

What Cape Town learned | China's changing consumers
Men and menstruation | **Sanitation in India** | From yuck to luck

STOCKHOLM

WATERFRONT

#1 | JANUARY | 2020

STEP BY STEP

– the path
to changing
human behaviour

A path of green footprints is shown on a textured green background. The footprints are arranged in a winding path that starts from the bottom left and moves towards the top right. There are several footprints, some of which are slightly faded or overlapping, suggesting a journey or a process. The overall aesthetic is clean and modern, with a focus on the concept of 'stepping by step'.

How much change can we handle?

Almost every day, there are new reports challenging us to make faster and more drastic changes to the way we live than mankind has ever experienced before. Can we really pull that off? Yes, many experts argue that we already have much of the necessary technology, we just need to adapt our thinking and actions accordingly.

No wonder then that behavioural change is hotter than ever. In this issue of *WaterFront*, we scrutinize the concept on page 10 and meet people who try to set the world on a different course. Don't miss the story on page 4 where Capetonians talk about what they learned from the scare when Cape Town almost ran out of water. On page 18, you get to meet one of the most influential persons on the planet, the former journalist Ma Jun who kick-started China's environmental movement 20 years ago.

Another must-read is our article about the world's largest behavioural change campaign from India – turn to page 14 to see how that went. Other inspiring stories feature Kenyan actor Karanja Daniel who teaches men about menstruation (page 12), a new generation of climate conscious PR gurus (page 13) and lessons from Namibia's fight against the yuck-response to recycled water (page 17). To learn more about the water impact of food, check out the stories on pages 16 and 22.

Enjoy the read!



Saving water in Cape Town



Behavioural Change



Karanja Daniel



India's sanitation revolution



Ma Jun



Torgny Holmgren
Executive Director,
SIWI



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- 03 BRIEFING Water news round-up
- 23 2019 This changed in 2019

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STOCKHOLM WATERFRONT

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analyses by some of the world's most knowledgeable water writers. It is published in print and digitally by Stockholm International Water Institute, and is free of charge.

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Renewed focus on hydropower in India

The Indian government recently presented a new bill to regulate dam safety, both for the country's more than 5,000 existing dams and for the many that are under construction. The Dibang hydropower project in Arunachal Pradesh will be the highest dam in India and is expected to create energy and flood-prevention, but critics worry about its potential impact on local communities, ecology, and wildlife.



Land and oceans as carbon sinks

The global oceans' role as carbon sinks has increased, according to statistics from the World Resources Institute. In the last decades, oceans have taken in 2.5 gigatons per year which is more than double what it did in the 1960s. At the same time, concern is growing over how ocean and land sinks will be compromised by future warming. During COP25 in December, the International Union for the Conservation of Nature shed new light on the topic with the report *Ocean Deoxygenation: Everyone's Problem*, which also highlights the link to pollution from land.

Forest-water nexus guide from FAO

To meet the growing interest in sustainable landscape management, the Food and Agriculture Organisation of the United Nations, FAO, recently launched a capacity development guide for practitioners, *Advancing the Forest and Water Nexus*.

2,000,000,000

2 billion people still lack basic sanitation services.



A look at a distance

In 2021, the Surface Water Ocean Topography mission, a joint satellite mission between NASA and France, will conduct the first-ever global survey of Earth's water. The satellite will use radar technology to survey at least 90 per cent of the planet, studying lakes, rivers, reservoirs and oceans, to measure how bodies of water change over time.

Valuable waste in Auckland

Auckland in New Zealand has set itself a target to be self-sustaining in energy by 2050. The city is looking into how wastewater treatment can play a part, using the methane emitted in the system to generate energy.



Making ideas spread

All development initiatives dream about their projects "going to scale", but how do you achieve that? This has been the topic of research conducted by environmental social scientists at Imperial College London, UK. A team led by Morena Mills has studied 22 case studies of conservation initiatives across the globe. The results, published in *Nature Sustainability*, reveal that more than 80 per cent of projects show the same pattern. Uptake is very slow at first, but as a sufficient number of early adopters have joined the initiative, the idea will spread rapidly as they adopters influence their own contacts. The spread then slows again after all potential adopters have either joined or decided against involvement.

CAPE TOWN SAVED ITSELF

Transparency, information and behavioural change saved Cape Town from Day Zero – the day the city was destined to run dry – in 2018.

“The drought has taught us the importance of taking the residents along with us,” says Xanthea Limberg, Mayoral Committee Member for Water and Waste Services at City of Cape Town.

Text | Görrel Espelund Photo | Eric Miller and Görrel Espelund



Valuable drops.

The water collection point in Newlands, in the southern suburbs of Cape Town, has been upgraded to a permanent stand, with 16 taps to facilitate the tapping of spring water that originates from the Table Mountain aquifers.

“When the city restricted water use to 50 litres per person per day in 2018, that’s when I started to come here. We

More than a year later, the water restrictions stand at 105 litres per person per day but Johnson’s family has more or less kept their water-wise habits.

“We used to take baths, but since the days of the drought everyone in my family showers and we collect all the grey water in the household to use in our garden. It brings down the water bill,” he says.

The drought alarm first sounded during the summer of 2017. In 2018, Day Zero, the day Cape Town was going to turn off the taps, loomed over the city. In an unprecedented effort by all sectors of society, water consumption was more than halved. When the winter rains finally arrived and the dams started to fill up, Day Zero could be called off.

In November 2019, the low consumption figures started to inch up slightly but they still stand at about 650 million litres of water per day, in comparison to

“We used to take baths, but since the days of the drought everyone in my family showers and we collect all the grey water in the household to use in our garden. It brings down the water bill”

Mervin Johnson

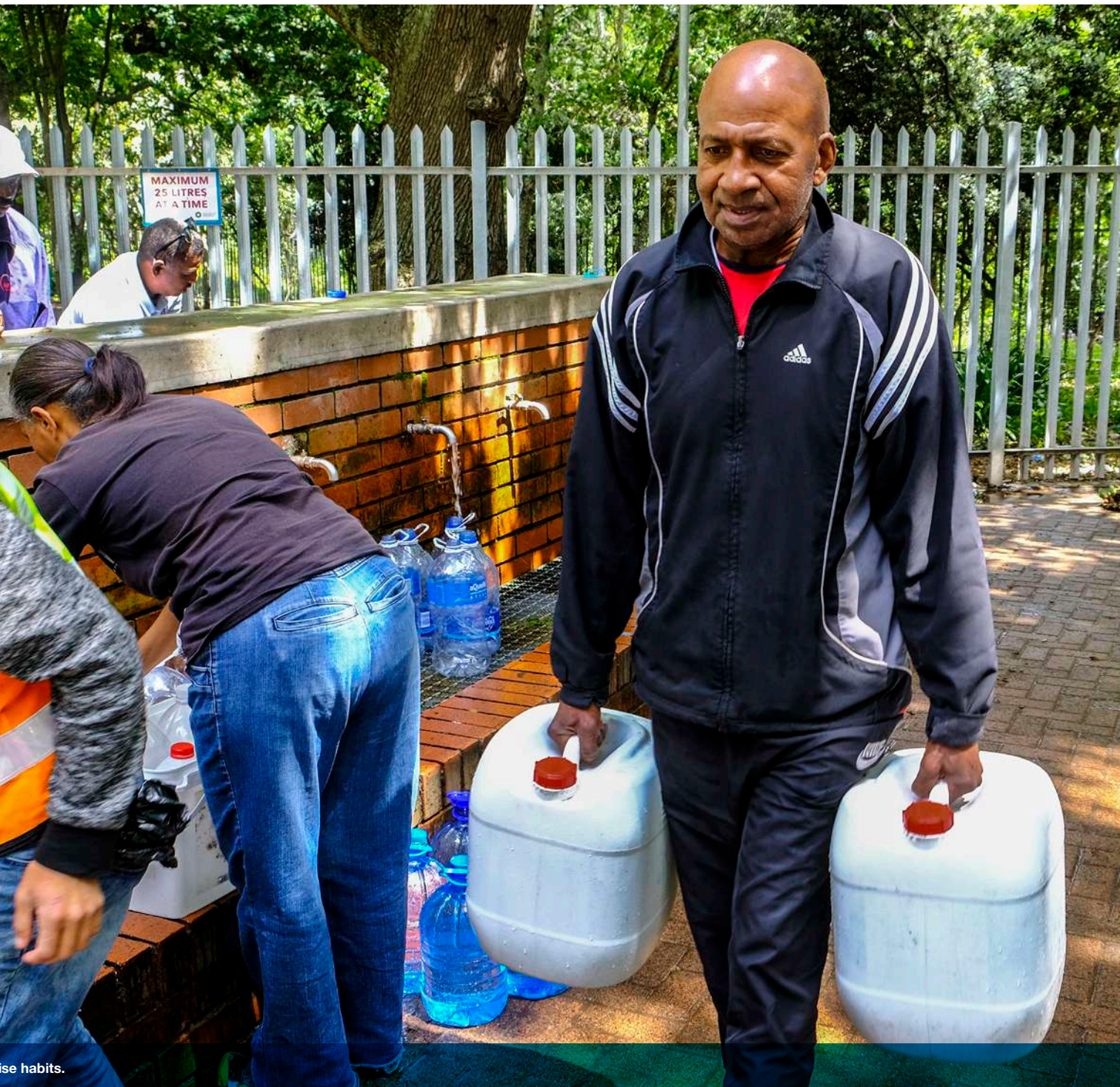
just had to find additional water for our family,” says Mervin Johnson who is retired and comes to the spring on a regular basis.

the 1,200 million litres to 1,500 million litres of water per day that the City used to consume prior to the drought during the peak summer months. ●●●



Mervin Johnson and his family have kept their water-wise habits.

LF FROM DAY ZERO



ise habits.



Wilmarie January is a regular at the water stand in Newlands.

••• **Wilmarie January** is also a regular at the spring.

“I have continued to catch the shower water to use it for flushing the toilet, and when I run my washing machine I add the water manually. That saves a lot of water,” she says.

Historically, water supply in Cape Town, the second largest city in South Africa, has been dependent on the winter rains. But after two consecutive dry winters, the drought was a fact. The response from the city of Cape Town was multi-pronged and ranged from consumer restrictions and tariff hikes to emergency water-augmentation schemes.

“We ultimately overcame the drought through demand management. Every sector of society was involved and it was really that collective action that reduced our consumption. Cape Town’s ability to reduce its demand over such a short period of time is something that hasn’t been done anywhere else in the world,” says Xanthea Limberg, Mayoral Committee Member for Water and Waste Services at City of Cape Town.

She believes that information and transparency were key factors to get the residents on board. The city published an online guide with water-saving tips for households, and a water dashboard

showing the standing water consumption and dam levels was updated weekly.

“We launched a ‘watermap’ on an open platform where each household was given a certain coloured dot, depending on their water consumption. People were able to see who was saving water and who was not. Peer pressure is one of the most effective tools to actually drive behavioural change. The water consumption decreased after the launch of the map,” Limberg says.

“Cape Town’s ability to reduce its demand over such a short period of time is something that hasn’t been done anywhere else in the world”

Xanthea Limberg

The most important lesson learnt from the crisis, she thinks, is the importance of taking the residents along on the journey and to form partnerships with all sectors of society.

“I think everyone has dramatically shifted their relationship with water and I think there is still a great pride in people who can show a low level of consumption. The drought made people realize how much water we used to waste,” says Limberg.



“The drought made people realize how much water we

At the Environmental-Economics Policy Research Unit (EPRU), University of Cape Town, researcher Johanna Brühl, together with Professor Martine Visser, has been analyzing the effects of the different interventions put in place during the drought. It’s difficult to pinpoint what exact intervention had what effect as they were implemented at the same time or shortly after one another.

“What we do see, however, is a big behaviour change when the city changed



used to waste," says Xanthea Limberg.

the communication strategy and became more transparent around water supply and availability," says Brühl.

Another significant drop came when the city informed high-volume consumers that a water-management device would be installed on their properties to control their consumption. The city also included general information about the drought, as well as tips on how to save water, in the letter.

"The letter pointed out that these households used excessive amounts of water compared to others, and it was quite effective. Their water consumption dropped. We know from previous studies that social comparisons and social recognition works surprisingly well, especially for high-income households. ●●●



Johanna Brühl studies Capetonians' behavioural change.



Rene Frank and Shelley Humphreys from W12.

“Our aim is to create the framework for a Major City Best Practice Water Protocol, an evolving document to facilitate progress on sustainable water access”

Rene Frank

●●● Those findings underpinned the idea behind the water map,” says Brühl.

All results are not out as yet, but generally the conclusion is that high-income households were more motivated to reduce their consumption through social pressure and low-income households by different pricing, concludes Brühl.

To draw attention to the lessons learned, some 20 cities facing similar Day Zero scenarios, have been invited to the W12 Congress in Cape Town in early 2020.

“Every city that has dealt with a drought has done so in different ways because all situations are unique. Our aim is to create the framework for a Major City Best Practice Water Protocol, an evolving document to facilitate progress on sustainable water access,” says Rene Frank, Chairman of W12.

The Congress was initiated by SOS, a non-profit organization focusing on

water and sanitation in schools, in partnership with The Institute of Ecological Civilization and the University of the Western Cape.

“We take a holistic approach on the issue and look at water from six different areas: political, natural and technical sciences, social society, economics and politics,” says Shelley Humphreys, Executive Director of SOS.

When talking about climate change and water-related issues, it is often done in theoretical terms, Frank points out. In the case of Cape Town, theories became reality.

Coining the expression Day Zero made people aware of the severity of the situation and the general public realized that if water consumption was not reduced, they would have to spend their days in lines to collect water.

“What happened in Cape Town was for real and we have a responsibility to



Zoë Rushin, Facilities Manager at Old Mutual.

share what we’ve learnt and tell the story of the sacrifices people had to make,” says Frank.

“It’s all about behavioural change, and I think the drought changed the way we think about water. Who knew how many litres of water a dishwasher uses? Or a bath? We never quantified it before but when all you have is 50 litres of water per day and you know a bath takes 200 litres, you just can’t have a bath,” Humphrey says.

Many people who could afford it invested in rainwater tanks during the drought to capture the little rainwater that fell. All the tanks are still in use.

“You can see it on your water bill after a good rain, then the consumption is down because all the rainwater captured is being utilized,” says Frank, adding that it is not always as easy for residents in poorer communities to save water.



“Traditionally, the township dwellers are very low water users, but they often lack an alternative water source, and thus the residents have only drinking water to use. Therefore, we installed water tanks in some of the settlements to assist micro businesses such as car washes and micro gardens, so that they could continue their businesses without putting further strain on the drinking water.”

On a much larger scale, one of the biggest corporations in South Africa, Old Mutual, responded to the crisis by building its own water filtration system, which has enabled the company to go off the water grid. With approximately 9,000 employees working at its campus in Cape Town, the Old Mutual office is like a small town.

“When water restrictions were introduced, we had to ask ourselves: how

would we operate if the taps were turned off? That’s how it started,” says Zoë Rushin, Facilities Manager at Old Mutual.

Building the wastewater-to-drinking-water filtration system took less than a year and even before it was in use, people on the campus had changed their behaviour towards reducing the monthly water consumption by 30 per cent. Communication and information to the staff have been paramount and the system has been fine-tuned to meet all the required standards.

“It tastes better than municipal water,” Rushin says, filling a glass of water from one of the stands in the reception area.

Approximately 75 per cent of all the water used on the campus is reused and treated, the rest is lost in the system. To top up, Old Mutual adds wastewater from the municipality that is treated on-site.



There have been some issues with employees not fully buying into the concept of turning wastewater into drinking water, admits Rushin. But the company is busy conducting employee education to make everyone comfortable to use the water.

“It’s all about changing the mindset and understanding that water is a reusable, not a renewable, commodity.” ●

A trendy science that changes everything

Text | Maria Sköld

It's time to change – but how? Across the world, activists, politicians and companies are eagerly following the rapidly evolving field of behavioural sciences to understand what really influences human action. Here's a look at what we know so far.



The park administrators at the Petrified Forest National Park in Arizona, USA, were worried. Too many of their visitors had a troublesome tendency to leave the park with their pockets stuffed with pieces of the precious wood. Something clearly had to be done. The staff decided to put up a sign to make people aware of the situation. “Many past visitors have removed petrified wood from the Park, changing the natural state of the Petrified Forest,” it read.

Did this cause people to alter their behaviour? It did. But not quite the way the park officials had intended, since wood theft actually *increased* by 8 per cent. The case is one of the most frequently cited in books about environmental psychology since it clearly demonstrates that just providing information isn't enough to change how people do things.

Interest in environmental psychology and other cognitive sciences has exploded in the past few years, with activists, companies, and government

officials all wanting to know what triggers human behaviour. But why is that suddenly so important?

Lucía Aguirre Sanchez, researcher and strategist at the international non-profit organization Center for Behavior & the Environment, RARE, points to three factors.

“First of all, we now live in a new era, the Anthropocene, where human behaviour is shaping the world and causing global problems, such as the climate crisis. If we want to change that, we need to change human behaviour. Second, behavioural sciences, like psychology and behavioural economics, have taught us that human decision-making is more complex, and less “rational”, than we used to think. And, third, it's getting more and more common to actively use that knowledge.”

“We now live in a new era where human behaviour is shaping the world and causing our main problems, such as the climate crisis” Lucía Aguirre Sanchez

Psychological research shows that human behaviour is influenced by factors such as our fundamental values (faith or ideology), our attitudes (including our perceptions of reality) and social norms. We want our actions to be in line with our values, but also to be effective and, not least important, approved by our peers.

In the Petrified Forest example, people seem to have perceived the message about “many past visitors have removed petrified wood” as a social norm. If apparently “everybody else” picked up little pieces of wood, why shouldn't they? This way of interpreting the message turned out to be much more powerful than the information it was meant to convey. Numerous experiments, some of them quite terrifying, have demonstrated that people can be quick to abandon their own values and beliefs in order to comply with what they believe to be the prevalent social norm.

Social psychology studies many such fallacies in our decision-making. One of the earliest examples is *cognitive dissonance* – we want our actions to be consistent with our beliefs and if we can't change what we do we instead adjust our reasoning – which was described by Leon Festinger already in the 1950s. *Motivated reasoning* or *cognitive biases* make us biased in our information uptake and more likely to believe something if it confirms what we already hold to be true.

Since the 1970s there is also growing interest in the many decisions that we make without being consciously aware of them. Daniel Kahneman and Amos Tversky described this as two separate thinking processes, one fast and one slow. For the fast one, we make automatic decisions with the help of *heuristics*, rules based on our previous experiences, so that we for example go with what first comes to mind, what looks familiar or the middle option in a series, regardless of what the alternatives are.

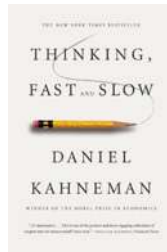
Daniel Kahneman was recognized with the so-called economic Nobel Prize for this contribution and the same Prize was later awarded to Richard Thaler, who built much of *behavioural economics* on the back of this work.

Another influential field of study concerns human perception of risk, with many studies focusing on what determines if people take action on issues such as climate change. Maybe not so surprisingly, it turns out that people who perceive climate change as an immediate risk to themselves or their families are both more concerned and more willing to change their behaviour. People in low-income countries or among low-income groups are more worried than the world's rich.

Other studies look at cognitive barriers to dealing with climate change, sometimes called the *dragons of inaction*. As long as it is seen as something that is happening far away or later, we will prioritize more immediate threats. If the information is so complex that we don't know which actions we can take, we also shut it out. More recently, psychologists have also looked at our ability to process information about the mass extinction of species, which seems even harder for humans to understand in a meaningful way.

These new findings about how human decision-making really works has transformed activities from business to politics, and it is influencing much of the communication about development and the environment. Lucía Aguirre Sanchez feels it provides many useful tools.

“We apply and train others in behaviour-centred design, a methodology that can be used by different professions to make policies and programmes more efficient by framing the behavioural dimension of complex environmental problems. A deep understanding of the target audience is combined with



insights about behaviours common to all humans," she says.

According to a 2014 study by the Economic and Social Research Council no fewer than 136 nations used behavioural science in public policy and 51 had “developed centrally directed policy initiatives that have been influenced by the new behavioural sciences”, with the UK Behavioural Insights Team as one of the first and most well-known examples.

One often discussed tool is *nudging*, which was presented by the aforementioned economist Richard Thaler and the legal scholar Cass Sunstein in 2008. They note how humans respond to the cues and options that are presented to them, which sometimes can make us do things that we deep down know are not in our own long-term interest. We buy a candy bar on our way out of the store, just because we saw it at the check-out counter. By altering this choice architecture – for example by placing apples instead of candy bars next to the cashier – we can nudge to make decisions that are more in line with what we really want.

Nudging has become popular as a method to rapidly move society in a more sustainable direction, for example by always setting the most water-efficient option as the default. However, these attempts to sway people's thoughts and actions have also raised questions about where to draw the line between influence and manipulation.

One of the nudge inventors, Cass Sunstein, has in the book *The Ethics of Influence* tried to respond to the criticism and define guiding principles for the use of nudges. He points out that there is always some kind of choice architecture, but that we're usually not aware of it. Nudging is just making active use of something that would no matter exist. Sunstein also cites surveys in which people agree with nudging as long as it promotes something they support.

Lucía Aguirre believes that nudging can be a tool among others, as long as it is used transparently and ethically. “Behavioural science can provide powerful tools to design programmes and interventions that work for real human beings. This knowledge should not be used to manipulate but to advance goals backed by public consensus, like for example improving the management of natural resources. Not least when it comes to the environment, we urgently need things to work,” she says. ●

LANDS FOR LIFE

One example of behavioural change is RARE's Lands for Life programme, to protect watersheds in Latin America. Users upstream and downstream signed reciprocal agreements and received trainings, which lowered the use of pesticides and encouraged conservation of forests in the area. Special Pride campaigns made people value the water more.



What boys should know

Karanja Daniel is the Kenyan actor who took on a new role. As a water and sanitation trainer, he teaches men and boys about menstruation.

As told to | Maria Sköld **Photo** | Thomas Henrikson

“It started more than ten years ago, by coincidence. I’m an actor and one day when we were performing, the main actress of a key scene started experiencing severe menstrual cramps. We guys didn’t know what to do and first we just told her to persevere and try to get back on stage. But she was in a lot of pain and did not have pads – and we did not have any money on us either. So together with a friend I went on a pad-hunting mission. We found a female shopkeeper who emphasized with us. When we took the pads back to our colleague she started crying, she did not believe what we had done for her.

I was triggered and after that I started carrying pads in my bag for almost two years, just in case. I guess I wanted to be a hero. But it also made me think. Many women experience such discomfort, fear and shame when they’re menstruating. And it is exacerbated by men who don’t understand that menstruation is natural and who are not supportive of the experience.

Today I’m a WSSCC* Menstrual Hygiene Management trainee and feel more confident talking about menstruation. In particular, I want men to challenge the status quo of old taboos, myths and mis-

conceptions that promote discrimination through fear, shame and discomfort. To understand that women who menstruate are not unclean, they just need water and soap. They need management materials, they need privacy and they need accurate menstrual information.

If you’re a father, you should make sure that your daughter has water, soap and pads. And that she feels she can talk about her menstruation also with you, freely and confidently. That’s the world we need – a world where menstruators are proud of menstruating. PERIOD!” ●

*WSSCC = Water Supply & Sanitation Collaborative Council

Karanja Daniel participated in World Water Week 2019 to share his experiences of engaging men and boys to support adolescent girls and women experience dignified menstruation.

That's how much the CLIMATE'S CHANGING



On Friday 20 September last year, staff from 150 advertising agencies in London turned on their automatic email replies and headed to Tate Britain on the north bank of the Thames. Together they marched to Parliament Square as part of “Create and Strike”, a coalition of ad agencies in support of the climate protest. This is just one example of a new relationship between business and climate.

Text | Henning Göransson Sandberg **Photo** | Garry Knight/Flickr

The ad agencies movement, under the slogan “Advertising industry strikes for the environment (yes, that’s how much the climate’s changing)”, started back in May 2019, after activist group Extinction Rebellion issued an open letter asking advertisers to use their powers of persuasion to shift mass behaviour to tackle the global climate and ecological emergency.

In the wake of this, at the end of June, some of the UK’s leading advertising industry names came together to sign an open letter pledging to tackle climate change, an initiative organized by the Purpose Disrupters Network and The Comms Lab. The letter acknowledged that the advertising industry has at times been complicit in exacerbating the current climate crisis through promoting unsustainable consumption, but also

that their expertise can be used to help shift society to more sustainable ways of living.

Increasingly, the advertising industry is joining forces to create awareness-raising campaigns. For example, the Plastic Oceans UK and the advertising agency TBWA\London recently served battered plastic in a fish-and-chips shop in Blackburn, UK, to highlight the plastic threat to oceans and offer Britons easy ways to reduce their plastic footprint.

Also among big commercial brands is plastic pollution and oceans increasingly common communication themes, with car manufacturer Volvo recently issuing a children’s book, *The Day the Ocean Went Away*, on the topic. Some the biggest food, drink and consumer

brands – including Coca-Cola, Nestlé, Unilever and H&M – have joined the “New Plastics Economy Global Commitment”, a global campaign spearheaded by the Ellen MacArthur Foundation in collaboration with UN Environment.

Studies show that marketing sustainability can be effective. According to the report “Unpacking the Sustainability Landscape”, from Nielsen, certain categories of products with sustainability claims show twice the growth of their traditional counterparts.

At the same time, criticism against the idea is also mounting. Lucy Atkinson, assistant professor specializing in advertising and PR at the University of Texas, has analyzed how companies use of environmentalism in their advertising has evolved over time. In the article *Portrayal and Impact of Climate Change in Advertising and Consumer Campaigns*, she writes that concerns about “greenwashing” – making a company or product appear to be more environmentally friendly than it really is – and deceptive advertising, continue to plague green advertising. A collection of new critiques have also emerged, according to Atkinson. Examples include questions about the implications of emphasizing consumer behaviour as a source of climate change mitigation, of relying on nature as a commodity to be sold and used, and of engaging individuals as consumers rather than as citizens in attempts to effect environmental change.

A report in June 2019 from the city network C40 estimates that the consumption of goods and services in these cities, “including food, clothing, aviation, electronics, construction and vehicles” is responsible for 10 per cent of global greenhouse gases. Many experts on consumption and climate change are sceptical of the possibility of consuming our way to lower greenhouse gas emissions. ●



More than 100 million toilets have been built as part of the Clean India Mission. Photo: iStock

The world's largest **CHANGE** campaign

In the past few months, many villages in India have organized a Gaurav Yatra, a walk of pride, to celebrate that they have been declared Open Defecation Free (ODF). This is part of the government-led Clean India Mission, the world's largest toilet-building and behavioural change initiative.

Text | Henning Göransson Sandberg

Open defecation is one of the world's greatest health risks and a leading cause of child mortality, which is why the United Nations want the practice stamped out by 2030. Five years ago, India was home to 60 per cent of the world's open defecators, but the government claims that this number has been drastically reduced under its Clean India Mission programme, also known as the Swachh Bharat Mission.

toilets have been built across rural and urban India since the launch of the mission. Social and behavioural change communication has been a large feature of the programme, with a number of nationwide campaigns in traditional media as well as on social media.

The campaigns focused on debunking myths and misconceptions about the construction, maintenance and use of

By the end of the programme, in connection with Mahatma Gandhi's 150th birthday on 2 October 2019, official figures put coverage at 100 per cent

In 2014, when the campaign was announced as a People's Movement to end open defecation, fewer than four in ten rural Indian households owned a toilet. By the end of the programme, in connection with Mahatma Gandhi's 150th birthday on 2 October 2019, official figures put coverage at 100 per cent.

The programme was implemented by the state governments, with support from the Ministry of Drinking Water and Sanitation and the Ministry of Housing and Urban Affairs. More than 100 million

toilets, encouraging people to build toilets, but also to challenge the social belief that only women, the elderly or sick family members should be using them. Public figures, including famous cricketers, actors and politicians, have been engaged as ambassadors for the campaign. Trained grassroots level volunteers called Swachhagrahis, "Ambassadors of Cleanliness", played another important role, assisting in the construction of toilets as well as in campaigns and monitoring.

Other incentives were also used. Villages declared Open Defecation Free get extra funds from the state government and officials from successful districts received official rewards and recognition.

Professor Val Curtis, of the London School of Hygiene and Tropical Medicine, argues that behavioural change at decision-making level has been just as important as the changes seen at community level. She interviewed national and local government staff and found that senior political support and disruptive leadership led to changed behaviour among decision-makers and that this made them more credible among the general public.

The campaign is widely seen as a success and the Bill & Melinda Gates Foundation felt it made India's prime minister Narendra Modi worthy of its Global Goalkeepers Award. According to a study commissioned by the Gates Foundation, the programme seems to not only have led to a large number of toilets being built but to people actually using them.

The programme, and the Gate Foundation's support for it, has however also been questioned. In November, the Indian National Statistical Office's released its survey on sanitation, with lower levels of household coverage than the official numbers. According to the survey, only 71 per cent of households had access to toilets at a time when the Swachh Bharat programme claimed it was 95 per cent.

Human Rights Watch and other organizations have warned that ●●●



The topic has been hotly debated after two children were killed in September for allegedly defecating in the open, causing the Department of Drinking Water and Sanitation to issue a statement condemning coercion as a method to achieve the goal

●●● the methods for creating social disapproval can lead to downright human rights abuses, especially against marginalized groups like Dalits and Adivasis. The topic has been hotly debated after two children were killed in September for allegedly defecating in the open, causing the Department of Drinking Water and Sanitation to issue a statement condemning coercion as a method to achieve the goal.

The children were Dalits and in an article in *Ideas for India*, researchers Diane Coffey and Dean Spears from the Research Institute for Compassionate Economics, RICE, emphasize that questions related to India's outlawed but

prevailing caste concepts are central to understanding the issue.

“Untouchability and social inequality are important parts of why open defecation continues,” they write. Poor families are most likely to be shamed and punished for open defecation but may not be able to afford to build a latrine.

Coffey and Spears raise the question if the goal to end all open defecation within five years was in fact too unrealistic and if this can have triggered some people to either tinker with statistics or to accept draconian measures. They write: “The other foreseeable consequence of an extreme goal is to legitimise extreme methods. And in a country in which

nearly a third of households admit to practicing untouchability (Thorat and Joshi 2015), it is not a surprise that when local government officials sanctioned coercion and intimidation as means of achieving Swachh Bharat, the consequences would fall most heavily on the already disadvantaged.”

The Indian government, on the other hand, has dismissed the allegations made by Coffey and Spears. In an article in the newspaper *The Print*, a government spokesperson calls the comments “misleading” and “outrageous”, and points to reports from UNICEF and others about health improvements.

A press release from the government's press bureau states that the statistics regarding toilet coverage have been independently verified in India's massive National Rural Sanitation Survey. The government also notes that Swachh Bharat has been acknowledged by Cass Sunstein, one of the inventors of nudging, as a good example of positive behavioural change. ●

Turning **yuck** into **luck**

Can people learn to drink treated sewage water? The question has been raised by officials in many water scarce countries, but so far only the Namibian capital Windhoek has really dared to experiment – and succeed.

Text | Keith Begg **Photo** | Marilyn Young

In 1968 the Windhoek municipality built the Goreangab wastewater recycling plant, becoming the first city in the world to produce drinking water directly from recycled sewage. It provides clean water to 300,000 people in Windhoek and its environs, producing 21,000m³ of potable water per day.

Since Windhoek sits at the centre of one of the most arid countries in the world, recycled water was viewed to be the only cost-effective viable option for this water starved city. But as in so many places, the local population was at first revolted at the thought of bringing water essentially from the toilet to the tap.



Leong Ching

According to Leong Ching, Professor of Psychology at the Lee Kuan Yew School of Public Policy in Singapore, this “yuck factor” is a negative psychological reaction that persists despite knowing about the safety of recycled drinking water. “Overcoming this intense reaction therefore entails more than providing people with technical information. Acceptance of recycled

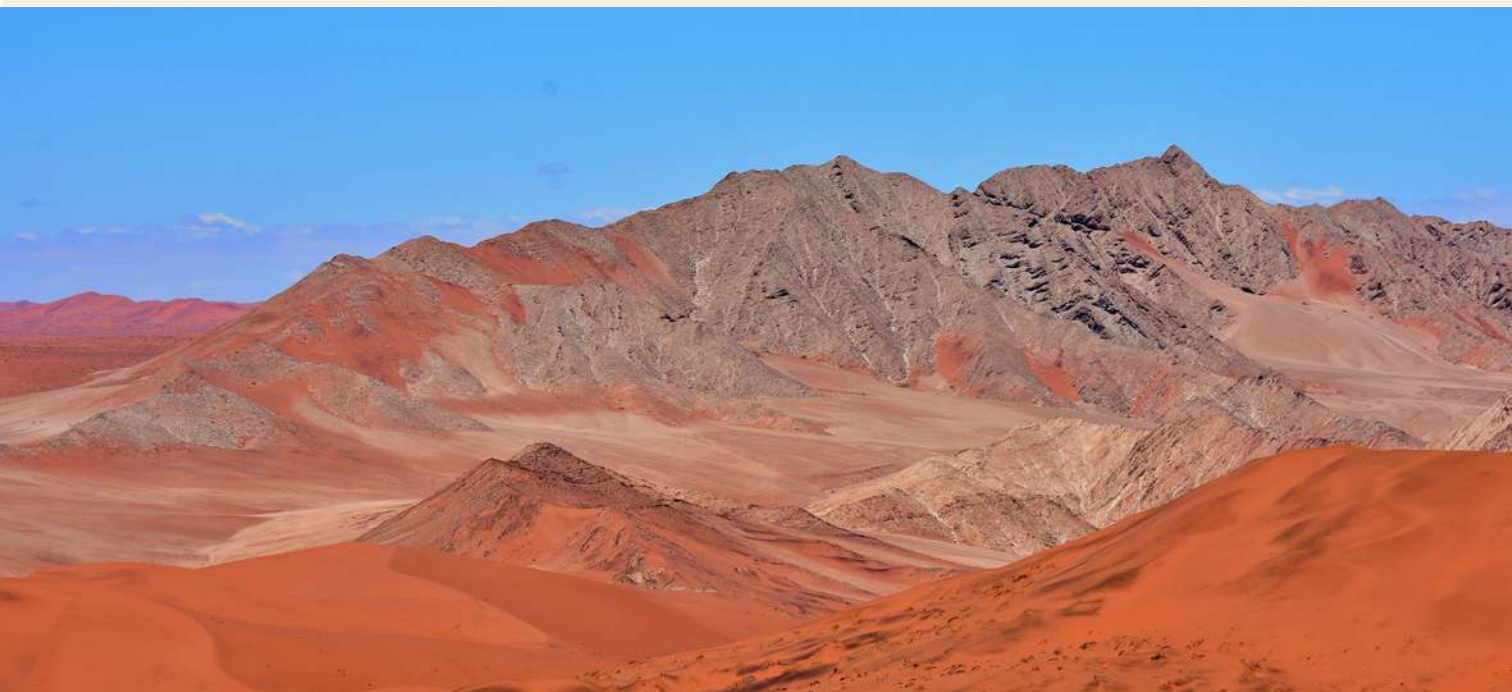
water also takes time with gradual, additional use as the first large-scale recycled water programme in Namibia shows,” she says.

Leong Ching is one of the surprisingly few psychologists who have studied the attitudes of Windhoek locals over time. In a paper from 2016, she finds that Windhoek citizens have become used to the “direct potable reuse” of sewage water and do not see it as particularly emotionally charged any more.

“The idea of recycling wastewater was first proposed during a severe drought in Namibia in 1956. In its early years, the programme ran into technical difficulties, health risks, and adverse public reactions. The government of Windhoek, however, maintained a policy committed to stringent quality and health standards, as well as transparency and accountability. Any safety issues were swiftly addressed. For example, a rumour about an outbreak of typhoid was quickly countered by releasing quality monitoring reports showing that the treatment plant remains safe. Overall, strong institutions, tight monitoring and a strong safety record allowed Windhoek to overcome the initial disapproval of recycled water,” she explains.

The proportion of recycled water has also been raised gradually, from less than five per cent of the city’s potable water at the beginning, to more than a third today.

Other countries, such as Israel, Singapore, and South Africa, have succeeded in persuading their populations to use alternative water sources but so far not for drinking. When that idea has been raised in for example Australia and the USA, it has been met with fierce resistance. It remains to be seen if the Namibian example can be recycled in other places. ●





MA JUN

Lives in: Beijing, China

Works at: Director of the Institute of Public and Environmental Affairs, IPE.

Career: Started as an investigative reporter in the 1990s and became famous after the release of the book *China's Water Crisis* in 1999. In 2006 he started IPE and was listed by Time magazine as one of the world's 100 most influential persons.

Ma Jun leads China's transparency revolution

Twenty years ago, investigative journalist Ma Jun published the book *China's Water Crisis* and incidentally kick-started the country's environmental movement. Today he heads the Beijing-based Institute of Public and Environmental Affairs, whose massive data disclosures force companies to clean up their acts.

Text | Maria Sköld **Photo** | Mikael Ullén

Few people have followed environmental issues in China for as long and with such fervor as Ma Jun. Already in the 1990s, his investigative articles in the *South China Morning Post*, on topics like water quality and air pollution, attracted widespread attention. His 1999 book *China's Water Crisis* is said to have stirred the Chinese into action much like Rachel Carson's *Silent Spring* sparked American environmental awareness in the 1960s.

Ma Jun had travelled across China to collect information for the book and was struck by the water pollution and the suffering of local communities that he saw. But after the book was published, he also started to notice a new interest in environmental issues, with people all over the country asking what could be done.

"I began to realize that a problem of such a magnitude and complexity can't be solved without extensive public participation. But that also requires access to information. With that in mind, I set up the Institute of Public and Environmental Affairs, IPE, and started working on transparency issues. I believe this is key to changing human behaviour," Ma Jun says when describing how it all began.

Today IPE collects data and creates indexes to ensure maximum transparency about for example water pollution

and air quality. The fact that companies, NGOs, investors, government officials and local communities now have access to the same information has led to drastic cuts in emissions.

If you compare the water quality situation today to 20 years ago, when your book was published, what has changed? Things have changed quite a bit. We're still facing many challenges that need to

"If you would have stopped an average person in the street, they would have said that China needs to develop first, before thinking about the environment. Today, this has totally changed"

be addressed but there has been major progress. Compared to 20 years ago, public awareness is higher. At that time, few people paid attention to the water problem. If you would have stopped an average person in the street, they would have said that China needs to develop first, before thinking about the environment. Today, this has totally changed and in line with that, we can see changes in policy.

I remember how, when I wrote the book, engineers would talk about how the drying up of the Yellow River was actually

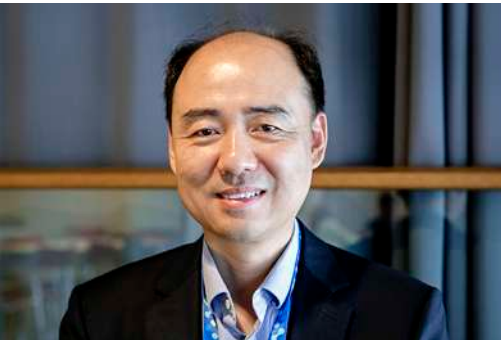
a good thing, since it meant that every drop of water was put to effective use. Today the slogan is instead to "maintain the river's healthy life". So, you can see a real change.

You started the Institute of Public and Environmental Affairs in 2006, how has it evolved?

The idea was to encourage transparency to bring about change. Our first project was "The China Water Pollution Map", with water quality data, discharge data and performance records of dischargers. It was small, in 2006 we could only file 2,000 records of unlawful discharge into water bodies. Today, we have collected 1.5 million corporate violation records, half of which are related to water. We now have 22,000 monitoring stations, most of them official, and we try to develop our index. Every year we bring that informa-

tion to the People's Congress, to encourage more disclosures, and this has led to an increase in water data.

We have developed several different indexes, for example the Corporation Information Transparency Index, which encourages brands to be transparent and disclose data about their whole supply-chains. That data is also used in an environmental credit risk tool that we have co-developed together with a consultancy firm, so that financial institutions can assess the environmental risks of millions of factories in ●●●



“In the 1990s, when I did my research, it was difficult to get even the most basic information. Now we work with 18,000 factories that provide their emissions data every two hours”

●●● China. Financial institutions often say that they don't have the expertise to follow all the individual companies, but here they get the structured and analytical data they need.

What has been the result?

In the 1990s, when I did my research, it was difficult to get even the most basic information. Now we work with 18,000 factories that provide their emissions data every two hours. Most of them have water-related activities, including some of the largest dye houses, paper mills, chemical plants, as well as thousands of sewage plants and water facilities at industrial parks.

Everyone can get access to this information from our cell phone app and some are using it to report polluting factories. So far, more than 2,000 such violations have been addressed. We also communicate our results to the People's Congress every year to encourage more transparency.

How do you work with companies?

In 2007, we launched the Green Choice Alliance, calling for major brands to improve their supply chains. China had become the factory of the world, but the waste got dumped in our backyard and caused a lot of contamination. We have also developed a Corporation Information Transparency Index, which assesses the supply-chains of 370 brands, primarily from the IT and textile sectors. With the information, companies can first respond to questions from NGOs and commu-

nities, and then proactively address their problems.

This year we presented a new tool, the Blue Eco Chain, with a set process for handling complaints. Companies that join the Blue Eco Chain may follow their suppliers' environmental performance through our website and app. And when there is a deviation, everyone gets notified through the app. The company then has ten days to take action and show how they address the problem.

Since its launch in 2018, we've had 20 suppliers responding to regulatory issues every day. The Blue Eco Chain is very easy to use, with automated processes, so that it can be used by companies that say that they lack the resources to follow up.

So, we've managed to change the behaviour at factories and we are glad to see that financial institutions start to use some of our data. But we still haven't reached our ultimate goal – to change the behaviour of consumers.

What could be done to influence consumers?

We're still thinking about how we should do that. In China people are always on their smartphones with super apps where you can do everything... If we can use that, for example through some kind of environmental rating on e-commerce platforms, that would be immensely powerful!

What would you like consumers to know?

I want them to understand that although gadgets and clothes may look similar, their environmental footprint could be totally different. While the top brands are moving towards more life-cycle management, some brands still have outrageous problems with their supply-chains. We would like consumers to be able to differentiate between different kinds of brands and vote with their feet.

With all the data we have, this is totally doable. If you're interested in a specific brand or factory, you could get all the information about their environ-

mental performance, with ratings so that you can compare them to others.

Would you like consumers to shop less?

I believe that this would also check the over-consumption, which is a problem. It's driven by continuously dropping prices of all these gadgets and fashion brands because the real environmental cost is externalized, as a consumer you don't pay for it.

The first step is to drive companies to comply with rules and regulations. Next, they should apply standards to improve beyond that. If all costs are internalized, including energy and the mining of resources, products will become more expensive and people will shop less since they are cost sensitive. Some people will also consciously choose to buy less, when they learn more about how some goods are produced.

How interested are Chinese consumers in sustainability? They normally rank high in international surveys?

That's not a surprise, Chinese consumers care deeply about sustainability issues, they worry both about the quality of products and about the environment. But at the same time, in our country people are generally quite cynical. They don't quite trust all this talk or many labelings. To be honest, some labelings are actually quite questionable.

This is the reason I believe in the power of data. Only a disruptive level of transparency can make people trust companies. Now you don't need to just take the company's word for it, you can go to this app and see with your own eyes what is going on. The reason we pushed for such an extreme level of openness is that in China this is the only way we can really get people on board.

Which challenges do you see for the future?

Increasingly, we now see how factories are moving out of China to other countries, with lower operating costs. Hopefully, some of the hard lessons we learned in China can be used so that we avoid making the same mistakes over again. We shouldn't allow new countries to become safe havens of pollution. With all this new IT technology – sensors, networks and data chains – we really have a chance to do better this time. I would love to work with likeminded people in other countries.” ●

Small food changes have a big impact

Text | Maria Sköld Photo | iStock



Professor Jan Lundqvist is Senior Scientific Advisor to SIWI and a leading international expert on human behaviour in relation to food and nutrition security. What does he see as the most important changes in our relationship to food?

In your own lifetime, what has changed in the way we view food?
We see many dramatic changes across the world. In rich countries, such as my native Sweden, food has become cheap.



Jan Lundqvist

Some fifty years ago, the share of the household budget spent on food was typically about a third, while today it is around ten per cent. More supply, easy access and low prices have resulted in changes in the food culture, with over-eating and waste of food as a result.

In large parts of the world, food security has improved, for example in China. But the situation in Africa

is quite worrisome. In his opening address at the First World Food Conference in Rome in 1974, the US Secretary of State, Henry Kissinger, declared that “Within ten years, no child would go to bed hungry”. Unfortunately, that did not happen.

What have been the implications?

Improved productivity has reduced the “old type” of food insecurity and eliminated the dreadful threat of mass starvation that was a reality as late as in the 1960s, for example in eastern India. At the same time, we see “new types” of malnutrition with over two billion people who are overweight, obese and/or suffering from micro-nutrient deficiency. An estimated half of world’s total primary production is lost, wasted and subject to overeating – a perverse situation.

The expansion of irrigation facilities has contributed to a heavy withdrawal of water and liberal provision has hindered proper management and judicious use of water. Food systems, from field to fork, are contributing to the emission of greenhouse gases.

Which aspects our food-related behaviour do we need to change?

In the UK, colleagues say: “Love food, hate waste” and that’s a good guiding principle. The price on the tag in shops shows only part of the price: we also pay tax money to finance different subsidies and we pay in terms of greenhouse gas emissions and environmental consequences from heavy exploitation. And we’re all responsible – consumers waste more food than farmers or shopkeepers.

Can insights from behavioural sciences help us?

Behavioural and social sciences are important. In their 2015 yearly report, the World Bank also recognized the significance of human behaviour for their analyses. But concerted efforts are better: technical, natural, biological sciences in dialogues with behavioural and social sciences. I was trained as a social scientist and I believe that I still have that thinking, but it is much better to blend it with the insights of other disciplines and practical experience over several decades.

50 years from now, what do you think will have happened?

I suppose that we will see new food habits and probably more and better ways to produce, distribute and enjoy food. Most important to understand is probably that gradual small changes will accumulate and result in big changes, something we often forget. We tend to overestimate the importance of big changes in the short run and overlook the impact of small gradual change. ●

The man who gave us the water footprint

Text | Ruth Mathews

To change something, you must first understand it. One of the most revolutionizing ideas in recent years is the water footprint, which transformed the way we think about the water impact of consumption and production. Tragically, its founder recently passed away.

It is impossible to talk about “water” and “behavioural change” without mentioning the concept of water footprints. Since it was presented in 2003 by my friend and colleague Arjen Hoekstra, it has triggered companies, governments and consumers to completely rethink their water impact. And to do something about it.

The water footprint is the actual volume of freshwater consumed or polluted by a process, a product or an organization. It builds on Tony Allan’s concept of virtual water, but evolved into its own new academic field, Water Footprint Assessment, and soon found many practical applications.

It provides a handy tool for consumers wanting to eat or shop more sustainably, and for companies seeking to reduce the water consumption and pollution from their operations and supply chains. When it became possible to measure their appropriation, companies could set targets for water footprint reduction and develop a corporate water sustainability strategy. As a consequence, in the past decade we have seen great improvements in how businesses take responsibility for their water use.

In 2008, Arjen founded the Water Footprint Network, which I was fortunate to lead for six years. Together with a dedicated team and over 200 partners, we created a vibrant global community of public, private, NGO and academic organizations that applied the latest research to reveal new ways to address critical sustainability challenges. The Water Footprint Network has conducted a wide range of innovative projects across different scales, from global trade to smallholder farmers, building the evidence base for formulating policy, evaluating technologies and identifying best practices.

At the same time, as Professor of Water Management at the University of Twente in the Netherlands, Arjen worked tirelessly to expand the scientific understanding of the real appropriation of water required for different human activities. He was one of the most cited researchers in his field, with publications on a broad range of water-related subjects, including food production, energy and trade.

It was a shock to learn that Arjen, completely unexpectedly, died on his way home from work on 18 November. He was only 52. In this time of grief, it is still reassuring to know that his



Arjen Hoekstra Photo: University of Twente

work will live on and continue to be used by consumers, companies and governments. It should also be an inspiration to us all to remember how much an idea can set into motion.

The beauty of the water footprint concept is that it’s complex and contains a lot of information, but it *feels* simple. Its fundamental principles are not hard to understand, and they can be applied in numerous contexts. It helps us see the difference between eating vegetables or meat, and it shows how much water that is required for each of our t-shirts. It helps companies analyze the water efficiency of their supply-chains. And it allows governments to make more informed decisions about resource allocation and international trade.

Not least, the water footprint provides a shared language, so that consumers, corporations, politicians and academics can discuss water-related challenges and learn from each other. Nothing is more important if we are to make lasting change. ●



ABOUT THE AUTHOR

Ruth Mathews is Senior Manager Water Governance at SIWI and an expert in source-to-sea management. Between 2011-2017 she was Executive Director of the Water Footprint Network.

Photo: Peg-Hunter | Flickr



Climate strikes

All over the world, youth went on school strikes and people of all ages demonstrated to demand tougher action against climate change. In December, Swedish activist Greta Thunberg drew 500,000 people to a boisterous rally outside the COP25 negotiations in Madrid.

Growing climate awareness

Opinion polls in many countries, for example ahead of the UK elections on 12 December, show that the climate crisis is becoming a top concern among the public. During the year, several reports showed that crises related to the climate and biodiversity are worse than previously often understood.

More attacks on defenders

The worrying trend of a growing number of attacks on environmental defenders seemed to continue in 2019. In the Philippines, one of the most affected countries, 46 land and environmental defenders were killed, according to the local NGO Kalikasan PNE. In 2018, they recorded 28 such cases.

A surge of UN activity

The United Nations held a record-number of high-level events to try to revitalize international cooperation on topics related to climate and development.

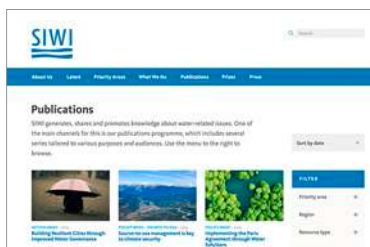


Photo: iStock

Deforestation continues

Global concern over deforestation continued. Images from Brazil's national space research agency INPE showed how the Amazon disappeared at a faster rate than previously.

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Ahead of the COP25, SIWI issued several policy briefs about the important role of water for the climate.

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Implementing the Paris Agreement through Water Solutions

In this policy brief you will find recommendations for countries and organizations on how to use resilient water management for ambitious climate action.

Source-to-sea management is key to climate security

In this policy brief you learn about source-to-sea management for both climate mitigation and adaptation.

Managing the Forest Water Nexus

Here you find recommendations on how to work with resilient landscapes management, which is also integral to achieving the Sustainable Development Goals.

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WHAT TO LOOK OUT FOR IN 2020

World Water Day

On 22 March, World Water Day will be celebrated all over the world. In conjunction with this, the 2020 Stockholm Water Prize laureate is announced.

Climate meetings

In May and June, the UNFCCC will hold technical meetings in Bonn.

Water Decade

In June, the International High-Level Conference on International Decade for Action, "Water for Sustainable Development" is held in Dushanbe, Tajikistan.

Agenda 2030

The High-Level Political Forum will convene in New York in July with 50 countries presenting their national voluntary reviews on how they're achieving the sustainable development goals.

10-year anniversary

On 28 July, it's ten years since the UN General Assembly passed the landmark resolution 64/292 on The Human Right to Water and Sanitation. In September, the Special Rapporteur on the human rights to water and sanitation, Léo Heller, will present a progress report to the Human Rights Council.

World Water Week

Water and Climate Change: Accelerating Action is the theme for World Water Week in Stockholm 23–28 August.



Photo: Mikael Ullén



Biodiversity

In October, parties to the Convention on Biological Diversity shall agree on a new framework to halt the loss of biodiversity and ensure resilient ecosystems.

Climate COP26

In November, Glasgow will host the 26th conference of the parties to the United Nations Framework Convention on Climate Change.