Mind the Gap!
Exploring the Gap between Harmony and the Watery Materiality of Climate Change(s) in Rural Kenya

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Introduction

This chapter considers the influence water (as a hyperobject) has on climate change. Drawing particularly on my experience with the Giriama in Kenya, I demonstrate the inherent complications of finding balance or harmony when perspectives on the material world dramatically diverge.

For Timothy Morton, the end of the world has already started – and he knows this because of the hyperobjects. Hyperobjects, he tells us, are extensive, ungraspable entities that exist simultaneously in different states. He lists things like the climate, air, lava, water, tsunamis, viruses, algae, meteors, and even capitalism as hyperobjects.[1] To be clear, hyperobjects are not causally linked to the end of the world. They are simply a mechanism or method through which we can get a glimpse at the 'strange-strange …[ness]' of our situation.[2] The value of recognising hyperobjects is that they threaten the detrimental habit of imagining that we are looking down and in on the rest of the world. They remind us that we are of *this* world as their effects flow through us. The behaviours, therefore, of hyperobjects force us to realise we are always inside and, a part of, the totality of whatever is happening. In short, the learning hyperobjects offer is that humanity is not, and cannot be (other than intellectually), materially separated from everything else.

This chapter is ethnographically rooted in the conceptions of water held by a group of Giriama horticultural-pastoralists from rural Kenya who I have lived and worked with on and off since 2007. My initial contact with this group of people came through the Welsh government, when I was tasked to monitor and evaluate a water project that they had co-financed with a not-for-profit reforestation initiative working in the area. After that project had drawn to a close, I stayed working in collaboration with the locals on various alternative livelihood schemes of their instigating, and worked looking at how they negotiate water shortages in this semi-arid region. As an anthropologist my knowledge of the

Giriama is drawn from extensive immersive participant observation and informal interviews, which means living with and doing as. Consequently, I consider some of the people I describe here to not only be my friends but also part of my extended family.

To date the local population have relied exclusively on naturally occurring sources for their supply, but with drought deepening due to the climate changing water sources are becoming unreliable. In 2016, the arrival of a water system – in the shape of a single pipeline served by a series of managed kiosks – dramatically altered the Giriama's perceptions of water and has introduced a previously unheard of economic component to their relationships with water. In the light of these coalescing alterations, a pipeline delivering a clean water supply should perhaps be celebrated as a success; however, although its arrival while a striking positive for some members, it is also dividing communities as a result of different abilities to access the water. This division circulates around two key themes: first, distance from the tap and, second, economic ability to spare what small amounts of cash a family might accumulate on water. Consequently, this novel method of engagement with water is responsible for creating a series of material and economic challenges that are further powerfully altering local practice.

The question I pose is whether the notion of 'harmony' can be used to help us understand the inherently convoluted, overlapping, interconnected complexities of the actions of hyperobjects like the climate or water. I will briefly reflect on some of the challenges underpinning using the notion of 'harmony'. I do this by attending to both its vastness and its specificity. If harmony is understood as an equilibrium or balance between all parts of a whole, then this chapter explores the densities of understanding the enormity of that idea, and offers one ethnographic example to illustrate how problematic it is to achieve accord despite best intentions.

Water's Part in the End of the World?

For Morton, the end of the world started in April 1784 after some bright spark appreciated that steam was powerful.[3] This spark ignited the touch-paper that went on to produce an engine that in turn helped pave the road to The Industrial Revolution. Steam, used in this way, offered savings in time, effort and production, enabled immense financial gain for some, and generated an unprecedented burgeoning of technological progression first in Europe, and then beyond. Indeed, frankly, the idea of utilising the pressure that trapped steam offers is responsible for the mechanisation of tasks that many of us expect and enjoy today. To be

more specific, perhaps it is accurate to say that the behaviour (physics) of water – that is that it produces steam – was formative and, therefore, instrumental in enabling and inspiring the Industrial Revolution and its consequences.

It may seem trite to claim that the ability to mechanise in this way was only possible because of how materials behave together, but recognition of the materiality of worldly relationships demonstrates quite clearly that if steam did not behave in the way that it does, we may not be where we are today. In consequence and to ensure that the now-considered-valuable steam remained in good supply, people's daily labours altered significantly – as Marx succinctly illustrated in the following passage:

> The economist understands very well that men [*sic*] make cloth, linen, or silk materials in definite relations of production. But what he has not understood is that these definite social relations are just as much produced by men as linen, flax, etc. Social relations are closely bound up with productive forces. In acquiring new productive forces men change their mode of production; and in changing their mode of production, in changing the way of earning their living, they change all their social relations. The hand-mill gives you society with the feudal lord; the steam-mill, society with the industrial capitalist.[4]

The need for heat prompted people to dig deeper into the earth in the search for coal (more efficient than wood in heat production). The need for water (constrained by its fluid density and seasonal shortages that might befall certain geographies – either through drought or freezing) meant that pipes were constructed to cover great distances and storage containers popped up across landscapes to bring water to where it was needed. Both water and heat sources therefore proved to be complicit, even enablers in the initial stages of this part of the project of modernity. In short, looked at through the lens of materialities, if water behaved differently, refused to cooperate (create steam) – or if steam failed to exert pressure – the world today would look otherwise. Water's ability to turn into steam when heated, therefore, appears to be the initial material cause of what we now know of as 'climate change'.

Water Changes

The significance of water's behaviour is increasingly being recognised. As the expanding body of literature on the social lives of water illustrates, the ubiquity

of water and the manners by which it seeps into every arena of life should not be ignored or underestimated.[5] Water is almost defiantly independent. Its transformations defy physical laws; it actively (re)shapes the landscape and through its constant motion, dissolves, cleans, creates, has memory and destroys.[6] Moreover, it troubles the intellectual boundaries people described between nature and culture and problematises ownership as it slips through borders of countries.[7] It tracks its way through everything including the earth, rocks, plants, flesh and the air and depending on the surrounding air temperature without it you will surely die after only a few days. And now, at the time of the end of the world, watching how water is behaving demonstrates not only that *all* activities are interconnected, impact on and are in relationship with each other, but also that making rain is water's business and is out of our control.

Climate

According to climate scientists the surface temperature of the earth is undergoing rapid changes, which will affect the weather. This, of course, is not the first time earth's climate has dramatically shifted. Planetary history demonstrates that the hyperobject 'climate' has been responsible for producing numerous intense alterations to global conditions. Past changes are presented as 'natural' happenings out of any one thing's control, and attributed to a series of other 'natural' events without blame. Change of this kind is typically understood using the Gaia hypothesis of planetary homeostasis. Lovelock and Margulis' 1974 paper on the Gaia hypothesis (and later Lovelock's book) outlines a set of ideas that maintains the planet is able to organise itself through a system that has the ability to rebalance or harmonise when it gets out of equilibrium.[8] Significantly, however, this time, blame *is* apportioned for the current changes to the climate (and the inhospitable consequences we are anticipating as a result of them). It is us – the actions of the 'unnatural animal' (to coin a famous oxymoron) – that are to blame.[9] Thus, the current changes being experienced are deemed anthropogenic – that is: caused by human activities. Consequently, where Ice or Stone were previously formative in provoking change, now it is the human who has taken up the title of influencer. To this end, we have named the age we are entering the Age of the Anthropocene.[10]

Whoever is to blame, the brute watery facts of the situation are that: the south of the planet is drying up while the northern hemisphere is becoming wetter.[11] Cook *et al.* call this the "rich-get-richer/poor-get-poorer' mechanism' sug-

gesting that the traditionally wetter areas will have increased precipitation while the arid regions will become drier.[12] Their choice of phrase also unintentionally hints at the economic consequences that are likely to ensue from the predictions. In areas where populations depend directly and entirely on the climate to ensure a harvest or the survival of livestock less rainfall is essentially a death sentence. To complicate things further, documentation reminds us that despite increases in precipitation in some areas, the increased surface temperatures overall are set to elevate evaporation. Thus, global aridity will mount. Indeed, again, it seems it is water's patterns of behaviour that are set to escalate change.

According to the different agencies (IPCC (Intergovernmental Panel on Climate Change) and NOAA (National Oceanic and Atmospheric Administration)), in the last 50 years across the continent of Africa average surface temperatures have risen between 0.5 -2.0C. As a result of the levels of emissions produced by nations in the global north – a process started in all earnestness with the developments of the Industrial Revolution.[13] The arid zones in Africa, ironically not culpable for global emission production, can expect a greater rise in temperatures than other locations in the coming years. With reference to Kenya specifically, the NOAA states that since 1990 temperatures have risen by approximately 1oC (2017). These changes will increase the intensity and frequency of certain weather conditions – namely drought and flooding. Predictions claim that this will continue – causing temperatures to rise further – until at least 2025. Indeed, the IPCC offers a staggering 5-6oC rise for some areas if global emissions do not reduce (2014).

For the Giriama, these climatic changes are directly altering their daily practices. The farmers here, like others in east Africa, are not strangers to drought.[14] On the contrary, inhabiting a designated ASAL (arid and semi-arid landscape) region, as they do, has meant that sustained periods with very little water are regularly negotiated. As a result, finding water, understanding how water behaves, where it collects, how to accumulate it, how to draw it into one's life and what is necessary to attract it occupies much of Giriama life.[15] Consequently, as with other groups that live in ASAL regions, seeking for water – and, particularly, the practices that articulate relationships with water – organise much of daily life.[16]

However, the current shifting weather patterns are proving challenging to negotiate. The deepening periods of drought, possibly produced by the warming of the Indian Ocean, mean that harvests are inadequate and unable to meet local needs.[17] Over three years with pitiful yields has placed a tremendous strain on resilience; many families have been left without seed to plant even if the rains do come (time of writing June 2017). The fragility of the water system in this area is

well documented and consequently predictions on the current situation conclude that over the next few years subsistence will continue to be dramatically and dangerously impacted upon.[18]

In 2016 Reliefweb.int (an online 'international humanitarian information source for global crises and disasters' stated that

> Parts of the … coastal marginal agricultural livelihood zones have recently moved to Stressed (IPC Phase 2). Due to poor rains over the last two seasons, and in some instances total crop failure, coupled with reduced labor opportunities, poor households have had to rely on markets for food purchase for most of the year with significantly lower incomes.[19]

In May 2017 Reliefweb.int's report showed that despite some rains the population was still at risk.

> A May mid-season assessment by the Kenya Food Security Steering Group (KFSSG) that included FEWS NET determined that food insecurity is set to increase from late June, with more poor households likely to experience Crisis (IPC Phase 3) outcomes.[20]

Late spring of 2017, the price of maize nearly doubled despite the Kenyan government's best efforts to import maize (Miriri 2017). By May 2017 with stocks depleted shops limited maize purchases to one bag per family (author's experience). Many were arrested as they fought to secure maize for their families. Furthermore, predictions continue to be bleak. UNICEF (citing data from the Kenya Meteorological Department) stated that

> Most parts of the country are expected to remain generally dry, implying that crops will be adversely affected … Food security, problems related to water scarcity and lack of pasture are expected to further deteriorate perpetuating risk of resource- based conflicts.[21]

Solutions to Water Insecurities: Pipelines and Crying

In recognition of the impending gravity of the situation, a handful of globally focused, not-for-profit and non-governmental organisations (NGOs) have mobilised support. Using the directives of the Millennium Development Goals that cite

the need to improve water conditions, the NGOs are funding and implementing solutions to bring water security to the area.[22] The solutions, typically rooted in methods that imitate those in the developed North, are stimulating change.[23] External agencies are not alone in their engagement with this area. The Kenyan government can also be seen to have responded to development aspirations and the population's needs with regards water provision.

Consequently, with a view to shift exclusive reliance on naturally occurring water supplies in this rural area, the government has constructed a single pipeline across the region. Prior to the pipeline the community used other methods to bring water to their area in times of drought. For example, every area had at least one ritual practitioner (*mganga*) who could control the weather and cry (read: call or pray) for rain when necessary. Stories of the need to walk miles to collect water in times of stress are regularly counterbalanced by accounts of how the *mgangas* of the past were able to call for rain when it was needed.

Crying for water can only be successfully achieved by trained practitioners and through a highly structured gathering of community members – something that a modern lifestyle has constrained. To cry for rain it is necessary to draw together a community committee with a representative of each of the seven clans in attendance – something that Daniel Mwango Vunya Ndurya explains is not easy these days.[24] Daniel is 83 and is still working despite being almost blind in both eyes as a result of a combination of cataracts and damage after a roofing accident (According to other villagers Daniel was a ritual practitioner. They attribute the misfortune of losing his sight to a punishment from the spirits for stopping working for them.) Daniel states there are very few able practitioners left to cry for the community as was done in the past. This is not only a simple consequence of modernity but also hinges on the systematic rejection and destruction of the practice by those inspired by the Christian message that has been adopted by some people in the area. Daniel describes how practicing groups – derogatorily described as pagans by the Church – were regularly persecuted for their beliefs, and thus became concerned for their safety. Previously, he remembers, crying for rain was a community pursuit that bound the clans in adversity to a common purpose. Moreover, he asserts, it worked and, now, with the climate changing, the elderly like Daniel are concerned about what the young are constantly praying for.

> In the past prayers were for problems. It wasn't something that you had to do regularly … prayers are not working or if this is what people are praying for – then I don't want any of it! (Daniel)

Daniel describes the ritual in great detail, telling me that he has seen many of these performances enacted and the rain following. The process is very structured – as with most things the Giriama do – there is a right way to do things and people should not deviate from the procedure to ensure success. Consequently, rain cannot just be made; a complicated, carefully organised event must be planned.

The first stage of rainmaking requires involvement from all seven clans. Only once the clans are together can a discussion that determines how to proceed begin. Once the clans agreed on a schedule and a date was organised, the people would be informed that the ritual would be going ahead. Participants would be selected for certain roles and the rest of the community was instructed to get ready for rain. Then the kiza (a sacred ritual site, typically in the forest alongside a river or water basin) would be swept using a particular type of grass from the river's edge. When a space was cleared a small house was built and placed in the cleaned ritual space. Once the construction was complete, 'a woman who had only slept with one man' (Daniel) would take *Mbono* seeds (castor) to pound and then cook for oil. The oil she made would be placed in a pot in the kiza. Only after that could a member of the Akiza clan enter the 'house of god'. Before entry the individual must start singing and be covered head to toe in the traditional black cloth. (Black is the colour for water and any ritual that hopes for water must use black) The rest of the group then repeats the chorus, started by the individual covered with cloth, as they circle the house.

> *ziara mkanga rina malua, ziara mkanga rina malua*
> (water-basin reed grass has flowers, water-basin reed grass has flowers)

The group then empties seven containers of river water into a small hole in the top of the roof. As the water starts pouring and when the person in the house is drenched, the group ululates in celebration saying 'there is enough rain for both seasons' as they continue to circle. The whole performance is accompanied by drumming from the *mganga*.

Like many others in the community, Daniel is adamant that crying for rain is an effective method of water acquisition. He told me,

> After the ceremony the leader would address the people. During the address the people were told that whoever has to pass through a valley on the way home must now leave immediately because the rains are coming and it will flood. This was always true. It worked. Then the people would quickly disperse and

> the rain would fall heavily that very same day – always. (Daniel)

This is backed up by Kathunga Mare, elderly head of a fairly wealthy family:

> A long time ago when the dry season came people would ask around to see where the rain was. If it was in Mombasa, they would pray in the kiza and the rain would come. It is difficult to get the people together who could do it now. No more expertise.

Many of the older people talk today with distain and regret about the social changes that have taken hold in this area. They lament the fact that the community lacks individuals with the special knowledge necessary to bring rain, and they state that the water practices of modern life are wasteful, inconsiderate and disconnected from the environment that their grandparents continuously worked with.

> If the river runs dry, these people are in trouble. In the past because people could have to walk very far to get water, we would use it sparingly. (Kathunga Mare)

When asked if rainfall patterns had altered invariably the answer was yes.

> Yes, there is a difference. The climate has changed. The rain isn't as it was. In the past, we had two seasons of harvest, but now getting even one harvest is a problem and you need to buy everything. (Kathunga Mare)

In the recent past, lack of rain was attributed to the actions of specific *pepo* (Champion uses the word *peho* (in Kiswahili) to describe spirits but in Giriama the term is *pepo*), which needed to be appeased. Champion explains in some detail that lack of rain could be attributed to the land being 'soiled' by transgressive actions such as murder. When asked to account for the change most were unable to offer an explanation but some in agreement with Champion's claims above Kathunga stated that lifestyle was the cause.

> Because of the lifestyle. People kill each other more … [there is] a lot of bloodshed and so the m'*pepo* aren't happy. The m'*pepo* are angry because humans are not happy amongst themselves. The m'*pepo* are punishing. People say these are the end of times; if people believe this they will experience it. In the past people used to pray to appease the m'*pepo* and rain would come. (Kathunga Mare).[25]

In an area regularly suffering from water shortages, the ability to draw rain to the area is of obvious importance and should not be underestimated. According to the older people, it was not only effective but was also a method that provided water equally across the landscape as the rain fell for everyone similarly. Thus when the rain fell it would help everyone without discrimination. A situation that is quite different from the water system currently developing in the area.

New water, tap water

In 1974, eleven years after establishing independence in 1963, Kenya's administration declared their intention to serve the population with clean water under their 'Water for all in the year 2000' initiative. Despite the best of intentions, the government records from the 1980s show that getting water to the area where the Giriama live was proving to be problematic. Nonetheless, with help from the Finnish and Swedish governments over the years, an ambitious water project named 'The Baricho Water Scheme' actioned the drilling and construction of a significant borehole just north of the small settlement of Baricho approximately 20 kilometres from Boré Koromi. According to the *Africa: water, sanitation and hygiene* website the bulk of the coastal water supply is served by four sources of which Baricho is one of two that were completed in 1980 with significant support from various donors. It appears that notwithstanding the location being proximal to Boré and other local settlements in land from Malindi, Baricho water first served the population of Mombasa much further south.[26] Despite these developments on the coast, Nyanchaga maintains that by 2005, apart from some water condensing plants, water supplies remained the same as in the 1900s.

Probably inspired by the time-sensitive goals of the Millennium Project, World Vision, a charity whose mission is 'to follow our Lord and Savior Jesus Christ in working with the poor and oppressed to promote human transformation, seek justice, and bear witness to the good news of the Kingdom of God' began a 15 year project based in and around the town of Marafa, a few kilometers from Boré Koromi.[27] World Vision is an enormous operation. It has projects in 98 countries, employs 40,000 staff and manages an annual budget of US$2.6 billion, and part of their aim in bringing support to this area was to alter water practices by financially supporting the Kenyan government to bring piped water to this rural location.[28] As a result of World Vision's involvement in the water from the Baricho borehole now provides a pipeline that runs through Boré Koromi to Marafa. To access the water running in the pipeline World Vision designed,

financed and stationed a series of kiosks at various locations along the main road.

Each kiosk represents a position on the pipeline where clean water can be bought. A kiosk is simply a small room built over the pipeline with a meter system to measure the amount of water drawn at each point. Some kiosks have been fitted with a 5,000 litre storage tank; some have not. The kiosk offers a lockable room to the proprietor. It is constructed from concrete, not the naturally occurring materials typically used for local construction, opens with a metal door at the side and uses a metal, lockable stall window over three external faucets where passers-by can place their jerrycan to be filled. The design presents as a water fortress. This is reflected in the ability to lock the building. It is not possible to secure a local wattle and daub construction in this way. Thus, the concrete and metal box signifies not only the value of the water but also heralds this new water as a commodity in a market economy.

Individuals who have been contracted by the local coastal water authority manage the kiosks. A series of initial costs are necessary to assume proprietorship of the kiosk. After those costs are disbursed, the manager of the kiosk is able to use the kiosk to both sell the water and, if capital allows, sell other household products such as flour, oil or soap. Kiosk managers earn one shilling for every 20 litres of water sold, on top of the money they could earn from selling other products out of the small space. Water is presented to the public at a cost of two shillings per 20 litres; the water company determines the price and any deviation is frowned upon – with the potential to lose your kiosk if you are found to have raised the price or otherwise. The price, advertised as significantly reduced compared to other areas of Kenya, is said to simply cover cost. Of the price, half goes directly to the manager, thereby potentially enabling individuals to make money from selling water. Thus, the manager of the kiosk does not receive a wage, but is able to make a profit if they sell the water.

While the kiosks offer access to clean water to numerous families, the reach of the kiosks is still very limited as a result of the extensive distances between kiosks. Consequently, the current system leaves significant portions of the local population reliant on traditional methods of water collection, as they do not have ready access to kiosk water.

Management of a public kiosk offers an income generation activity that does not rely directly on horticulture or rainfall to the area. There are very few income generating activities that exclude a reliance on rainfall in the area. Teaching and tailoring services are exceptions, but are only available to trained individuals. Other mechanisms such as temporary roadside cafes (locally these establishments

are erroneously called 'hotels' but which only serve food such as chapattis, beans and chai tea) and other retail outlets currently amount to what is available to the population. Thus, kiosks represent not only new places for water acquisition but manifest as novel economic spaces in a landscape where financial exchange mechanisms, that do not concern field produce, are typically limited.

Thus, the introduction of water kiosks presents a series of opportunities to certain members of the communities. In this location, the opportunities have fallen with only one exception to the more wealthy men of the community as a result of their ability to produce the necessary down payment of 5,000 shillings to assume the position of manager. The only exception was a community group of women who banded together to take charge of the kiosk nearest to their homes. These women, active in the local school, had also instigated a tree nursery to increase their incomes. Assuming management of the kiosk not only supported their family incomes but also enabled the women to ensure the young trees in their nurseries survived. Other than this management group, all of the other kiosks are managed men, who after taking responsibility for the operation then handed it over to a female to serve the customers, thereby creating a gendered chain of command controlling the new water.

Engaging with Water

The different methods of collection illustrate how relationships with water are altering. Water collection direct from the river or water basin demands that rain has fallen to a significant level to produce the water source in the landscape. If this has occurred the collector must first travel to the source. Then, because of the lay of the land, women must enter the water source, typically up to knee level, to be able to fill the jerry can. The woman wades into the water, bringing her skin in contact with the water and introducing any matter that she may be carrying with her into the source. Then she cleans out the container, rubbing of the dirt on the sides and swilling out the contents or dregs at the bottom of it. This she throws out into the water in the same area that she then goes on to use to refill her container. Thus, the process of cleaning out the can is illusory as she refills it with the same water that she has cleaned it with. Furthermore, as there are numerous water restrictions that preclude individuals from using different points, each woman collects from the same place in the basin potentially adding and sharing pollutants each time. Depending on the water basin, the filled container may need to be hauled up the basin's slippery, sloping walls to the pathway after

it is filled. With very steep slopes women tend to haul the containers up to the pathway before they place the water on their heads for transportation home.

To collect river water means engaging directly with the water by immersing parts of the body into it thereby amplifying hygiene concerns. Furthermore, water borne diseases that strike from physical contact with the water, such as bilharzia, are commonplace, alongside other issues from ingesting contaminated water. However, accessing tap water brings other unexpected consequences; firstly, with regards commodification of water, and, secondly, with regards time management.

Water collection from a kiosk on the other hand requires different means. For many the distance is similar to the water basins, for some it may even mean a reduction in distance, but for all collectors the method of transportation remains the same – 20 litres at a time on the head. Filling the container using a tap comes with new issues. The most significant of which concerns the need to pay. There is no credit at the kiosks; to fill a container means you must have money. To have money means you must have previously earned it. Without jobs, or incomes from other sources such as selling vegetables, honey or from casual labour, there are many people who simply cannot buy the water. The average family manages on approximately 200l per day – 10 x 20l cans (more on wash day). The cost of this water is minimal, 20 shillings per day or 140 shillings per week, but in an area without wage earners, any price is substantial.

In addition to the financial cost of water there is a time cost. Filling up containers from a tap takes longer than submerging a container in the river. Consequently, tap water collection often adds time on to overall haulage budgets. Not least because water collection creates something of a rush hour around it with people hoping to complete this section of their chores before the heat of the sun hits them, or after the sun has reached its apex. Thus, it is typical to see queues of containers representing the women's place in the line while they attempt to complete other chores for the day, or simply wait in some available shade.

The commodification of water, therefore, precludes universal access to it. Prior to the installation of kiosks water shortages were felt similarly regardless of economic status. Now, water relationships reflect affluence and financial ability, which is creating ripples and exacerbating various community tensions as a result of a division in the community between those who can afford to buy water and those who cannot. Thus, if previously, water acted as a leveler that similarly shaped people's lives, now it acts to accentuate and visibilise differences. Indeed, it is even creating judgement and enforcing social hierarchies as certain individuals openly disapprove of those who still rely on river water.

> They just need to learn how to buy like us. Once they do that, they will be fine. (Christine Kanini)

Water once acting as a leveler is now acting as a divider. And while tap water can be used for all domestic tasks it cannot be sued to water the fields. Without significant infrastructure implemented only rain can irrigate.

A pipeline of water unavailable to those without the funds to purchase it, could be thought of as worse than late or problematic rains. Furthermore, with aspirations for the trappings of modernity embodied in the pipeline, kiosks and payment, previous methods of water acquisition are being disparaged by the wealthier in the community. This in turn is provoking cultural traditions to be reconsidered and rejected and finally, it means that lives are adjusting to finding money above other activities previously thought necessary.

Conclusion

Hyperobjects, Morton explains, are extensive, ungraspable things multiple-sited, multivocal happenings or events. They exist without our gaze or attention and because of their 'strange strangeness' or ungrasp-ability, they compel (even oblige) us to recognise forces that we can do little about – and they do this by troubling both the global and the local simultaneously. What Morton makes us realise is that we think we know hyperobjects because we know of them, but, in fact, their vastness means we can't really know them fully. Morton is drawing them to our attention at this time, not to illustrate patterns or their power, nor yet with any notion of morality about their destructive (or creative) abilities. Rather, his aim is to remind us that we can never be harmonious with the material world we are intrinsically part of if we continue to maintain the erroneous belief that it is distinct from and made of different stuff from ourselves. Viewing existence using Morton's hyperobjects as a lens forces us to realise we are always inside and, part of, the 'everything'. This profound perspectival shift could come as an affront to your beliefs and it should draw you down from the abstract and the metaphysical to the empirical, raw-physicality of your own, and everything's, materiality.

In the Age of the End of the World, the hyperobjects are talking to us and through listening we can learn how to be this planet together. The hyperoject of global warming is not only a series of upset planetary forces; it is a voice and a method by which to show (make visible) our connections to each other and to everything. The hyperoject of capitalism is also talking to us. Using this lens, global

warming becomes a force for further change and a mechanism that reveals the invisible ties that bind, while capitalism in a new setting provokes us to further recognise its limitations and problems.

In the example I offer in this chapter, the impacting factors of history, chemistry, geography, tradition, religion and water demonstrate that sustainable solutions are contextual and contingent. Relationships with water do not simply rely on water availability or cleanliness, but are also enabled and articulated in correspondence with the manner by which the hyperobject acts or behaves as a material. Moreover, it is clear that 'rain and indeed drought are inherently political, not just in terms of water as an essential and often scarce 'natural resource' but also because of its place in a powerful symbolic order'.[29] Collectively, the drought, rain-making rituals and the pipeline embody the 'tension between neo-liberal treatment of water as an 'economic good' and an 'internationalist' humanitarian principle'.[30] What needs to be recognised is the 'strange strange…[ness]' of our connections with the hyperobjects, and that there is a different but 'intricate relationship between water, memory and landscape' in each setting.[31] Rain brings water to the community, falling without judgment or prejudice on community members simultaneously. Piped water, on the other hand, whilst seemingly forthcoming supplies an individual at a time and demands pecuniary recompense. This difference means that its new method of arrival has the potential for dramatically altering perceptions of what water is and how one can engage with it. The social and economic consequences of this insinuate trepidation should be associated with the introduction of novel systems. Development strategies, therefore, must avoid mimicking past methods if they are to be culturally effective, harmonious and sustainable *in situ*.

Global warming is a hyperobject. It is everywhere at the same time, wearing a different face depending on temporality and location. Every time you walk down the street and breath in bus fumes global warming seeps into your lungs, every time the rain floods the fields global warming soaks into your shoes. For a group of individuals in rural Kenya walking miles to find water, the same global warming that wets your feet and fills your lungs, dehydrates their lives. Thus, the hyperobject global warming is inside, around and running through all of us in different ways. Seeing the hyperobject for what it is enables the illusion of distance to be removed. The fact that you chose a plastic lid on your takeaway coffee, that you washed your hair this morning and that you had eggs for breakfast has altered your life and the lives of people you will never meet. Realisations like this should bring you to your knees as you appreciate you are orchestrating not only your own slow death but also the death and suffering of others. Which means, be attentive and mind the gap!

But what is harmony in such a complex, fluid system? Harmony is a grand term that evokes heavenly choirs chiming in unison, it offers a picture of goodness beyond the individual and it insinuates at something mighty to aspire to. It summons up notions of congruence, unity, order, agreement, equilibrium and balance. Using the term goes further to suggest that activities, choices and methods can be harmonious, if enacted in the 'right' way, according to the prescriptions of the method. Indeed, those who use the term go further than that: they suggest that when activities are harmonious they will be the 'right' activities, and that one's job is to seek out, and enact, the innate methods of harmony that run through all planetary endeavours to ensure that one's actions are in balance with the rest of it all.

But as I can see, there is no inherent, absolute method to harmony (or right way) for earthly processes; rather than that, there is a system that humanity has found patterns in. Finding patterns does not indicate or imply that there is a greater good nor yet a correct way to be, but rather demonstrates the power of humanity's pattern recognition and meaning making abilities. Of more import to me is how we interpret these patterns that we *think* we have found – In other words: taking what we think we have seen, what should we do, if anything, with the hyperobjects in the Age of the Anthropocene?

One might be tempted here to re-tread some rather worn paths about natural being good and cultural (that is human activity) being bad but the value in associating 'natural with good' and 'cultural with bad' is a tired discussion that leads us nowhere of any use.[32] Everything is natural – how could it be otherwise? If one attempts to argue that a sunflower knows how to 'sunflower', but that a human has forgotten how to 'human', one has fallen into a dreadful trap whereby a naturally occurring aspect on the planet (that is: humanity) is deemed flawed or deviating. Questions to ask: How could this happen in a harmonious system? How could one aspect of the whole be so bad? (Starting to sound biblical!) And of course if one naturally occurring being can go bad…can/have others?

No, more sensible a discussion would be one in which we recognised not that there is an inherent harmony to find and live by but that we recognise that our actions cause effects and so need to be thought through carefully.

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Notes

1. Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World* (Minneapolis: University of Minnesota Press, 2013).
2. Timothy Morton, *The Ecological Thought* (Cambridge, MA: Harvard University Press, 2010), p. 61.
3. Morton, *Hyperobjects*.
4. K. Marx, *The Poverty of Philosophy: Answers to the Philosophy of Poverty by M Proudhon* (Progress Publishers, Trans. by Zodiac for Marx/Engels Internet Archive: Marxists.org 1999), p. 49; https://www.marxists.org/archive/marx/works/1847/poverty-philosophy/ch02.htm [accessed 15 December 2018].
5. P. Ball, *H2O: The Biography of Water* (London: Orion Books, 2002); J. R. Wagner, ed., *The Social Life of Water* (New York, Oxford: Berg, 2015).
6. P. Ball, *H2O: The Biography of Water*.
7. V. Strang, *Water: Nature and Culture* (Reaktion Books: London, 2015).
8. J.E. Lovelock and L. Margulis, 'Atmospheric homeostasis by and for the biosphere: the Gaia hypothesis', *Tellus* Vol. 26, Nos. 1-2 (1974) at http://www.jameslovelock.org/page34.html [accessed 15 December 2018]; J. E. Lovelock, *Gaia: A New Look at Life on Earth* (Oxford: Oxford University Press, 1979).
9. H.G. Wells, *A Modern Utopia* (1905; repr. Pennsylvania: Pennsylvania State University, 2004), p.86.
10. C.M. Tobias and J.G. Morrison, *Anthrozoology: Embracing Co-Existence in the Anthropocene* (Switzerland: Springer, 2017); J. Zalasiewicz, n.d., Working Group on the Anthropocene: what is the 'Anthropocene'?, current definition and status at http://quaternary.stratigraphy.org/working-groups/anthropocene/ [accessed 15 December 2018].
11. B.I. Cook, J.E. Smerdon, R. Seager and S Coats, Global warming and 21st century drying, Clim Dyn., 43:2607-27; DOI 10.1007/s00382-014-2075-y (National Aeronautics and Space Administration, Goddard Institute for Space Studies, 2014).
12. Cook, 'Global Warming', p.2608.
13. IPCC, 'The IPCC fifth Assessment Report: What's in it for Africa?' at https://cdkn.org/wp-content/uploads/2014/04/AR5_IPCC_Whats_in_it_for_Africa.pdf [accessed 15 December 2018].
14. R. Cassidy, 'Lives With Others: Climate Change and Human-Animal Relations', *Annual Review of Anthropology*, Vol. 41 (2012): pp. 21-36; H. Cooley, 'Floods and Droughts' in P. H. Gleick, *The World's Water 2006-7: the Biennial Report on Freshwater Resources* (Washington, Covelo, London: Island Press, 2006); B. Derman, R. Odgaard and E. Sjaastad, eds., *Conflicts over Land and Water in Africa* (Suffolk: James Curry, 2007).
15. L. Attala, 'Bodies of Water: Exploring Water Flows in Rural Kenya', in L. Steel and K. Zinn, (eds.), *Exploring the Materiality of Food 'Stuffs': Transformations, Symbolic consumption and Embodiment* (Oxon, New York: Routledge, 2016).
16. E.F. Moran, *Human Adaptability: An Introduction to Environmental Anthropology* (3rd ed.) (Philadelphia: WestView Press, 2008); Derman, *Conflict over Land and Water*.
17. C. Funk, A. Hoell, S. Shukla, I. Blade, B. Liebman, J. B. Roberts, F.F. Robertson, and G. Husak, 'Predicting East African spring droughts using Pacific and Indian Ocean sea surface temperature indices', *Hydrology and Earth System Sciences*, Vol. 18 (2014): pp. 4965-78.
18. M. Jacobsen, M. Webster and K. Vairavamoorthy, 'The Future of Water in African Cities: Why Waste Water?' at http://water.worldbank.org/sites/water.worldbank.org/

files/publication/iuwm-africa.pdf [accessed 12 December 2016]; World Bank. 'Financing Small Piped Water Systems in Rural and Peri-Urban Kenya', *Water and sanitation program working paper* at https://openknowledge.worldbank.org/handle/10986/17316 [accessed 12 December 2016].

19. See Reliefweb.int, 'Kenya Food Security Outlook Update' at http://reliefweb.int/sites/reliefweb.int/files/resources/KE%20August%202016%20FSOU_Final_0.pdf [accessed 12 December 2016].

20. See Reliefweb.int, 'Kenya Key Message Update, May 2017' at http://reliefweb.int/report/kenya/kenya-key-message-update-may-2017 [accessed 20 June 2017].

21. See UNICEF, 'Kenya Humanitarian Situation Report' at https://reliefweb.int/sites/reliefweb.int/files/resources/UNICEF%20Kenya%20Humanitarian%20Situation%20Report%20-%205%20June%202017.pdf [accessed 15 December 2018].

22. UN.org, 'The Millennium Development Goals Report 2015: Summary', at http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20Summary%20web_english.pdf [accessed December 2016].

23. R. Cassidy, 'Lives with Others'; J. Fontein, 'The Power of Water: Landscape, Water and the State in Southern and Eastern Africa: An Introduction', *Journal of Southern African Studies*, Vol. 34, No. 4 (2008); P. G. Jones and P. K. Thornton, 'Croppers to livestock keepers: livelihood transitions to 2050 in Africa due to climate change', *Environmental Science & Policy*, Vol. 12, No. 4 (2008): pp. 427-37.

24. The seven clans of this area are Amwabayawaro, Akiza, Amwakithi, Amilulu, Amwamweri, Amwandundu and Amwakombe. According to my informants Amwandundu started the kiza. These clan names are quite different from those documented by Parkin, who worked with Giriama who lived at the southern part of Giriama land on the coastal strip: see D. Parkin, *The Sacred Void: Spatial Images of Work and Ritual among the Giriama of Kenya* (Cambridge: Cambridge University Press, 1991).

25. A.M. Champion, 'The Agiryama of Kenya', *Royal Anthropological Institute Occasional Paper No. 25* (London: Royal Anthropological Institute of Great Britain and Ireland, 1967), p. 32

26. Champion, 'The Agiryama of Kenya', p. 126.

27. WorldVision.org, 'Mission Statement', https://www.worldvision.org/about-us/mission-statement [accessed 13 June 2016].

28. Wvi.org, 'World Vision Annual Review' at http://www.wvi.org/sites/default/files/1_WVI-Annual-Report-2016%20%281%29.pdf [accessed 13 June 2016]; Personal communication with Joffe, a World Vision employee from Nairobi working in Marafa.

29. Fontein, 'The Power of Water', p. 744.

30. Fontein, 'The Power of Water', p. 742.

31. Morton, *The Ecological Thought*, p. 61; Fontein, 'The Power of Water', p. 746.

32. P. Descola, *Beyond Nature and Culture* (Chicago: Chicago University Press, 2013); T. Ingold, *Perceptions of the Environment: Essays on Livelihood, Dwelling and Skill* (London, New York: Routledge, 2000).