

Permaculture Network In Malawi

Issue # 43

Newsletter February-April 03

In Loving Memory...

Brian Walker

It is with deepest regret that we inform the members of the Permaculture Network In Malawi of the death of Brian Walker. Brian was the husband of June Walker and a true environmentalist. His love for nature was apparent to all that met him. He embodied all that Permaculture stands for: an appreciation for the cycles of life and of all living creatures who are a part of it.

As Brian has entered the next phase of this cycle, it is comforting remember that the beginning and the end of a circle share the same point.

Our thoughts and sympathy are extended to the Walker family.

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What Did You Do With Your Water ?

As we approach the end of this year's rainy season, it provides us with an opportunity to reflect on what we did with our water. Once again, we have seen massive destruction throughout the country caused by flooding. Bridges were washed away, crops were lost, roads and buildings were ruined, and we are still suffering from water and electricity shortages due to major infrastructure damage.

Why are we allowing our water to run away? Many of the problems that we are seeing are due to excessive runoff of rainwater. Modern agriculture has taught us to monocrop as much food as we can grow during the three or four months of rainy season, then clear the land bare of all vegetation and wait until the next rains. This means that when the rain starts next year, there is no protection left for the soil. All the root systems and organic matter that could have helped that water sink into the soil are gone.

Is this a problem that can be solved? Permaculture says, "YES!" Permaculture encourages us to work with every season of the year. We should never leave the soil bare and unprotected, this is working against nature. By using plants that will grow and mature at different times of the year, we not only protect our soil,



but also improve our food security. The incorporation of perennial plants (*plants which last throughout the year or for many years*), such as tree crops, can greatly help to reduce the risk of runoff.

Rainwater harvesting is another way to help ensure that all the water that falls on your land is kept there. Remember the four "S's" of good water management: Stop, Spread, Sink, and Shade. In this edition of the newsletter we will look at some of these harvesting practices, as well as what can be done with water during the dry season.

If we all start to protect our land and minimize runoff, we can greatly reduce the amount of damage that we are seeing around the country. This means that the money that the government spends on repairs could be put into things that really matter like schools, hospitals, and other services. 🌱

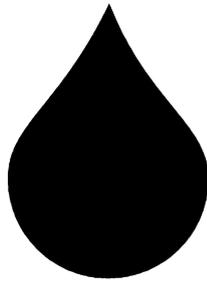
Rainwater Harvesting (Adapted from the website: <http://www.lifewater.ca/rain.htm>)

What is rainwater harvesting?

Rainwater harvesting is the collection of raindrops. In most cases, a roof is used for this purpose. The rainwater then flows through the gutters, into a collection tank. The size of the tank is dependant of the amount and purpose of the water but also of the annual rainfall and the size of the roof. *A normal sized tank for a roof of 20 to 40 square metres is 10 cubic metres.* The collected water can be used for small scale irrigation (of vegetable gardens etc.), clothes washing, bathing and after treatment also for drinking and food preparation.

Where is Rainwater Harvesting used?

Everywhere! Especially where no piped water supply is available, a dug well is not applicable (e.g. when there is no suitable aquifer) or when *gray* water is needed because potable (treated) water is too expensive, rainwater harvesting can be a good solution. Sometimes a river or stream is not close at hand or the soil is not deep enough to sink a well. In these cases rainwater harvesting can be the only way to provide water for domestic purposes. Rainwater harvesting is also used in addition to existing water supplies; think of the rainwater-barrel next to every old house in North-Western Europe!



Why use Rainwater Harvesting when you also can choose for a well or pipelines?

Very often the main objective of an aid-project is to 'improve health conditions through providing clean water'. A well can provide enough water for up to 250 people and would be a good water-supply for a small community. However, when families are scattered across the land and a dirty puddle or stream is nearer, those families might not use the clean well around the whole year. In these cases a personal supply system would be preferred. Within dense communities like (sub-) urban areas, a piped water supply system is usually the best option. In small, poor and scattered communities in the rural area, a piped system is much too expensive and maintenance could be a huge problem. Conclusive you can say that when pipelines are too expensive and one central well or pump would not be used all around the year, a 'personal' rainwater catchment system can be a very good solution.

The advantages of rainwater harvesting

- Rainwater harvesting systems are integrated with the house which makes the water easily accessible.

- Rainwater harvesting systems are personal which prevents arguments about who should take care of maintenance.
- Installation costs are low; roughly some 250 US\$ per system including a slow sand filter while sustainability of the construction is larger than that of a pump or well.
- The required skills are present in ANY community which makes adaptation easy.
- The used materials can be kept simple, are obtainable nearly everywhere at local (low) cost price.
- The construction is easy and cheap in maintenance.

Required materials

- Rain. And really lots of it, throughout the year, favorably some two metres of it!
- A catchment area, usually a roof of 20 square metres or above is sufficient.
- Roof-gutters, those can consist of bent metal sheets or even large split bamboo 'tubes' (the gutters should have a large enough capacity to prevent overflow during rainfall).
- Pipelines or gutters (bamboo, PVC, etc.) that lead from the roof-gutters to the storage tank.
- A storage tank; because of the size (between 5.000 and 12.000 litres) a concrete, a ferrocement or a bamboo-cement structure is recommendable for reliability and sturdiness. Do mind that a man-hole should be present for inside-cleaning purposes. The tank can be built both super- or sub-surface but consider that the outlet is situated at the bottom and must remain accessible.
- A vessel or a piece of garden-hose can be used to transport water from the storage tank to the slow sand filter.

For the slow sand filter you need:

- a clean empty oil drum with a lid (or equivalent) some 500 litres large,
- clean (river) sand in different, separate granulities, ranging from medium coarse (2-4 mm) to very fine (20-100 um),
- partially perforated tubing (garden hose),
- a tap,
- three clean stones of appr. 15 cm diameter and a flat stone or tile of some 30 cm across.
- everything else depends on time, handi-craft and enthusiasm. 🌍

From the Members...Justine Treadwell

Justine is a U.S. Peace Corps Volunteer who is living and working in the Nankumba peninsula area of Mangochi District. This is an excerpt from a paper that she has written depicting her experiences.



nonetheless distressing—no matter that, in exchange for being an “orphan”, free food is offered by foreign donors.

My counterpart Joseph, and I work with Village AIDS Committees (VACs) in nine villages of the peninsula. Most VAC members are women concerned about, and most often caring for, orphans and home-based care patients. In response to their needs, Joseph and I teach everything from sexual and reproductive health to nutrition and sustainable agriculture to IGA (income-generating activity) start-up and management—anything that will empower them to take better care of themselves, the environment upon which they are reliant, and those who rely upon them.

Joseph is a quiet man, but a born leader because he leads not so much by talking as by example. Although in addition to his own three children he cares for four orphans—the young children of sisters who passed away several years ago—he steadfastly refuses to register them as orphans with the Village AIDS Committee, even though they would be eligible for food assistance. He insists that they should never know that they are not his real children, because then they would be subject to the stigmatization that many orphans feel. Until only a few years ago, it was almost unheard of, in Malawi’s family-centered society, for a child to be referred to as an orphan. But now, because most families are deeply burdened by so many new members, children of deceased relatives are commonly referred to as *ana amasiye*, or literally “children who have no one.” Never are these words meant to harm; but they are

Instead of relying on donors for temporary sustenance, Joseph strives to meet the needs of his family by using techniques of sustainable agriculture and Permaculture that we have learned at various workshops. At his house he has planted numerous fruit and medicinal trees; in his garden he has planted nitrogen-fixing trees to help the soil maintain its natural health. He no longer buys hybridized seed but instead uses local seed, which is naturally suited for this environment; he no longer buys chemical fertilizers but instead makes healthy, home-made fertilizer by turning available organic matter into compost. A better understanding of the importance of diversity in the human diet *and* in the environment has prompted him to intercrop over fifteen kinds of foods in his garden this year, whereas last year he planted only maize. He has taken heart in the prospects of real independence that these systems offer, and spends many hours a week teaching others—mostly women who are dependent not only on donors but on *their husbands*—to do the same. Surely, this is an example of “development” at its finest; one born-and-bred community member, having discovered some vital knowledge, taking the time—in spite of personal hardship—to share it with his community.

I am immensely, joyously inspired by Joseph’s dedication, humility, and self-respect. He is the greatest gift that Malawi has given me. 🌍

Did you know?

In some organisms, (like jellyfish!) up to **90** percent of their body weight comes from water.

Up to **70** percent of the human body is water.

The brain is composed of **70** percent water!

Blood is **82** percent water.

The lungs are nearly **90** percent water.

The Secret of Permaculture...Go Konko! By Leo Kuwani

Go Konko! What is the secret of Permaculture? Permaculture is not a new concept or system in farming or growing crops wherever we live. The places where to practice it might be in our gardens, dimba, around our homes, verandas, homesteads, in the rural and urban areas. This system or practice is working with nature and not against it. That is, one has to study and observe how nature is working and performing its useful functions.



Nature never monocrops

Nature does not sweep, it dresses itself...and it never monocrops. It accommodates all elements. Permaculture layout, patterns, designs, and systems were long ago practiced by our

grandparents. I am sure you can agree with me if I say that some of you might have seen the grandparents planting different crops (not monocropping) and growing crops around their houses and khondes. I have witnessed pumpkins, granadillas, tomatoes, potatoes, eggplants, and okra just to name a few.

Even to the extent that some of the crops were climbing on top of their buildings. I remember being told to climb on top of the house to harvest pumpkins when we needed them for food. We enjoyed it, for this was sustainable and we had no hunger at all. The used water for washing pots and plates was used to water the plants growing around the house. So we can see how clever our parents were. They didn't know that they were

harvesting water and using every drop of water that was available. This is wonderful indeed. Why waste water?

If we can go back in time, our ancestors grew certain crops (including fruits) by just spreading the seeds that they had from the last food. The crops did well and they got enough to feed themselves. They also kept some docile animals for their use. They didn't know that they were saving energy and using the available resources. Why waste seeds, energy, and resources?

The secret of Permaculture is that once a person has learned how to practice doing it, they are unlikely to stop. It is a happy simple hobby in which one harvests the fruits continuously.🌍

A Sustainable Thandala?

A Problem

Here's a dry season idea that can help to make the most of your waste water. Many people have a *thandala* (drying rack) in their yards. These racks, however, are usually set on wooden poles (that used to be a tree) and placed over bare ground where nothing grows. These

poles may last a season or two and then the termites get to them and more trees need to be cut for replacements.

A solution

Try planting four papaya trees in a square about a meter apart from each other. After one season these trees should have grown tall enough that you can fasten

your drying rack to the trees with sisal or string. As these trees grow taller each year, you can simply move the rack as needed. The water that drips off your dishes will feed the trees, and the trees will feed you. Best of all you won't have to cut down trees each year to make repairs. In fact, you will have added four new ones to the world!🌍

Purifying Water with the Sun

Drinking water that is not clean often leads to diarrhoea and other water-borne diseases. Each household should therefore try to purify enough water for drinking and cooking. One way of making sure water is pure is to boil it. But fuel may be hard for families to find.

In Malawi there is plenty of sun, and the sun can be used to kill disease-causing organisms. This method is very popular because it is cheap, simple, and requires little work. Research has shown that if used correctly, the treated water is as clean as boiled water. The process is called solar disinfection (SODIS).

This method requires:

- * Clear plastic bottles of approximately 1.5 litres (those used for bottled water are ideal)
- * Water that is not too cloudy
- * Sun!

It is important not to use glass bottles, as they do not allow enough sunlight into the water. Plastic bottles have very thin walls which allow the sunlight to reach the water. Cloudy water should be left to settle before use and filtered through a cloth or sand filter if still cloudy.

Fill a clean plastic bottle about three quarters full with clear water, put the top on and shake it vigorously for about 20 seconds. This ensures that there is plenty of air in the water, which reacts with the sunlight to help the purification process. Then fill the bottle to

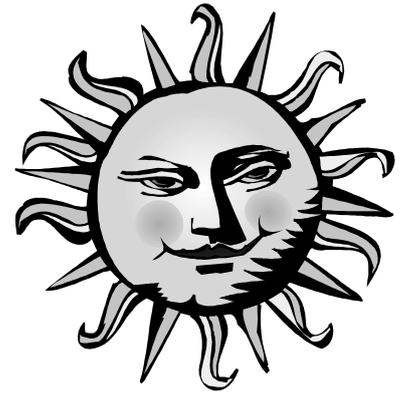
the top with more clear water and place it on its side where it will receive direct sunshine for several hours and where wind will not cool the bottle.

Leave the bottles in the sun for at least 6 hours, where they should become hot to touch. Then take the bottles inside to cool and be ready for use. If the weather is cloudy, bottles should be left for up to 2 days, according to the amount of clouds. SODIS is simple to use and does not change the taste of the water. Nothing needs to be measured, and the water can be kept in the same bottle before drinking, reducing the risk of contamination during storage.

To increase the water temperature (which can be very useful during the rainy season or in colder climates,) one side of the bottle can be painted black. The painted side is placed underneath and helps the water temperature to rise more quickly.

Bottled water is very popular in Malawi, especially in hotels and supermarkets. Most of these bottles get thrown into the trash and burned. Link up with local hotels and ask them if you can clean and re-use their empty bottles to make purified water from the sun. ☺

This article was adapted from 'Footsteps' no. 51 June 2002. To receive 'Footsteps' write, giving brief details of your work and stating preferred language to: Footsteps Mailing List, PO Box 200, Bridgnorth, Shropshire, WV16 4WQ, UK. E-mail judy.mondon@tearfund.org



AquaPaks

...created by Solar Solutions, A company who has created their business around solar water purification.

Solar Solutions has been developing simple and effective solar water purifiers for six years, specifically for refugees and rural people in sub-tropical developing countries. Over 130 years ago, Louis Pasteur discovered that all dangerous water-borne pathogens (bacteria, virus, and parasites) that can cause human illness could be killed at about 55 degrees Celsius or higher. The AquaPak is an inexpensive way to utilize this time-proven process. It is designed to use only sunlight and will heat 2-4 litres of water to a temperature in excess of 67 degrees Celsius, thus eliminating all known human pathogens from contaminated water.

AquaPak is currently being tested in Malawi by UNICEF, Water & Sanitation Section, PO Box 30375, City Centre, LL3 01-770-770 / 788

For more information you can also visit the website:
www.solarsolutions.info

Send newsletter articles to:

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PO Box 208, Lilongwe, Malawi

Or via e-mail at nordin@eomw.net

To:

*Remember to use the
four "S's" of
Permaculture Water
Management*

**STOP
SPREAD
SINK
SHADE**

*Next Issue:
Training Ideas*

Resources

- ◆ **Tiyeni Tigonjetsz Kolera m'Malawi** – pamphlets that educate about cholera prevention and early treatment. Available from the Health Education Unit, Ministry of Health & Population, PO Box 30377, Capital City, Lilongwe 3. Their offices are located in Area 2 next to the National AIDS Commission and Bottom Hospital.
- ◆ **Dirty Water** – a 'CHILD-to-Child Readers' book targeting African children to educate about water health. CHILD-to-child is an International programme which teaches and encourages children of school age to concern themselves with the health, welfare and general development of their younger pre-school brothers and sisters and of other younger children in their community. The book was published with assistance from Swedish International Development Authority (SIDA). Write to Longman Group UK Ltd., Longman House, Burnt Mill, Harlow, Essex CM20 2JE, England.

Renew your membership for 2003!

Thank you to those who have sent in your renewal fees for 2003! Attached is the list of member, please check your contact information. If the column '03' is blank, then you need to renew!



**Permaculture Network
In Malawi**

PO Box 208, Lilongwe

*"See the world through the
eyes of Permaculture"*

Membership Form

Send fees in the form of a money order, check or as postage stamps to: PO Box 208, Lilongwe
Annual Fees: Individual 400 mk / Organizations 1,000 mk / CBOs what you can afford

Name _____
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