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Promoting Domestic Rain water Harvesting in Sri Lanka

Dr Tanuja Ariyananda, Director, Lanka Rain Water Harvesting Forum
tanuja@sltnet.lk, www.lankarainwater.org

Introduction

Sri Lanka has used rain water for both domestic and agricultural use for many centuries. Traditionally rain water is collected for domestic use from tree trunks using banana or coconut leafs or from roof tops into barrels, domestic containers and small brick tanks. In recent years there has been revival of rainwater harvesting and many research were conducted to improve the technology. In 1995 Community Water Supply and Sanitation project initiated from government of Sri Lanka with World Bank funds introduced rain water harvesting as one the water supply option in two districts Badulla and Matara in Sri Lanka. Since this technology has been promoted by both government and non-government organisation through out the country.

Lanka Rain Water Harvesting Forum network organisation linking the technologies with the stakeholders has been successful in promoting the concept as well as the technology to other parts of the country and other organisation both government and non-government.

Background of the Lanka Rain Water Harvesting Forum

Lanka Rainwater Harvesting Forum (LRWHF) formed by a small group in 1996, is a pioneer organization engaged in promoting the rainwater harvesting concept through demonstration projects, research & development, training and disseminating the technology of rainwater harvesting system to other potential stakeholders. It has taken the leading role in promoting the rainwater harvesting concept both in the rural and urban sector creating the necessary background to influence the policy makers, planners and other relevant authorities to include the rainwater harvesting system in macro level policy

Rain water policy In Sri Lanka.

As a result of influencing and lobbing carried out by LRWHF, in 2005 the Hon. Minister for Water Supply and Urban Development appointed a committee to formulate a National Policy in Rain Water Harvesting and Strategies. The draft policy was then invited for comments and suggestion for improvement to the public as well as government Ministries and other relevant authorities. . In June 2005, the government of Sri Lanka accepted the world's first National Policy on Rainwater Harvesting. The policy objective is aimed at encouraging communities to control water near its source by harvesting rain water. This results in, minimizing the use of treated water for secondary purposes, reduction of flooding, improving soil conservation and groundwater recharge, providing

water for domestic use with adequate treatment, agricultural benefits and reduce energy consumption.

This policy document, states the required legislative changes needed to amend the Urban Development Authority (UDA) and Road Development Authority (RDA) by laws on drainage and National Water Supply & Drainage Board (NWSDB) by-laws to incorporate harvesting rainwater as a source of domestic water. The regulation has been gazetted on the 17th April 2009, which makes rain water harvesting mandatory in certain categories of new buildings in areas under municipal and urban council jurisdiction.

Promotion of rain water harvesting

Lanka Rain water harvesting Forum promotes the concept and technology of rainwater harvesting through demonstration projects, awareness programs and media programs.

Demonstration projects

Demonstration projects have been constructed in all districts both in the wet and dry zone of the country in collaboration of local partners in schools, community centers, hospitals, training Institutes, places of worship and public & government buildings.

LRWHF works very closely with local partner organizations both government and non-government and community based organizations to carry out the pilot projects. The entire project cycle mainly emphasis on participatory approach and thereby strengthens the local community in planning, implementing, monitoring, operation and maintenance and linking them with external service organizations. Therefore at the end of the project each beneficiary becomes more independent in maintaining his or her own system.

As a result of the demonstration projects and capacity building of organizations and skilled masons more than 30,000 systems are in operation in the country today. LRWHF had direct inputs in form of demonstration, training and awareness creation to major water and sanitation project implemented by the government which positively promoted rain water harvesting as a water supply option. Recently, nearly 4000 household rainwater harvesting systems were constructed in tsunami effected areas of Southern and Eastern provinces.

Workshops and awareness programs

During the last 13 years of Forum's existence it has organised 10 national symposiums. The objectives of the symposiums were initially to gather research and experience in the country, then to share experience from the beneficiaries, to share experience of the organization implementing rain water harvesting projects and also to present finding from research work carried out by the Forum and other research Institutes. Number of workshop are also conducted to professional bodies such as Institute of Engineers, Institute of Architects, Institute of Builders and at Universities.

Awareness programs are also conducted to beneficiaries at village levels, government organizations, non- government organizations, schools, professionals, policy makers on benefits of rain water harvesting

Number of leaflets, brochures, models and posters are developed in all three languages used in the country and distributed to public. A video was developed titled "gift from the sky" presenting types of rain water harvesting practiced in 4 districts both wet zone and dry zone as well as urban areas in the country.

Media programs are conducted through paper publication in all 3 languages, TV programs and radio programs. A web site was created www.lankarainwater.org to disseminate the finding and to share experience of activities and research finding conducted by the Forum.

Forum participates in number networks organized by the Ministry of Water Supply and Drainage, National Water Supply and Drainage Board and Ministry of Urban Development.

Training programs

Training programs are conducted to government officials, Engineers, technicians and partner organizations on technical, social and economical aspects of rain water harvesting.
There are more than 400 masons throughout the country who were trained in planning, designing and constructing rain water harvesting system. Many of these trained masons are been used in construction of rainwater tanks in other part of the country in major projects.

Mason training curriculum and training manual as well as training videos has been developed.

Research and Development

Forum has conducted research on traditional rain water harvesting technology, low cost technology, water quality, social and economic aspects of rain water use , rain water users pattern (Ariyanbandu & Aheeyar, 2000)and rain water in water policy.

Research was conducted to codify and document traditional rain water harvesting techniques in the country (Ariyabandu, 1999).. Studies were conducted on low cost technologies for tanks, gutters, catchment surfaces, first flush devices and filters. Forum in collaboration with research Institutes was successful in designing and introducing number of low cost rain water harvesting tanks (Martinson D., *.etal* 2002)

Rain water user pattern and quality was surveyed to study use, perception and quality of collected rain water in the tanks (Ariyabandu, R. de S., *etal*, 1999; Ariyananda T, 2001a&b; Ariyananda, T., 2003)

Networking and information exchange

LRWHF has build up a strong national and international network among the beneficiaries, other implementing agencies, research Institutes, rain water harvesting associations, stakeholders, aiming to share experience and know how as well as act as a pressure group to influencing the policy changes.

At village levels rain water societies are formed to share experience, which are linked up with Resource Centers created in schools, temples, training centers and government offices. The community is also linked with the local government bodies such as National Water Supply and Drainage Board, Divisional and District Secretariats, District Health Authorities ect. for support, linkages and monitoring.

The national network, which has a membership of 62 comprise of professionals, practitioners, researchers and government and non government organization officials.

LRWHF is linked regionally with South Asian Rain Water Harvesting Network, which Sri Lanka is currently hosting the Secretariat. Two workshop were held to promote this network, the first in Sri Lanka in 2006 and last in Kathmandu in 2009.

LRWHF also linked with East Asia Rain Water Harvesting Association and the International Rain Water Catchments Systems Association (IRSCA). The Director of LRWHF is presently holding the post of president and was the formers General Secretary of IRCSA.

Conclusion and Recommendations

LRWHF has been successful in promoting rain water harvesting for domestic use in rural areas in the country. However, as with any new technological intervention, rain water harvesting too needs changes in the attitudes, perceptions and behavior of the community if the new technique is to be successful in terms of social, economic, cultural and environmental factors. Training and awareness are key factors to ensure quality construction, proper operation and maintenance, management of harvested water, and to change myths, attitudes and wrong perceptions of the concept of rainwater harvesting

High initial cost has been a prohibitive factor for many poor households in adopting rain water harvesting systems, though they are willing to collect rainwater for their household needs. Therefore, some supportive mechanisms such as loans and subsides can be effectively used to promote the technology among poor families. Use of subsides in the

past has shown positive results in introducing rain water harvesting systems among rural poor (Gould and Petersen, 1999).

Networking nationally and internationally to share experience, knowledge, technology and knowhow is important factor for mainstreaming rain water harvesting in the intergrading water resource managements in formation of policy in international, regional, and national forums.

References

Ariyabandu R.de S (1999). Development of Rainwater Harvesting for Domestic Water Use in Rural Sri Lanka. Asia-Pacific Journal of Rural Development, Vol. 9, July, Number 1.

Ariyanbandu R. De S. and Aheeyar M.M.M. (2000) Evaluation of the Effectiveness of Rain water as Domestic Water source in Rural Sri Lanka. *Lanka Rain Water Harvesting Forum*

Ariyabandu, R. de S., Ariyananda T. and Hapugoda D. 2000. Water Resources & Development of RWH in Sri Lanka. Waterline. Vol.No.3, January 2000.

Ariyananda. T. (2000a) Quality of Collected Rainwater from Sri Lanka, paper 26th WEDC conference, Bangladesh, Dhaka.

Ariyananda. T. (2000b) . Quality of Collected Rainwater in Relation to Household Water Security. Proceeding of workshop on Rain water harvesting, IIT Delhi, April 2001.

Ariyananda, T.N.,(2003). Health Risk Due to Drinking Domestic Roof Water Harvested. Paper submitted to XI IRCSA conference August 2003, Mexico.

Gould, J. and Petersen, E.N. (1999). Rainwater catchment systems for domestic supply: Design, construction and implementation. *Intermediate Technology Publications Ltd., London.*

Martinson D., Ranatunaga. N., and Gunaratna, A., (2002). Reducing Rain water Harvesting System Costs. 28th WEDC Conference, Kolkata (Culcutta), India.