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WATER AND ENVIRONMENT DEVELOPMENT ORGANIZATION (WEDO)

KOZHIKODE

KERALA, INDIA

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Name of the NGO: Water and Environment Development Organization (WEDO)

Address: 28 / 566, Poornima, Ayyappa Nagar, Chevayur, Kozhikode - 673 017 Kerala State, India

Details of Registration: Reg. No. KKD / CA / 1074 / 2015 Dated 15-12-2015 of the Registrar of Society, Dept. of Registration, Kozhikode, Kerala

Office Bearers

President: Dr. George Mammen
Vice President: Sri. T. Valsan
Secretary: Sri. M.T Anilkumar
Joint Secretary: Sri. V. Aravindakshan
Treasurer: Sri. V. Radhakrishnan

Executive Members**:**
Sri. E. Balakrishnan Nair
Sri. Jayaprasaad. K. M.
Sri. V. Sundararajan

Objectives

The main objectives of WEDO are to promote water conservation, development and management programs for ensuring adequate water of good quality for people. Awareness programs, rain water harvesting, water management for domestic / agricultural purposes, water purification, establishment and maintenance of water storage / conveyance structures, providing water literacy for children, skill development training on water resources development / management etc. are envisaged for realizing this objective

Other objectives include promotion of sustainable organic farming, scientific environment friendly natural resources management, forestry development, scientific waste management, generation of data bank on water and other natural resources, promotion of physical and mental development of children, providing assistance to poor for treatment of chronic ailments, promoting voluntary blood donation, women

empowerment programs, development of public consciousness on social evils like drug abuse, alcoholism, AIDS etc., promotion of HRD and institution building programs, provision of health awareness programs, promotion of Yoga, Meditation, Art of living and other mind-body relaxation techniques etc.

Activities undertaken

The activities undertaken by WEDO during 2018 are given below

1. Organic farming of vegetables under wick irrigation

Even though vegetables are available in Kerala from other states, extensive use of plant protection chemicals, including systemic insecticides like Carbofuran, Porate, Dimethoate and Dimecron on them has lot of health implications. Over use of chemical fertilizers for vegetables is also hazardous. Organic farming without chemical fertilizers and pesticides is an alternative to this. Only organic pesticides, fungicides and fertilizers are used in organic farming

In India, organic farming has been followed from ancient times mainly using organic manures available under the livestock based farming system prevalent then. As per the definition of the United States Department of Agriculture (USDA) study team on organic farming, it is a system, which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc) and to the maximum extent possible, relies on crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection.

Due to shortage land, in urban areas, people are growing vegetable in poly bags. Vegetables can be grown on terraces using poly bags.

Wick irrigation is a micro irrigation technique for indoor as well as outdoor farming with advantages of saving water, time and nutrients.

Wick irrigation works on the principle of capillary action to bring water up the root and stem from the soil to the rest of the plant. Specially designed wick made by folding the glass wool in a piece of plastic net 30 cm length and 20mm width/ diameter is inserted through a hole in bottom of the grow bag. Half of its length goes up inside the grow bag up to the surface of the soil and rest is inserted in the reservoir. 3'' PVC

pipe is used as reservoir. 20mm diameter hole are drilled at 50cm interval on the PVC pipe. Number of PVC can be connected to each other using PVC elbows. One end of the net work of PVC is closed with a PVC end cap. Other end of the net work a vertical one meter PVC were connected using PVC elbow water can be filled in the PVC pipe whenever necessary. Grow bags were filled potting mixture after keeping the wick in the centre of the grow bag. Other end of the wick is inserted in the drilled hole on PVC pipe. Bricks are use for supporting the grow bags. When the soil in the grow bag becomes dry, water enters in the wick and start wetting the soil the grow bag. When the moisture of the soil in the grow bag reaches to field capacity wetting will be stopped automatically.

In association with CWRDM, Kozhikode, two demonstration plots were prepared for wick irrigation vegetables at Kottamparamba. Tomato, Ladiesfinger and Chillies were grown using wick irrigation. Fermented Neem cake, fermented Neem cake + FYM, Fish Amino acid, Cow dung fermented Amirth pani (cow dung + fresh cow urine + Honey + Ghee) and humic acid were used as organic manure. These organic manures were applied at weekly interval. Plant protection was done using Beveria and Verticillium. Plant diseases were controlled using PGPR mix II.

Plate 1. Wick irrigation established for Ladies finger on a farmer's terrace

Plate 2. Wick irrigation established for Chillies on a farmer's terrace

Yield of vegetables under wick irrigation

Table 1 gives data on the yield obtained for different vegetables under conventional and wick irrigation from the plot undertaken by WEDO in collaboration with CWRDM. When compared to the water consuming method of conventional irrigation, wick method gave about 82 %, 86 % and 68 % increase in yield for Bhindi, Tomato and Chillies (Table 1).

Under wick irrigation, where water is made available to the soil on all the days depending on the decrease in soil moisture, soil moisture in the grow bags where the vegetables were grown was maintained close to Field Capacity moisture content of the soil. This resulted in a condition of no stress to the plants, contributing to higher yield of vegetables than the conventional irrigation method, which was done mainly on alternate days only by the farmer. Significant amount of water and labour saving is achieved through the adoption of wick irrigation, which is even less costly than micro irrigation methods like drip, micro sprinkler etc.

Table 1. Yield of vegetables under wick irrigation cultivation

Crop	Average yield* (g/plant/ha) obtained under		Yield increase (%) under wick irrigation
	Conventional irrigation	Wick irrigation	
Bhindi	317.4	578.9	82
Tomato	333.3	620.7	86
Chillies	65.9	110.4	68

*Data collected from CWRDM, Kozhikode with whom WEDO was involved in the project

Awareness program on scientific water management of crops and drip fertigation

In association with CWRDM, Kozhikode, two awareness programs on scientific water management of crops and drip fertigation were conducted by WEDO for farmers on 5th and 20th May 2018 in Kozhikode. About 60 farmers participated. They were also exposed to the drip fertigation and wick irrigation demonstration plots of CWRDM.

Plate 3. Participants of the awareness program conducted at Mayanad, Kozhikode in May 2018

Calicut beach cleaning programme

District administration of Kozhikode in association with voluntary organisations and educational institutions of Kozhikode held a cleaning campaign of beaches in Kozhikode. Members of WEDO participated in the Calicut beach cleaning programme on 5th July 2018 under World Environment Day program

Plate 4. Cleaning of Calicut beach by WEDO members in July 2018

Plate 5. Members of WEDO participating in Calicut beach cleaning program in July 2018

Flood level mapping

From 8th August 2018, severe flood affected Kerala state due to the unusually high rainfall during the monsoon season. It was the worst flood n Kerala in nearly a century. Over 483 people died and 14 were missing. Many people were evacuated. According to Kerala government, one sixth of the total population n Kerala had been directly affected the flood and related incidents. Govt. of India had declared it a level 3 calamity or calamity of severe nature. It is the worst flood n Kerala after the great flood of that took place in 1924.

Flood hazard mapping is an exercise to define those areas which are risk flooding under extreme condition. There is no flood level mapping of 1924 flood. Mapping of the flood prone areas is the primary step involved in planning, mitigation measures. Historical records give the indication flood in undulation areas, the period of occurrence and the extent of the areas the period of occurrence and the extent of coverage. It is better to reduce

population density in flood prone areas, where people already built their settlement measures should be taken to relocate them. No major development should be permitted in the areas which are subjected to high flooding. Important facilities should be built in areas. In urban areas, water holding structures such as ponds, lake or low lying areas should be constructed which can reduce the amount of free flowing water.

WEDO associated with CWRDM, Kozhikode in the flood level mapping of some Panchayats in Kozhikode district

Plate 6. Flood level marking by WEDO Secretary showing the water level during flood 2018

Demonstration plot on soil and water conservation

CWRDM in association with WEDO installed a demonstration plot of about 0.75 acres on soil and water conservation measures owned by the Deavagiri Monastery near Savio School, Near Calicut Medical College. Soil and water conservation techniques like trench, Coir geo-textile, mulching in coconut basin, coconut husk burial in coconut garden, silt pit and vegetative cover were demonstrated in the plot

Plate 7. Inaugural function of soil and water conservation demonstration plot in Savio High School, Devagiri, Kozhikode

Plate 8. Students participating in the inaugural function at Savio High School

Plate 9. Inauguration of the soil and water conservation demonstration plot by Father Chacko of Devagiri Monastery, Kozhikode

Plate 10. Board of the Demonstration plot

Plate 11. Soil conservation measure using coir geo-textile in the demonstration plot

Plate12. Mulching of young coconut palm for moisture conservation in the demonstration plot

Plate13. Husk burial in coconut basin in the demonstration plot

Pate14. Rectangular pit for ground water recharge in the demonstration plot

Plate 15. Silt pit for ground water recharge in the demonstration plot

Plate 16. Mulching of coconut basin using coconut husk in the demonstration plot

Plate17. Mulching in coconut basin using dry leaves in the demonstration plot