

Submitted: 30 / 09 / 2017

To Dr. Hiroshi Niwano
Chairman
Niwano Peace Foundation

Code No : 0160 – A – 000060

Water, Agroforestry, Nutrition and Development Foundation

Activity Report (Fiscal Year (2016)

“ Muslim-Christian Rainwater Harvesting and Food Security Project ”

1. Purpose of the project (In around 300 words)

The project is a direct response to the predicament caused lack of access to water that are faced by both Muslims and Christians living harmoniously in Mindanao, the Philippines and as a result their area being mountainous and water source such as springs and creeks are distance away, in some cases, many miles and long hours of walk away. The severe lack of water has affected health, hygiene and the economic condition of local citizens. Also, if there is water access, aside from general household and hygiene use, the excess water can be used for gardening activities of local citizens. There is a perennial lack of food and malnutrition is prevalent in the area especially affected are children and continuous supply of vegetables from the gardens can be a solution to this.

The Philippines being tropical and the target area in Lanao del Norte province has intermittent rain on a weekly basis, the installation of giant rainwater harvesters using ferro-cement made jars can be a practical, cheap, durable and sustainable solution to the problem of lack of access of water and lack of food. We realize that lack of access to productive resources and food insufficiency are food to fanatics which sow war and destruction in places where Muslims are living. However, with simple practical solutions such as access to water and food security via vegetable gardening, this can be prevented as both Muslims and Christians are at present living harmoniously together in local communities here for so long now. This project then will be a pilot on how little support and effort can continually pump-prime local development and economic stability. The choice of ferro-cement rainwater harvesters is that they are very durable lasting more than 20 years and cheap to construct and install and easy to manage.

2. Contents of the project, and how those were implemented.

We started project activities by conducting courtesy calls to government officials, barrio leaders and teachers of the Department of Education in the province. The courtesy calls enable the leaders in Lanao del Norte to understand how a giant rainwater harvester made of iron and concrete is done and how it functions. During the courtesy calls, we also worked on the agreement that the communities can also access the water via extended polyethylene pipes going to their houses which is the main aim of the project and not only for the use by the school, if a school-building is used. An important agreement with the community is on putting-up

counterpart labor which they readily agreed via the Parent Teachers Association. In total, 3 of the harvesters were situated in a school-building and 2 in barrio centers.

After the preliminary agreements, we purchased the hardware materials to be used in the construction. These comprise sand and gravel, cement, rebars, fittings, galvanized iron, among others. We used our steel ferro-cement mould in our project area in Leyte for shaping the tank. One problem we meet during the construction is the difficult road condition going to the area but we were able to solve this by bringing in our heavy-duty mini dump-truck in order to haul the materials.

After the materials were hauled to the areas, we started constructing the harvesters one at a time. As mentioned we used our re-usable iron mould sectioned into 8 sections. When the sections are joined they form a jar. This is plastered with two coats grade A concrete after the base also of concrete is prepared. Then vertical tie wire reinforcements closely spaced together is placed around the jar after which this is again plastered with mortar. Then horizontal tie wire reinforcements is placed and this is designed to resist water pressure when the tanks are in use. After 3 more mortar plastering a lip mould is set atop the tank serving as manhole tank cover. When all is done, the molds are de-sectioned and taken out one by one. During the construction, our engineer supervised carefully how the construction crew did the job in order to ensure quality, eg. no leakage and sturdy structure. These are the points our engineer looked into, a. proper water content of the mix, its prompt emplacement after mixing, and at the proper thicknesses, b. marking the proper spacing of the wire reinforcement, c. keeping the structure from drying out during construction and curing and, d. making sure that the mold stay in place for more than a few days after the outside of the tank is finished.

After the harvesters were constructed we provided the community with basic tips in using it, namely, a. slowly opening the gate valve so that water will not be wasted and flow is slow, b. preventing children from playing with the valves and faucets, c. ensuring that water is managed well and not wasted by not letting the valves open even if the containers are already full, d. cleaning at least once a year the insides of the tank by opening the clean-out valve and letting a person go inside the tank to clean it using brush.

In tandem with the construction and operation of the harvesters we did distribution and field trainings on vegetable gardening to 293 involved families including 335 students in the schools with the students using the available space around the school for the gardening activities. The training include how to make organic fertilizer using organic waste around the house. All in all we were able to distribute 3,200 seed packets of lady's finger, eggplant, water spinach, squash, tomato, cucumber and gourds.

3. Time line records in general in chronological order.

Upon receiving notice that our project is approved already, I mobilized 2 of our staff to do the courtesy calls in the three barrios covered by the project. We encountered very little problem with this having had previous partnerships with the areas in the past. I

personally communicated with the heads of the Department of Education and the provincial governor of Lanao del Norte with the idea that later on this may serve as model for future initiatives. Then in mid-October to late January, we deployed our expert masons and carpenters in order to start construction activities. In advance I sent our truck in order to haul materials to the sites because reports from our staff indicate very difficult road condition. The rainwater harvesters were completed in time as our experts know very well how this is done. I sent our engineer to do quality control and ensure that the construction is done very well. Then we started distributing vegetable seeds so that the communities can do household vegetable gardening. Our agricultural technician provided the inputs for this not by conducting formal lectures but by direct on-site practical advice to vegetable growers. Enthusiasm by the communities were high they saying that they have small plots, good soil and water in which to start the gardening activities. We trained them on the production of organic fertilizer coming from waste in the kitchen and in the farm. In parallel with this we promoted the project by social media and by our contacts and partners who may be able to support us in expanding our work. Then in early May the IS-led Marawi crisis happened and we geared-up to promote our water conservation and vegetable gardening targeting areas where affected residents have evacuated.

4. Achievements.

The project has succeeded in demonstrating strong bond between local close-knit families even if they belong to different religions. Religious affiliations do not matter and there is never any deep and large-scale enmity between the faiths. The rainwater harvesters and vegetable gardening activities cement this bond as neighbors share the water, share vegetable seeds and garden materials and share harvest of their vegetables. This project will discourage extremism to enter the communities as local leaders and inhabitants bond together and provide support to each other. Our observation after the harvest of their vegetables is that the health and nutrition of children of the 239 families is improving with their full access to produce every day. Some of the small stores in the areas are also selling vegetables and cooked vegetable menu. Truly we have demonstrated the efficient use of local resources such as soil, water and supply of seeds and fertilizer in order to effect short and long-term food security among poor neighborhoods.

The long-term result of this project is improvement in community cohesion and camaraderie and finally forging peaceful communities by actual, practical field implementation of small-scale, easily managed projects such as rainwater harvester and vegetable gardening. With the IS-inspired Marawi crisis that is still going on at the moment, our initiative takes center stage as one of the most viable options in providing water and food to thousands of evacuees in a sustainable manner. This is so because with the thousands of evacuees scattered among their relatives, it is simply not practical for aid agencies to reach them. Our beneficiaries say that aside from the harvest, they get physical exercise from tending their gardens and this makes them

forget of their problems. We are talking with prospective partners in order to realize this and especially targeting home-based evacuees in municipalities in Misamis Oriental who has still not received assistance from helpers.

5. Tasks or challenge in future, or what is remain to be done.

Our task in the future is how to convince local and national leaders that our option to water conservation using giant ferro-cement tanks and then engaging the beneficiaries to implement vegetable gardening activities is one of the most practical, cheap and doable options to assist local communities deficient in water and food. The traditional approach is either constructing poured concrete water tanks or installing steel tanks which are very expensive. Another problem foreseen is how to mobilize communities to sell surplus vegetables for higher income since we observed excess production in some areas and marketing is problematic given also the remoteness of their places to the market centers located in the town. In preliminary discussions with our beneficiaries they voice the idea of forming a marketing association who can integrate production and negotiate with bulk buyers of the vegetable products. Then another idea which we want to pursue is in terms of processing some vegetables and herbs into powder form for capsules and tea and sell this in high-end markets. One example is lemongrass mix with moringa which can be sold locally as health tea products. We are at present discussing how this can proceed with government agencies such as the Department of Trade and Industry and the Department of Science and Technology in order to realize this.

Personnel assisting the project:

Cesario Sayre – Civil Engineer. Quality control in constructing the harvesters.

Jocelyn Deniega – Agriculturist. In-charge with vegetable gardening training.

Joseph Buhian – Team Leader, construction crew. In-charge with construction activities.

Maredel Segayo – Admin support.

Photos:



Putting-up the steel and tarp mold in the area where the ferro-cement is to be constructed. The mold shapes the jar and hold the concrete and fine wire mesh together.



Plastering the mold with Grade A concrete and fine wire, 4 repeat plastering in all. After this the gutter in the roofing is placed and then after 3 weeks curing, the tank is ready for use.



Nearly completed water tank. The extensive roofing of the school-building will fill the tank in 4 hours continuous rain.



Another rainwater harvester constructed in a school-ground.



Direct and easy access of rainwater by community residents.



Neighbors showing-off their gardens watered from the rainwater harvesters.



Our team conducting organic gardening training among project participants.



Proud gardener showing her tomato production.

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