BFG to Climate Cooling

The first ever BFG co-writing challenge using a wiki!

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How to use this collaborative book to co-create!

Your two week BFG wiki challenge:

1. Start writing on the page where your energy and enthusiasm is. You can write on more than one page.
2. Try to write every day.
3. Try to read what others have written before your write on a page. Remember you can edit anything that has already been written.
4. Try not to write more than a couple of paragraphs for the first two weeks. Once all writers have started to write and are involved we can create new pages and evolve to longer pieces.

See an example of a co-written book (only 2 weeks with 7-10 people!) and read about a decentralised, creative organization in The Chronicles of Samara.

Alternatively click 'Shelves' at the top right of this page to see all the current books in this library - BFG has it's first shelf and YOU are creating the very first book!

To learn more about what a Decentralized Human Organisation is, see the starter book now being created DHO Journey.

How to Edit Pages

Anyone with `Editor` rights can create a new page or edit an existing page in this wiki.

Click on the **Edit** button on the right to edit the page. If you do not see the **Edit** button, you are probably not logged in. If you need an Cloudron account to log in, please contact Joachim.

Important: This is a co-creation space, so others will be able to review and edit your content. If you see this warning:

> XYZ started editing in the last 60minutes and to be careful not to overwrite each others updates.

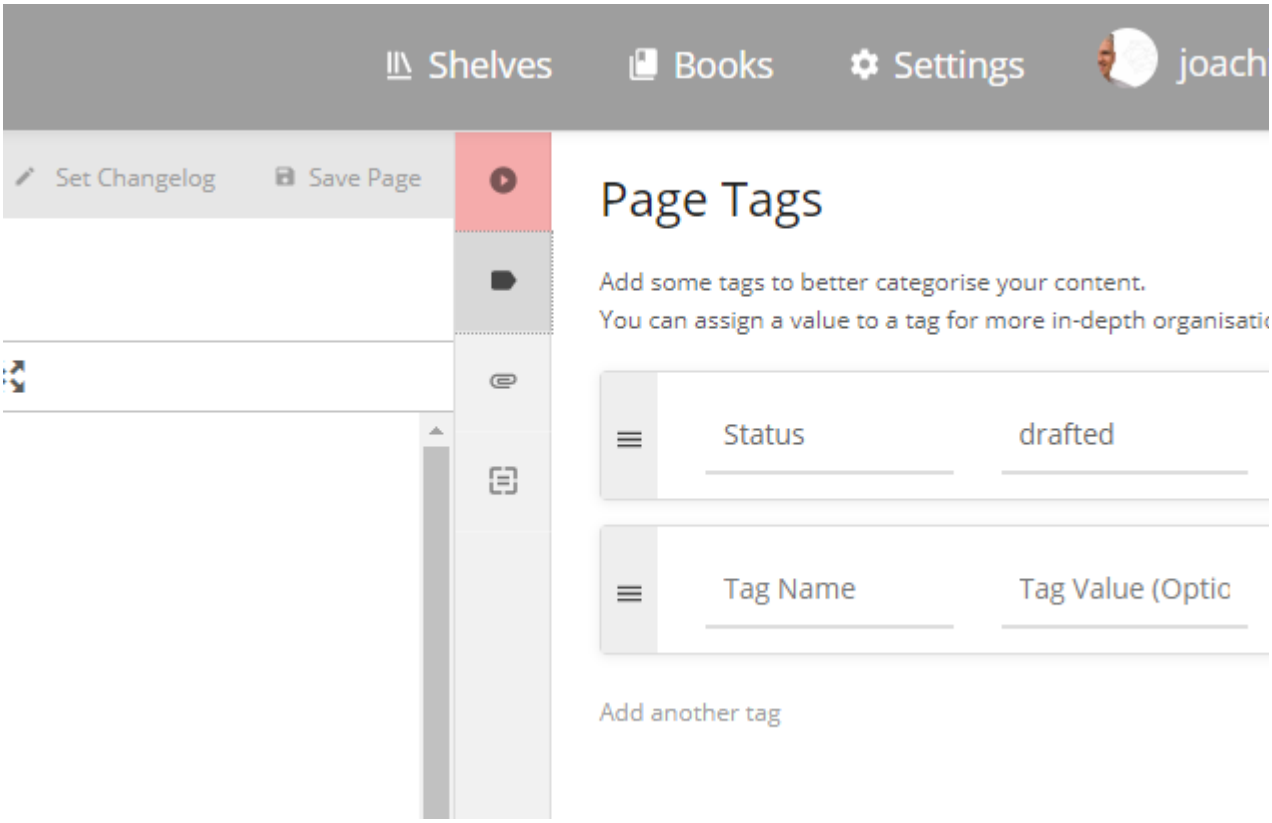
Do not edit the page and come back later (or contact the person currently editing the page). Otherwise your edits might be overwritten by the person who saves it last. For those currently editing pages, please save them as soon as you are done and don't leave them open (in a draft mode).

To leave any comments on the page, *just mention them as italics on the page with your initials - JS*

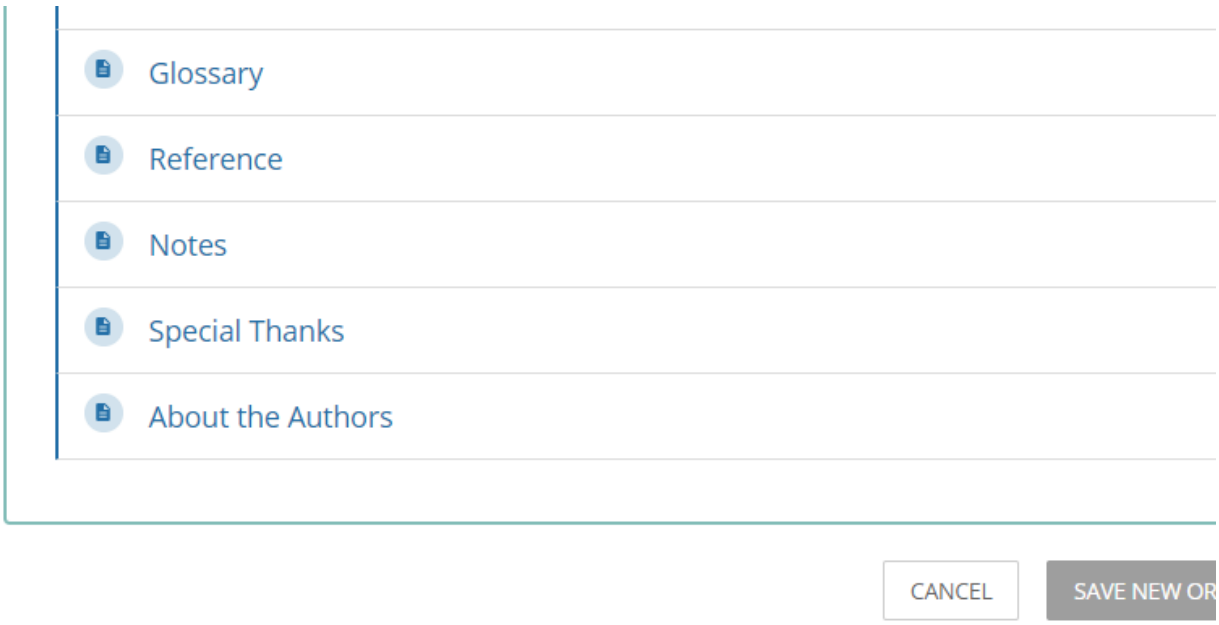
To update the Editorial status of a page, edit the page and click on the tag button (top right , see below) and type in one of the follwoing:

- created = new page, all edits welcome
- drafted = needs improvement
- completed = needs editorial review
- approved = ready for publishing

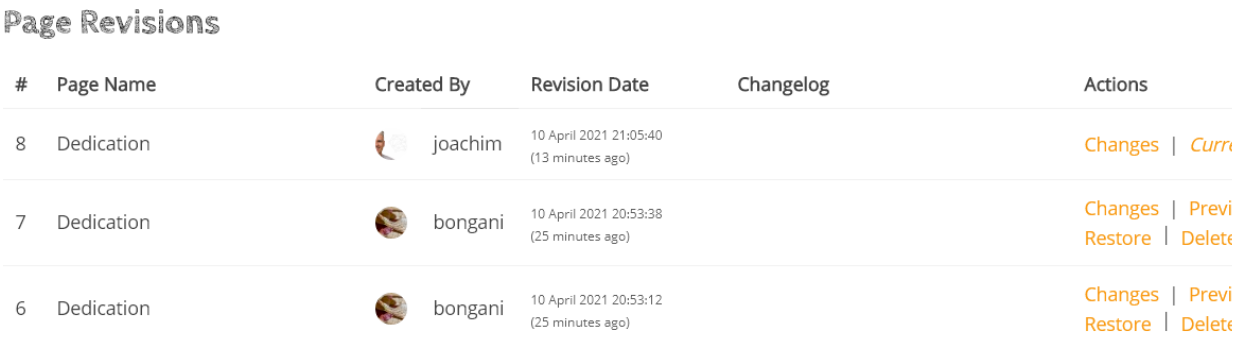
Then we can search for all of them using this query [=drafted] (for drafts) - click here to see this in action - https://guide.hypha.earth/search?term=%5B%3Ddrafted%5D



To sort pages into a different order, go back to the book or chapter view and click on the "Sort" button on the right. This will allow you to rearrange all chapters or pages in a new order. Don't forget to save the order (Click on the Save Order button at the very bottom of the form).



To track any revisions of your page (done by you or others), click on the "Revisions" link on the right of the page. You will see a screen like the one below, click on any entry to see what has changed on the page (text highlighted in red=removed, green=updated). If you restore a previous version, you will loose the edits between the current and the restored version.



To add some additional highlights to pages, use the following under Formats > Callouts or Blockquotes:

Everyone is good to go.

There is some danger using this technique!

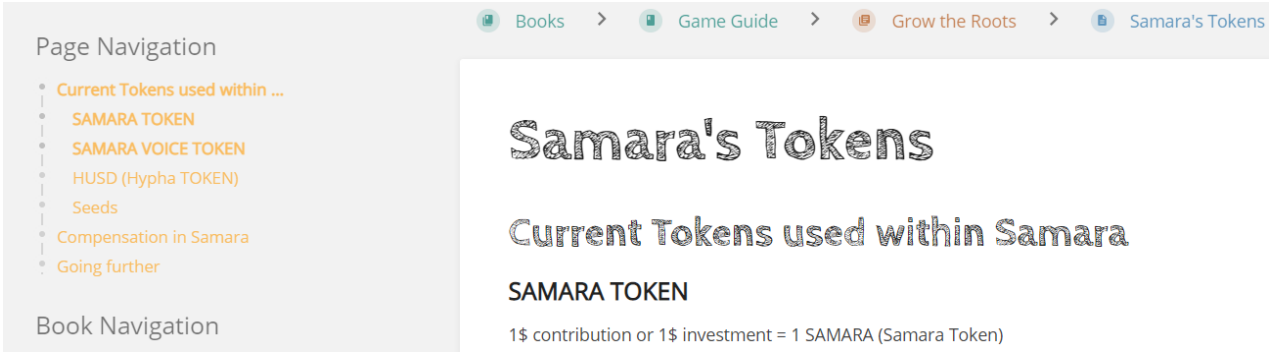
This is some more information..

This is an important message

> This is an important quote that helps to underline the text. This is an important quote that helps to underline the text. This is an important quote that helps to underline the text. This is an important quote that helps to underline the text. " -Fuller

To add structure to pages, see the dropdown in the editor called Formats and the sample below. Once you assign different headings, they will structure the content of the page and allow you to use a page navigation tool (on the left below). Don't worry about the formatting of the headers

for now, we can change this for all pages in the *Custom HTML Head Content* section.



For more help, please visit the BookStack help documentation.

Starter Pages: What do you resonate with?

These are the first few topics that YOU resonated in first workshops.
Jump into the page that you resonate with and start co-writing! ;)

Humans as part of living systems

"I try to come once a month at least," said Tendai. "Do you know that this hill was once a sacred site? Mbuya and a few other in this area are trying to revive it as a sacred site." "What does a sacred site mean?" I asked Tendai.

"I'll tell you one day. I'm still learning myself. For now, it's a place where I can come and be with Nature and imagine how our ancestors lived for thousands of years. That nyimo you're eating is part of that history. It has nourished many generations of our ancestors. When you eat it you're eating out history. When you pick fruits from the indigenous trees like we did on the way up here, you're doing what people have been doing here for centuries."

We were high up and could see far into the distance. There were many small hills like ours, mixtures of boulders, smaller rocks, trees and many other plants. Ours was the highest. I looked admiringly at my cousin-brother, Tendai, a man now while I was still a boy. Above his head, I noticed a bird high in the sky, like it was floating. I pointed and asked Tendai, "What's that?" "That," said in a solemn voice, "is your great, great grandmother keeping an eye on us." My jaw fell open. "Really?" His face looked serious, and then he smiled. "Don't believe everything I tell you. It's a hawk looking for prey. But I like to think of it as our great, great grandmother keeping an eye on us. And perhaps it is, you never know."

One with the soil, one with water, one with air; one with creation.

A grain among multifareous many;

a drop in placid pools, rushing rivers, crashing waves;

a mere microcosm in the atmosphere.

Breathe deep, drink long, cup sand in hands with fingers splayed to sift the particles;

celebrate oneness.

From dust, to dust, of dust;

& dust we've become for the soil that shapes us has died;

played out and poisoned.

And I, one with the earth, suffer genocide.

Yet, sunrise melts frost and ice.

Hidden, spring smiles and waits.

“We are showered every day with the gifts of the Earth, gifts we have neither earned nor paid for. For the Earth to stay in balance, for the gifts to continue to flow, we must give back in equal measure for what we take.” – Robin Wall Kimmerer

In the teachings of my Potawatomi ancestors, responsibilities and gifts are understood as two sides of the same coin. The possession of a gift is coupled with a duty to use it for the benefit of all. A thrush is given the gift of song—and so has a responsibility to greet the day with music. Salmon have the gift of travel, so they accept the duty of carrying food upriver. So when we ask ourselves, what is our responsibility to the Earth, we are also asking, “What is our gift? Among the most potent of these is gratitude.”-- Robin Wall Kimmerer

Some questions put to various people from different contexts & their responses:

1. How does climate change affect you personally as a young person, a woman, a faith leader, a home-owner/householder, a family?

- Members of a local church had the following to say: David McConnell, a young unmarried man: "It affects me as a temporary visitor to planet earth most the same way it will affect us all eventually, although as usual the most vulnerable will bear the brunt." Paul Roberts, a retired civil engineer who has worked throughout his lifetime in water resources management & development: "It doesn't affect me a great deal as it is difficult to quantify what is due to climate change, resource over-utilisation, inept management, etc. The effects of climate change are often exaggerated in the media. Some resource shortages, like water & electricity, may be influenced by climate change."
- A young family member who is a high school teacher & her husband who is a fashion designer said: "It doesn't necessarily affect us as householders in a very direct way. It affectsw us in the same way it affects the world in terms of inpending doom when it comes to whether or not the earth can sustain us."
- A black woman who is a Minister in the Presbyterian Church said: "I'm a woman serving in a rural area where many church members are unemplooyed. They depend on their small gardens to provide food for their children. Droughts and water problems affect

our lives so badly. Some are cattle farmers. Climate change is a problem. They grow their crops seasonally. Due to climate change that confuses their schedule."

2. What do you feel you can do to mitigate or adapt to the effects of climate change?

    - Members of a local church in Pretoria said the following: David McConnell (a young single male) "The key is that every little change makes a difference. I've reduced the amount of meat I consume, with production & feeding of livestock being the greatest contributor. Another key is for people not to get frozen into doing nothing, eg because giving up meat completely is too extreme ... to start with meat-free Mondays already makes a difference ... then move from there & be conscious of wherever else you can make an impact such as paying to offset the carbon for your travel; Bokashi kitchen scraps; use energy sparingly, etc." Neil Burgess (retired engineer) says: "My father said tarred roads, paving & house roofs where there was originally veld would change the climate. So home-owners should consider the colour of paint used on roofs. New houses could be built with solar roof tiles instead of concrete, with separate solar panels on top. A nieghbour has whirly hot air extractors on his roof to help cool the house in summer, but they spin even in winter. Solar geysers are another option (See all the matchbox houses alongside Marlboro Gautrain station, each with a solar geyser). Eectric power stations using concentrated solar heat with overnight storage would be good (There are a few small ones in SA). Cooking with a microwave oven uses less energy consumption due to the speed of heat transfer. We should use modern efficient low-wattage globes for lighting. It would be good to drive an electric car (Have you seen the recharging point provided in a corner of the Menlyn parkade?) I wish the mechanical & chemical engineers would organise a breakthrough for safe ammonia-free type cooling for fridges & air-conditioning (It could be solar-powered, but ammonia is poisonous). Brilliantly lit offices at night are unnecessary. Americans & Europeans light only the surfaces of their desks." Paul Roberts retired civil engineer who worked in water resource management & development says: "Mitigation measures that we implement at home as a couple include recycling, moderate use of resources, solar heating of water, purchase of local produce as far as possible." He adds the following: "Various remedial measures have been proposed (& partially accepted by many countries) to combat climate change. I am in full agreement that we need to contain emissions (pollution) of various kinds. What really concerns me is that the main driver for the increase usage of the world's resources has been almost totally ignore & this is one of the factors which should be examined! The main driving force for increased consumption of resources is population growth as well as rising living

standards which increase the per capita consumption. In the 1980's when I was in the Department of Water Affairs, I was asked to determin the maximum population that South Africa could sustain based on its available water resources. We determined a figure of 80-million - note that we now are around 60-million & I can see that our water systems are already highly developed & under stress. There is not a huge remaining potential for further development of water resources. Desalination of the sea is a possibility, but requires an enormous energy input plus is very costly.

"I attended the 2nd World Water Forum in 2000 in The Hague & noted that absolutely no mention was made of population pressures in the resulting Ministerial Declaration. I have undertaken numerous water demand studies in SA & the main drive is population. Many people argue that the rich use a greater per capita share of resources, but fail to consider that poorer communities also aspire to higher living standards, hence greater resource consumption. A good example of this issue is the question of sanitation. From 1994 the Dept of Water Affairs instituted a Basic Water Supply & Sanitation initiative. Initially the parameter were: Water supplied in community taps not more than 500 m apart; & Basic sanitation was via VIP toilets (Ventilated Improved Pit latrines). Currently because of variou problems, rising expectations & community perceptions, the drive is towards: Water delivered to individual houses; & Flush toilets (which require more water plus other resources). Such changes demand on the level of services must always be anticipated in resource planning.

"Population limitation: I have yet to ascertain why the issue of population limitation has not fully entered the climate change debate. It is probably because it is politically & socially very sensitive. Lester R Brown in his book 'Plan B: Rescuing a Planet under Stress & a Civilization in Trouble' 2003 pays a lot of attention to this issue & considered that the world population should be stabilised at about 7.5 billion people using various economic & social incentives & measures. In 2020 the world population was 7.8 beillion & there are projections that it will exceed 10 billion by 2050. It is clear that current efforts to contain population growth have not succeeded & the issue needs to become part of the internaitonal debate on climate change."

- Young female family member (teacher) & her husband (fashion designer) say, "Because we don't really directly feel the effects (or at least, it's not something we focus on), there's not much we do to adapt to the effects. We're also not the greatest at being aware of it, but we do eat a lot less meat because that has a massive impact on the environment. We also try to conserve resources in terms of electricity and water as much as we can."

- Black woman who is a Presbyterian Minister in a rural community says, "When they experience problems with their farming, it also affects the income of the church. So those who are in the townships need to provide food parcels to the needy. Even our church garden doesn't produce as much. We used to get some vegetables from it for the needy & to sell some with aim of generating income."

3. What do you personally feel about it?

- Members of a local church in Pretoria: David McConnell (Young single male) says, "I'm hugely concerned. It needs an economic resolution to a problem created by the current model; that along with plastic pollution being my chief areas of focus when trying to make a difference in my own space." Neil Burgess (retired engineer) says, "Humans are reckless in their pursuit & exploitation of technology for profits. How long did it take to lessen the smoke output from factory chimneys spawned by the first industrial revolution? Using electric power in the workplace & in homes first needed many deaths before safety earthing & "earth leakage" protection was introduced. Millions of cars were sold with primitive inefficient polluting internal combustion engines before we got the better engines of today & the eventual appearance of electrically powered cars, buses & trucks." Paul Roberts (retired civil engineer who worked in water resources management & development) says, "I feel ambivalent about the magnitude & impact of climate change. The impact of population size needs to be a major issue in the climate change debate & the determination of mitigation options. Population limitation should not be enforced but encouraged by incentives & economic disincentives.

"Is climate change real? We know that over the ages there have been a number of major climate changes that were certainly not influenced by human activities. We have limited recordings of the various climatic variables. In SA river flow records go back for about 100 years while rainfall records are several hundred years long. In some places such as the Nile River we have flood peak level records which go back several thousand years. Some recordds can be extended by other means such as tree rings, sediment deposits, ice in the polar regions, etc.

"What does concern me is that currently every extreme event such as a flood or a wildfire is ascribed to climate change. In many cases, such events still fall into the general pattern of probabilities of extreme events such as floods. It is to be expected that as the monitoring time gets longer so we will experience further extreme efents. This is similar to athletics records where as time goes on world records keep getting broken!

"An analysis of SA hydrology does not show any major deviation from expected patterns. On a global scale experts have used other parameteres such as glacial reduction, increase in cyclone activity, global temperature increase, etc as indicators of climate change & ascribed these all to the cause of the activities of humankind. It is very difficult to separate natural causes & anthropogenic ones. It is fashionable to ascribe most extreme events as being caused by climate change as it is also a popular route to generat project funding!"

- Young female family member (teacher) & her husband (fashion designer) say: "We both acknowledge it's a very real crisis, but I don't think it's one that we worry about (or at least talk about) that much. If we're brutally honest, we're probably not as actively concerned & focused on it as we should be."

It's clear to me from these responses & general conversations with people over the past six weeks or so, that the younger adults are showing far more concern about climate change, but only some are actively taking steps to mitigate it. The retired engineering shows a typical resistance to the realities of climate change & standard means of justifying this resistance. The lady minister in a rural congregation expressed concerns about the reality of the impact on the local community within which she serves. These are all issues that might need to shape the work in preparing guidelines on climate change.

- Neil

A different take on climate change

"Our rain used to be more reliable," Amai Moses said to me when I visited her many years ago. We were seated in her round thatched kitchen, whose walls were made of mud. The smoke drifted up and out through the roof. The inside thatch was black from years of smoke passing through. A few maize cobs hung from the rafters, grown to eat green mealies not for grain. The smoke kept them free of weavils. This was the seed for next year. On a shelf were many jars all filled with different seed. I counted over 30. Amai Moses was one of the few seed custodians left in the area. The government's relentless drive to push 'modern' farming had sidelined people like Amai Moses. Mixed and diverse cropping was considered backward and unpatriotic by the government extension staff. So Amai Moses did her cropping in a field hidden from public view.

"That was when we had more trees. Trees bring rain. Yet you can't receive the master farmer award if you have even one tree in your cropping areas," continued Amai Moses. Was she opening up to me because I was an outsider who had shown interest in her mixed cropping fields? Who didn't think she was 'backward'? We spent a long time discussing all her different crops and the varieties of each that she grew and what each was good for. That was over 30 years ago. Since then tree removal has speeded up all over the country.

I came away thinking about Amai Moses' remark on trees. Did cutting of trees really affect local rain? Wasn't rain affected by much bigger forces? I puzzled over this for many years and it was only when I learnt about the role of the small water cycles, especially for places well inland from any ocean, that I began to really understand the role of trees, and in fact all vegetation, in the climate. Understanding (to some extent!) the part the small water cycle plays has been one of my biggest insights into climate change and their potential to help the climate cool the Earth and build local resilience. Amai Moses knew that - we underestimate indigenous knowledge to our peril.

"Professor Millán Millán is a strong, often lone, voice within the scientific community, arguing that changes in land use have profound effects on climate patterns. .....His work points to a clear connection between landscape alteration and climate, a subject generally absent from high-level discussions about climate change, which typically focus solely on parts per million of carbon dioxide in the atmosphere." (P.178, The Reindeer Chronicles: And Other inspiring stories of working with Nature - by Judith. D. Schwartz)

Millán Millán found in his studies that "Water that evaporated from the Mediterranean Sea would fall at higher elevations some sixty to eighty kilometres inland - the moisture climbing up the slope, as if on a staircase, via the orographic effect that lifts and then cools the air mass so that it condenses to form clouds and rain. The culmination of several land-use changes over time

- deforestation, the draining of marshes for agriculture, construction on wetlands, shrouding soil with houses, asphalt, and concrete, and an increase in wildfires - has resulted in less evapotranspiration along the sea's path. On its own, the vapour carried from the Mediterranean was never sufficient to elicit rainfall, he says. The moisture rising from the land, emanating from moist soil and transpiring from vegetation, was the trigger that made it happen." (P. 181, The Reindeer Chronicles...). That last sentence strikes such a chord with what seems to be happening here in Zimbabwe. Often the clouds build up and build up but then it fails to rain; perhaps also there's a lack of pseudomonas bacteria from tree leaves to act as a nucleus for raindrops to condense on.

(It would be very good if we could do an interview with Millán Millán for the BFG, or he writes something; his research over years illustrates this connection between land use and climate change)

There has been a fundamental failure in the way in which the idea of climate change has been communicated, based on a misunderstanding of human cognition, social and behavior change and the systematic nature of the challenge. Rare is an organization focused on motivating individuals, their communities, and their local leaders to adopt behaviors that benefit both people and nature. Check out their website www.rare.org. They might be interested in helping develop this guide.

We often refer to material objects as "priceless" but not natural resources. Nature is seen as a commodity to be bought, sold and traded.

Water Connects all things, brings movement, gives life

Without water , there is no life and there will be no life.

Water is like the lifeblood of the earth.

I wake in the morning and stumble out of bed, put the jug under the clay filter and turn on the tap. I listen to the sound of the water hitting the bottom of the jug. When it's full I pour water into the kettle, another liquid sound. Switch on the kettle and more water noises begin, as it takes the water to boiling point, which here at 1,500 meters above sea level is significantly lower than at sea level.

I fill the Italian coffee maker with hot water and coffee grounds and put it on the stove. In a few minutes it's gurgling. I pour the dark black, almost thick liquid into our two cups, dilute it with more boiled water and some milk. We sip the coffee together, listening to the sound of water on the tin roof, a steady pattering that has been going for most of the night.

With my coffee drunk, I put on waterproofs and go out to pump water from the tanks on the north side of the house into the big storage pool. Water from the south side roofs goes straight into the pool. The 5,000 litre tanks are full and will soon overflow if I don't empty them. We try to catch and store every drop from our roofs during the rainy season.

The rain eases mid-morning and the sun comes out as I walk around my small dryland cropping areas. Everywhere, water is glistening and sparkling on leaves. The plants all glow, water-content. The rains have been good this year.

There's nothing I can do today in the cropping areas today, as anything I do will damage the water-laden soil. Instead, I take my granddaughter for a walk on the Domboshawa hills, She spends hours playing in the rock pools, filled with water at this time of the year. I sit and enjoy the view, sitting in the shade of a tree growing out of the rock. I also marvel at the yellows and oranges of the lichens that Domboshawa is well known for, almost psychedelic. I see clouds building in the distance, another rainstorm likely in the late afternoon. We head home before any danger of lightning, not a good idea being exposed on a big, open rock.

The storm breaks as we arrive home. We rush inside getting very wet in the short distance between car and kitchen door. Now it's impossible to hear each other with the sound of the rain pummelling the tin roof. Lucky that I emptied those tanks in the morning. I have a shower and enjoy the water warmed by the solar heater flowing down over my body. The water removes both dirt and any stress. From morning until night, water connects my days in a myriad of ways.

Soil sponge is the infrastructure of life

It is becoming increasingly apparent that the main drivers of life on Mother Earth are microbial. Perhaps the difficulty in recognising this is because without a microscope we can't see this incredibly complex world. Unfortunately, probably because we can't see it, we have often brought devastation to this microbial world. Most of our practices wreak havoc on the complex world of microbes. And we just keep doing them. And then, because of the havoc, in order to try and deal with it we turn to synthetic fertilisers, which give some relief apparently, like a headache pill. But these highly soluble synthetic fertilisers wreak more havoc on soil life. Whey you really stop to think bout it, it's crazy what we've been doing and what we continue to do, as if there was no future.

And then because we grow plants deficient in a full spectrum of nutrients, they get sick and so we spray more synthetics, often quite toxic. It just gets worse. And we do diplomas, degrees, Masters Degrees and PhDs in all this too. Training people to wreak havoc on soil life even more effectively. Sometimes I shake my head in disbelief.

But we can start to bring things back. And one of the places we can go to in order to help us is those natural places where soil life still thrives. Here microbial life has flourished for millions of years. That microbial life is full of indigenous knowledge, memories, that go back into aeons of time. This is the knowledge that knows how to look after the soil. We can tap into that life, multiply it up and start to apply it in our farming areas so that we can gradually bring life back to all the nearly-dead soils everywhere.

"According to the USDA-NRCS, the most conservative estimates suggest that every 1% increase in soil OM will help soils hold up to 20,000 gallons more water per acre (Bryant 2015)."

Trust Nature and Trust Each Other

"Where's the evidence that natural farming can feed the world?" This is a question thrown at those developing alternative farming systems to the conventional ones. These conventional ones generally use external chemical inputs and practice monocropping. Natural farming aims to follow the way nature works. My answer to the question above is: "We have millions of years of evidence in the way nature works. Go into a natural situation and see how healthy that situation is. Is that not evidence enough? We need to start trusting nature instead of trying to control nature, as has been the overriding tendency in the last century or so." As soon as we take that step of trusting nature, it begins us on a path to farming and use of land in general that has huge bountiful potential, just as nature is bountiful.

https://www.youtube.com/watch?v=SYgjuMtGQtc

Earth is always trying to fix itself. We are not alone if we are trying to fix it.

Doing what we can is not a useless waste of effort. Many naysayers think that you are just wasting your time unless you are doing something really big to help slow climate change. I don't think that is true. Little things add up.

Interdependence, Interconnectedness and Community

As I write this, looking out of my window at the food garden I'm lucky enough to have, I sense much life beating out there, way beyond my comprehension. I don't take mind enhancing drugs but sometimes as I walk around my garden it feels like I imagine that might be.

There's so much life going on that it's overwhelming, and yet, I only get this tiny glimpse of it, the lizards scurrying away, the bees buzzing in the flowers, the spiders carrying their eggs in haste to safety, the snails making their way slowly across the path, the big centipedes, all over the place, moving a little faster than the snails, their concertina of legs flowing in a wavy rhythm of their own, curling up at a touch, and the birds singing from every tree, a symphony that happens each early morning, and to a lesser extent throughout the day - and yet, all this is but a tiny part of the life that's going on, most of it happening underground. Life, given a chance, beats incessantly, everywhere. The complexity of it is as difficult for us to grasp as the concept of infinity. We can only learn to tune in.

Evidence shows that we are all more connected when we go outside and interact with our natural surroundings. (See Rosa, C.D., & Collado, S. (2019). “Experiences in Nature and Environmental Attitudes and Behaviors: Setting the Ground for Future Research,” Frontiers in Psychology 10, no. 763, 1-9.)

An invitation: take a break from what you are doing and walk outside. Look at and listen to the world around you.

Last year during the pandemic, I spent more time outside. It was a way for me to feel relaxed and connect to the nonhuman world around me. I watched the different seasons ebb and flow. I began utilizing community science apps to monitor and map plants and animals living around me. The apps have made it easy to notice so much more about the natural world.

Many modern religious beliefs are based on nature worship--theism, panentheism, pantheism, deism, polytheism, animism, totemism, shamanism, paganism, and sarnaism. I find that fascinating.

I often have to remind myself that just because the industrialist culture I live in emphasize quickness and brevity doesn’t mean that I have to live that way. I force myself to slow down and look around. As a result, I feel more connected and living congruously with the nature of the Earth. It has made me appreciate all that is around me and do things to give back to the planet, like not buying products with a lot of packaging, picking up litter, and cutting back my energy use.

People expect the government to act but the government thinks people don't care about climate change enough. We need to break 'climate silence' and normalize discussions on the issue.

Inspiration to Radical Change

Every one of us has an incredible opportunity to help our planet restore itself. Small acts can lead to big changes. However, we are- as George Marshall sets out in his book, *Why our brains are wired to ignore climate change*, in many ways 'wired' to deny climate change.

Beauty lurks in unexpected places, sometimes sharing space with gritty urban parking lots. But have you ever noticed that plants are always busting through concrete and growing out of the tiniest spaces? I admire their tenacity and adaptability.

“Mother Earth needs us to keep our covenant. We will do this in courts, we will do this on our radio station, and we will commit to our descendants to work hard to protect this land and water for them. Whether you have feet, wings, fins, or roots, we are all in it together.” --Winona LaDuke

We are changing the climate, but it's not yet changing enough of us. Climate change must move from being a scientific to a social fact. We need everybody to feel a personal sense of urgency. Right now people don't see themselves as part of either the problem or solution. Science is like a broken record and is translated into a generic call to action. There is climate fatigue and people aren't enthused by the issue- at least not enough to respond in a way that reflects the urgency and magnitude of the challenge.

Climate fatigue, a social silence, and stealth denial is a deadly cocktail. A radical reframing is required.

We can't seperate questions of economic planning and ecological constraints.

Internal and External, Local and Global

Climate variability and change will affect the health and livelihoods of most populations in the coming years, putting the lives and well-being of millions of people at increased risk.

Most climate change adaptation and risk reduction measures require that humans modify existing behaviors or adopt new ones.

Much of our behavior is nonconscious, habitual, and driven by cues in our environment or the way that choices are presented. Moreover, there is a lack of social norms governing how to address climate change in many societies. We are capable of making decisions in a considered, deliberate way, but this happens less often than we assume. When people individually or collectively consider climate science and projections of future change impacts, there can be “psychological distance” related to climate information that can make it seem unreal, intangible, and therefore not urgent.

Human behavior is complex — it often takes a combination of approaches to cause an individual to test, adopt, and sustain behaviors.

The degradation of nature can lead to gender-based violence including sexual assault, domestic violence, forced prostitution and child marriage.

Future Chapter?: Water

Water Balance

The Water Balance

(source https://www.alevelgeography.com/water-balance/)

The balance between inputs and outputs is known as the water balance or budget. The water balance can be shown using the formula:

precipitation (P) = streamflow (Q) + evapotranspiration (E) +/- changes in storage (S)

P=Q+E +/- S

The water balance affects how much water is stored in a system. The general water balance in the UK shows seasonal patterns. In wet seasons precipitation is greater than evapotranspiration which creates a water surplus. Ground stores fill with water which results in increased surface runoff, higher discharge and higher river levels. This means there is a positive water balance. In drier seasons evapotranspiration exceeds precipitation. As plants absorb water ground stores are depleted. The is a water deficit at the end of a dry season.

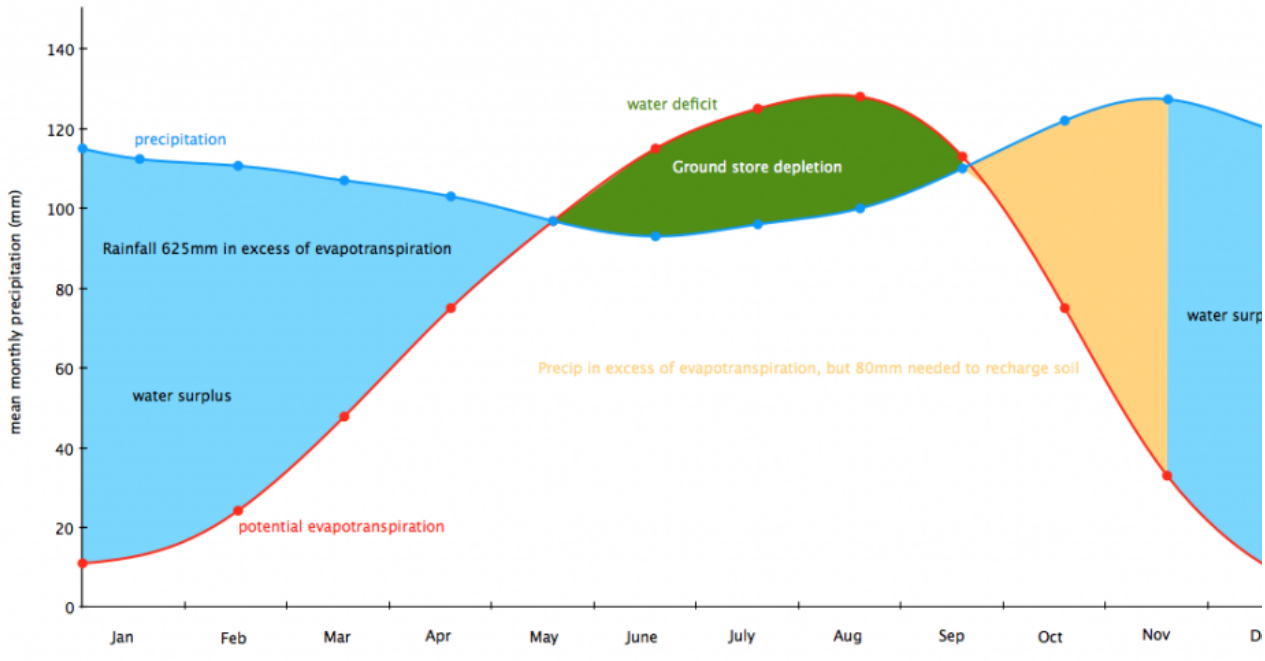


Figure 1. Model of the water budget in a drainage basin

The balance of the water cycle

(source Water for the Recovery of the Climate: A New Water Paradigm p18-20

Authors: M. Kravcík, J. Pokorný, J. Kohutiar, M. Kovác, E. Tóth)

The expression "water balance" is understood in hydrology to be a relation which characterizes the circulation of water in a certain system, mainly in a watershed or in its parts. We express it with equations, which show the relationship between elements entering a system (for example, precipitation) and elements leaving a system (for example, evaporation and surface or underground runoff). A third, neglected element exists between the entry and runoff of water and that is the change in the volume of water in a system.

Monitoring the water balance of a territory is one of the basic tasks of hydrology and meteorology. Such monitoring consists predominantly of regularly measuring total precipitation and flow rates of water in watercourses through a network of precipitation measuring stations and limnographic stations for selected profiles of watercourses, particularly during their outfall to larger basins, to the waters of neighboring states and to the seas or oceans. In the scope of a meteorological and climatological network, attention is paid, in addition to these parameters of water balance, to the temperatures in a territory, levels of groundwater and the quality of the water.

Workers from professional institutes subsequently process data obtained from long-term measurement into a long-term series which helps them monitor the current development and trends of the measured quantities.

On the basis of different models and results of known data, they create models for the development of these quantities with an eye on the future. Climatology is dedicated to such modeling. A common area for us is perhaps the most well-known modeling of the development of weather by meteorologists, although their models are built on a different principle. A forecasting service is able, with reasonable accuracy, to model weather one, two, three, even ten days in advance.

Climatologists, however, model the development of a climate a number of years or even decades in advance.

A necessary, though not sufficient condition for a stable climate in a territory is a stable water cycle (Fig. 2).

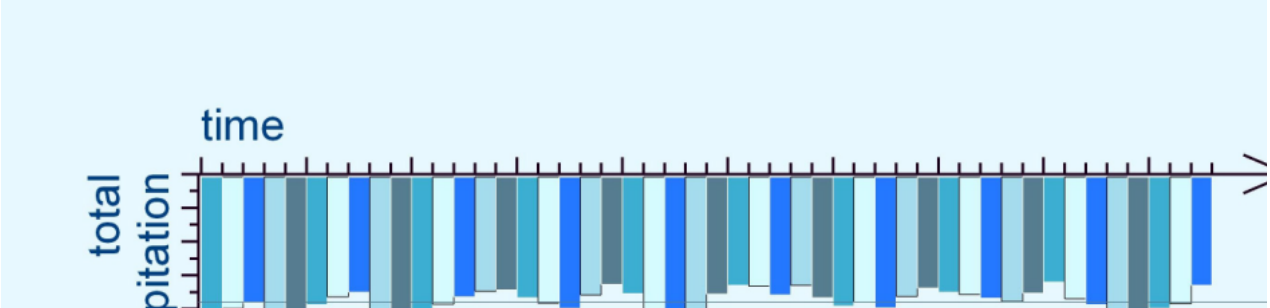


Fig. 2 **Diagram of the long-term stable water cycle on land**

That's why a very important piece of information, which should be the primary purpose for monitoring the water balance, is the difference between the amount of water which enters into a system and the amount of water which exits from a system. This difference, when positive, indicates to us the addition of water to a system (saturation), and when negative, the loss of water from a system (dehydration).

Most models of weather or climate don't really provide this information, however,because they do not calculate it or they do not consider it significant.

Amongst both the general public and experts the established notion prevails that this difference is, for large units (such as river basins or whole continents) and for long periods of time (a year or more), equal to zero, or around zero. The conviction that the amount of rain the wind brings from the sea is the same amount of water that flows in rivers to the seas is a legacy of the times when hydrologists first discovered the water cycle. They thus explained an old puzzle: how it is possible that the levels of the seas and oceans do not rise when all the rivers of the world constantly flow into them. Today, however, hydrological measurement shows that the levels of the seas and oceans are rising and at the same time the levels of groundwater are

falling, and yet it doesn't seem to have occurred to anyone that the balance between the inflowing and outflowing water cannot be zero. The great danger of neglect threatens just when this difference is very small and yet still on the same side of the equation. In such a case it can lead to the drying of a country over whole decades without hydrologists ever noticing the reason for it.

Within the scope of hydrology, meteorology and climatology, the water balance of a state and the water balance of the main watersheds in the framework of the state have so far only been monitored on the level of individual countries. The bigger the system, the easier it is to overlook the dangerous one-sided deviation mentioned in the previous paragraph.

The New Water Paradigm

(source Water for the Recovery of the Climate: A New Water Paradigm p.67-71

Authors: M. Kravcík, J. Pokorný, J. Kohutiar, M. Kovác, E. Tóth)

The new water paradigm must learn from the mistakes of the old paradigm. In our opinion, among the biggest mistakes of the old paradigm is that water was perceived as an isolated

entity, water’s interaction in the framework of the whole ecosystem being neglected, particularly water hidden from view (water in soil, in the atmosphere, in plants). The paradigm also neglected the synergic effect of introducing even minor measures to regulate the state and circulation of water in a country. Readers who did not begin reading this publication at this chapter but who have also read the previous chapters, know what kind of measures and what impacts we have in mind. The old paradigm considers water as a fixed given renewable resource which is subordinate to deviations in the global climate, or is even its "toy," but which itself has no noticeable influence on the global climate. The circulation of water, according to the old water paradigm, was rarely influenced by human activities and if it were, then only marginally and indirectly, via the influence of other parameters which supposedly had a larger impact on the global climate than water. The blindness of the old paradigm to climatic impacts of water management

measures is furthermore crowned by its ignorance and denial of the importance of the small water cycle. Given the current level (lack) of knowledge, we can hardly wonder that water managers and all other people who come into contact with water issues, are neglecting the importance of the water balance on all levels, manage it badly and are especially destructive in their treatment of the small water cycle.

In the new water paradigm, the water balance at all levels—on the territory of individual communities, within cities, in forests, on agricultural land—is the central theme. The new water paradigm warns that unlike the issue of global warming, the issue of the drying of the continents, or substantial parts of them, is receiving very little public or scientific attention. The drying and subsequent warming of the continents causes an acceleration of natural processes following a certain specific pattern and interdependance. The drying is caused by urbanization with its rapid sluicing away of rainwater to the seas and oceans, by agricultural activities and by the deforestation of ever larger areas of the Earth's surface. This drying creates "hot plates" with a complete chain reaction: the warming of continents, the destabilization of the water cycle and an increase in extreme weather. This is causing extensive damage to both economies and civilization. That's why calculating, systematic monitoring, guarding and maintaining equilibrium in water balances is becoming imperative even on the city level. Thus far in its history, however, mankind has not even considered this condition for sustainable economic and civilizational growth.

The new paradigm, though, not only calculates the balance of water but also offers a solution for making up the deficit. We can return the lost water back to the continents by keeping rainwater on a massive scale in the places where it falls, particularly in those areas where the influence of

human activity is causing a drying out. Just as the impact of human activities (as their unplanned secondary effect) can lead to a breakdown in the small water cycle, so concerted human activity can contribute to its renewal over land as well as to securing long-term stability in the water balance of a territory with sufficient water resources. If the current method of managing rainwater and surface water on land is turned around and the conservation of rainwater and surface water on land is ensured by a system of all embracing measures for increasing the water-holding ability of an entire watershed (which are often identical with anti-erosion measures); and if only the surplus surface water is sluiced away from an area, then with each turn of the cycle there will be recovery of the small water cycle, the reserves of groundwater will gradually improve, the volume of precipitation will increase, and extreme weather events will decrease.

Mankind has used different means of rainwater harvesting and water conservation over the millennia in order to obtain sufficient water resources. Our knowledge of their broader impact on the stabilizing of the water cycle and climate is often primarily intuitive—it was never described from the scientific standpoint. Traditional systems for obtaining water in the 20th century were founded on the building of reservoirs in which water was collected and which served to balance the water regime of rivers. This water was subsequently used to supply the population and to serve the needs of industry and the production of energy and food. In our case, however, the goal is to collect rainwater and, wherever possible, return it to the small water cycle. The primary principle is to allow infiltration of water into the soil, its saturation and the creation of groundwater reserves as well as surface water reserves, and thereby foster the growth of vegetation, which works as a climatization valve between the soil and the atmosphere. The capacity of soil (and subsoil) is usually much higher than the volume of the largest artificial reservoirs in a country.

The process of saturation of the small water cycle should be repeated so long as the hydrological regime of watersheds are out of balance. However, such measures need to be carried out on a massive scale.

Leaving untreated great "hot plates" lowers the effectiveness of measures taken in their nearby surroundings and sometimes even directly threatens them. The measures that need to be taken are simple, effective and cheap but need to be implemented in the territory of each community and town. Wherever possible, all the communities in the world should get involved in this program of rainwater harvesting and conservation on the continents.

Rainwater harvesting and the conservation of water on land has a number of aspects which on first view can appear to be paradoxical.

People fearing floods can mistakenly expect that a dry country can better absorb a great amount of water than a country which is already significantly saturated with water. Experiments and experience show otherwise, however. Water flows over sunburned land as if over impermeable plastic foil while water infiltrates into healthy soil, held firm by vegetation, as if into a sponge. What's more, moderate temperature differences on the surface of land covered with healthy vegetation do not induce the torrential type of precipitation which occurs in an overheated, dehydrated landscape.

One paradox, then, is that water itself is the best protection against water. Another apparent paradox is that, despite what many people might think, the method of conserving rainwater in one area does not deprive neighboring lands downstream of precious water. The difference is similar to that between a static command economy and a developing free economy. The first always divides the same small cake, and a larger piece for one means a smaller piece for the other. The second, however, divides a cake which is always growing for the benefit of all. The conservation of rainwater on land actually helps neighboring lands.

The runoff of rainwater from a country is not stopped completely but is merely slowed down. In place of the sudden rain-dictated, often extremely small or extremely large flow rates, particularly from surface runoff, a much more balanced runoff, fed from groundwater, can now be passed on to one’s neighbors. Moderate rain from the small water cycle rooted in a water-saturated country moistens the cities, fields and forests of neighboring lands and thus opens up the opportunity for these places to manage water in the same way. The method of retaining rainwater on land creates cascades of watersheds (or their parts) rich in water instead of dry cascades of watersheds.

The new water paradigm means developing, utilizing and supporting overland rainwater harvesting and conserving rainwater in watersheds so that ecosystems can "produce" enough good quality water for humanity, food and nature, can purify polluted water, can reduce the risk of natural disasters like floods, droughts and fires, can stabilize the climate and strengthen biodiversity and can become a component of economically sustainable development programs. What the new water paradigm offers is promotion and support for such a culture of land use which will permanently renew water in the water cycle through saturation of the soil with rainwater. The new water paradigm means a return to a natural responsibility for the state of water in one’s region, but can also bring a new dimension of solidarity and tolerance between

people and communities in watersheds.

The new water paradigm brings with it a lot of exceptionally good news. The new economy of water promises that it will be able to balance the debt that arose in the past, lower the unwanted effects of this debt manifesting themselves in ever more extreme weather, stabilize the management of water and guarantee its sufficiency.

The continents, with harvested rainwater, will stabilize thermally and climatically and the extremes in the weather - particularly floods and drought - will be mitigated. Increasing the water-holding capacity of the land and harvesting precipitation in the places where it falls are themselves effective anti-flood measures. Natural disasters will obviously always occur, but excluding external factors, the level of economic and civilization damage caused by the weather will be greatly reduced. These statements also apply to the possible revival of semideserts and deserts through rainwater. With these areas we can assume an exceptionally long and difficult process, because the evaporated water, given the thermal differences, will be carried away to other regions. Nevertheless, particularly in those cases where the change was unwittingly caused by man, deliberate, carefully planned human activity can perhaps return them to their previous state. The slow and gradual revival of semideserts and deserts through rainwater, particularly in places where just a relatively short time ago civilizations blossomed, should not therefore be impossible.

This thinking represents both an exciting challenge and a program of activity at the same time. Just as our ancestors attempted in their battle with nature to stake out a piece of uncultivated land and civilize it, so must we attempt to recover from the ocean the water we all have lost in the struggle, so that the efforts of our ancestors to civilize our planet were not merely in vain. We can begin with relatively small volumes of water, like collecting rainwater for the dried-out lawn in our front yards. From there we should go on to the much larger task of finding a way to regain the water which once existed on the territory of cities and which, since the times of the industrial revolution, has been running out into the oceans. The largest, and in a country like Slovakia the maximally taxing, requirement would be to recover all thewater which exi sted in the ecosystem at the time of the climax forest that covered the land a thousand years ago. On other territories, the challenge would have to go even further; for example, we would like to return water and renew the water cycle in the Mediterranean or on the once fertile lands of the Fertile Crescent.

Future Chapter?: Soil

New Page

The work of the neurobiologists in the last thirty years has been the source of what inspiration I have in changing our world view. This work, while it has inspired more effort and investment in Big Data technology and artificial intelligence, has more importantly redressed the imbalance between Faith and Reason, caused by the Enlightenment enthronement of mechanistic science, by showing how ***Feeling*** is essential to cognition and consciousness. Feeling is also related in this work to the physio-chemical activity of the autonomic system in all organisms, which re-establishes the link between ourselves and the biosphere.

The writers who have taught me about this are Andreas Weber, a German biologist and poet, and Antonio Damasio, a neuroscientist with strong humanist leanings. Both stress the importance of feeling as moral potential as well as a precondition of consciousness. Weber's teacher, Francisco Varela, is also an important voice. Uniquely (in the West) he has proposed that Buddhist practices of mindfulness are in fact a legitimate and practical way to work with "groundlessness". In the medical and psychological field Bessel Van der Kolk's book The Body Keeps the Score has had a profound personal effect on me.

This new world view makes it necessary to approach problems like climate change, the injustice of neoliberal economics and the destruction of the biosphere with a humility that humans seem to have lost toward the gift of Life. This gift is now being found to involve some kind of sentience we cannot define or control but which makes it possible for bodies to *be* in a world. This seems to me to be what Spinoza meant by the Conatus, which sustains all being. This sentience is ignored by our amazing technology but is making itself felt in the many environmentally aware movements all over the world. In Damasio's words, it is more than just consciousness: perhaps we should call it conscience.

I think a BFG needs to engage people at this level, which is where we truly realise that we need help. It seems to me that the DHO commitment is an expression of this need to support each other.

My big leap into the world of natural farming came about through the lens of permaculture. This gave direction and a way of moving into the complexity of working with Nature and not fighting against Nature, which has always been one of the core principles of permaculture. I came at it from a very practical, functional perspective. I and other Africans who attended permaculture gatherings in the North in the early 90s found the New Age spiritual activities at these gatherings rather mystifying. We weren't sure what we were doing dancing in circles to strange sounding music. For us permaculture provided a practical way to manage the land.

Gradually over the years I've come to realise that commitment to looking after the land, to being in tune with Nature (if one can ever be, in all humility), has to come from deep within one's soul, the ***Feeling*** that Michael is referring to, the feeling that my real, authentic being ***is*** Nature, that deep place where one feels, throughout one's nervous system, in harmony.

I now believe that not so long ago this was a part of African cultures across the continent. The Sacred Natural sites that used to exist, and still do (just) in some places, bear testament to this. I suspect this applied to cultures across the World. I know the African situation better. It's time to revive those cultural practices that bonded people closely to their land, to Nature, to their history on that land, to their ancestors who handed over responsibility for caring for the land. This is not about going back but about looking back to go forwards. This is about re-rooting in landscapes with feeling. And this does not need to clash with existing faiths, as some fear. I remember speaking in depth to a devout Christian woman in Kivaa in north east Kenya in 2012, who expressed her joy at reconciling her Christian faith with her community's efforts to revive Kivaa Hill as the Sacred site it always used to be.