different types of fruit trees

Fig. 9 during question from the students and answering from the experts

Fig. 10 Demonstration for the participant

Clipped Grafting also used two Sour Orange trees. You cut the seeding down to 6-8 inches above the dirt. Then you cut a 3 inch section from plant number 2. You cut slits in the top of the seedling and slits on one

end of the 3 inch segment. You then join the two together and wrap the grafter section so it can grow together. The session on grafting wrapped up our workshop.

Fig. 11 Demonstration for the participant

Prior to the Capacity Building Workshop on Waterboxx at Selam School, Mums for Mums came to install a router and a laptop as the server for the four computers in English Language Improvement Center (ELIC) at Selam School. Mums for Mums also installed four webcams and four sets of headphones with microphones. At the end of February, Mums for Mums helped to set us up with an EVDO account to provide internet to four computers and two laptops. Our next step is to set up the 100 students at Selam School with Skype accounts to communicate with the students in America.

Plantation Activities

On March 8, 2014 Mums for Mums (Dawit) came to Wukro with Mereseit Hadush Hailu and Negus. They brought 40 trees, 10 Orange trees, 10 Apple trees, 10 Guava trees, and 10 Avocado trees.

Fig. 12 Selected fruit

The students from Selam School gathered to dig holes for the trees, participate in a live training on how to plant a tree with the Waterboxx, and then ended the day with planting fruit 35 trees.

Fig. 13 student during the plantation

School staff formed the Students worked into co-ed teams of three. Each team worked together to follow the steps the Mereseit demonstrated, and planted one fruit tree.

Fig. 14 student during plantation and fellow up

- We have communicated with El Verano school facilitator in order to schedule Skype dates for the students to engage together and exchange data.
- Students are gatherig data on the growth of the plants since March.
- Fifty guava fruit seedling was purchased from Wukro forestry nursery center. Thirty students were selected from the students formerly trained, by director of the school and other teachers. Each student received one waterboxx and two seedlings. One of the seedlings planted with water box and the other is without waterboxx.

Fig. 15 Plantation in the student home one by waterboxx and one with out

- Irrigated fruit tree production is expected to expand in the region in near future. However, the initial survival rate of fruit tress after transplanting is the main problem especially in the dry land (having erratic rain full) Part of the region. Therefore, there is a need to increase the survival rate of the fruit tree seedlings after transplanting in plantation areas. For this reason water box x is one of the solutions to attain the problem. (**Source: - Tigray agricultural research institute**)

Photo gallery of the progress of fruit trees

Fig. 16 progress of the planted tree

Project Partnership/ linkage with other stakeholder

ISI for the Ethiopia-USA Collaborative Groasis Waterboxx Food By Youth Project after signing the Memorandum of understanding with Tigray national Bureau of Plan and finance, Core process Aid Coordination, Bureau of Labor and social affairs, Bureau of Women's affairs, Bureau of Health and Tigray Regional TVET establish and strengthen the partnership with Mekelle University, Tigray regional Agriculture Bureau, Tigray Agriculture institution and other partners.

Request for Time and Cost Extension

As you know our agreement is for a period of nine (9) months "the contract period" starting October 2013 and ending June 2014. Unfortunately, there were unforeseen delays, which have delayed the start on October 2013. We are therefore, requesting an extension in the due date of the contract period to be extended by the time of delays.

The reasons are below:

1. The waterboxx delivery was delayed and this implies the plantation activities by the students was forced to launch in March.

2. It took time to discuss a resolution to the space availability at Selam Elementary school. The school fits 40 waterboxxes of the 100 planned. That leaves 60 waterboxxes with a site to be identified. After discussion with Zewdi , we reached an agreement that the remaining 60 waterboxxes would be distributed to 60 students with 2 fruit trees, of the same age, in order to be planted at his/her family home, 1 with waterboxx and the other without . This will help us to conduct the comparative research.
3. Mums for Mums is waiting for a response to our email from the El Verano Elementary school project facilitator in order to schedule a time for the exchange of information between the students of each school. The project established an information technology school club at Selam Elementary School in order to have direct interaction with El Verano Elementary School and exchange data. We created an e-mail address and Skype account for the students here and we sent it to the El Verano facilitator along with asking for times that would work to schedule Skype date, but as of now, we have not heard back.
4. Due to the shipping delays, the project is pushed over the summer holidays. The schools will be closed here in Ethiopia in July and August, and in El Verano Elementary School possibly in June, July, and August, therefore we request the extension to consider that time as well.

We are very excited about this project. And it's potential to accomplish the desired objectives as laid out by ISI. Not to mention, the students are also very engaged in this project. As a result, I would like to request that the project life by one year including budget.

Best,

Ashenafi Asmelash

Executive Director