

Week 3

Over 150 countries have permaculture people.

Obtain a Yield: you can't work on an empty stomach. And there's such a thing as enough! What we do with the surplus makes a difference, and creates future possibilities.

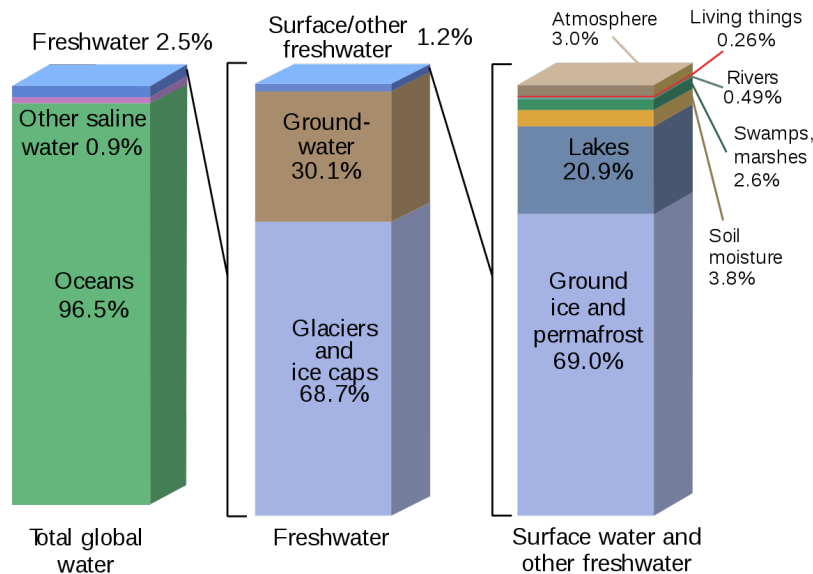
We need short, medium and long term yields.

Water is always needed, catch it and hold it. Catch it as high in the landscape as you can, it can do more. Ideally we should use whole landscapes.

Since the 1940s farmers in Wales have received grants to install land drains. The results have been floods downstream. They're now paying farmers to fill drains in.

[insert table from Southwick C H, "renewal times of all water in basic storages", alternative found]

Where is Earth's Water?



From https://en.wikipedia.org/wiki/Water_distribution_on_Earth

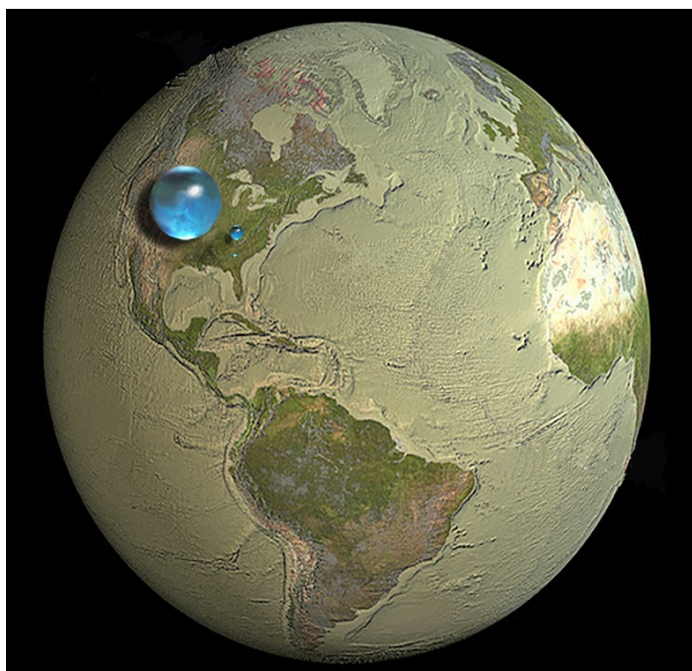
Of freshwater – ice is 75%, groundwater over 800m deep 13.5%, groundwater under 800m deep 11%, lakes 0.3%, soils 0.06%, atmosphere 0.035%, rivers 0.03%.

Big blue globe – all water

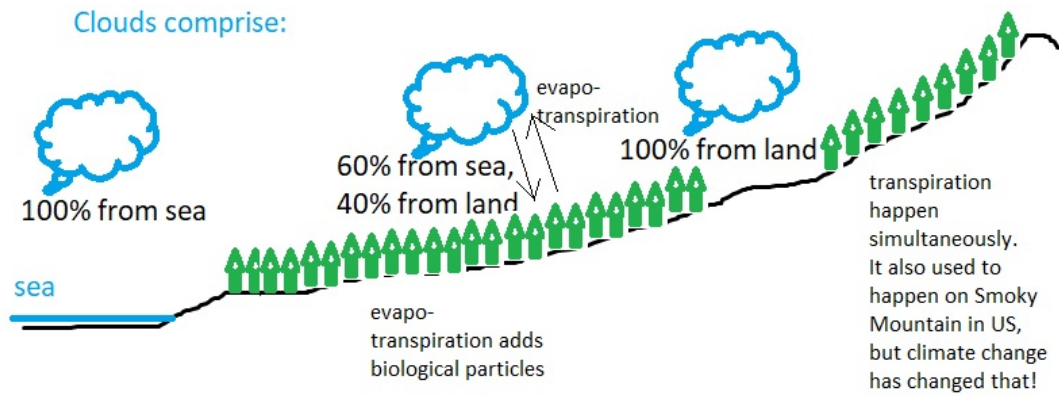
Smaller blue – fresh liquid water

Tiny blue – water in lakes and rivers.

From <https://water.usgs.gov/edu/earthhowmuch.html>



3" of mulch can hold 1" of water.



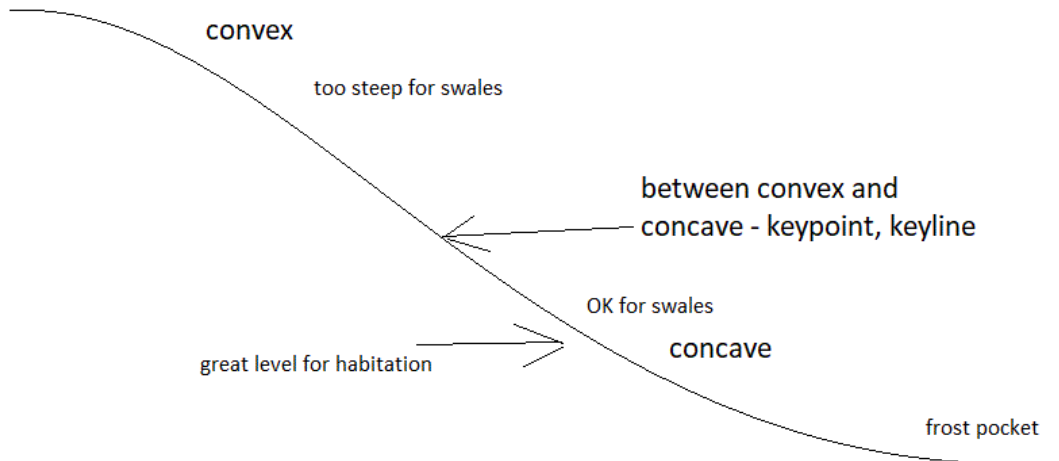
Dave Jacke coined "the Wood Wide Web"

We need to prepare for drought and deluge.

There are terraced hills in Vietnam, 2000 years old; similarly grapevines in the Douro Valley, Portugal.

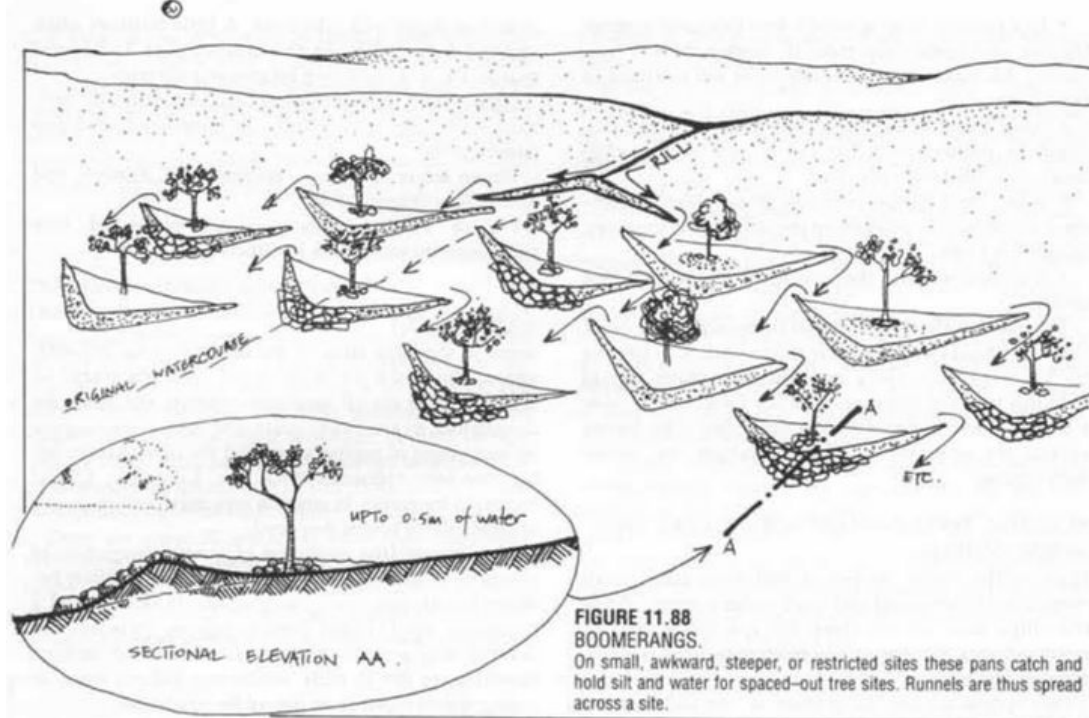
(Google mollison "trees in a whole system" pulls in a lot of interesting pics)

A hillside:

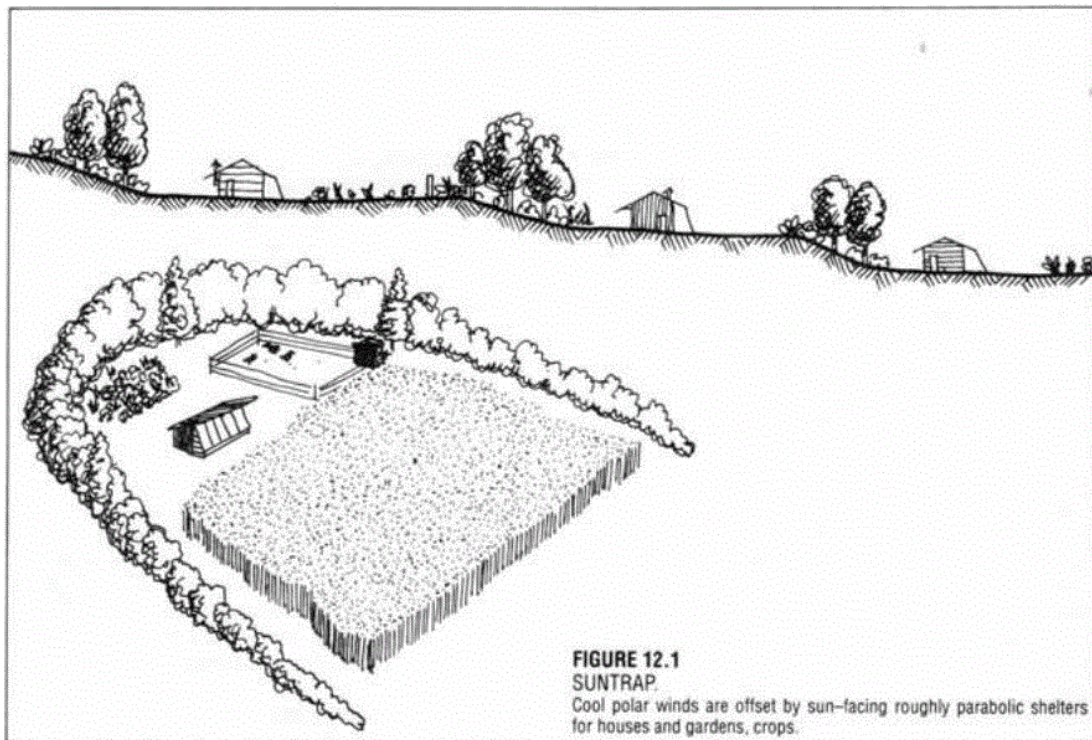


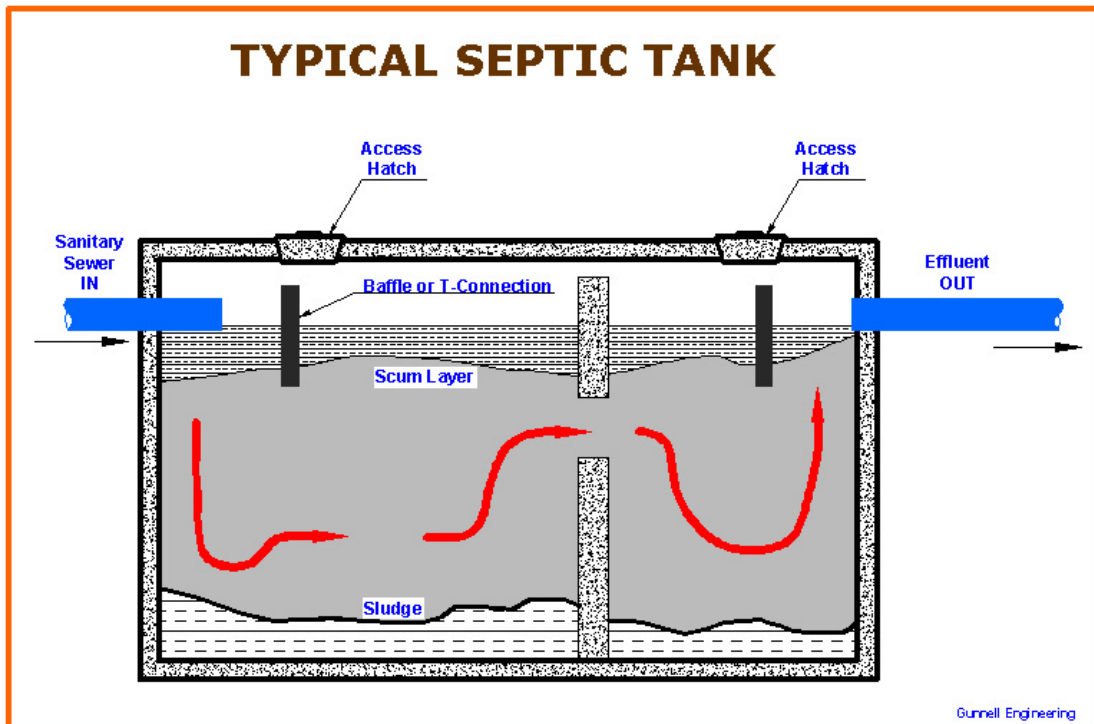
Water flows at right angles to the contours.

For steeper areas:

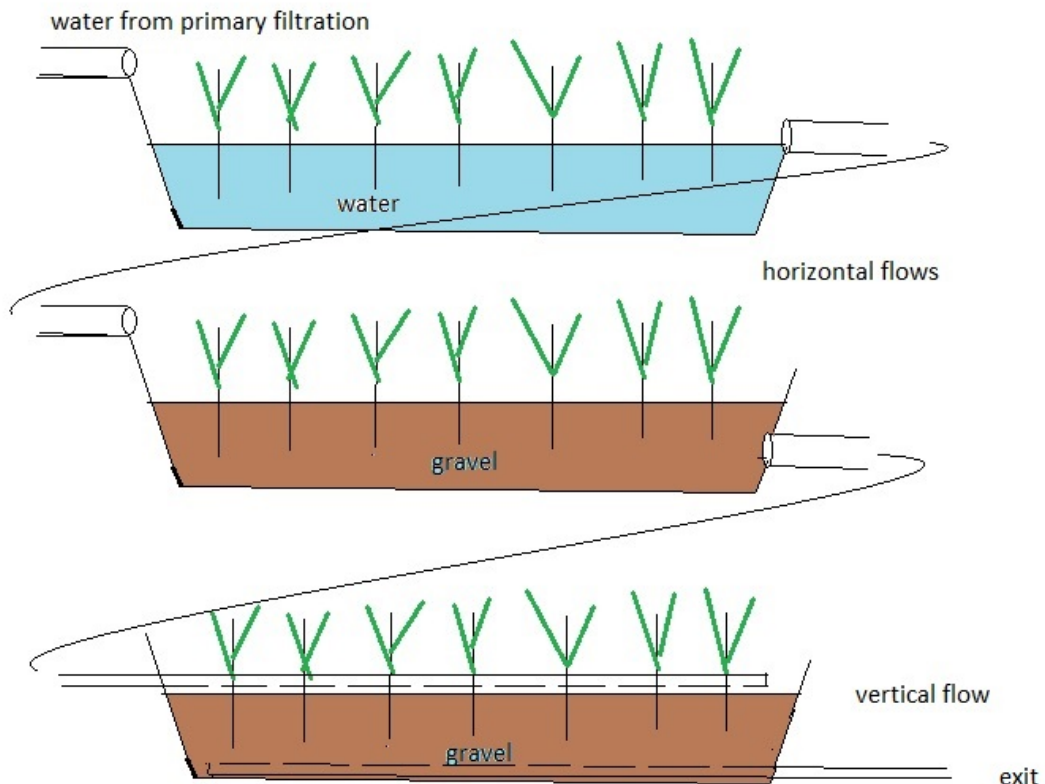


Suntraps:





There are other designs, but this shows the principle of using baffles to slow things down. Biological processes work on the organic matter to make sludge.



There are various designs and arrangements for reedbeds. In the US there's a rooftop reedbed, which uses filtered rainfall in the cooling system and returns water vapour to air. In Permaculture, something that has just one purpose is not good. It should have 3. Some have been known to count 10.

Use of fungi – check out TED talks by Paul Stamets, mycologist.
He's written "A Novel Approach to Farm Waste Management"

<http://www.fungi.com/blog/items/a-novel-approach-to-farm-waste-management.html>

Oyster mushroom is a primary saprophyte, will grow on straw etc. There are more difficult fungi to grow, secondary and tertiary saprophytes.

By growing oyster mushrooms on a mixture of substrates and removing one at a time, he's trained them to grow in something as improbable as gear box oil.

<http://www.fungi.com/blog/items/the-petroleum-problem.html>

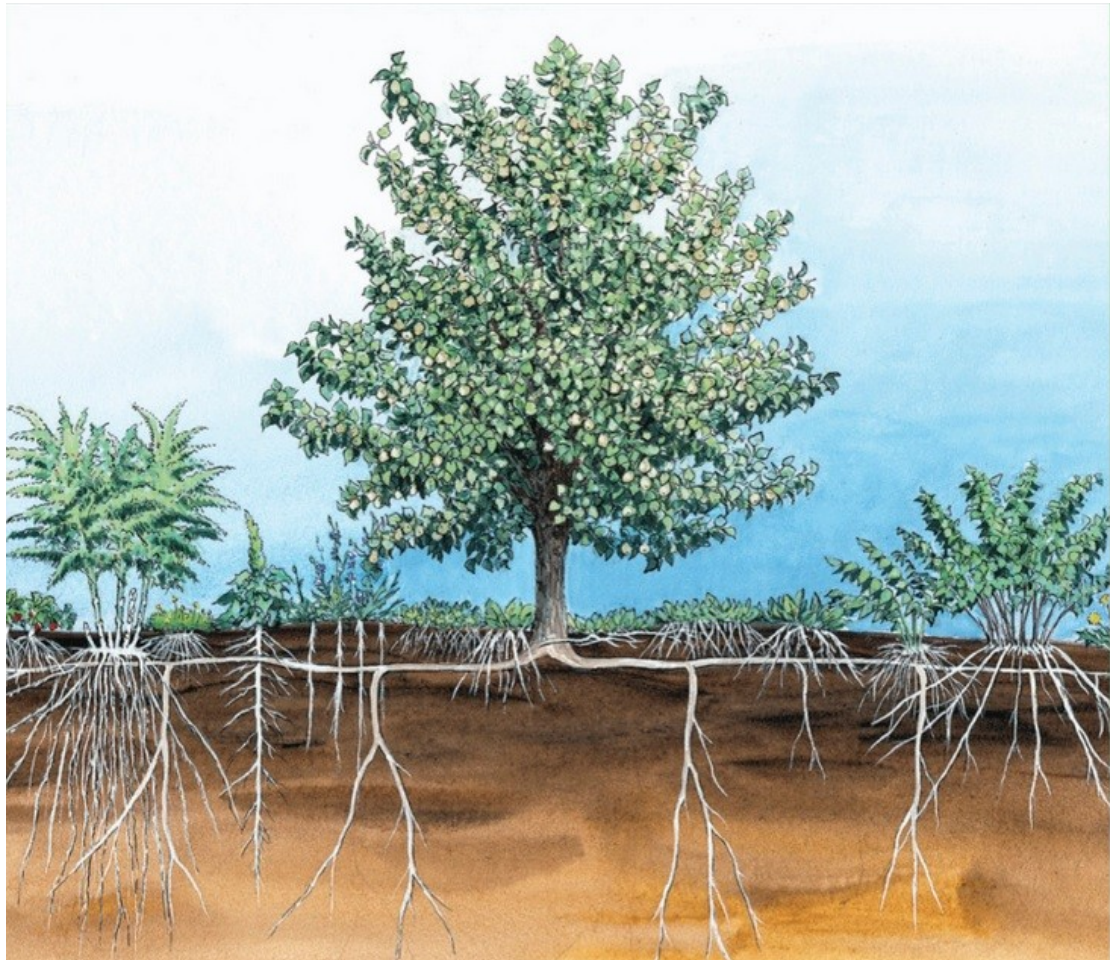
Tree Guilds

Grass competes with trees, especially young ones. Grass favours bacteria in soil, trees fungi. So mulch out grass, and plant other perennials (and annuals). They can have different growing times and occupy different places above and below ground.

Trees and grass have shallow roots.

Asparagus and comfrey have deep roots, bringing nutrients up. A tight ground cover excludes grass.

<https://permacultureapprentice.com/creating-a-food-forest-step-by-step-guide/>

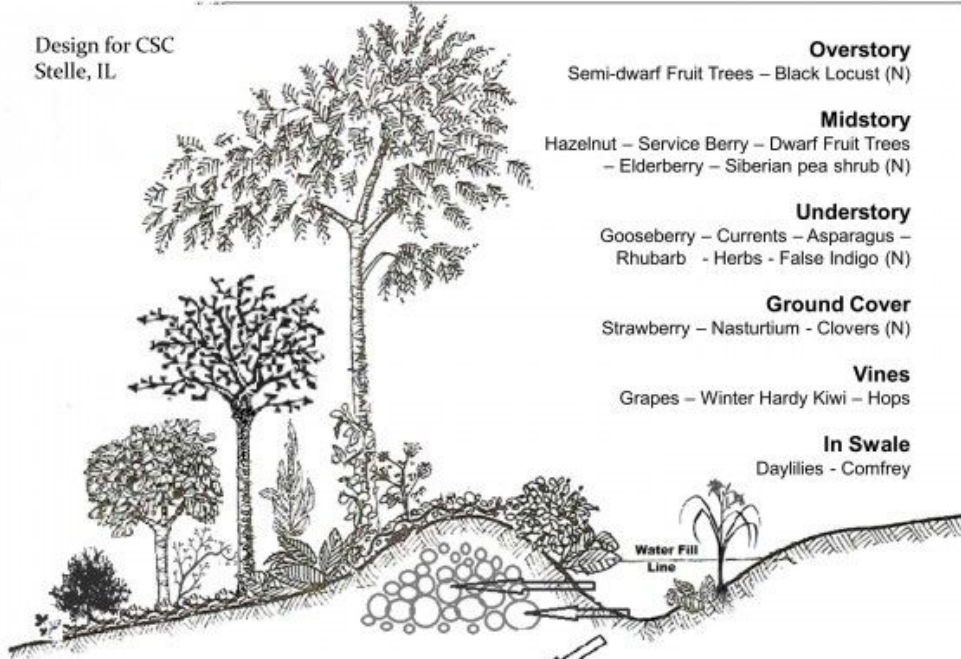


from <https://heartwoodhomesteads.wordpress.com/tag/dave-jacke/>

Dave Jacke's 2 volume book.

Trees can stabilise a berm, the downslope heap of a swale. Woody cut-offs can add erosion protection.

Design for CSC
Stelle, IL



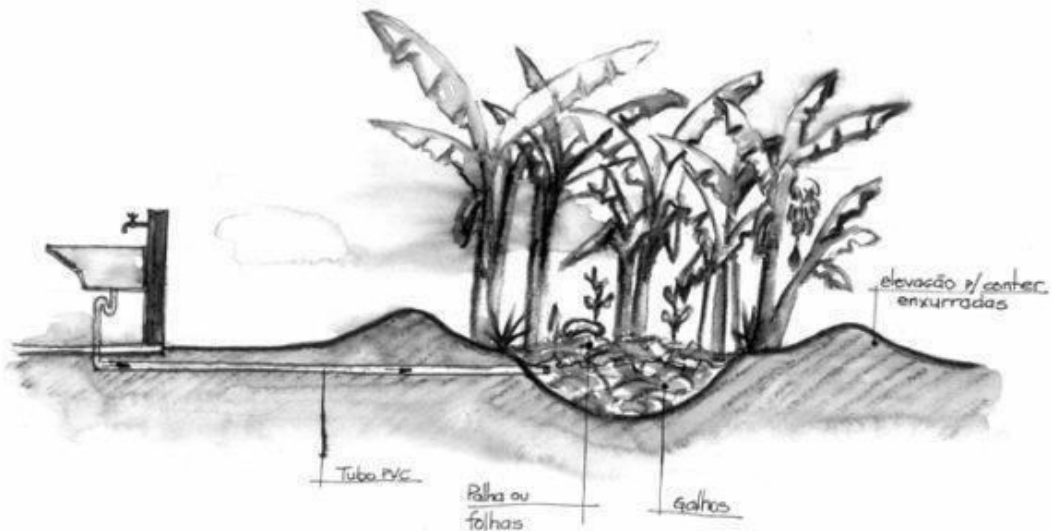
Hugelkultured Swale & Linear Food Forest

Perennial trees and plants located along the entire downhill side of the hugelkultured swales

Based on an Illustration from *Introduction to Permaculture* by Bill Mollison

Modified by Bill Wilson of Midwest Permaculture

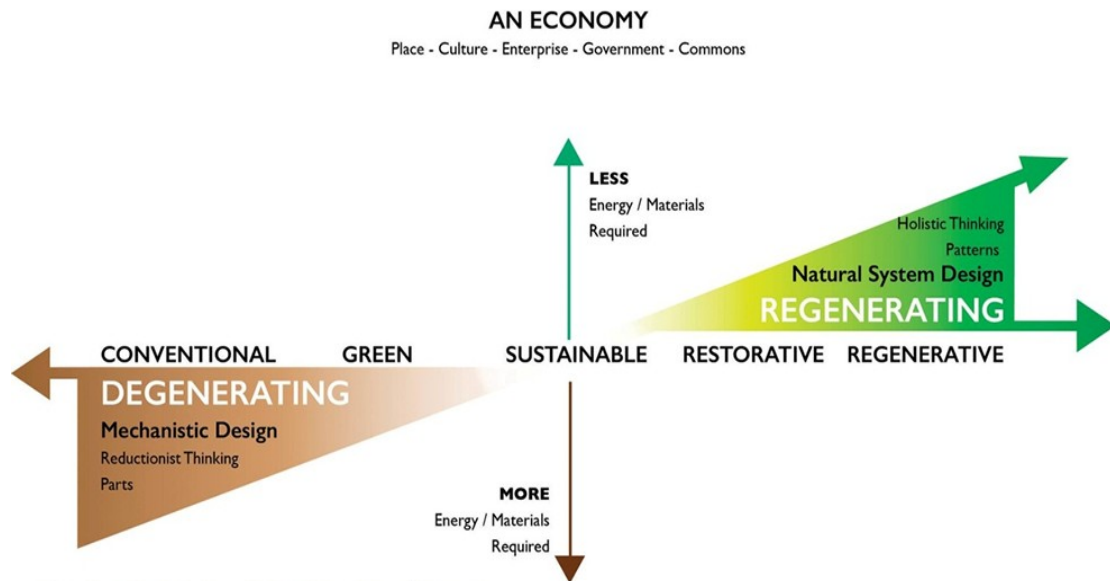
Some plants can provide scents and colours to throw pests off the trail. Others can be nitrogen fixing. *Allium fistulosum* (Welsh Onion) flowers nicely. An idea in Uganda has taken off: making a banana circle.



The ring can be closed (as above) or open to catch downhill water. There's a bed of rich mulch or muck in the middle. They're on facebook.

Moelyci in North Wales took on a sloping plot on thin poor soil, they've built fertility up using gorse.

Meet the needs of the present without compromising the ability of future generations to meet theirs. What are needs?

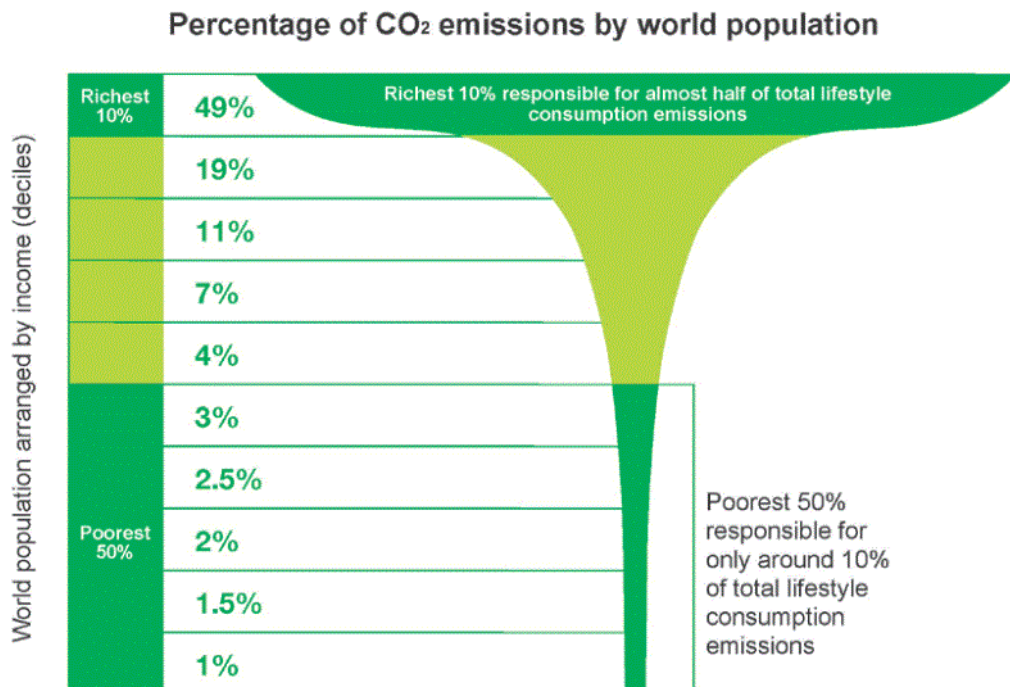


From <http://www.smartcitieslab.com/living-regenerative-and-adaptive-buildings/>

Too many people? Yes, if we're on the conventional side.

The poorest 50% are responsible for around 10% of total lifestyle consumption emissions

Figure 1: Global income deciles and associated lifestyle consumption emissions



Source: Oxfam

from p4, <https://www.oxfam.org/en/research/extreme-carbon-inequality>

UNCTAD produced a report – “Wake up before it is too late”, monoculture doesn't work. Produced in 2013, needs reading! 5MB from <http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=666> They say we don't want a 'green revolution', we do want truly ecological intensification. Read it!

Steve's worked on the roof garden at Reading International Solidarity Centre, where there are now 176 species of edibles growing. [Article](#) from 2003 describing how it was set up. 2011 [report](#).



More information and downloads of the RISC garden at <http://w3.risc.org.uk/gardens/roof-garden> (they now claim 185 species).

Other gardens, more local:

Ffarm Moelyci, Tregarth, Gwynedd: a farm with allotments. Their allotments picture is what Steve showed as the land cleared of gorse.

<http://www.moelyci.org/>

Cwm Harry in Newtown is associated - <http://cwmharry.org.uk/>

[Garth Organic](#), Glyn Ceiriog, LL20 7ND. They hold regular events and short courses as well as regular Tuesday and Thursday volunteer days.

They've a 6 part Permaculture course in Llanrhaeadr starts January.

Courses planned include compost, herbal medicine, hedge laying and Wood and Straw-Bale Roundhouse Building

Interesting discussion on polycultures: <http://smallfarmfuture.org.uk/?p=704>