

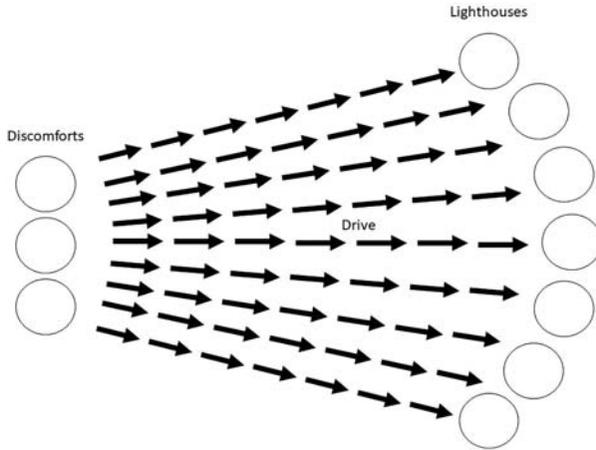
# Chapter 1

## Aspiring to a new story

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In this chapter, I will investigate and attempt to crystallise the drive towards a new way of relating to water. During the process of writing this book, I have developed my capability to speak from this drive and about this drive. And I find that a surprising number of people themselves sense a similar drive. For some, it is strong and has weight and volume in their everyday inner life. For others, it is only a faint sound that springs up under circumstances of long slow conversations. It is as if there is a secret almost silent trickle inside. For most, however, the conversation of this theme is difficult to carry out. It is awkward, confusing, messy and unclarified, words are missing. It feels like trying to access an unresponding part of the brain. Charles Eisenstein speaks of the state we are in as ‘a place between stories’ (Eisenstein, 2015). Our old story organising our intuitive understanding of everything is breaking down while at the same time, a new story is not yet available to us in full. We are like the polar bears we see in photos standing on slates of melting ice with no new ice slate to move to.

The interpretation of the drive is carried out by finding metaphors, concepts and imaginative ideas that point in that direction (Figure 2). It is a work of trying to capture something elusive. The drive is expressed differently in each of us, but there are also strong similarities. During this work I repeatedly come across similar patterns from all over the world. Hence the aim here is a recognition and exploration of this inner landscape more than it is a scientific excavation of a new principle. It is asking: how does this drive feel in me? What does it mean to me and what feels true about it?



**Figure 2** Illustration of the concept of discomforts and lighthouse stories determining our inner drive.

It has been challenging to find a method to describe this systematically. An important step has been to isolate and investigate the primary discomforts in how we operate now. Step two in the process has been looking for ideas and accounts that have a soothing effect on the pain of the discomfort; an understanding that can truly respond to the discomforts; an understanding that contains an inspiring spark of something new. Understanding the drive from the discomforts to the new is a process of searching backwards and inwards to understand the inner aspirational drive. The negative discomforts and the positive possibilities show the direction. And they provide the fuel forward towards a new story. It is almost as if the future has lighthouses beaming in the horizon.

After understanding the critical driving forces begins the work of imagining and visioning. How does a radically different future with a healthier relationship with water in a more beautiful world look and feel? What would be some of the governing principles? We must approach this thought experiment with an open mind, an open heart and an open will. To experiment means we need to lose our grip on the current story and attempt a different footing.

*'To dare is to lose one's footing momentarily. Not to dare is to lose oneself.'*

Soren Kierkegaard

**Your reflections:** If the idea of discomforts and lighthouse stories make sense to you, how would you describe your discomforts and which lighthouse stories provide you with a soothing sense of hope?

I have found three essential discomforts that encompass a kind of skeleton description of the current trouble. These are feelings of desecration, apathy and banality. In the following, I will delve into a deeper understanding of what these feelings can mean.

## THE DISCOMFORTABLE FEELING OF DESECRATION

The feeling of desecration links to what Gustaf Olsson tried to convey when speaking about water being holy or sacred. By desecration I mean the continued acts of not keeping ‘the sacred’ sacred. We can observe this lack of sacred outlook and actions when we pollute water or when we view water first as a resource for our consumption, a resource to be treated and traded as we see fit without thought for the role and meaning water has in the whole picture.

Inside me, it looks like a gap from where we are to a ‘sacred line’. On one side of the sacred line we see ourselves as ‘being an integral part of nature’ on the other we have ‘a human-centred exploitative look on nature’. A special quality of dedicated care and attention is required to stay on the honourable side of that line. The concern of this discomfort is that we have moved so far away from the line that it is difficult even to see the line from where we stand. And, we left the line so long ago that we have almost forgotten it. This ‘dreamland border’ is quickly forgotten when living in the ‘ordinary world’ of everyday life with seemingly abundant water conveniently available.

However, regardless of our forgetfulness, wherever we go there is always this country behind the curtain. We may be able almost to forget it, to almost ignore it, to almost repress it – but always only almost.

*‘Behind the cotton wool is hidden a pattern; that we – I mean all human beings – are connected with this; that the whole world is a work of art; that we are parts of the work of art. Hamlet or a Beethoven quartet is the truth about this vast mass that we call the world.’*

Virginia Woolf (1976)

Acting as if the land on the other side of this line does or cannot exist exhausts me, and it is becoming increasingly clear to me that it is a disconnection. There is in this disconnection a kind of dishonouring. And one thing is that it is hurting our environment but it also hurts ourselves in the stories we tell about ourselves and the stories we cut ourselves off from and thereby limit our potential. And by this realisation, we see an essential misunderstanding about our distinction between ourselves and the so-called environment. It is not that I feel that there is no difference between me and the environment and that ‘it is all one’, but instead it becomes more and more clear that what we do outwardly we also do inwardly to ourselves.

*‘People who dream when they sleep at night know of a special kind of happiness which the world of the day holds not, a placid ecstasy, and ease of heart, that are like honey*

*on the tongue. They also know that the real glory of dreams lies in their atmosphere of unlimited freedom.'*

Karen Blixen (1937)

If there were to be a true heart-felt honouring of water, we would be crying about what is happening. We would be crying for the oil spills in the Mexican Gulf or the devastating oil spills during decades in one of the most important wetlands in the world, the Niger Delta in Nigeria. We would be crying over toxic chemicals of pesticides, medicine and beauty products found in water everywhere. We would cry about the Samarco mine tragedy in 2015 (see, for example, [Gormezano et al., 2016](#)) where toxic mud poured out after a burst mine dam; and then travelled 500 km by the river of Doce to the Atlantic Ocean, colouring everything red-orange on its way – leaving a trail of toxic heavy metals and other substances that only centuries will erase. We would cry over the taste of chlorine in our drinking water. We would cry about the animals whose habitat is defiled by plastic debris everywhere. We would cry over the impoverished state of our streams flooded by wastewater and a constant seeping in of fertilisers and pesticides. We would cry with the many silly, invaluable products we produce with the consumption of water for the sake of a short, shallow gratification. If we genuinely believed that water was sacred, this would be a world of grief.

This suppressed grief and despair is described in all its horror by [Eve Ensler \(2014\)](#). With this text, suddenly, what we have unknowingly ignored, repressed and placed in our blind spot is made visible, and the pain is almost tangible.

*'I began to see my body like a thing, a thing that could move fast, like a thing that could accomplish other things, many things, all at once. I began to see my body like an iPad or a car. I would drive it and demand things from it. It had no limits. It was invincible. It was to be conquered and mastered like the Earth herself. I didn't heed it; no, I organized it and I directed it. I didn't have patience for my body; I snapped it into shape. I was greedy. I took more than my body had to offer. If I was tired, I drank more espressos. If I was afraid, I went to more dangerous places. [...]*

*Then I got cancer – or I found out I had cancer. It arrived like a speeding bird smashing into a windowpane. Suddenly, I had a body, a body that was pricked and poked and punctured, a body that was cut wide open, a body that had organs removed and transported and rearranged and reconstructed, a body that was scanned and had tubes shoved down it, a body that was burning from chemicals. Cancer exploded the wall of my disconnection. I suddenly understood that the crisis in my body was the crisis in the world, and it wasn't happening later, it was happening now.*

*Suddenly, my cancer was a cancer that was everywhere, the cancer of cruelty, the cancer of greed, the cancer that gets inside people who live down the streets from chemical plants – and they're usually poor – the cancer inside the coal miner's lungs, the cancer of stress for not achieving enough, the cancer of buried trauma, the cancer in caged chickens and polluted fish, the cancer in women's uteruses from being raped, the cancer that is everywhere from our carelessness. [...]*

*I know that everything is connected, and the scar that runs the length of my torso is the markings of the earthquake. And I am there with the three million in the streets of Port-au-Prince. And the fire that burned in me on day three through six of chemo is the fire that is burning in the forests of the world. I know that the abscess that grew around my wound after the operation, the 16 ounces of puss, is the contaminated Gulf of Mexico, and there were oil-drenched pelicans inside me and dead floating fish. And the catheters they shoved into me without proper medication made me scream out the way the Earth cries out from the drilling.'*

Eve Ensler

I put this pain here in the centre of us to help us remember where we start and why we need this journey. Some may find the description overly dramatic, but even so I believe that for all, there is a recognition. I could fill pages documenting the state of water everywhere. Although the disaster stories that arrive through broadcasted media are exceptionally horrendous, they describe a widespread trend. This is the direction we are heading in everywhere. Everything is a matter of degree from the best state of water to the worst. But the best state, which was not so long ago the natural state everywhere, is disappearing. 'Oh, here it is as it should be – still'. There are problems everywhere. There is no secret remote refuge where the water is pristine.

That is a sad thought, and the feeling of this thought is an essential part of the discomfort with where we are. We are not where we collectively want to be with water. It is so far from our hopes and aspirations and what feels right. It becomes increasingly strenuous even to visit the original situation in our imagination. We struggle already in these years to remember the old natural state of nature. The struggle to remember will only get harder with each passing year. Already now we need to investigate historical records of different kinds to try to piece together an image of the original nature.

**Your reflections:** In our modern world water is not seen as sacred. Imagine you could make yourself see water as sacred. How would that change what you do professionally and privately? Would it feel different when approaching issues that have to do with water? Would it change the feeling of the water in you?

## LIVING WITH A SACRED LOOK AT NATURE

The documentary 'Aluna' (Eirera, 2012) features BBC journalist Alan Eirera who in 1990 made a movie about the Kogis. The Colombian indigenous Kogi people live in the area of Sierra Nevada de Santa Marta. Here they follow their indigenous way of life and traditions. The Kogis asked Alan Eirera in 2012 to make a new movie. The Kogis stated that their purpose was to send a message of

warning to ‘little brother’ (their word for modern man). To make him aware that earth and nature are suffering and dying.

I watched the documentary twice. The first time my primary feeling was confusion and frustration. And the frustration was shared with everybody in the documentary. The communication gap between Alan Eirera and his film crew on one side and the Kogis on the other side is so wide and deep that it appeared almost impossible to communicate across it. Not so much due to language but due to widely differing mind worlds. Hence the documentary is not only about the environmental message the Kogis were trying to deliver; even more striking is the frustrating gap hindering their common understanding. Something evident and clear from an indigenous perspective is entirely invisible and incomprehensible from a western perspective.

The movie starts with a summary of the creation story of the Kogis:

*‘In the beginning, there was nothing. All was darkness. There was only the mother. She was Aluna. She was pure thought without form. She began to think. The mother conceived the world in the darkness. She conceived us as ideas. As we think out a house before we begin to make it. She spun the thread. Spinning us all in the story. Creating us in thought. And then came the light. And the world was real.’*

Quote from the movie Aluna

The Kogis find it evident that critical networks connect special places. And they find it obvious that modern man’s activity is destroying these ‘special places’; and that the activities are deeply detrimental and catastrophic. According to the Kogis, a black thread of thought connects the unique places. To make the connections visible to ‘little brother’ the Kogis embark on a pedagogical mission with Alan Eirera. Their best way to explain this is to take a thread of gold (actual real gold) and physically connect the special places to make the connection visible. Hence, they bring a 400 km long gold thread to the start and drag it from there through a number of specific sites at the mouths of rivers.

*‘We, the mamas [enlightened priests of the Kogis], know that there are special sites and they are threaded together. We’re explaining this to our brothers across the sea and showing the connections between places. ... The lakes that are found high in the mountains are linked to the sea. Bubbles appear in the water, and the bubbles make the connection, that is how we communicate with the lakes and the sea. The water speaks.’*

Kogi Mama (Aluna)

Again and again the Kogis fail to explain the problem in a way that Alan Eirera comprehends. But after many attempts, Alan finally finds a professor who moves the understanding forward. Professor Jonathan Bailie says:

*‘In conservation we have a problem because we tend to conserve an area without much thought to the special places in a geological time-scale. So, for species, there are areas that are like a refuge, which, through geologic time, have been extremely important for them to survive. And in the short term, we may remove these areas, and there may be no*

*big effect, but in the long term, through history, the species can't persist when those special zones have disappeared.'*

Jonathan Baille (Aluna)

The Kogis nod eagerly, happy and relieved to find some common ground finally.

*'We have to better understand connectivity, and right now, we have a very basic understanding of how things interact and affect each other. And I believe that this is essential for our future's security, to understand these special sites, to ensure that they are conserved.'*

Jonathan Baille (Aluna)

The movie is a pain to watch. On several frustrated occasions, Alan tells the Kogis in a very direct form that he finds it very difficult to see their point in the whole film project. It is a pain for the Kogis, who are trying to explain what is self-evident for them. Like a fish asked to explain how it is to swim in water. And in the end, when we finally get enlightened, it is a painful understanding.

The understanding is that places are connected, and specific points bear great importance. At some point we may be able to understand this importance from a scientific point of view; by investigating the places in the perspectives of ecology, water cycles, diversity, evolution, geology etc. But more likely we may experience the consequence by accidentally destroying these places.

From a Kogi point of view, this is however only half of the story. There is also an important spiritual dimension. For the Kogis, it is not only a question of securing physical livelihood in the form of functional ecosystems. There is more to it than the basic scientific mapping of relevant nutritional cycles, water cycles or habitats. In their eyes 'little brother', western man, is acting like a drunk man on a large scale, not aware of the havoc he is causing as he stumbles around.

The Australian Aboriginal idea of song lines has a similar feel to it. It has a similar sense of a world hidden beneath what we can see with our eyes. When I visited the University of Queensland in Australia, I was so looking forward and even excited to read the stories from Aboriginal mythology. But to my disappointment, the stories left me confused and unable to grasp the point of them. The stories felt almost incomprehensible. Recently I picked up the mantle again of trying to understand. As I read about song lines, I suddenly gained some ground of understanding. The stories seemed 'pointless' because 'the point' was something different from what I expected – it was not about heroes and villains.

Songlines, also called dreaming tracks, criss-cross all of Australia. A songline is a track over land connecting distinct places such as waterholes, hills, rock paintings and other landscape markings. A songline may cross and connect different groups of people with different languages. The songlines can be sung and describe the story of trajectories of ancient ancestors who marked the country in the Dreamtime (the time of creation according to Aboriginal mythology). The Aborigines see themselves as custodians of the country. Each tribe has the responsibility for keeping the part of the songlines that crosses their territory alive. Bruce Chatwin,

who in 1987 brought knowledge of songlines to the public, wrote about the Russian Arkady who taught him about songlines. Arkady learned about the ‘song lines’, the ‘Dreaming-tracks’, the ‘Way of the Law’ or the ‘Footprints of the Ancestors’ when he was a school teacher:

*‘Aboriginal Creation myths tell of the legendary totemic beings who had wandered over the continent in the Dreamtime, singing out the name of everything that crossed their path – birds, animals, plants, rocks, waterholes – and so singing the world into existence.’*

Bruce Chatwin (1987)

Arkady was asked to help with drawing the line for the railway going straight south–north from Alice to Darwin. Arkady was asked to help avoid going through too many sacred places: ‘Well, if you look at it their way’, he grinned, ‘the whole of bloody Australia’s a sacred site.’

Laine Cunningham, who travelled in Australia to collect some of the song line stories in her book *Seven Sisters* (Cunningham, 2013), describes it like this:

*‘According to Australia’s ancient cultures, all creatures and things emerged from the Dreamtime. The Dreaming is not just a collection of lore or a long-ago time; it is a living energy that flows constantly through the universe. It is then and now, divine and human, spirit and law. It teaches us how to survive in a harsh world and how to thrive in our souls.’*

*Most clans conceived of a creation in which Earth already existed. Ancestors rose out of the ground and descended from the sky. Wherever their feet pushed up mounds, mountains arose; wherever the ancestors fought, the ground was trampled flat.*

*Tribal members can still ‘read’ the land by walking a story’s path, its songline. In this way, the people were connected to the land. The largest song lines, epic stories of ancestors who ranged far across the continent, connected different tribes. When an ancestor crossed into new territory, the next part of the story belonged to the neighbouring group. The entire song line could only be recited when all the tribes had gathered. Relationships between neighbours were therefore automatically – and spiritually – strengthened.’*

Laine Cunningham, author

‘But!’ one may object, ‘I am no longer indigenous. I belong to a different scientific culture. We left the indigenous living and mindset many generations ago. You surely don’t want me to pretend I have this type of bond to nature?’ No, perhaps not. But there is something in this that rings true and rings like something lost. Indigenous people still keep contact to their mythology; they keep it alive. And it is as if they are guarding something important for all of us – a living thread back to a more sacred look on life. In Australia, the Aboriginals have maintained their society and livelihood sustainably for millennia in the difficult Australian terrain. This way of thinking has served an essential purpose of ensuring the continued way the aboriginal culture has thrived and survived. The idea of songlines is both elegant and enjoyable to think around. There is something in it that passes the platonic test of being good, true and beautiful.

If I look at our current modern world through the eyes of indigenous eyes, I am overwhelmed by the particular kind of poverty we have created in our society. When I walk outside my house, my landmarks are gas stations and supermarkets and natural places like forests and lakes have watered down, stumped and numbed.

*'There are no unsacred places, there are only sacred places and desecrated places.'*  
Wendell Berry (2005)

Wendell Berry points at an important point, that all places are sacred until treated with disrespect. Implicitly they can become sacred again when the violation is made right, when we start acting 'sacredly' towards these beautiful natural living phenomena. We have to find a way to bring places back to life in us, to re-understand and reconnect with where we live. In the same way, there is a longing to find a way back for water; to gain a heart for water; to reconnect to water mythology and to treat water with greater respect and eventually sacredly.

**Your reflections:** Indigenous people (aboriginal or native people) carry with them a culture from before industrialisation. Many have existed sustainably for centuries. They have a closer bond to nature. What kind of things do you think we could learn from them in terms of water? Might they contribute with principles or ways of bonding with nature that could be helpful where we are today?

## THE DISCOMFORTABLE FEELING OF APATHY

I know the feeling of apathy inside me. There are degrees of apathy, and it feels like a wind I stride against in myself. Like a tiring resistance of will.

But when I learned of the origins of the word apathy in an interview with ecologist Joanna Macy, something fell into place; I understood the source of the apathy.

*'I realised the etymology of the word was a reflection of what was so. [early 17th century: from French *apathie*, via Latin from Greek *apatheia*, from *apathēs* "without feeling", from *a-* "without" plus *pathos* "suffering."] It was not that people didn't care or didn't know, but that people were afraid to suffer. It was the refusal or the incapacity to suffer.'*

Joanna Macy (Jamail, 2017)

This description made me understand the reason for apathy and the reasons for its occasional disappearance. I know both the avoidance of suffering in me and the despair when the bulwarks of avoidance are flooded. I have always felt this as a

lack of strength in me, that I should be so susceptible to pain and despair and unable to stay invariably positive and without sorrow.

But perhaps it is true that our bulwarks of avoidance against becoming touched by suffering are the locus of our apathy. In a water perspective, our avoidance of feeling suffering perpetuates suffering. It causes our actions to lead to water pollution, droughts and flooding – or even if we try to ‘do good’, the lack of feeling of suffering blunts our actions.

Letting in suffering is hard. It hurts. It requires courage. Hence its repression is often our automatic subconscious standard response to oncoming suffering. The avoidance keeps us comfortable – at least in the short time-scale. But for happiness and bliss to return, we must strive to live wholeheartedly. That means being aware of what is happening. And regardless of what positive or negative realisation presents itself, to take that in wholeheartedly.

Hence if we have chosen to work with water in our lives then let us do so wholeheartedly. That is the challenge we must meet. In the same way that we need those who work with judicial matters to strive in their actions to move us towards justice wholeheartedly. And those that work with healthcare to move us towards health wholeheartedly. And those that work with education to move us towards competence wholeheartedly and so forth. When we look around, it is clear that if we are not going to speak and act for the liveliness of water who is? If not us in precisely this place and this time? Who else is going to ensure good and healthy water for people and nature here?

Being a water professional is a big responsibility; just as ensuring justice, medicine and teaching is. To deliver on this responsibility is not a ‘walk in the park’. And though I occasionally see heart-based approaches in utilities, I more often see a lack of wholeheartedness; a lack of paying attention and a lack of courage; of playing it safe, of taking short-cuts, and of not going the extra mile, to deeply understand the problems at hand. I see, again and again, water managers, politicians and professionals holding up legislation or economic restraints as if they were solid barriers; barriers against doing the right thing or against thinking for ourselves to understand this situation deeper. And for sure, there are plenty of barriers. But the barriers do not legitimate giving up on doing what is needed for protection or restoration. We need to search for ways to improve our mode of water operation to become sustainable and aligned with our higher ideals.

The ignorant progress-optimistic innocence that was the dominant mindset in the ‘60s, ‘70s and perhaps still in the ‘80s, is gone forever. We know better, and we can see or imagine the suffering of our actions with no great difficulty. If the consequence of this tendency to avoid sensing the suffering is apathy, then it is not only an irresponsible stanza but also a very unhappy solution for us individually as well as collectively. As the days count on, the physical world is made relentlessly worse by processes of unsustainable behaviour. And individually, we unconsciously sense stuckness in this unhappy state of apathy.

The uncomfortable question then is: what to do with this suffering feeling, when neither repression nor being overwhelmed by it are good solutions? Finding an answer to this question is key to the legacy we will leave behind us.

I recognise a truthfulness in this quote from Rainer Marie Rilke. He manages to describe the feeling of suffering, the solution and the result in one short quote:

*'It seems to me that almost all our sadnesses are moments of tension, which we feel as paralysis because we no longer hear our astonished emotions living. Because we are alone with the unfamiliar presence that has entered us; because everything we trust and are used to is for a moment taken away from us; because we stand in the midst of a transition where we cannot remain standing. That is why the sadness passes: the new presence inside us, the presence that has been added, has entered our heart, has gone into its innermost chamber and is no longer even there, - is already in our bloodstream. And we don't know what it was. We could easily be made to believe that nothing happened, and yet we have changed, as a house that a guest has entered changes. We can't say who has come, perhaps we will never know, but many signs indicate that the future enters us in this way in order to be transformed in us, long before it happens. And that is why it is so important to be solitary and attentive when one is sad: because the seemingly uneventful and motionless moment when our future steps into us is so much closer to life than that other loud and accidental point of time when it happens to us as if from outside. The quieter we are, the more patient and open we are in our sadnesses, the more deeply and serenely the new presence can enter us, and the more we can make it our own, the more it becomes our fate.'*

Rainer Marie Rilke (1929)

Equipped with this understanding, I find it possible to have a more relaxed and mindful reaction to these hours of dark suffering. To go through these suffering processes, these doors, not as inconveniences, but as moments of transformation. Repeated, slow changes in our mindset and 'heartset'. When carried through mindfully, these painful periods present practice of a softening of the heart and a way out of apathy. Be still.

**Your reflections:** What is your relationship to suffering? How do you empathise with other people? Can you sense or imagine suffering in animals? In plants? In all living organisms? How do you feel about the environment as it is outside your home? How well do you know it?

## THE DISCOMFORTABLE FEELING OF BANALITY

Elisabeth Minnich highlights the extremity of living a life of banality. She comes from a different starting point, but her findings carry relevance here. Minnich is a student of the famous philosopher and researcher Hanna Arendt, best known for the idea of 'the banality of evil'. The concept of 'the banality of evil' was

developed while following the lawsuit against Erich Eichman. Erich Eichman was one of Nazi-Germany's leading architects. Hanna Arendt's finding was that Erich Eichman was not a uniquely evil human being, but rather quite ordinary and 'banal'. She found that when the process of Nazism was first in motion, banal people were very useful in implementing and perpetuating it. Her point was that what had happened in Germany could have happened in many other places – given certain conditions. This, of course, in itself is a valuable insight. However, her student Elisabeth Minnich turns the concept of 'the banality of evil' a bit on its head:

*'When Arendt took me with her to public discussions of her book, which were often acrimonious and painful, what struck me was, first, that "the banality of evil" was deeply troubling to people, as it seemed to trivialise enormous wrongdoing and suffering. It occurred to me that, had Arendt spoken of "the evil of banality", what she meant might have made more sense. The thought has stayed with me that we need to comprehend how banality – superficiality in its differing modes –works to enable its apparent opposite, the great drama of horrific harm-doing.'*

Elisabeth Minnich (Ballowe, 2018)

In her work, Elisabeth Minnich differentiates between two types of evil: intensive and extensive evil. The 'banality'-hypothesis of Eichmann is not useful when understanding Hitler; he is not banal. Intensive evil is about the evil psychopaths' living among us, who set out to harm us on purpose for their own benefit. Extensive evil, on the other hand, is more commonplace, and we are all perpetrators of extensive evil due to our thoughtlessness and our unreflected ways of operating which is part of our culture. Extensive evil is the repeated pattern of what we accept in our culture that upon closer scrutiny turns out to be wrong by our standards and values. It is a normalisation of things that we, in our hearts, know to be evil. If we were individually asked to decide about such actions, we would not find them to be ok. But we are not asked to decide or carry many of the actions out personally; they are already embedded 'in the system' or in our invisible culture.

Elisabeth Minnich explains:

*'It is intensive evil for a pyromaniac to launch a forest fire, or for a criminal cast out of a village to sneak back and poison its wells. It is extensive evil when the pillars of society and a whole economic order accepts as mainstream that pollution of whatever sort and consequence is understood to be a mere bother that must not derail profits, economic growth, freedom from governmental interference. When careerism, greed, status-seeking are rewarded for work that is horrifically harmful to large numbers of people, even to a viable future for all, we have a classic case of extensive evil. It is not perpetrated by monsters; it is perpetrated by those who think no further than how to play and try to win in the present game, by the dominant rules.'*

Elisabeth Minnich (Ballowe, 2018)

When we look at the suffering and destruction that take place in our shared sustainability crisis, extensive evil plays the main role. Intensive evil can hardly be played out on such a global scale, without the help of extensive evil. Our habits, culture and mindset blind us so that we cannot see what part of our everyday life is causing extensive evil. We are both ‘victims’ and perpetrators of our own ‘evil of banality’ – and often we must take the role of rescuer; perpetuating the eternal drama triangle. Our world interpretation and our understanding of our role in our world are too oversimplified, too banal. There is a heavy shadow side in our lives that we continue to deny. It has shown to be a very difficult pattern to break: ‘I will not change until the mainstream changes’.

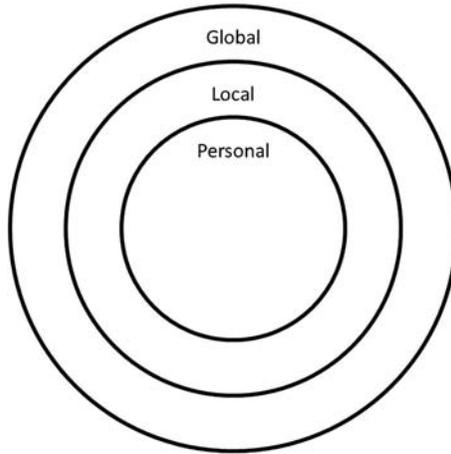
The banality prevents us from understanding the deeper impacts when we extract too much water or lead out poorly treated wastewater in recipients – not looking into the consequences and not understanding – eyes wide shut.

**Your reflections:** Do you know the feeling of shutting yourself off when you have to do something that does not feel quite right? Do you recognise having experienced aha-moments that have changed your perception of something, so that something that you did before that you will not do again? If you look out at life in general, are there things that you need we will not do ten, twenty or fifty years from now on moral grounds?

The three feelings of desecration, apathy and banality capture the essence of a gap in the integrity of our emotional landscape towards water. Acknowledging these feelings has been difficult on more levels. It was difficult to understand that they were the ailment. It was difficult to accept my complicity. It took time to dig into the research on these topics. The desecration causes suffering that I am not letting in, causing apathy. The banality of my understanding of myself and the world and the local consequences of our water use causes my apathy to continue and my actions to be superficial. So, a significant shift is needed.

It is as if I need to squeeze myself through something and from there feel my way through what soothes and balms the pain of these feelings. Upon hours and weeks of contemplation, I found that it had to do with the heart. It had to do with not understanding or even listening to my own heart. At the onset I hardly knew what I meant by that. Therefore it has been step-by-step learning to lead a more wholehearted life. I have not reached my golden goal yet, but I have learned a lot. I have learned something that shifted my being. It had to do with deeper understanding, wholeheartedness and attending to the pain of these discomforts.

Various lighthouse stories have captured a sense of different possible futures. Ideas, concept and stories that enrich and direct an evolving mindset in the water journey ahead. In the following I will provide an understanding of the role of the heart on three interlinked levels: the personal, the local and the global. Together



**Figure 3** A way to illustrate a more holistic view is to consider the three layers of stories we need. The personal, the local and the global. All three levels must be comprehended and addressed in our work moving forward.

they form a kind of integrated understanding of how to apply more heart in our work as water stewards (See [Figure 3](#)).

## THE ROLE OF THE HEART IN THE PERSONAL

In H. C. Andersen's story 'The Nightingale' ([Andersen, 1843](#)), we are introduced to an emperor with a beautiful garden and a beautiful forest.

*'Those who travelled beyond its limits knew that there was a noble forest, with lofty trees, sloping down to the deep blue sea, and the great ships sailed under the shadow of its branches. In one of these trees lived a nightingale, who sang so beautifully that even the poor fishermen, who had so many other things to do, would stop and listen.'*

H. C. Andersen (1843)

When the emperor read about the bird in a book, he wanted to hear it sing. So he summoned his court to bring it to him. After some difficulties, the court caught the bird and he finally heard it singing. The sound of the song stirred the heart of the emperor so much as to bring tears to his eyes. The bird brought him so much happiness that he installed the nightingale in a cage in the palace.

One day, however, the emperor received a gift from Japan.

*'It was a work of art contained in a casket, an artificial nightingale made to look like a living one, and covered all over with diamonds, rubies, and sapphires. As soon as the artificial bird was wound up, it could sing like the real one, and could move its tail up and down, which sparkled with silver and gold.'*

H. C. Andersen (1843)

The artificial bird created lots of amusement and attention, and during all this commotion, the real nightingale took her flight home to the noble forest.

*“But we have the best bird after all”, said one, and then they would have the bird sing again, although it was the thirty-fourth time they had listened to the same piece.’*

H. C. Andersen (1843)

For a while, the artificial bird created much happiness. However, as with all mechanical things there came the point in time where it was almost worn out and could only be wound up once a year.

Five years later, the beloved emperor fell seriously ill.

*‘A window stood open, and the moon shone in upon the emperor and the artificial bird. The poor emperor, finding he could scarcely breathe with a strange weight on his chest, opened his eyes, and saw Death sitting there. He had put on the emperor’s golden crown, and held in one hand his sword of state, and in the other his beautiful banner.’*

H. C. Andersen (1843)

The people who usually were around him had left to vie for the future emperor. In his misery, however, the real nightingale paid him a musical visit. With its song, the bird charmed death away and restored the emperor to health. As he wanted to thank her, she replied,

*“You have already rewarded me,” said the nightingale. “I shall never forget that I drew tears from your eyes the first time I sang to you. These are the jewels that rejoice a singer’s heart. But now sleep, and grow strong and well again. I will sing to you again.”*

*“You must always remain with me,” said the emperor. “You shall sing only when it pleases you; and I will break the artificial bird into a thousand pieces.”*

*“No; do not do that,” replied the nightingale; “the bird did very well as long as it could. Keep it here still. I cannot live in the palace and build my nest; but let me come when I like. I will sit on a bough outside your window, in the evening, and sing to you, so that you may be happy, and have thoughts full of joy.”’*

H. C. Andersen (1843)

The heart is a metaphor for intention, care and emotion. In utilities, the heart shows up many places. Most significantly, it turns up in the choice of career. Many water professionals in the water sector see their work as a dedicated service. Unmistakably there is an element of ‘calling’ in the grit that is exhibited by many water professionals. Yet at the same time, the heart in the workplace is unacknowledged – a topic in the realm of the unprofessional, the idealistic or naive. The heart is not discussed in the collective space or included in an individual practice – it is hidden and unappreciated behind the scenes.

Through the last years, I have studied and experimented with ‘the heart in relationship to water’. I have found a multitude of reasons why it is relevant to dedicate time and attention to explore this issue. ‘The heart’ is a strange self-entangled topic to study, where the long honoured concept of objectivity is ‘out of order’.

Moving in the direction of the heart has occasionally felt like moving against my own normal work culture; a technical culture where science and objectivity is the golden standard. But it has been worth the effort and more often than not the two perspectives have supplemented each other.

From a sustainability perspective, we need somehow to upgrade our standards and practices. Something fundamental and heart-related seems missing in our internal 'manual of operation'. I hypothesise that this has to do with depth. The commodification of water has caused something to be lost – something of a 'sacred' quality.

When looking at our work as water professionals through the viewpoint of the heart, important questions arise. Questions like: What is the meaning of my work – or rather: What is the purpose of my Work. The distinction being that *work* is the mundane day-to-day work, projects and tasks, while the *capital-W Work* is the existential part of what we do – related to one's life purpose. How do I understand our history and culture of the Work with water as per where we are today? What does it mean for me to fully face the current state of water sustainability crises? How can I embrace that responsibility moving into the future? How can I transform the untold aspirations energising the Work into actions that are satisfying on a deeper level? How can I at the same time produce positive change for water, people and ecosystems?

You may ask: Why work from a heart hypothesis?

The answer is: because I feel this constant calling of something better, more authentic and more beautiful. Something possible, but still unaccomplished. There is undoubtedly potential for a higher level of grace. For a while, I thought this was about 'austere' sustainability: reducing water footprint, food consumption, travelling, moving, heating, cooling, etc. to be content with less. Yet, though the unsustainability crises are large and growing, I find it hard to generate a steady impetus for a goal of ever reducing my footprint. It is as if the end of that road is less lively; feels less alive. And this cannot be true.

Our global water sector makes progress on more parameters, but the development seems too slow to bend our path enough to avoid crises. On some parameters, the sustainability crises even seem to be becoming more entrenched. Instead, I hope and think that if we can advance to the next rung of the developmental ladder then the trouble of fitting all our feet on the space of earth will be resolved. I believe it is possible to achieve that without a feeling of loss but rather with a feeling of gain. I hope that when we find a way to live within a sustainable culture, we will stand on healthier feet and that our current neediness will not continue to spoil the water, nature and the earth around us. It simply seems as within reach to find a more mature way of sustainability. A way that does not have the feeling of 'disciplined austerity', but instead feels vibrant, alive and attuned.

Thus, this 'search project' is for a new story about water and life. It is born out of an inner urge to find a way that makes me able to lead my life in consistence with both my heart, my intelligence and my higher aspirations. To have a new pathway

emerge towards a more graceful relationship with water by strengthening the connection to the heart.

The Danish researchers Steen Hildebrandt and Michael Stubberup express a similar belief:

*'One cannot practice sustainable leadership unless it is grounded in a profound anchorage in the self. Sustainable leadership is generated by our ability to read feelings as sounding boards for dreams, intentions, decisions and actions.'*

Steen Hildebrandt and Michael Stubberup (2012)

Therefore I am looking to experiment with routes to life with the heart in the centre. First, I wrote the sentence as '... back to life with my heart in the centre', then upon reflection, I was wondering is it instead '... a way forward to a life with my heart in the centre'? I will let this question stand open but share the doubt and wondering. But I tend to believe that it is a road forward, that we can integrate heart and head in new rewarding ways. Regardless, my experience is that finding such a way is easier said than done. It is as if the muscle for doing this is not well practised; something different must be introduced for the heart to take centre stage or for establishing a strong connection between head and heart.

At the beginning of my experiments, I was very concerned that a heart approach would mean a departure from the road of natural science. A road that I, as an engineer, had followed for decades and from which I had seen quite effective results. However, I have found that science and the heart are not per se in conflict. By applying 'looking through a heart lens', the field of water looks different and different questions come up. Projects become defined differently, different relationships are formed, and different results ensue. Still, the scientific way of thinking and learning is essential and extremely helpful. Hence, I can strongly disagree with my first fearful misconception: a heart approach is not a departure from rationality and science. Instead it is a step further towards the original source of motivation and meaning.

In his book 'Finite and Infinite Games', James Carse explains why a new mindset is not meant to be an abandonment of the older mindset. He posits that culture develops as people change the rules by making deviations that build upon what came before:

*'There are variations in quality of deviation; not all divergence from the past is culturally significant. Any attempt to vary from the past in such a way as to cut the past off, causing it to be forgotten, has little cultural importance. Greater significance attaches to those variations that bring the tradition into view a new way.'*

James Carse (1986)

Hence, the point is not to 'cut the past off'. We need to bring our past with us – to integrate the past in the future. Integration needs to be done both in the form of building upon successful results and in the form of acknowledging the damage done.

This integration cannot be done superficially. It is paramount that this integrating step forward is based on a wholehearted approach. To accomplish this, we have to

delve into and appreciate the complexity of this integration. We often work towards reducing complexity, attempting to reach decisions based on a simple foundation of logical and rational – but often reductionistic – argumentation. But in this new world, we have to proceed with much more care and attention or we will lose something important through our simplification. We must train ourselves to become able to comprehend a more full and holistic understanding of the systems at hand. If anything, this new world is about integration and inclusion – not reduction and exclusion.

Along the same lines, Einstein is quoted to have said:

*‘Creating a new theory is not like destroying an old barn and erecting a skyscraper in its place. It is rather like climbing a mountain, gaining new and wider views, discovering unexpected connections between our starting points and its rich environment. But the point from which we started out still exists and can be seen, although it appears smaller and forms a tiny part of our broad view gained by the mastery of the obstacles on our adventurous way up.’*

Albert Einstein

Hence, our ‘smaller views’ are not necessarily deeply wrong, they are just small. We need to broaden and expand; to reach some higher form of knowledge – access and insight into universal wisdom perhaps. So, the role of the heart is not to be ‘whimsical’, but rather to be a solid base of impetus to learn deeper, to prepare better, to achieve a more beautiful attunement of our actions with water as the lifeblood of the biosphere. The role is to ‘sense the universal wisdom’ and help translate it to knowledge to inform our actions.

This manoeuvre requires a ‘change of heart’. Or more precisely, it requires a change in one’s mindset. At the onset of this project, I somehow wanted to change my mindset. I felt something missing, I felt the grips of apathy, banality and desecration. But how do you change your mind; the mind changing the mind?

I know that my own mindset is almost invisible to me. It is the way I see the world, the lens I see the world through. It is like the grammar of our mother tongue – we would never know it to be there unless it had been pointed out to us. Therefore the inventions of words that point to this invisible concept can help us grasp what we are looking for. Under my way to a new mindset, I have come across different metaphors for the elusive concept of ‘mindset’. These alternate concepts provide me with a broader understanding of the ‘holy grail’ of this search.

**Imagined order:** Reminding me that regardless of which mindset I see the world through it is an order I use as an interpreting interface between me and the world and that this order is imagined. The order or patter I see the world with is just one of many possible patterns. It is also ‘imagined’ in the sense that I can change the order if I can imagine something else that is sufficiently consistent with what I experience.

**Operating system:** This metaphor makes it clear that the mindset establishes a system for how one operates in the world. And just like in the world of

computers and electronic devices, the operating system determines what programs or apps can be run. At the same time, the metaphor indicates that though the mindset has an element of ‘imagination’, there are also non-negotiable basic specifications that need to be in place for an operating system to work at all.

**Heart set:** The mindset is not only located in the mind but is also present in how we perceive the world wordlessly through the heart, our body and nervous system. This is an interesting alternative concept for ‘mindset’ as it centres the attention in the heart or the body rather than in the brains or the head. Just simply shifting the attention to the heart changes the world.

**Decision pattern:** From the outside, from other peoples’ perspective, our mindset is most easily discernible by the pattern of decisions we leave behind us. An outsider can only perceive what we choose to say and do, not what we think and feel. We cannot make better decisions than what our mindset allows us to. The ability to create integrated decisions that include both the real needs and meets the complexity of reality just right is based on what we can perceive. Some words or ideas we cannot hear, before we get an inner concept of them; until then the picture people may try to draw appears to be meaningless.

**Worldview:** The mindset under development is not just a mindset about water, rather our mindset about water is a continuation of how we view our whole world. Also here things are well connected.

What we want to do is not change our mindset to something specific, like a kind of brainwash – that is not the aim. A better metaphor for what we are trying to do is to let the heart unfold naturally. Others use the concept of getting increasingly enlightened. Regardless, it is not about pushing a certain doctrine into the brain. But rather to find one’s own meaningful way forward. In another sense, the process of ‘heart development’ is different from the process of ‘mind development’. Mind development is about understanding what is outside us. Heart development is about understanding what is inside us – or perhaps not understanding, but rather listening to. ‘Heart development’ therefore, more than anything else, is an exercise in listening.

Try to hear the calling of the heart towards health and sustainability. Try to dig deeper in you to get an inner understanding of what sustainability means in your own system. The world is full of audacious but superficial speeches about sustainability. But ‘talking and talking’ will not make the change happen. Understanding the concept of sustainability is a personal challenge. It has to start in a new personal and collective practice of the actual activity of ‘sustaining’. But what is it that we want to sustain? What joy does it give us? When do we hear and feel that joy in us?

The heart can only be felt individually. It will not be enough to hear or read about the heart. One must find one’s own practice. Over time, I have read many accounts about the heart, yet I believe that my own experience and ‘explorations’ are much

more vibrant than any second-hand account – to me. It is not possible to rely on someone else’s experience or even ‘objective rational research’ on the matter. It may, in fact, be our tendency to try to see ourselves from the outside – to try to apply a scientific principle to ourselves or our heart that is a part of the malfunctioning. It is the wrong perspective to take. Exploring the world of the heart is ‘an inside job’. It is possible to learn where and how to look by listening to other’s accounts. But the first-hand experience is essential to become solidly entrenched in the ‘value system of the heart’.

The importance of a strong personal entrenchment is best understood when the difference between our potential imagined and current impact is clarified. If our internal compass on where and how we want to move forward is unclear, we are bound to get lost. And if we by luck or hard work happen to move into a position of power where we may actually have a real chance to change something, we may quickly come under pressure and revert to our old ‘well known and safe-feeling mindset and habits’. It is quite demanding to bring your personal vision all the way through this. There is pressure from superiors, employees and peers, there are time pressure, there is pressure due to lack of domain knowledge. With only a short time to choose the road forward, we may soon get lost if not solidly entrenched. Hence the work of getting entrenched in a new mindset is a long-term commitment, where we can only change little by little approaching a new ideal. However, if we do not do this internal work intelligently, disciplined and consciously, the old mindset and the old habits will move us like an unstoppable freight train.

At the beginning of this ‘project’, I made a vow, a solemn promise to myself that consisted of a commitment to the heart. In the beginning, I hardly knew what that meant, and I felt it was a difficult choice, a choice with many internal conflicts. I was conflicted because on the one hand I had this clear notion that this would be of almost life-or-death importance to my life, but on the other hand I was afraid what it would mean for my identity. Would it be a loss of all thinking, reasoning and science – unto which I had put a lot of my identity? Would it mean doing reckless things on the spur of any emotional impetus? Would I see things about myself hidden in the shades that I didn’t want to see? Would I have to make drastic, irreversible changes to my life? And how would all this influence my family, friends, work, colleagues?

At the same time, there was this strong calling for it. As if I would regret it on my death bed if I did not follow through. Additionally, there was a pinch of curiosity and adventure. What would this different starting point mean?

The fear was real, and it felt like I was going under some kind of imaginary water line and I almost literally feared that I would drown. Looking back, I didn’t drown but came back to the world with essential insights for refocusing my future work. I wanted to continue using these new eyes with their new poetic perceiving – to be able to see from the heart in mildness. I wanted to enhance further my ability to feel life – the process of it, the tic-toc of it, the miracle of it. I wanted to protect

and nurture the heart as a fragile inner sanctuary. I had glimpses of emotions of suddenly ‘standing up in full height’, which felt like something important ‘clicked in place’ and changed my whole posture. These different inner experiences of how to be in this world changed my understanding of my water vocation; it changed my view on water and changed my actions. These findings are of course my findings, but at the same time, they seem to have a universality.

This ‘heart-mode’ is not consistently present in my life, but now I recognise it, and I can find my way back to it. In the beginning, I found it difficult and even fearful to embrace the heart entirely. I still find it difficult, but the fear has gone. This is not ‘practice makes master’ in the usual sense. It is not like learning math or any kind of science. It is clear that my ‘heart capabilities’ increase, but it is more as if I get access to more and more within me. Whatever the wisdom might be, it was already there – just out of reach or incomprehensible. And as I walk further into it, I find again and again that there are more levels and nuances to it and that it takes time, learning. It takes time to remember to focus, to keep focus and overcoming the lack of patience with learning it.

*‘It is only in the heart that one can see rightly; what is essential is invisible to the eye.’*

Antoine de Saint-Exupéry (1943)

**Your reflections:** How is your sense of your own physical heart? Do you know where it is located precisely? Do you know how it works? Do you know the shape of it? What happens if you attempt to connect your thoughts to your heart? Do you have any kind of ‘spiritual’ thinking or feeling about your heart? What does your heart mean to you? If you look at your purpose in life as you formulate it to yourself, how does the purpose you speak of relate to the purpose you originally thought you had? How does it relate to the purpose as it would be perceived from the outside? How does it relate to the most potent purpose you could formulate?

## A SCIENTIFIC APPROACH TO THE HEART

It was not that I was unaware of the position of the heart in literature and mythology. However, what surprised me, when looking into the more scientific side of it, was that some of the more poetic ideas about the heart were actually ‘retrievable’ in measurements. This insight made the task of connecting to the heart easier because it made logical sense. But at the same time, it also made it more obligating because with it came an understanding that the idea of the heart was not just a metaphor, but something much more direct and practical. It had real practical meaning for me and those around me. Suddenly, a day with low heart connection felt less worthwhile than a day with a strong heart connection. For a

while I felt I was not 'working hard enough' if I did not remember heart focus. But again, that is not how the heart works.

Regardless, the research at HeartMath Institute (Childre *et al.*, 1999) shows that there are several communication lines between the heart and the brain. It seems however that the communication from the heart to the brain is more information-rich than the connection the other way. The signals from the heart to the brain include: (1) neural via the vagus nerve that goes up the spine and enters the brain in the medulla, (2) biochemical via various hormone systems, (3) biophysical via changes in blood pressure and (4) electromagnetic (the heart rate can easily be picked up by measuring the electromagnetic field generated up to 1 meter away from the heart). While there is also information going from the brain to the heart, it was found that the heart was autonomously in control of which signals to react to in contrast to other more obliging bodily functions.

Secondly, by measuring heart rate variability, i.e. the change of the rate of the beating of the heart, it is possible to observe how well a person is balanced. Self-induced meditative states can also be observed as a clear coherent signal from the heart. The heart rate has been shown to vary from heartbeat to heartbeat. During good meditative practices, the heart rate varies harmoniously like a curve (it is not the ECG that varies as a sinus, but the distance between peaks).

Thirdly, the signal from one person's heart can be picked up by another person's mind and heart. If one person touches another the signal from the person's cardiac electrical signal (ECG) can be observed in the other person's brain waves measured by EEG. And it is possible to reach a state of entrainment of the heart beatings in a group working well together. Hence one person's heartbeats can unknowingly affect those around him. It appears that heart signals are being broadcasted and received invisibly and unknown between people all the time.

*'Early in the Institute's research, we observed that when negative emotions threw the nervous system out of balance, they created heart rhythms that appeared jagged and disordered. It was easy to see that a chronic state of nervous system and cardiovascular imbalance would put stress on the heart and other organs that could potentially lead to serious health problems.*

*Positive emotions, by contrast, were found to increase order and balance in the nervous system and produce smooth, harmonious heart rhythms. But these harmonious and coherent rhythms did more than reduce stress; they actually enhanced people's ability to clearly perceive the world around them.'*

Doc Childre *et al.* (1999)

When I learned of the research of HeartMath Institute, I got quite interested in measuring the effects of my meditative practice. I found the idea of this type of bio-feedback intriguing and was curious to measure the impacts my meditation had on my heart rate variability. So, I acquired the measuring device from HeartMath Institute to make my own personal experience.

The device is simple and works by measuring the heartbeats through an ear clip measuring the pulse of the blood flow in the ear lobe. The core of the technology is

analysing this signal to measure the coherence, i.e. the harmoniousness of the change in heart rate over time. The ideal pattern being close to a sinusoidal wave of continuously increasing and decreasing heart rate. In the beginning I 'brain-talked' a lot about the exact algorithms for this measurement. Soon, however, I found out I had to let go of these 'brain talk' discussions, as they invariably and ironically led to a decrease in heart coherence.

The short instruction of use basically comes down to: breathe as if through the heart, nurture positive and calm emotions and stay alert.

The device is followed by an app that tracks 'performance' and that allows the user to grow better over time with a simple 1–4 star difficulty setting. The setting regulates whether a given level of coherence (yes it boils down to one number) is characterised as good (green), reasonable (blue) or not so good (red). This feedback is given regularly both as colour and sound every few seconds.

At first, I was frustrated with the system because it was an outside 'judge' of an inner experience. My practice had the exact opposite objective, to emphasise the inner experience over the outer experience. And suddenly this outside-device was judging my 'performance' from the outside. But gradually I came to terms with this and found a way of integrating the sound as 'a sound of my heart response'.

As most people who meditate, I often experience after a while that thoughts start wandering. The interesting thing was to observe the heart feedback system responding to the nature of my thoughts wandering. It turned out that the heart rate was susceptible to the subtle changes in the nature of my thoughts. It picks up on things that were slightly different from what I expected. But over time, it came to make sense and hence – I am sure – changed my perspective and weeded out some of my less healthy thinking patterns.

Mostly, at the beginning of the meditation, it was relatively easy to gain a high level of coherence, but after a time, the heart rate variability would drop. Often the 'thing' that interfered could be categorised as 'egoic thoughts' – the not so pleasant thoughts. It could be I was just a bit too proud about the result. Or it could be the opposite when I saw myself as a victim of events that annoyed me. A recurring problem would be to achieve high coherence quickly and then being just a bit too proud about that. This would invariably and ironically lead the coherence to plummet within seconds. These short-term 'internal calibrations' were very informative as to how little it takes to get out of balance and how fast the heart – and ultimately the body – responds to that. Doc Childre notes that: 'If we live in a stressed-out state all the time, we become used to imbalance'. It made me more cautious about my thoughts and speech in the following time. It became apparent to me how often I casually think, rage and joke about this or that – and how much that costs every day in lack of coherence. I would not have noticed that or known it before the means to measure these effects became available to me. Since I could feel a long term (days/weeks) improvement in my inner balance based on these experiments, it was clear that coherence was indeed very beneficial for my exploration and for me personally.

However, I also experienced that sometimes it was small adjustments that made the coherence soar. Sometimes, it felt impossible to ‘make the heart come into coherence’. But then at some point, I would give up and look into the blue sky above me – and that would cause the heart to jump into coherence. So even if the use of the mind and the thoughts that go through it are essential in this kind of ‘heart training’, the heart cannot ‘be willed’ into coherence. It seems that it requires the mind’s cooperation, but the mind is not in *control* of coherence beyond setting the minimum circumstances for it to happen. These circumstances are about mildness, gratitude, alertness and truthfulness.

I also found that regularly getting into coherence changed my day-to-day emotional landscape into a higher degree of integrity, self-command and calm. I found myself able to better and more easily handle difficult events that would earlier have thrown me into frustration, anger or confusion. Before the experiments with the method, I had the idea (or hope) that I would be calm and un-stressed all the time. However, to my surprise, I found that coherence was not only about relaxation. Some of my most stressful days with a lot at stake could result in quite high coherent results. The highest level of coherence I have measured yet was actually on such a day, where everything ‘seemed at stake’ and I had to be ‘high-performing’ to make things fall into their right place. I believe that what helped the coherence stay high was that I felt I was capable and reasonably ‘in control’.

Another significant effect of the long-term use of the device was that I became more grounded. While earlier after a hectic day I could be doubtful in the evening, questioning my moral ground for this or that decision or this or that approach to another person. I could wonder should I have been kinder, should I have been less aggressive, or should I have held my ground more firmly etc. The continuous feeling of calm and groundedness meant that I felt much more at peace with my actions. There was a kind of predetermined forgiveness about it all. That regardless of what effects my actions would result in, I knew I was calm and balanced at the time of the action, so it was by definition the best action I could come up with. Had I done it again my actions would have been more or less the same. Hence, I agree with the inventor Doc Childre, that ‘the heart isn’t mushy or sentimental’. It is not about ‘rainbows and unicorns’. It is about kindness, integrity and a grounded balance.

The research and experiments at HeartMath Institute gave me an understanding from the outside in. It set a context; supporting a hypothesis of the meaningfulness of the heart commitment.

One could see heart intelligence as a different intelligence than traditional intelligence. It requires the cooperation of the brain. The brain needs to surrender its stories and the protection that the stories provide. It is in a sense the eternal battle with the ego. But it does not take the form of a religious, hard morality and discipline struggle. Rather it is a ‘game of surrendering’ in terms of reckoning that there is something silent that is grander and that I/you/we need to place

ourselves, our attention in that grander silence. Putting oneself in service is not a one-time event like signing in, but rather a continually repeated process of committing full-heartedly and humbly.

**Your reflections:** Were you surprised by the findings of the connection between thinking and feeling and the response of the heart? (I was!) What consequences does that kind of knowledge have?

## EMOTOS EXPERIMENTS

When I share with others what I am doing in this domain of heart and water, many ask me: so what do you think about the Emoto experiments?

Masaru Emoto (1943–2014) carried out some curious experiments linking water and the heart and emotions through the observation of crystals. I admit, I still don't know what I think – if I believe it or not; if I think it is science or not. But it is extraordinarily interesting that a person applied this focus throughout his life for these experiments. And the results he claims to find are ... beautiful.

Ice crystals are formed when water vapour freezes into ice in the sky. The crystal starts as a hexagonal prism from where the crystal branches out in six dendrites, which may branch out further in a fern-like structure governed by the temperature, pressure and water-vapour content in the air the crystal travels through on its way to earth. This results in trillions and trillions of ice crystals landing on earth annually. Still, it is claimed that no two ice crystals are the same. Whether this statement is accurate is unprovable; however just the fact that it is probably true is impressive – and worth an admiration similar to having 'stars falling on your coat' as Thoreau suggests.

*'How full of the creative genius is the air in which these are created. I should hardly admire more if real stars fell and lodged on my coat.'*

Henry David Thoreau (1856)

Japanese Masaru Emoto was a man of science. But above his scientific studies, he wondered why people were unhappy. He thought to himself: who would be able to reply with a resounding 'yes' if I were to ask them: 'Do you have a sense of peace in your heart, a feeling of security about your future, and a feeling of anticipation when you wake up in the morning?' One day he read – as above – that no crystals are alike. He had heard this already as a child, but it collided at that very moment with another idea on his mind. The idea that water, in some mysterious way, sees and listens to its surroundings and stores the impression of this in its molecular structure – a controversial idea that in respected scientific circles was (and is) considered to be complete and utter nonsense.

However, regardless of this scepticism, he thought that perhaps the crystal-making process is a way to see with his own eyes what he suspected to be invisibly true. Perhaps the structure of the ice crystals would depend on the emotions that surrounded their making?

Emoto wrote about his experiments with ice crystals throughout his life, most famously in 2004 in the book 'Hidden messages in water' (Emoto, 2004). Masaru Emoto described himself as an 'original thinker using scientific methods'. In the story of the idea, he tells that it took his research assistant months even to figure out how to form crystals of water in the laboratory – trying different ways to maintain the temperature conditions for the formation of crystals artificially.

Emoto's experiments with the formation of water crystals showed him that conscious thought, positive or negative, influences the degree of beauty of the crystals formed. He found that beautiful crystals were formed with conscious thinking and feelings of gratitude, kindness, courage and peace while the crystals subjected to feelings of hate, anger; fear and anxiety were less sophisticated, less refined and asymmetrical – ugly, compared to the other crystals.

While this seems like a highly improbable hypothesis seen from a scientific mindset, it stroked an intuitive cord with a lot of people and the book has been read by thousands of people worldwide – it became a New York Times bestseller. If we entertain the thought of 'what if...', we are led down new alleys. What if water responds to how we handle it, think of it and speak to it? How would the water we drink and consume reflect this – and what would that mean to our well-being? What would it mean if the water in our bodies were sad and tortured water? What would make water happy?

*'The earth is searching. It wants to be beautiful. It wants to be the most beautiful that it can be.'*

Masaru Emoto (2004)

I more than hesitate in accepting the basic premise of the experiments and for many years people have led my attention to various strange water theories. I have generally dismissed them quickly and arrogantly. But there is something about this idea that intrigues me – true or false. Emoto's idea and findings are that the emotional vibrations that water is subjected to affect the water and can be seen in the beauty of the crystal. According to Emoto, even relatively subtle changes to the application of words can be detected. The inviting words 'Let's do it!' creates a harmonious crystal, while the commanding 'Do it!' does not. Similarly, the crystal forming is affected by music played to the water. And finally, water is affected by its treatment, systematically chlorinated water from water utilities, as in for example Tokyo, is hardly able to form crystals. Lake-water blessed by a monk showed to be more beautiful than the water was before the blessing. Essentially, Emoto's point is that water is a 'sensitive mirror' to the world surrounding it – like a kind of a 'master listener'.

Emoto believed that the better the vibrations are in harmony with nature and earth, the ‘happier’ the water is. He knew that this would be difficult to believe. He described this problem as:

*‘Traditionally speaking, anyone who says that consciousness has an effect on the physical world risks certain ostracizing for being unscientific. However, science has progressed to a point where the failure to understand consciousness and the mind limits our understanding of much of the world around us.’*

Masaru Emoto (2004)

So, if we play along with this and imagine that the crystal forming capacity of water forms a communication or recording bridge to a kind of extra-ordinary world, what wisdom does Emoto derive from his life-long work with this?

As I would have done, had it been my scientific experiment, he experimented to find words that expresses themselves in water with the greatest elegance, intricacy and harmony. Unsurprisingly (when accepting the premise) the word ‘love’ scores very high. However, he finds that ‘gratitude’ and ‘love’ together gives the best result – and the crystals formed seemed actually to be closer to ‘gratitude’ alone than to ‘love’ alone.

*‘Love tends to be a more active energy, the act of giving oneself unconditionally. By contrast, gratitude is a more passive energy, a feeling that results from having been given something – knowing that you have been given the gift of life and reaching out to receive it joyously with both hands.’*

Masaru Emoto (2004)

The final point Emoto makes based on these observations is that we should give water respect. Water makes up most of the weight of a human being. Life is so deeply linked with water. Emoto points to a kind of pollution different from traditional water pollution; a metaphysical pollution made up of negative thoughts and emotions – or even worse as Emoto found: the lack of care and attention. This is seen in current days lack of reverence for water and the treatment of water as a mere commodity. The quality of care is in profound contrast to the respect paid towards water in earlier times:

*‘The important thing is that we recover our desire to treat water with respect. In our modern culture, we have lost our attitude of respect for water. In ancient Greece, people paid true respect to water, and many Greek myths are based on the protection of water. But then science appeared, and rejected these myths because they were not scientific.’*

Masaru Emoto (2004)

Emoto is a man of science himself, so it is not science per se that he rejects. What we must remember is that science is only a method to learn about the world – a method that moves us inch by inch closer to better models of the worlds. Models that are useful, not necessarily profoundly true and not as a philosophy of life that can stand on its own. Science is a tool of understanding. Science is also a

key tool when it comes to understanding the sustainability crisis. A crisis that would have been difficult to understand the scope of without science. It is what we do with the science that we should be aware of. Using science to reject myth is a misunderstanding of both myth and science.

*'Perhaps we are finally beginning to see that the direction we are moving in leads nowhere. We have sacrificed too much in order to secure the riches of life. Forests have been destroyed and clean water lost, and we have cut up and sold the earth itself.'*

Masaru Emoto (2004)

The road forward is to use science from a different starting point and with a different aim. To ground ourselves in making life possible, relax our fear and grip for control and instead keep a deliberate focus on celebrating life and its diverse richness. This approach has ample space for facts, stories and myth.

*'We need to feel gratitude for having been born on a planet so rich in nature, and gratitude for the water that makes our life possible.'*

Masaru Emoto (2004)

Some attempts have been made by Emoto and people around him to work this out scientifically – to prove the hypothesis employing blind tests. But the difficulty of the story is the same as always when we work with consciousness. Our minds so wish for a good story that it will easily make one up where there is a lack. Proving that the mind did not make this up somehow is difficult – especially in the sense that what is attempted to be established is that the mind makes up, or at least influences, reality.

I am however, struck by Emoto's attempt to find proof and use science to prove a connection between consciousness and water. Our civilisation has invested so heavily in science and the scientific method. I wonder if 100 years from now they will think of us as stubbornly stupid for clinging to a hope of 'science to explain all' or on the contrary that this epoch was the last rattling of the belief in something beyond the rational.

Some say his interpretation is not valid and cannot be replicated. But perhaps again the scientific truth is one thing, and the poetic side of the systems understanding is something else. The work of Emoto became very popular among people who sought for meaning and sensed a kind of truth that these results articulated. At the same time, if we take this interpretation to our heart, something new happens in how we understand water and how we would treat it. The history of the water we drink becomes important in a new way that the current scientific sustainability story cannot do on its own. It provides a different impetus for care and personal starting point.

Looking at water through Emoto's lens gives a gentler touch – a more sacred outlook on the work with water. Having such a story as a lighthouse in the back of my mind changes my approach compared to a clean, rational approach. While this may not be scientifically valid, neither does it mark a return to olden day's

superstition, with all its violent shadow sides. I think that a combination of interpretations that beautifies our world with a rational, scientific approach may work as a functional integration in the new mindset. When a movement of ‘naturalness’ argues that we ought to drink untreated water and then people get ill, that is not a functional combination. But if I apply my science and have a sacred interpretation of water at the same time, I can move into a deeper understanding from where better questions arise.

So, in essence, the opposite of banal thinking is to apply higher, deeper and broader thinking as well as looking into the shadow. Thinking higher means having higher aspirations for our work. Thinking deeper in this context means understanding ourselves better and using our emotions as refined navigation tools. This way of systemic understanding is relevant for many different types of systems: ourselves as a system, the system of our utilities and the global system. It can also be used to understand roles, i.e. the role organisations play in the global system or the role a person plays in a given organisation. So the point is not to act at the spur of emotion, but to think deeply about our feelings to understand the systemic information they carry in their reaction. Thinking broader means broadening our scope of interaction, i.e. broadening our personal and organisational interaction span to more stakeholders. It also means taking more aspects into consideration and looking at situations from a higher-level helicopter view. Finally, we have to turn around and look at our shadow and into our shadow. We cannot allow ourselves to be too ignorant about the shadow effects of our action, inaction and ignorance – we need to understand and handle our levels of inertia and ignorance. So, this is a call for feedback from people around us and being attentive to this feedback so that we realise in good time when we are out of our competence comfort zone. When that happens we might overlook issues that people better versed can see. To be helpful is only half the equation, it is just as important to ask for help genuinely and authentically to reduce the shadow effects of our work.

**Your reflections:** What do you think of Emotos experiments? Are you curious? Do you feel a softening? Do you reject it as impossible – if so how fast did you make up your mind and on what grounds? Fraud? Ambiguous?

## THE ROLE OF THE HEART IN THE LOCAL PLACE

To attempt to transform this inner wholeheartedness to something that is visible or can be felt from the outside, we need to connect to the outside – which can be done in different ways.

Norwegian professor (philosopher and keen mountaineer) Arne Naess offered a concept called ‘deep ecology’ (Naess, 2008). ‘Deep ecology’ stands in contrast to the classical anthropocentric environmentalism’s ‘shallow ecology’, where ‘the environment’ is something just surrounding humans. In anthropocentric environmentalism, the environment is wittingly or unwittingly reduced to a resource for human societies. We speak of water as a resource or we use it as a dumping ground/basin for waste and wastewater. I find the novel concept of ‘ecosystem services’ as having the same ring to it. The argumentation in ‘shallow ecology’ is that we need to preserve nature primarily for our own survival, i.e. because it provides us with resources. ‘Deep ecology’ on the contrary is about understanding the local ecology deeply and appreciating the natural world as a habitat that we share with our fellow animal. In this view, nature is not valued according to the instrumental value for humans but has its right to exist.

Arne Naess was a professor at Oslo University from 1939 to 1970. Arne lived a significant part of his life in a place called Tvergastein in the mountains; a place in the arctic, where he built a small house to stay in and to study the ecological habitat around him. This place was an essential inspiration to his work, a place where he investigated his sentiments towards ‘place’. By spending days and months studying the area he developed a personal bond with the place – and this bond is at the core of his basic idea. The bond defined what he called ‘the ecological self’.

Arne Naess suggests a deeper understanding of the place one lives on/in. In that way, a place becomes a Place and a home becomes a Home. Arne Naess suggests two ways of understanding ecology and introduced the notion of deep and shallow ecology.

*‘When the majority of people were living off the land, with little mobility, it was natural to feel at home at certain places. One stayed at home, left home, or went home. But home was not a building. The advertising of homes to be bought is not an offer of a home in the connotation relevant in our analysis. Home was where one belonged.’*

Arne Naess (2008)

Home in the sense that Arne Naess talks about it delimits an ecological self, where a person – the I – is deeply integrated a ‘home ecology’. Having moved around a lot in my life, I can feel this sense of ‘home’ when I enter the town of my childhood. I register that I breathe differently there. Arne Naess contrasts this sense of Home with the word ‘environment’. A word that is much more circumstantial and without thousands of the hundreds of relationships of belonging.

*‘But humanity today suffers from a place-corrosive process.’*

Arne Naess (2008)

Arne Naess moves the analogy further than the sense of childhood home. As an example of what it means to identify he describes a peculiar case of his identification with a flea:

*'I was looking through an old-fashioned microscope at the dramatic meeting of two drops of different chemicals. At that moment, a flea jumped from a lemming that was strolling along the table. The insect landed in the middle of the acid chemicals. To save it was impossible.'*

Arne Naess (2008)

When he sees the jerking movements of the flea, he feels pain himself. He registers both what is happening to the flea and what is happening to himself. He calls the feeling 'a painful sense of compassion and empathy'. He interprets this inner sense as identification.

Is that the process of identification? To see oneself in the other? To register, to understand, to sense, to intuit the same process of living and dying. To sense that more than anything else, one is that process. That process is what makes us the same from birth through adulthood and all the way to death. That process is recognisable in the ecology around us – if we take the time to know it and open the sensitivity to see it.

*'If I had been alienated from the flea, not seeing intuitively anything even resembling myself, the death struggle would have left me feeling indifferent. So there must be identification for there to be compassion and, among humans, solidarity.'*

Arne Naess (2008)

The peculiarity of the example is to show that there isn't a limit of insignificance to the feeling of the ecological self, to the identification with even small insects, that we are able to understand it's feelings. That he holds these feelings also shows that this empathy with every living being – even a flea – is not something we need to learn. It is something that is already there. And we get access to it when we pay a certain kind of attention. On the other hand, we as humans can cut ourselves off from all these empathic feelings if necessary, and our culture in many ways supports this cutting off. So, to nourish these feelings and this attentiveness is already a radical change. If this example seems too bizarre, consider this other example.

*'Tragic cases can be seen in other parts of the Arctic. We all regret the fate of the Inuit, their difficulties in finding a new identity, a new social self, and a new, more comprehensive ecological self.'*

Arne Naess (2008)

Arne Naess recounts a case in Arctic Norway, where Lapps had been forced to move due to a diversion of a river for hydroelectricity. Similar cases are seen in many places where indigenous people are forced to change their homeland and traditions.

*'In court, accused of an illegal demonstration at the river, one Lapp said that the part of the river in question was 'part of himself'. This kind of spontaneous answer is not uncommon among people. They have not heard about the philosophy of the wider and deeper self, but they talk spontaneously as if they had.'*

Arne Naess (2008)

Hence, the idea of deep ecology is that we as persons can develop our sense of our ecological self – or perhaps reconnect with it as it lies dormant in us. When we become aware of this larger ecological self, we become more than our usual day-to-day small ego. This understanding is closely connected to our understanding of our spirit. Hence this is one pathway to the spiritual or religious for many people. Surprisingly, though religions may often divide, in terms of deep ecology, various religious beliefs may inspire the same kind of insight and compassion for all living beings.

*'One must avoid looking for one definite philosophy or religious view among the supporters of the deep ecology movement. There is a rich manifold of fundamental views compatible with the deep ecology platform. And without this, the movement would lose its transcultural character.'*

Arne Naess (2008)

People who recognise this feeling of the ecological self may reach a point where the act of nature preservation or environmental concern and work is not only an obligation or a duty but instead becomes what Spinoza calls a 'beautiful act', in contrast to a 'moral act'. A moral act is informed by a sense of duty and carried out in a disciplined way and despite self-interest. The same act carried out as a beautiful act is carried out in alignment with one's self-interest. The act is recognised by the ecological self as an act for the self also.

*'Now, my point is that in environmental affairs, perhaps we should try primarily to influence people toward beautiful acts. Work on their inclinations rather than morals.'*

Arne Naess (2008)

I have experimented with this concept. It is much more fragile than morals, discipline and strictness. But the feeling of this approach is like an opening and a deepening. There is a sense of connection and beauty. To be able to keep in touch with this fragile emotion still requires a good portion of discipline – especially in our current culture and especially because the effects of this openness is slowly accumulative and hence difficult to appreciate or even to discern in the beginning. It requires one to be still to be able to sense.

*'As I see it, we need the immense variety of sources of joy opened through increased sensitivity toward the richness and diversity of life and the landscapes of free nature.'*

Arne Naess (2008)

Deep ecology points at something fundamental for the notion of water stewardship while it has almost nothing in common with the current concept of 'water and wastewater system operator'.

Naess describes the two different types of ecology as a shallow ecology where human beings are on the top and outside of nature and deep ecology where humans see themselves as part of the whole ecology. This captures a key point in the heart approach. The heart approach is a way of becoming part of it all rather than standing outside or above. It is an integration effort.

Naess sees the ecological movement as the third great movement after the social movement concerned with equality for all and the peace movement. In this involvement of engagement, there is a sense of caring in eccentrically larger circles around oneself. This describes a journey starting with self-interest and expanding to include family, to a wider and wider part of one's community at some point also including people of a different race, religion etc. At some point this could expand to include animals and eventually all living beings.

The self increasingly comes to an understanding of itself as first reliant then dependant on and finally as part of a greater and greater sphere. With this worldview, the care for nature is not a weight of responsibility or moral obligation for external entities but rather an act of self-care. Everything becomes a 'beautiful act'.

For most people this is not such a long stretch. In E. O. Wilson's essay *Biophilia*, he points out to us our feeling of 'love for nature'. This feeling of 'biophilia' can be recognised as our attraction to baby animals, love and care for our pets and the way we surround ourselves with flowers. There is this natural and innate love and care for natural things. It is not difficult to imagine how we could develop this sense further and thereby generate both internal gratification for our benevolent care and protection for nature – not requiring some self-sacrificial burden.

To make a place a Place in practice, Naess suggests a practice of extensive study of the place where one lives. It is as if through his understanding of *Tvergaisten* and the full potential of all its constituents he gets to understand the Place and it becomes his Home. He concludes that his role in the place is to observe and understand. It is not to actively govern or even facilitate. By identifying with this role, the Place becomes – in a sense – a part of his deeper ecological self.

When our understanding of our place deepens and widens, we will gain a more comprehensive understanding of the role of water. And that may change our mind about water as a resource primarily for our direct needs and purposes. What we will naturally realise is that water has many other purposes than providing water to the city, purposes that when unmet means actual losses; loss of life and vibrancy in the place we live in. We must carefully weigh what is acceptable and what is lost when we take water for our society, and perhaps how we can deliver the water back. However, if our decision of 'our needs first' is made again and again everywhere, the poverty of our place becomes so deep that in the end, we cannot even remember the natural richness of our place.

**Your reflections:** Is your ecological knowledge deep or shallow? What are your sentiments to being in nature? How much of your days have you spent in nature? What are your childhood memories of the forest, the beach, the meadow, the desert – or whatever nature you were most in? If you were to do one thing to deepen your ecological connection, what would it be?

## A PLACE UNTOUCHED

When I was a child and fairy tales were read to me, I was always impatient with the lengthy descriptions of nature. On and on it went with the different trees, the birds, the insects, the sun, the stream, the air, the sounds, the smells. All this description seemed very circumstantial to the real story, the true adventure. On occasions, I tried to tune out the descriptions, but I couldn't, so eventually, I surrendered and instead listened to the long descriptions as a secret 'training of my patience'. I tried to reconstruct the exact natural place in my mind's eye.

Despite my belittling of the descriptions of nature, they must still have made an impression on me. Because due to these mental pictures of the forests, I have often been somewhat disappointed with the real experience of the woods I have visited. They often appeared to me to be considerably less magical than the wordy descriptions I had heard from hundred-year-old fairy tales like the ones by Hans-Christian Andersen. I have long ascribed this discrepancy to an over-active poetic imagination in the face of reality or the writers of fairy tales being poetically exaggerating or painting pictures of forests more magically than reality for the reasons of emotional effect. But then I learned about Białowieża Puszcza and I really got a Eureka-moment about what has happened.

Białowieża Puszcza is a forest *primaeval*, the last(!) remaining of temperate Europe. It is the approximate size of greater Paris (2100 km<sup>2</sup>) and lies on the border between Poland and Belarus. The forest is not wholly untouched, there are signs of people having lived in the forest through the ages, but they are only signs. The forest has not been transforming due to exploitations as in other wood areas.

The history behind this special reserve involves several special events in the history of Europe, dating back to the 14th century where the Lithuanian Duke Władysław Jagiełło pronounced the area a royal hunting reserve. During a period where it belonged to the Russian empire, it was protected as a private domain of the tsars. There were threatening years around World War I and World War II, between which the forest was declared a Polish national park. During World War II, Soviets and Germans were taking timber from the forest, but Hermann Göring saved the forest by declaring it completely off-limits for everybody except for those he would allow in there. When Stalin took over the dominion, he allowed

Poland to keep two-fifths of the forest, and it has succeeded in not being seriously exploited up until today, where it is protected as a UNESCO World Heritage Site.

I have not visited the forest myself. But I have visited it in my imagination by reading about it, watching videos from it, and tracking it all round on Google Maps. So, here in this book, I will allow – maybe to test the reader’s patience – a description of Białowieża Puszcza. Not as I see it, but as writer Alan Weisman (2007) sees it.

*‘Here, ash and linden trees tower nearly 150 feet, their huge canopies shading a moist, tangled understory of hornbeams, ferns, swamp alders and crockery-sized fungi. Oaks, shrouded with half a millennium of moss, grow so immense here that great spotted woodpeckers store spruce cones in their three-inch-deep bark furrows.’*

Alan Weisman (2007)

This sense of ecological diversity is fused by the sound and sense of being in the forest:

*‘The air, thick and cool, is draped with silence that parts briefly for a nutcracker’s croak, a pygmy owl’s low whistle, or a wolf’s wail, then returns to stillness.’*

Alan Weisman (2007)

What I did not know or understand before, but what is becoming more and more apparent, is that a ‘magical’ process happens over time as nature is allowed to emerge on its own. The process of death and decay is an important ecological component.

*‘Almost a quarter of the organic mass above ground is in assorted stages of decay – more than 50 cubic yards of decomposing trunks and fallen branches on every acre, nourishing thousands of species of mushrooms, lichens, bark beetles, grubs, and microbes that are missing from the orderly, managed woodlands that pass as forests elsewhere.’*

Alan Weisman (2007)

And this non-utilitarian approach to the forest has made room for animals and species that can’t live without this decaying diversity and hence is not found in ecological biotas that has not been left alone for this long. The forest manages itself and creates niches. Białowieża Puszcza is the only place with nine European woodpecker species, because some of them only nest in hollow dying trees.

*‘Together those species stock a sylvan larder that provides for weasels, pine martens, raccoons, badgers, otters, fox, lynx, wolves, roe deer, elk, and eagles. More kinds of life are found here than anywhere else on the continent [...] The Białowieża Puszcza is simply a relic of what once stretched east to Siberia and west to Ireland.’*

Alan Weisman (2007)

When I listened to this description of the forest and compared it to my local experience of parks and forests, I find the same discrepancy – making me want to read all the fairy tales of childhood again; listening again to understand what

could have been there, in my local forest. I want to understand this feeling of unknown or unrealised deprivation – a deprivation of something I have never experienced. A deprivation that has come into our culture so slowly that it was only noticeable from generation to generation by the most apt observers. A slow taking out of riches from nature. Recently, I heard a researcher describe many Danish forests as no more than ‘fields of trees’.

Alan Weisman tells about the difficulty protecting even this small area in Poland and Belarus today. Forest experts are so compelled to go in and ‘make their trade’. It is as if they can hear the calling of all the accumulated value of natural material. It is so tempting to go in and convert the forest goods to monetary value.

A movement for ‘recreating’ original forest is forming these days. What I find fascinating in this endeavour is that the time horizon to re-create something like the forest on the border between Poland and Belarus is 500 years! Hence a protection project should ensure that the forests are protected, at least for the next 500 years to succeed. Maybe I could pass on the baton to my children, who could pass it on to theirs. In that case, that chain would have to work for something like 20 generations. To have such a forest today would have required protection since the end of the middle age and the beginning of the modern ages, i.e. since the time of Hernán Cortez, Christopher Columbus and Vasco da Gama. Through all the tumult of contemporary history, it would have to be protected.

**Your reflections:** Nature around you is possibly considerably less rich than it could be and less than you imagined. How does that feel?

## THE ROLE OF HEART IN RELATION TO THE EARTH

After having looked into whole-heartedness in a personal and a local perspective, it is now time to investigate what that means on a global scale. Again different words create different associations. If we speak of ‘globalisation’, we have one kind of thinking. If we instead use the word ‘spaceship Earth’ as Buckminster Fuller did, a different set of associations and emotions are ‘turned on’.

*‘I am a passenger on the spaceship Earth.’*

Buckminster Fuller (1969)

A new mindset about Earth was introduced by James Lovelock in 1979 (Lovelock, 1979). The notion of Gaia means seeing Earth as a giant living being.

Lovelock’s story starts with the notion, that if you find a sandcastle on a beach otherwise flat or ripple moulded by the wind and the ocean, you will immediately know that life in the form of children has been there.

In a search for a new understanding of life, James Lovelock used the metaphor of Gaia. In Greek mythology, Gaia is the goddess of life – the mother Earth. What he

wanted to see and show was the miraculously intricate regulations that make life on Earth possible, to describe and marvel at its ingenuity. For this search, he used the metaphor of sandcastles.

*'When I started to write in 1974 in the unspoilt landscape of Western Ireland, it was like living in a house run by Gaia, someone who tried hard to make all her guests comfortable.'*

James Lovelock (1979)

Sandcastles cannot appear at random or by the normal physical processes of wind and water. Lovelock writes: 'Even in this simple world of sand and sandcastles there are clearly four states: the inert state of featureless neutrality and complete equilibrium (which can never be found in reality on Earth so long as the sun shines and gives energy to keep the air and sea in motion, and thus shift the grains of sand); the structured but still lifeless 'steady state', as it is called, of a beach of rippled sand and wind-piled dunes; the beach when exhibiting a product of life in the sandcastle; and finally the state when life itself is present on the scene in the form of the builder of the castle.'

With this sandcastle concept tool, James Lovelock searched to find phenomena that indicate a situation that is not a 'flat dumb normal' but instead seem to be intentional with the aim of enabling living creatures.

It is, for example, noteworthy that through all of the time of life on earth the temperature of earth has been kept within the boundaries of not freezing and not boiling, both states would have killed all life. Life has developed over thousands of millions of years (approximately 3500 million years). Even if there have been long stretching ice ages, these have been limited events taking place only at the north and south third of the planet. Hence ice ages have not hampered the continued development of life on the rest of Earth. Geological investigations show that through all these years, the climate has always been relatively similar to how it is today and all the time water has been allowed to be in liquid phase as well as in gas and solid phases.

Superficially one may rapidly conclude that Earth is a lucky distance from the sun – neither too far away to be cold like Mars or too warm like Venus and that is the 'luck' of a temperate planet. Earth is located in what astronomers call the Goldieluck zone of not too hot or not too cold – named after Goldieluck finding the good porridge at the three bears. However, in the 3500 million years of life's evolution, the heat output from the sun has increased by 25%. Despite this enormous change, things have remained sufficiently steady for life to continue its evolution.

Another example of the earth controlling its internal states is that the salt content in the ocean has been kept within acceptable boundaries. Salt content above 6% would mean the end of life in oceans as the osmosis process would cause cells to dehydrate. Surprisingly, and through the same period of life development, the salt content has been kept at an average level of 3–4% and never exceeded the zone

of dehydration. This in spite of two continuous sources of salt. The first source is salt that is flushed into the oceans from continental run-off, where rivers wash salts out from the ground and transports it to the sea. The second source is salts leaking into the oceans from the hot interior of earth. Together they would cause the salinity of the oceans to reach its current level within merely 60 million years. This is certainly a long time but compared to the 3500 million years of life, some processes must help prevent the ocean from becoming overly saline. Something is removing salt at such a rate that the oceans stay fit for life.

A third example is the air's content of oxygen which is kept constant around 18%; this amount is just below the level where forests would catch fire spontaneously and above the level required for humans and animals to breathe.

These are just three of many examples of regulated 'pumps' that make essential substances available to make life possible. They are supplemented with a multiplicity of other pumps that remove toxic compounds from the biosphere and pumps that ensure nutrients and building blocks for life to occur in a fashion that enables life. These continued 'regulated' movements of materials and changes of material states occur on a global, local and microscopic scale continuously with many different time constants from seconds to millennia. The intricate ways these pumps work is simply amazing. And not only is it fantastic that these pumps of movements exist at all. It is even more impressive that they are synchronised to enable the existence of life through millennia. A lot of the work having been carried out by a multiplicity of life forms, where all are working unconsciously towards that goal of an environment conducive to more life. And these many processes have worked out continuously sufficiently well for life to exist and develop all the while. From a control and automation engineer point of view, that is beyond impressive.

*'The entire surface of the Earth including life is a self-regulating entity and this is what I mean by Gaia.'*

James Lovelock (1979)

The intricate complexity of the control loops is astonishing, but the wonder does not stop there. Complementary to these numerous loops of homeostasis, life has been able to adapt dynamically as conditions for life on earth have undergone change as a response to life itself. For example, the appearance of oxygen in the world of anaerobic organisms must have been a disaster for anaerobic microorganisms. However, they found a way to continue the life of their species, for example in the guts of living animals and people. Somehow, the Gaia principles ensured a space for all. Lovelock argues that it is – despite the warnings of environmentalists – rather difficult to kill life globally. It is so diverse, and the regulation by this diversity is so robust that earth can absorb quite significant disturbances. Life may regress and in this perspective life on the ground compared to life in the oceans is only a curiosity that might be ended while marine life will continue. In that perspective, human life is even more so expendable for life on Earth. Life itself is surprisingly robust, resilient and

sustainable and has been sustained for millions of years. Looking at that time perspective, the sustaining in itself is impressive and worth celebrating. But an even more striking feature is its ability to keep evolving and diversifying.

Looking at earth from this perspective is a lesson not only of sustainability but also of development and evolution. It seems that evolutionary-development and sustainability are in dialogue with each other. That one is the precondition for the other. That changes in the earth system, Gaia, leads to necessary adaptations of life, which in turn leads to changes in the earth system and so on. That is the long term process of life.

Since our human actions have reached a power to affect the global scale, we need to orient ourselves and our efforts to this scale. A realistic principle when trying to perceive the world through the lens of Gaia is that one need to take a very long-time perspective. Native Indians had a leadership principle of working from the perspective of seven generations, i.e. something like 500 years. This is highly relevant and stands in stark contrast to our current western decision-making horizon. Most investment decisions and business cases have a scope of 2–4 years. In utilities, the scope of decisions may go up to 10–20 years, but it is still short and narrow.

It is apparent that an understanding of ‘spaceship earth’ based on a mechanistic viewpoint is going to miss essential points of how the earth is alive in the sense of a staggering amount of interlocking homeostatic loops – of which the big ones that Lovelock mentions are just a few. Some feedback loops are living and some are not, but seen as a whole, Lovelock posits that earth is one giant significant living being.

The adaptability of the system makes it difficult to predict what will happen, which constitutes one of the major difficulties of understanding global warming to an extent where reliable models can be developed. It seems that the earth has many ways of adapting and absorbing shocks to its system. A large part of global warming is incorporated in the oceans as heat and acidification. Hence it is perhaps more relevant to speak of the increase in CO<sub>2</sub> in the atmosphere as an increasing pressure on the earth system, to which the earth system may adapt as long as it can.

**Your reflections:** If you work with water, you are not a passenger on planet Earth, you are part of the crew. Do you feel competent to take this larger responsibility beyond your job? What do you still need to learn?

## NATURAL LAW AND THE GLOBAL RESPONSE

Oren Lyons introduces a different insight (Lyons, 2004):

*I said earlier that my first message to you is that the kind of leadership we have must be changed. The second message I bring you is that global warming is real. It is imminent. It is upon us. It's a lot closer than you think, and I don't believe we're*

*ready for what's coming. We're not instructing our people, we're not instructing our children, we're not preparing for what is coming. And it surely is coming. We've pulled the trigger, and there is nothing we can do now to stop it. The event is underway.*

*What I say to you today is that the ice is melting in the north as we speak, trees are tipping, the roads are buckling, buildings are falling in. From what? From the permafrost melting. Perma. Permanent frost. No, not so permanent. It's melting right now. Four million acres of spruce killed two years ago by beetles. This was caused by global warming, which allowed two cycles of beetles instead of one. The second cycle killed the trees. You can't negotiate with a beetle. You are now dealing with natural law. And if you don't understand natural law, you will soon.'*

Oren Lyons

Oren Lyons comes from the Turtle Clan of the Onondaga Nation where he is the trusted chief, maintaining customs, traditions, values, and history from his clan. Looking through his eyes provides us with a different view of life and the living nature.

Professor of Law, Mary Christina Woods took up Lyons' concept of natural law in her 2010 paper called 'You can't negotiate with a beetle' (Woods, 2010) in which she clarifies how our current 'legal membrane' for the protection of the environment is not working well enough for the society we have now.

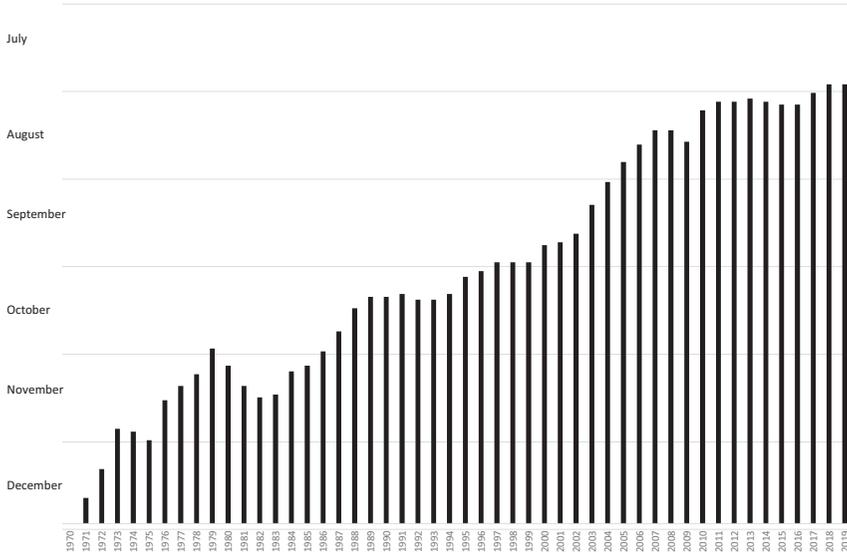
*'Throughout most of civilization, human societies have governed their relationship with the environment through a series of codes or rules. Even back in Justinian times, the Roman Empire had legal rules about the taking of fish, ownership of eroded soil, and the cultivation of bees. In North America, tribal societies had rules and cultural norms restricting the harvest of species to certain times of the year and prohibiting waste and the soiling of waterways. No matter how simple or complex, all societies create a legal membrane through which individuals act in relation to nature. That membrane is environmental law. The efficacy of environmental law should be of utmost concern to citizens, for any government that fails to protect its natural resources sentences its citizens to misery and perhaps even death.'*

*Though most lawyers think of environmental law as just one of several dozen specialties in the law, it is actually a different breed, for one simple reason. Environmental law is accountable to a supreme set of laws – the laws of nature, or natural law, as Oren Lyons and indigenous leaders worldwide call it. The most important function of environmental law is to assure humanity's compliance with nature's laws, all of which ultimately determine whether citizens will survive and prosper, or suffer and perish. If environmental law becomes too detached from nature's laws, or ineffective in assuring humanity's adherence to such laws, society risks collapse – and environmental law, no matter how seemingly complex or sophisticated, will have been irrelevant.'*

Mary Christina Woods

Looking at the global attempt to establish a membrane between human society and global natural law gives a perspective of how slow and difficult change is on this scale.

I was born in 1971. This was just around the turning point for sustainable human existence. Since then, according to the Global Footprint Network, we have been consuming more than the earth can produce sustainably year by year (Figure 4). Like a bank account where more money is taken out than put in, continually causing the balance to go into deeper and deeper negative numbers. At that point, the world at large hardly knew of the global trouble it was getting into.



**Figure 4** Earth overshoot day. (Source: Global Footprint Network, [www.footprintnetwork.org](http://www.footprintnetwork.org), 2019)

Already in 1972, the first UN environmental conference was held in Stockholm. It was called the ‘United Nations Conference on the Human Environment’. The declaration begins as follows:

*‘The United Nations Conference on the Human Environment, having met at Stockholm from 5 to 16 June 1972, having considered the need for a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment, Proclaims that:*

*Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man’s environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights the right to life itself.*

[...]

**Principle 1**

*Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated.*

**Principle 2**

*The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.'*

Declaration of the United Nations Conference on  
the Human Environment (UN, 1972)

In the 1980s the Brundtland commission worked on getting a clearer picture on the 'common outlook and common principles'. The Brundtland Report was published in 1987. It was the first global political vision for re-establishing sustainability and carried the title 'Our common future'. The report warned that we as the human race currently meet our needs in a way that diminishes future generations ability to meet their needs. The task for the report was to: 'to propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond'. In the 'call for action' it is stated:

*'From space, we see a small and fragile ball dominated not by human activity and edifice but by a pattern of clouds, oceans, greenery, and soils. Humanity's inability to fit its activities into that pattern is changing planetary systems, fundamentally. Many such changes are accompanied by life-threatening hazards.'*

Gro Harlem Brundtland (1987)

In the period 2000–2015, the global community led by the UN worked with the Millennium Goals, focused on eliminating poverty. This worked out to a great extent, not least due to the industrial revolution in China. The eight Millennium Goals (WHO, 2000) were:

- (1) To eradicate extreme poverty and hunger;
- (2) To achieve universal primary education;
- (3) To promote gender equality and empower women;
- (4) To reduce child mortality;
- (5) To improve maternal health;
- (6) To combat HIV/AIDS, malaria, and other diseases;
- (7) To ensure environmental sustainability; and
- (8) To develop a global partnership for development.

At the same time, however, the sustainability crisis kept accelerating, and the sustainable development aimed for in the Brundtland report by 2000 was not reached. Having environmental sustainability as priority number 7 and only vaguely

defined reminds us how the focus was much stronger on other types of problems. Key focus was on 'the developing world' and the suffering taking place there.

2015 seemed to mark a very distinct change for the UN as the sustainable development goals (SDGs) were launched. This marks the transformation of the vision laid down in the Brundtland report into goals in 17 areas of the human and ecological system, with 232 quantitatively measurable indicators. The goals are for the year 2030, and the idea is that these SDGs are only the first set of goals that need to be met in order to steer the planet back into the bounds of sustainability. The goal definitions succeed in integrating the three aspects of the economy, the social and the environment:

*'This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. We recognise that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development. All countries and all stakeholders, acting in collaborative partnership, will implement this plan. We are resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet. We are determined to take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path. As we embark on this collective journey, we pledge that no one will be left behind. The 17 Sustainable Development Goals and 169 targets which we are announcing today demonstrate the scale and ambition of this new universal Agenda. They seek to build on the Millennium Development Goals and complete what these did not achieve. They seek to realize the human rights of all and to achieve gender equality and the empowerment of all women and girls. They are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental.*

*The Goals and targets will stimulate action over the next 15 years in areas of critical importance for humanity and the planet:*

**People**

*We are determined to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment.*

**Planet**

*We are determined to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations.*

**Prosperity**

*We are determined to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.*

**Peace**

*We are determined to foster peaceful, just and inclusive societies which are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development.*

**Partnership**

*We are determined to mobilize the means required to implement this Agenda through a revitalised Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focussed in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people.*

*The interlinkages and integrated nature of the Sustainable Development Goals are of crucial importance in ensuring that the purpose of the new Agenda is realised. If we realize our ambitions across the full extent of the Agenda, the lives of all will be profoundly improved and our world will be transformed for the better.'*

The 2030 Agenda for Sustainable Development (UN, 2015a, b)

Clearly, when reviewing the goals and indicators, they are a compound of many compromises and any organisation that has tried to translate the goals into specific actions has found the process difficult and confusing. This is also the case when we look at water specifically. Looking into SDG 6 on water, the mentioning of integrated water resource management is very vague. Regardless, the SDG is an expression of solidarity across the globe and between generations to the extent that the world has not seen before.

It seems reasonable to believe that in 2030 our understanding has become further refined, and a new set of goals will be set forth for a higher global aspiration. By the invention and perhaps even more painfully difficult ratification of this system of 17 goals with 244 indicators, a new type of global accounting system is emerging. This constitutes an unprecedented level of systemic thinking and acting.

So we are approaching the 50 years anniversary of our human consumption overshooting the capacity of the heart, and we are still balancing on a knife-edge. Will we rise to the challenge or deteriorate into chaos? These are the two competing narratives now. One narrative is a hopeful vision for future in a better world encompassed in the words 'Leave no one behind'. The other narrative is that research shows that if we continue without change, the world will face serious problems, widespread suffering and irretrievable losses.

**Your reflections:** Most people want to do good. Most people don't want to live in a collapsing world. Most people don't want to leave a damaged world to the next generation. We have known about this for a long time. The world is full of mostly good people. Why can't we get ourselves wrapped around this challenge? Humanity have faced other large challenges, what makes these problems seem so insurmountable?

**THE EMPATHIC CIVILISATION**

There is reason for optimism. The mere fact that we can think in terms of globality and that we can collectively effort towards understanding the global system

dynamics is impressive and new. Clearly the sustainability insights and thoughts have been going on for quite a while in limited intellectual groups; however, now these thoughts are being thought and taught in elementary school. Even though we are struggling to make enough sense to take action based on them, even if we make flawed conclusions, even if we are bewildered in our judgement of true and false analysis of the global situation, we spend time thinking of it, trying to adapt our brainware to this new mode of thinking. And that is amazing.

What if we only fully can achieve the vision of the SDG goals, if we open our hearts to feel the state of the earth; if we succeed in becoming coherent with GAIA and showing empathy. What if we cannot succeed with our mental capacities alone?

In 'The Empathic Civilization: The Race to Global Consciousness in a World in Crisis' (Rifkin, 2009), an enlightening and charitable analysis of the world development is made by Jeremy Rifkin. He proposes to see a strong human developmental process towards greater and greater empathic reach and depth. This he states is the overarching imperative of human development. It is a difficult journey where history is ripe with examples of daring attempts. The caveat is, however, that while the goal of this humanistic journey is noble, the energy cost is enormous. Hence the empathy quest has burned extensive resources in its wake. Our current situation is historically the most significant attempt to reach the empathic civilization. This is the first time; the attempt is global.

'Empathy' is probably not the first label one would put on the driving force for the process of globalism. However, Jeremy Rifkin provides a long list of examples of how empathy has grown deeper and broader through this process in unrecognised ways. Not because the empathic effects are invisible, more because it is not the focus of our joint narrative, which is rife with conflict and suffering. But next to all the drama a slow quiet empathic evolution has been taking place.

Jeremy Rifkin provides an ample amount of examples on areas in which it is possible to read the development in empathy, be it in the way we raise our children today compared to earlier times or the way we treat minorities or the reach of our acquaintances that often stretch several countries and continents. It can also be read in the overarching themes of historical epochs from great theological civilisations, to ideological ages (18th and 19th century), to the age of psychology (20th century).

It appears that though empathy is not the focus of our attention in the globalisation process 'subconsciously' we are guided in this direction anyway. As soon as we have the ability to reach a higher level of empathy, we go for it. Basically, because it is the way of the 'heart'. It makes us feel good.

However, reaching high states of empathy comes with a cost. The story of the fall of the Roman Empire is illustrative of the problem. The city of Rome was extra-ordinary not only architecturally, but also philosophically. Rifkin writes:

*'From the very beginning, Rome wore two faces. There was the Rome that conquered the world, enslaved millions of people, occupied other lands, delighted in cruelty, and*

*built a stadium – the Colosseum – that could seat 50,000 spectators, who cheered as Christians, criminals, and slaves were fed to the lions. It was also a place where self-awareness grew, individuality began to develop, and tolerance toward other religions became commonplace. ... The slave economy allowed urban society in Rome to flourish. But the increased cosmopolitan sensibility was purchased at the expense of an enormous human entropy bill. Millions of slaves were worked to exhaustion and death to provide the energy to run the empire.'*

Jeremy Rifkin (2009)

Similarly, Rome resulted in the degradation of adjacent farmland. Due to the obligation to pay tax, farm-land was over-exploited and lost its top-layer of fertile soil. Wealth poured into Rome from the conquests of neighbouring countries. However, eventually, the wealth of natural resources was exhausted around the empire.

Rifkin writes:

*'The entropy bill was enormous. The available free energy of the Mediterranean, northern Africa, and large parts of continental Europe, reaching as far north as Spain and England, had been sucked into the Roman machine. Deforested land, eroded soil, and impoverished and diseased human populations lay scattered across the empire. Europe would not begin to recover for another five hundred years.'*

Jeremy Rifkin (2009)

We are in a similar process as they were in Rome. But our tools to despoil the environment are more 'effective', but so is our empathic sensibility. So again, we find ourselves at a balancing point between higher self-awareness, empathy and connection on the one hand and a sustainability crisis ready to reverse it all on the other hand.

*'We are on the cusp, I believe, of an epic shift into a "climax" global economy and a fundamental repositioning of human life on the planet. The Age of Reason is being eclipsed by the Age of Empathy.'*

*The most important question facing humanity is this: Can we reach global empathy in time to avoid the collapse of civilization and save the Earth?'*

Jeremy Rifkin (2009)

Today's scientific understanding of our sustainability crises is perhaps the change in the ingredient that can tip the experiment towards a better fate than the Roman Empires. The sustainable development goals are an innovative way of handling the crises. It marks a global holistic way of thinking, where if we solve the human social problems and lose the 'nature problem' we end losing, but if we do not solve the human social problem, then we for sure are going to lose the nature problem. It is a departure from a simplistic cause-effect way of thinking towards an understanding that welfare in human society and thriving of nature is connected and we cannot only address one problem and turn our blind eye to the other. The SDG address poverty, hunger, health, education, gender, clean water and sanitation, energy, work and economy, industry and infrastructure,

inequalities, communities, consumption and production, climate action, life below water, life on land, peace, justice and institutions and finally partnership thinking.

The SDGs are far from full holistic thinking – especially if one goes into the details with each of the 244 indicator targets, one feels that a lot of important stuff is still missing. Still, it is a huge diplomatic achievement to agree to take such a holistic view on the world crises.

This is a new way of looking at life and looking at earth. Being a water professional in this worldview is a continuation of what came before, but it is also a new beginning. Suddenly, we see the earth as ‘Spaceship Earth’, which is a departure from seeing nature as civilisation’s environment. The word environment comes from French ‘environnement’, meaning that which is around you. In the new mindset, nature is not ‘what is around us’; it is an integral part of our Spaceship Earth. This creates a more tender relationship to nature. What surrounds us take on a different meaning. The water flowing around in a delicate pattern governed by natural law is now seen for what it is, for a holistic whole rather than just as the simpler and fractured understanding of water as drinking water or wastewater, rainwater or ocean. Water can be understood as one big fluid body; shifting shape and content as it streams around the world.

**Your reflections:** We are balancing on a knife’s edge. Can we reach global empathy in time to avoid the collapse of civilization and save the Earth? As polarisation is increasing in so many countries, how shall we bridge this?

## FROM WATER PROFESSIONAL TO WATER STEWARD

In her book, *Water: Nature and Culture*, [Veronica Strang \(2004\)](#) binds together water in the global, the local and the personal:

*‘In this sense, the earth’s planetary fluid system is not unlike that of its multifarious organic life forms. It contains some parts with less water content than others, but even in these, water is vital to the successful maintenance of life: all biota depend on the movement of water through air, soil and cells, and all are connected by water. This sense of connection is nicely captured by Vladimir Vernadsky’s ideas. In the 1920s, Vernadsky was inspired by early Greek debates about the ‘nature’ of the earth and its waters, and by Johannes Kepler (1571–1630), a German mathematician and astronomer who – long before James Lovelock resuscitated the Greek notion of Gaia – described the earth as a living being composed of sentient, interactive particles. Vernadsky highlighted the point that not only had all life forms emerged from the oceans to populate terra firma, they remained materially connected by the flow of water between them. This vision of a living, interconnected biosphere was picked up by scholars such as Lynn Margulis and Dianna and Mark McMenamin to describe the ‘syntrophogenesis’ of all flora and fauna, comprising, as*

*the McMenamings put it, a “hypersea” of biota connected by water, in which humankind, rather than flinging out its chest and straddling the earth like a Colossus, is presented more modestly, as one of the myriad species participating in a larger flow of organic life.’*

Veronica Strang (2004)

Following, she elegantly connects this hypersea of all the water flowing in life to an internal hyposea:

*‘One of the reasons that it is easy to envision a connective “hypersea” of water linking all living things is that water behaves in similar ways at every scale. In a microcosmic echo of planetary circulations, water flows through even the smallest organisms in what we could call “hyposeas”, connecting each part of them. Thus in the human body, as in larger systems, water mediates interactions between all of the different materials and processes involved in maintaining life. And, as in the wider environment, the variability of these materials depends both on their molecular structure and on their water content. Even now, millions of evolutionary years after biota emerged from the oceans, human bodies are approximately 67 per cent water. Human teeth are like rocks, having just over 12 per cent. Bones, which in metaphor serve as the body’s timber, are 22 per cent water. Brain tissue, like a fertile, resource-rich wetland, is about 73 per cent, and blood – though certainly thicker than water – is 80 to 92 per cent H<sub>2</sub>O.’*

Veronica Strang (2004)

In 2017, Pia Soeltoft published a short book called ‘Ten things leaders can learn from Kierkegaard’ (Soeltoft, 2017), where the central idea is Kierkegaard’s powerful idea of ‘to will only one thing’. The idea is to clarify to oneself what one’s life is about. To decide upon and commit to one clear ideal towards which one keeps oneself responsible, towards which one measures one’s daily deeds in big as well as small things. Kierkegaard states that it takes time alone to contemplate and become clear about one’s ideal and a number of principles apply for a useful ‘one thing’.

First of all, the ideal must be about wanting to do good. It has to stand the test that one wants to live in a world where others might have the same ideal. So, for example, having an ideal of ‘living the good life for oneself’ would not lead to a good world, because it would lead to a world of ‘everyone for themselves’. At the same time, the ideal has to be something that comes from oneself rather than based on other’s wishes. Or else it cannot be maintained over time. There has to be a degree of self-motivation. When that is said, this ‘ideal’ will not be ‘a walk in the park’, but rather a ‘mountain climb’. An ideal is in a sense a continued internal struggle to keep to this one commitment.

However, what is just as important is that while it has to be observable from the outside, it should be based on an inner ideal; not an external goal. Goals have their place, but the ideal informs you on what goals to purchase and how to purchase them, but it never stops. The ideal continues. It is like answering ‘what is the overall idea of my life?’.

Additionally, Kierkegaard puts up the following criteria for selecting ones ideal:

- Do I only want my ideal for the sake of the gratification?
- Do I only want my ideal due to my fear of punishment?
- Do I only want my ideal for my own sake?
- Do I only want my ideal to a certain degree?

First, the ideal cannot be for the sake of a kind of gratification, because then it is the gratification one wants. Second, it cannot be to avoid the fear of punishment, i.e. we cannot want sustainability merely from the fear of a grim global crisis. This is not a whole-hearted commitment. Third, one cannot want it for one's own sake only. If it truly is a good ideal it has to be good for others as well. And finally, one cannot only want it to a certain degree because that leads to repeated internal negotiations, postponements and half-hearted attempts, which will eventually water down the commitment to the ideal.

By spending time listening inwardly for this ideal an inner compass is developed ... further, I hurry to add. Because it has always been there as we listen to our conscience, as we strengthen and use our will, as we work to know ourselves, as we take ourselves and our work seriously and as we battle with our fears, it is always there: the heart.

By being explicit about this heart way, we become more transparent for others and more transparent to ourselves. This has importance here in the terrain between two stories – the old story that is not satisfying and the new one that we can only glimpse. Let us try to imagine an ideal of what we are striving for. How would that world look? How can we achieve it? We might be so wrong, and we might be surprised by what happens on the way, but we ought to keep this dialogue open and be as explicit as we can be. When and if we realise we took a wrong turn, we have to be open for walking back or taking a new direction.

I believe we need to change the focus of our attention. We have been so occupied with getting enough water for our consumers and customers, but we need to see customers and consumers in another role as well. We need to see them as fellow travellers on this spaceship earth or in this great living being of Gaia and understand that getting water for all their needs and often mindless overuse is not the essential part of our work – though we seem to believe so. The critical part is to make sure that the way humans use water is not causing harm. It is to preserve ecosystems that are still functioning, restoring ecosystems that have been harmed, stop letting pollution reach the natural water and being mindful about the energy sources thereby avoiding damage to the climate of our spaceship. That is our Work.

This is a journey from 'water professionals' to 'water stewards'; a journey we are all on. It means we need to acquire new skills and integrate them with those that we already have. We need to learn integration in so many ways and dimensions. We need to re-integrate our human society with the spaceship again – seamlessly. If we do things from the right heart set and mindset, we can find peaceful solutions

to the problems. We can find ways to ensure footprints for all of us as well as the living world around us. But we need to change our mindset to stewardship. We need to care and restore. We need to open up to our feminine side of groundedness in the soil, of care and nurture – beyond sustaining. This is not a matter of addressing only one issue, such as carbon dioxide. It is about changing our ways towards peace, harmony and integration. Everything is connected for better and worse. The story we tell ourselves about the purpose of our job matters. Even if it is difficult to make a change in our system, a change in our story will cause minor changes that will contribute and accumulate to this ‘serving of water’ as a way of serving life and the living system, that we are part of, that we need, that we love.

This is long-term and large-scale work. It is work where we must learn what it means to be looking seven generations forward. It is work that spans the whole earth, and yet we are each only one person. Therefore at the same time, it is short-term, small-scale work: what can I do today, how can I approach this situation differently and in accordance with the higher aspirations? I do not succeed every time; you will not succeed every time. It will be frustrating. Take care of yourself as you care for the world. Connecting to the heart does not mean saying goodbye to your head, but it does mean a recentering.

Understanding the vastness of the Gaia system and its unfathomable amount of connections and homeostatic feedback loops that keep the whole living system safe and sound is mind-blowing. But it seems evident that there is an order in things, and we all know what is right and what is not. What serves and what destroys.

The Gaia system has an immense robustness, think of the adaptation to solar input as found by James Lovelock. Humans have tremendous robustness and resilience as well, which make them able to live everywhere on the planet. But both have breaking points, and we should not make compete about who breaks first. Neither should we argue about how much additional pressure the systems can take before they are run to their brink of breakdown. That is not a healthy discussion, neither in regards to humans, nor the world system. Instead we need to nurture and strengthen and live our lives in harmony. This means feeling the pain of our current predicament enough to gain the impetus to act and release the apathy. It means taking a new sacred view of life, earth and water. This means we must work on a longer time frame (seven generations), we must understand our close by ecosystems much better. We must see the things that our culture has made us blind to, the extensive evil we do not see in ourselves and the opportunities available in the indigenous understanding of the world.

Lighthouse stories from this research keep me on some kind of track: Emotos’ idea of water being a mirror of our inner states of care, gratitude and peace; Berry Wendell’s idea that there are only sacred and desecrated places; Rifkin pointing out that the sustainability crisis is about succeeding in the development of empathy; Lovelock’s story of the earth as a giant living being; Naess’ concept of

deep ecology and finally Veronica Strang's notion of a sea, a hypersea and a hyposea.

**Your reflections:** What kind of sense does a transition of your role from water professional to water steward make to you? What would be your Kierkegaard-ish ideal? How would you contribute where you are now?

I will conclude this introductory chapter with a quote by Veronica Strang, underlining what is obviously true: that we are a part of this fantastic, diverse and beautiful hypersea:

*'Every cultural group has its own music and images, its own ways of reconnecting with water. It is vital that these are cherished, not forgotten in an unthinking, unfeeling scramble for material advantage. Societies need to remember what water really is, what it means and why it matters. Water is the fluid connection between humankind and every organism on Earth: we are all the "hypersea". The flow of water that animates our own bodies is simultaneously circulating and animating all of the tiny and vast material systems on which we and other species depend. Water is the creative, generative sea that makes and maintains life, and living water is the substance of identity, of the spirit, of the self. We need to replace utilitarian reduction with an appreciation of water as time, memory, movement and flow; as the tides of the heart and the imagination; as the stuff of real "wealth", which is the combination of health and wholeness. With a sense of fluid belonging, through water, it becomes possible to think and act connectively and collaboratively.'*

Veronica Strang (2004)