

**Enhance the Capacity and Capability of Stakeholders
in Rainwater Harvesting Technology.**

Final Report

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FINAL REPORT

Project name: **Capacity of Stakeholders in Rainwater Harvesting**

Activity number: **270/20844/98-99/02**

Project phase: **Final Report**

Duration: **15 months (7th April 99- 30th September 2000)**

Date of report: **30th September 2000**

Reporting period: **15th January 2000 - 30th September 2000**

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Context

The project aimed to promote the application of rainwater harvesting through awareness raising and training on rainwater harvesting technology for local communities, NGO's and the local authorities in 7 districts in Sri Lanka.

The project carried out awareness program in 7 districts (Anuradhapura, Ampara, Kandy, Hambantota, Puttlam (replacing Batticaloe), Moneragala and Embilipitiya on rainwater technology and its benefits to users and non-users to enhance the use of rainwater for domestic purposes.

Training programs were conducted to all levels of stakeholders on ferro-cement technology from engineers on the technical aspects, master masons to undertake further training and village level artisans to construction of the rainwater harvesting systems.

The project covered 7 district in Sri Lanka, 5 districts are located in the dry zone, and two in the wet zone.

Activity planned until and during this period

Planned activity for the period covers activities planned up to the end of the 15th month given in the Master work plan (attached Annex 1).

List of planned activities

2. Training of trainers
 - 2.1. Design and printing of training manual
 - 1.2. Training workshop
3. Training programs for masons in districts
 - 3.1 Anuradhapura
 - 3.2 Ampara
 - 3.3. Trincomalee
 - 3.4 Puttalm
 - 3.5. Hambantota
 - 3.6 Meerigama
4. Awareness programs in 5 districts
5. Monitoring and Evaluation

Activities carried out until end of this period

Delay in the work schedule occurred due to difficulty in co-ordinating with unstable areas in the North and East. Therefore an extension of the project period by two months was requested and granted. The project was successful in carrying out the following activities during this period as scheduled as well as some unscheduled work.

2. Training of trainers
 - 2.1. Print training manual in Sinhala
 - 2.2. Second training workshop for trainers (Unscheduled)
3. Training programs for masons in districts
 - 3.1 Anuradhapura
 - 3.2 Ampara
 - 3.3. Trincomalee
 - 3.4 Puttalm
 - 3.5. Hambantota
 - 3.6 Meerigama

Results achieved as stated in the result statement

1. Awareness program on rain water harvesting in 5 districts

Due to high demand awareness program were held in 9 districts (pictures 1-5). As a result of the awareness program conducted under this project, National Water Supply & Drainage Board (NWS&DB) under the 3rd ADB project of Water Supply & Sanitation Project requested the LRWHF to conduct awareness programs and training programs for masons in 3 districts (Hambantota, Puttalam and Moneragala) (picture 6-8.)

District/location	Date	Type of Participants
Trincomalee	22 nd January 2000	NGO's and Government Officials
Moneragala, Liyangola Moneragala, NWS&DB	4 th May 2000 27 th -28 th June 2000	Village beneficiaries NWS&DB technical officers and NGO's
Moneragala, Dept. of Agriculture	3 rd August 2000	Technical officers and field officers
Embilipitiya, Mahaweli office	20 th June 2000	Technical officers and Field officers of Mahaweli

		Authority
Hambantota	22 nd – 23 rd June 2000	NWS&DB technical officers and NGO's
Puttlam, Anamaduwa, NWS&DB Chilaw, Peoples Rural Development Association (PRDA)	1 st – 2 nd July 2000 22 nd July 2000	NWS&DB technical officers and NGO's Village beneficiaries
Kalutara	10 th February 2000	NWS&DB technical officers and NGO's
Anuradhapura, Divisional Secretariat Galgamuwa, Irrigation Training Institute	3 rd June 2000	Official at DS and Samurdhi Niyamaka's from Padaviya Village beneficiaries
Kandy, Madugala	4 th August 2000	Village beneficiaries

2. Training on Ferro-cement Technology

Two engineers who were trained on low cost rain water storage were involved in conducting both TOT workshops. The women engineer was involved in mason training workshops held in Anuradhapura, Puttalam and Trincomalee. She is further involved in conducting a research on larger capacity ferrocement tank.

3. Training Manual

Training manual was designed and is been printed in Sinhala for masons. The draft version (Annex 2) was distributed to masons at the workshops. The printed version will be distributed to all masons who underwent training.

4. Training

Training of Trainers

2nd workshop was held in Meerijawella, Hambantota from 2 -7 August 2000. This workshop was unplanned but due to demand and necessity the team decided have a second TOT workshop. The workshop was attended by 8 participants from 4 district (Annex 3:Registration list of participants). This workshop was co- sponsored by Women' s Development Foundation by providing free food and lodging for the participants at their training center. Six of the participants who attended were masons who under went initial training under this project in 3 districts (Anuradhapura, Ampara, and Hambantota). The participants were given training on training for planning, designing and construction of rainwater harvesting systems (picture 9). Trainees constructed both types of tanks, underground brick and above ground ferro-

cement tanks at the training center. Both these tanks will be used as a demonstration model at the center in the future. Certificates were awarded to all participants at the closing session. A video was also produced on construction of brick dome tank during this workshop.

Training Program for Masons in Districts

The mason-training program was held at Anuradhpura, Ampara (formerly Batticaloe) and Hambantota, Puttalm, Trincomalee Kandy and Meerigama (picture10-12). The training program consists of initial class room session on rain water harvesting technology followed by on- the- job training on construction of ferrocement and Brick tanks as well as first flush device and filters in a rainwater harvesting system. The trainers used for these programs were the master masons who under went the initial TOT program.

District	Date commenced	Number Trained	Number of Units Build
1. Trincomalee	22 nd January 2000	7	5
2. Anuradhpura			
Thirapone	23 rd May 2000	6	2
Padaviya	3 rd June 2000	4	2
Galigamuwa	15 th July 2000	2	1
3. Hambantota	12 th March 2000	6	5
4. Puttalam	17 th February 2000	8	6
5. Ampara	6 th March 2000	2	5
6. Meerigama	20 th May 2000	2	1
7. Kandy, Madugalla	19 th September 2000	2	2

Further, 54 masons were trained under the 3rd ADB project at Hambantota, Moneragala and Puttalam districts (pictures 13-15).

Construction of Rainwater Harvesting Systems

Socio Economic Survey was conducted in each district through the partner organisations to select the households which are most severely effected by water scarcity, and who would be able to contribute towards the cost of the tank.

Trincomalee:

One ferro- cement tank and 4 brick tanks were built in the Trincomalee district. Locations are Lingamar primary school (picture 19), Pathispura, Vilgama Secondary School (picture 20) , Vanelay Pachankulam primary school, Muthur Sabinagar school. The first 3 location are being fitted with board with direction to the site. This resulted in increased number of visitors

to the site. The beneficiaries contribution to the construction of these tanks were minimal (20%), in the form of skilled labor. There were delays in completing the last 2 tanks at Mutur due to the security situation in the area as well as lack of adequate access to the sites.

Anuradhapura

Thirapone: Two tanks, one above ground ferrocement and a underground brick tank were build at a village called “Athungamma” (picture 17). The partner organisation in the district was 3rd ADB project of NWS&DB Anuradhapura, who selected the sites according to the selection criteria provided as well as selected masons for training. Trained master mason from Anuradhapura conducted the on – the job training to 5 masons from the area and one mason from Ampara.

Padaviya: Two tanks, one above ground ferrocement and underground brick tank were build at Parakrampura, Padviya. The households contributed 20% and 35% respectively in the form of unskilled labor and materials. The Divisional Secretariat which co-ordinated activities at Padviya plan to construct more tanks with ADB project funds.

Galgamuwa: One under ground brick tank was build at ‘Palugama” village in Galgamuwa. Household contribution to this tank is more than 50% in the form of labor and material. The partner organisation Forum of Women Professional in Water Sector” working through farmer organisation and Women organisation plans to replicate this project in other areas they are working in.

Hambantota

Five rainwater-harvesting systems were build. Two above ground ferrocement tanks at Suriyawawe and one at Ranmuduwawe (picture 16). Two under ground tanks, one at Namadagawawe and other at Konketi Ara. Contributions from the households range from 30-78% from the households.

Puttalam

Six above ground ferro-cement tanks were build, 2 at Madurankuliya, two at Mundalam (one of which is at a school-picture 18), one at Palaviya and the other at Baristapura, Puttalam . Initially 10 tanks were planned for this district. However, due to difficulty in co-ordinating the activities in such wide area, only 6 tanks could be build during the project period. Further delays occurred due having only 2 frames and difficulty in transporting it around. Also poor attendance of trainees as well as huge demand for the trainer by other project caused the delays.

Household contribution to the project was around 70% through materials.

Amapra

Initially only one above ground ferrocement tank was build with 1 masons under going on-the job training. The household contribution received was around 20% in the form of unskilled labor. Later due to the success of the first unit, 4 more households requested rainwater units and provided 30% contribution in the form of unskilled labor and material.

Kandy

Two above ground ferrocement tanks were build at Madugalle, Kandy at the request of "Family Development Organisation" . Two masons from the village were trained during the construction. Each tank will be used and managed by 5 household who contributed to 50% of tank construction through material and unskilled labor.

4. Increased Number of Rainwater Users

As result of the 3rd ADB project 13 tanks were build in 13 schools in Pradeshiya Sabas in 3 Districts Moneragala, Puttlam and Hambantota. (Pictures 21-23)

At Liyangolla 10 above ground tanks were constructed with part funding from Plan International.

Department of Agriculture at Moneragala will be funding construction of 16 tanks and training 6 masons in Moneragala district.

Plan International with co funding plans ten or more tank in Puttlam district.

Fifteen tanks are proposed at Pahathahewahata in Kandy district with Sampath bank loan scheme.

It is too early to assess if the rain water is been used for drinking purposes in the unit's that were build during this project period. However, in other areas where they have already been practicing rainwater harvesting, the usage for drinking has increased from 10% to 20%. The use of rainwater for drinking was thought to be a perception of quality. Since the absolute quality of this water is not been tested, there is distrust on the cleanness of water. However, when the rain water quality was tested and compared with other sources and found to be better than the conventional sources, there was increased usage of rain water for drinking purposes.