



Issue 177 | Feb 6, 2015 | Focus on Rainwater Harvesting (RWH)

RWH involves the collection and storage of rainwater that can be used for domestic and other purposes. It is globally practiced in various forms as an alternative to unsafe or limited underground water resources. This issue contains links to a recent webinar series on RWH; a USAID–sponsored symposium with presentations on innovative RWH activities in Sri Lanka and other countries; and country reports from South Africa, Tanzania, Uganda, and other countries.

EVENTS

Rainwater Harvesting International Symposium, June 1–12, 2015 – Addis Ababa, Ethiopia. [Link](#)

The following topics will be addressed at the high level policy discussion: climate variability and change, the negative impact on smallholder farmers, and possible solutions; food security and the importance of RWH for rain-fed and irrigated small-scale agriculture; and WASH household water security through RWH. The objective of the writeshop is to bring together practitioners, academics, development specialists, decision makers, the private sector, and the research community in relevant fields of knowledge to develop resources on rainwater harvesting and resilience.

WEBINARS/BRIEFING NOTES

Rainwater Harvesting: Harvesting the Storm: Rainwater Harvesting Implementation Network–Rural Water Supply Network (RAIN–RWSN) Webinar Series 2014. [Link to videos](#)

This webinar series consists of seven videos: the story of introducing the Bob rainwater harvesting system in Uganda; an introduction to using really simple reporting for rainwater projects; rainwater harvesting and food security—iDE cases from Burkina Faso and Honduras; building momentum for rainwater harvesting; mainstreaming rainwater harvesting policy and practice—government perspectives from Uganda and Nepal; rainwater harvesting—experiences from around the world; and roof water harvesting—the basics.

Rainwater Harvesting: Harnessing the Storm. Briefing Note on the RAIN-RWSN Webinar Series, 2014. S Furey. [Link](#)

This four-page briefing note summarizes the key message from the RAIN-RWSN webinars of 2014, which included examples from Honduras, Brazil, Burkina Faso, Mali, Uganda, Somalia,

Madagascar, and Nepal.

RWH INNOVATIONS

Symposium on Mainstreaming Rainwater Harvesting as a Water Supply Option, 2014. USAID. [Link](#)

USAID and the International Water Management Institute organized this 11th symposium of the Lanka Rainwater Harvesting Forum in 2014, under the theme "Mainstreaming Rainwater Harvesting as a Water Supply Option" to provide an open platform to present RWH research and experience in Sri Lanka and other countries.

Enhanced Solar Disinfection of Harvested Rainwater (eSODIS), 2014. [Video](#)

The eSODIS Project in coastal Bangladesh is a recipient of the Stars in Global Health Phase I award. The project combines interventions in a novel way to minimize microbial growth during storage using sunlight as well as treating the water using a small "just-in time" solar-activated disinfection/dispensing module. This method might offer a low-cost way to treat water that is contaminated with arsenic and select pesticides, both challenges that affect millions more in the developing world.

RainSaucers™ Debuts Prototype "Two Dollar Tank" Rainwater Collector for Developing Countries. *PRLog*, Feb 2014. [Link](#)

RainSaucers™ Inc., a manufacturer of stand-alone rainwater catchment systems, developed a prototype of its Two Dollar Tank rainwater collector. Made from heavy duty corrugated cardboard wrapped in a food-safe polyethylene liner, the 144-liter tank comes with its own 40 inch RainSaucer,™ allowing for collection from either rooftops or as a stand-alone.

Honduras – Pedalling Rainwater for Better Harvests. *Rainwater for Food Security*, Jan 2015. [Link](#)

Under the leadership of Rain4Food Ambassador Carlos Urmeneta and financing from the Rainwater for Food Security Program, iDE technicians Roque Almendares and Nestor Rivera implemented a 23m³ rooftop rainwater tank in the community of Los Colorados, Choluteca, in September 2014.

Treatment of Roof-Harvested Rainwater Using Metal (Hydr)oxide-Coated Sand Filter, n.d. V Meera. [Link](#)

This study showed the potential of a sand filter coated with iron (hydr)oxide and manganese oxide as filtration/adsorption media for use in low-cost household water filters for purification of roof-harvested rainwater.

REPORTS/ARTICLES

The Limitations of Roofwater Harvesting in Developing Countries. *Waterlines*, May 2014. T Thomas. [Abstract/order info](#)

Domestic roof water harvesting (DRWH) is a promising alternative self-supply technology supported by many agencies and associations. However, adoption of DRWH has been limited due to the six constraints discussed in this article: inadequacy of annual roof run-off volume; excessive cost; difficulty of water management; uncertain water quality; poor installation/maintenance/longevity; and ugliness. While these constraints rule out DRWH becoming a universal first choice for less economically developed countries' domestic water supply, there are many specific scenarios where it outperforms, or is cheaper than, the

alternatives. This paper identifies some of these scenarios and also how the constraints can be minimized by prudent application and ongoing research and development.

Small Doable Actions for Improving Household Water, Sanitation, and Hygiene Practices, 2014. WASHplus. [Link](#)

These job aids for village health teams provide guidance on constructing and maintaining rainwater catchments and other water and sanitation technologies.

Roof-Top Rainwater Harvesting Best Practices Guide, 2013. USAID. [Link](#)

The main objective of this guide is to provide organizations implementing rooftop RWH programming with a reference tool for best practices. When such best practices are followed, rooftop RWH not only adds new sources of water, but it can also improve communities' water management capacity and resilience to disasters.

How to Make Water Wise Roads, 2014. F. Steenbergen. [Link](#)

This note serves as guideline on how to combine road development and water harvesting. The investment in roads in almost any country far exceeds that of local water management or watershed protection. Hence roads offer one of the largest opportunities to secure local water supplies, if done wisely and in an integrated way.

Roads for Water: The Unused Potential, 2014. *Waterlines*, Apr 2014. D Garcia-Landarte Puertas. [Link](#)

Roads are generally perceived as infrastructure to deliver transport services, but they are more than that. They are major interventions in the hydrology of areas where they are constructed—concentrating runoff and altering subsurface flows. With 5.5 million kilometers of roads in sub-Saharan Africa alone, and road building continuing to be one of the largest public investments, the potential of roads for water harvesting is great.

Reducing Occurrence of Giardia Duodenalis in Children Living in Semiarid Regions: Impact of a Large Scale Rainwater Harvesting Initiative. *PLoS Neg Trop Dis*, June 2014. J Evangelista Fonseca. [Link](#)

Ownership of a rainwater cistern is associated with a lower prevalence of *G. duodenalis* infection in children after adjustment for environmental and family-related factors. Nevertheless, the study suggests the necessity to complement physical interventions with actions related to personal and domestic hygiene to enable further reductions in parasite infections affecting mainly underprivileged populations.

COUNTRY REPORTS

The Farm Pond: USAID Brings Rainwater Harvesting to Makueni County, Kenya, 2014. USAID/Kenya. [Link](#)

USAID is partnering with Fintrac Inc. and the Kenya Rainwater Association to help farmers in Eastern Kenya conserve and harvest rainwater, a good agricultural practice that will improve productivity and build farmers' ability to cope with drought and erratic rainfall. This short documentary examines the impact of the Farm Pond, a rainwater technology that has allowed farmers in Makueni County to diversify production and produce crops year-round.

Determinants of Rainwater Harvesting Technology (RWHT) Adoption for Home Gardening in Msinga, KwaZulu-Natal, South Africa. *Water SA*, Jan 2015. L Baiyegunhi. [Link](#)

Home gardening is extremely important for resource-poor households that have limited access to production inputs. However, in South Africa attempts to implement home garden programs often fail to improve food security of the poor due to water scarcity. RWH technology has been used to supplement the conventional water supply systems, but its potential has not been fully exploited. An understanding of the factors influencing the adoption of improved technologies is therefore critical to successful implementation of agricultural development programs. This study evaluates determinants of farmers' decisions to adopt RWH technology in rural Msinga.

Trinidad & Tobago: Environmental Solutions: Rainwater Harvesting, 2015.

Environmental Solutions for Sustainable Communities Project. [Video](#)

On November 24 and 25, 2014, the communities of Guaico, Biche, and Lopinot unveiled the first RWH systems built by their own residents as part of the National Institute of Higher Education, Research, Science and Technology's Environmental Solutions for Sustainable Communities project. Since 2011, this initiative has promoted sustainable living in communities by facilitating the installation of rainwater harvesters in rural water-scarce communities. The rainwater harvesters are based on a model developed by the Global Water Partnership-Caribbean, with the support of the Caribbean Environmental Health Institute.

Harvesting Systems and Multiple Water Sources: A Case Study from Nicaragua.

Water & Health Conference, 2014. D Smith. [Presentation](#)

The purpose of this study was to generate empirical data to describe how rooftop RWH performs in practice while accounting for all additional water sources households use for domestic supply. The study determined that rooftop RWH systems: are residents' preferred water source when available; will provide the most water of any source type annually; and provide significant accessibility benefits, quantified as saving 1.5 km/household/day for water collection.

Rainwater Harvesting Using Ferro Cement Tanks as an Appropriate and Affordable Technology for Small Rural Institutions in Tanzania, 2014. *Intl Jnl Struc Civ Eng*, Feb 2014. J Kihila. [Link](#)

For small institutions where the water needs can be obtained from RWH, a ferro cement storage tank is the optimal technology in terms of the cost of installation, ease of construction, and durability. However, its implementation must be accompanied by a suitable catchment area and a properly installed and maintained collection system to minimize water quality deterioration.

Assessment of Rainwater Harvesting as a Supplement to Domestic Water Supply: Case Study in Kotei-Ghana. *International Research Journal of Public and Env Hlth*, Aug 2014. E Awuah. [Link](#)

This study shows that, with the exception of microbial indicators, all others physico-chemical water quality indicators could pass for safe consumption of harvested rainwater. Therefore, rainwater could be harvested to supplement the water needs of residents of Kotei with respect to bathing and washing. In view of the above, it is being recommended that RWH from Kotei could be used for domestic duties other than personal consumption and supplement pipe-borne water distributed in the community.

Trace Metal and Nutrient Constitution of Rain Water and Sediment/Sludge Harvested in Various Storage Tanks from Galvanized Iron Roof Tops in Kampala City, Uganda. *Carib. j. SciTech*, (3) 2015. A Asiima. [Link](#)

In this study, rainwater and sediment/sludge samples were harvested from various storage tanks including concrete, metallic, and plastic tanks whose roofs are made of galvanized iron sheets. The high levels of trace metals, nutrients, and other physico-chemical parameters obtained in this study may result in consumer complaints. This is because some of the parameters are not only liable to impact the taste of the rainwater but are also carcinogenic.

WEBSITES

Akvopedia Rainwater Harvesting - [Website](#)

This website provides an overview and resources on RWH, including tools, technologies, innovations, field studies, and a link to further resources on the topic.

International Rainwater Harvesting Alliance IRHA - [Website](#) | [LinkedIn](#)

IRHA was created in Geneva in November 2002 following recommendations formulated during the World Summit for Sustainable Development in Johannesburg two months earlier. The mandate called for federation and unification of the disparate RWH movement around the world, to promote rainwater as a valuable water resource, and to build on achievements in this field to fulfill the Millennium Development Goals.

Rural Water Supply Network (RWSN) - [Website](#)

RWSN is the global network of professionals and practitioners working to raise standards of knowledge and evidence, technical and professional competence, practice and policy in rural water supply and so fulfill the vision of sustainable rural water services for all.

WASHplus Weeklies highlight topics such as Urban WASH, Household Air Pollution, Innovation, Household Water Treatment and Storage, Hand Washing, Integration, and more. If you would like to feature your organization's materials in upcoming issues, please send them to Dan Campbell, WASHplus Knowledge Resources Specialist, at dacampbell@fhi360.org.



About WASHplus - WASHplus, a five-year project funded through USAID's Bureau for Global Health, supports healthy households and communities by creating and delivering interventions that lead to improvements in access, practice and health outcomes related to water, sanitation, hygiene (WASH) and household air pollution (HAP). WASHplus uses at-scale, targeted as well as integrated approaches to reduce diarrheal diseases and acute respiratory infections, the two top killers of children under five years of age globally. For information, visit www.washplus.org or email: contact@washplus.org.