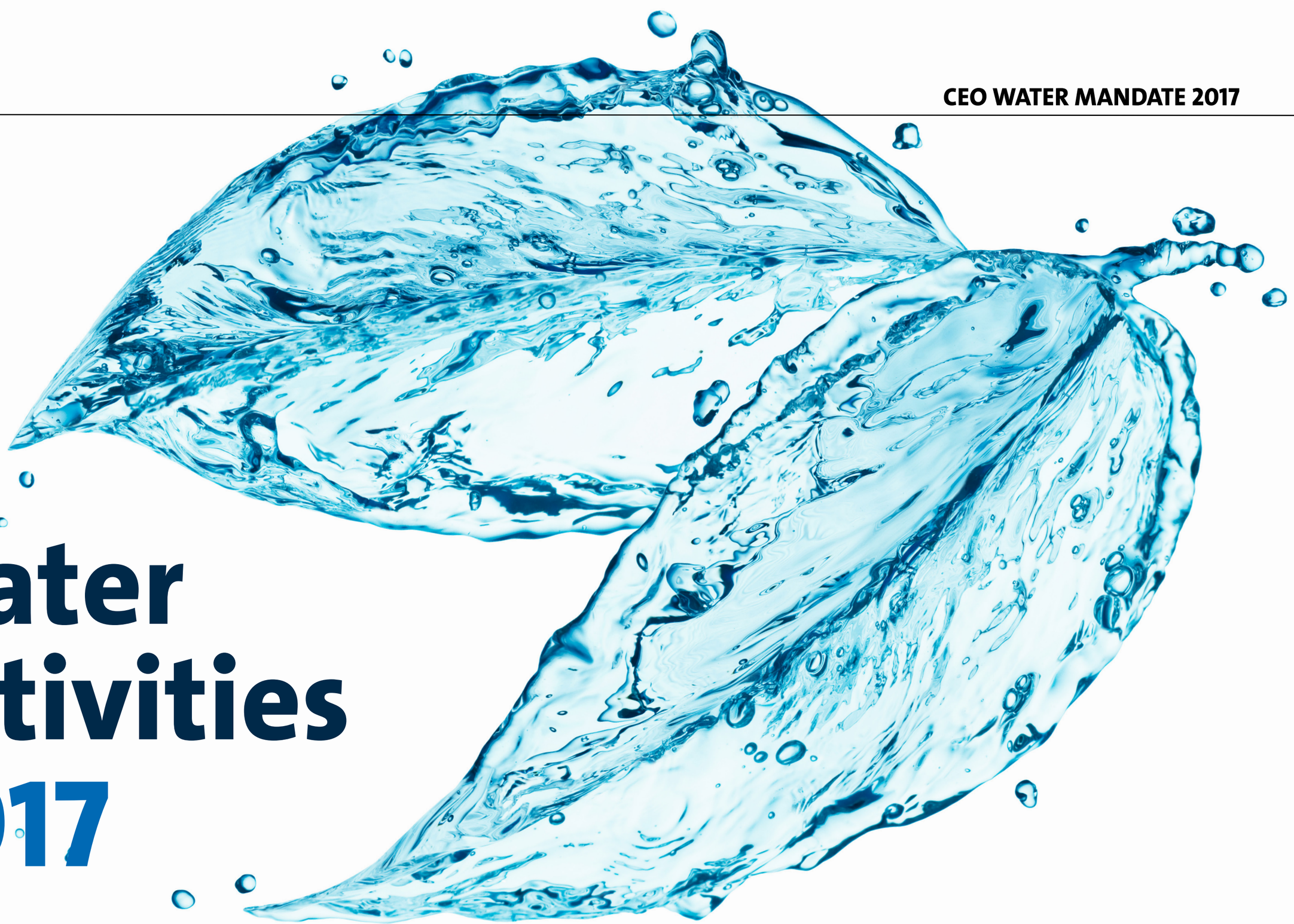

Water Activities 2017

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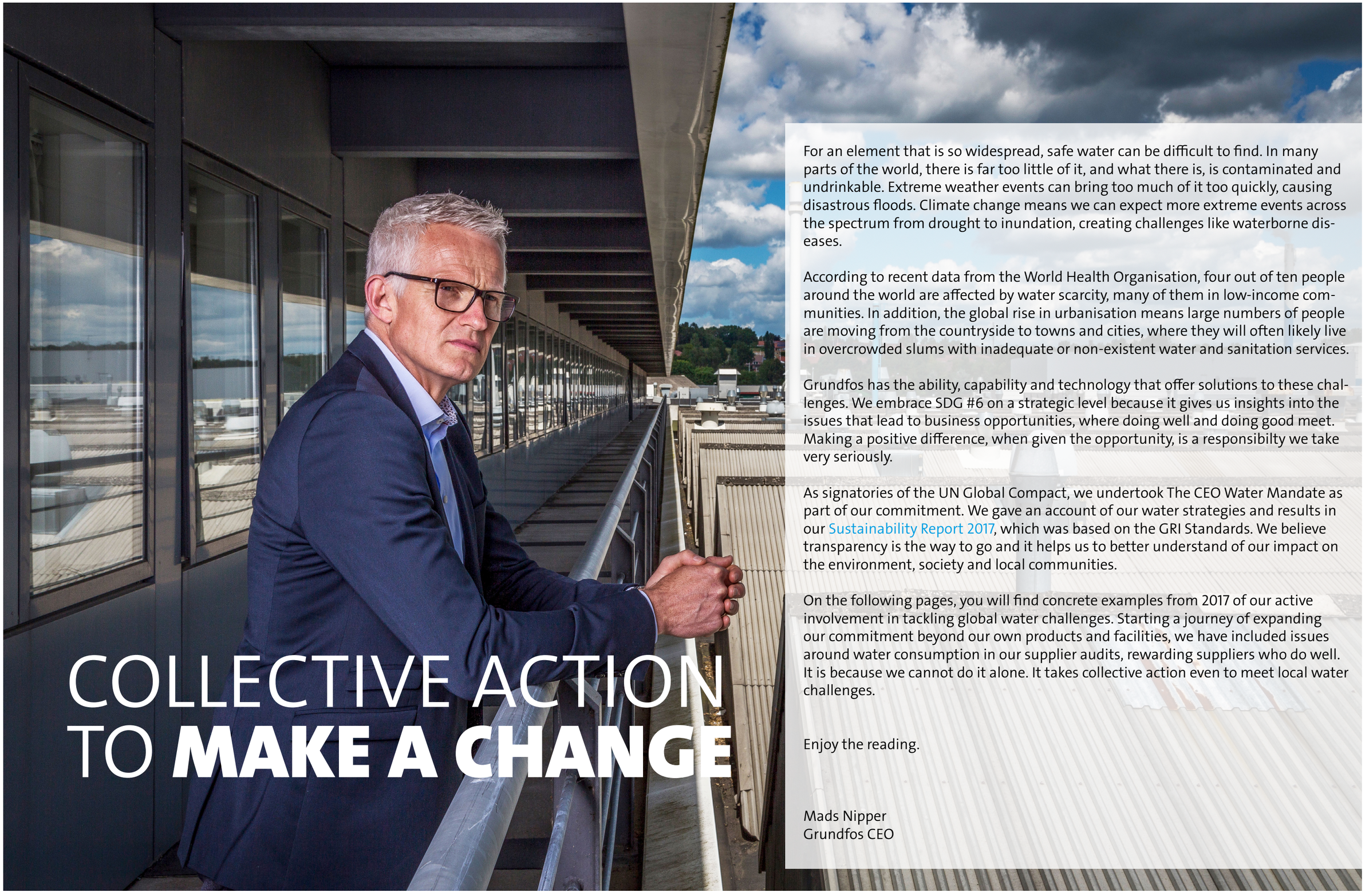


COLLECTIVE ACTION TO **MAKE A CHANGE**

For an element that is so widespread, safe water can be difficult to find. In many parts of the world, there is far too little of it, and what there is, is contaminated and undrinkable. Extreme weather events can bring too much of it too quickly, causing disastrous floods. Climate change means we can expect more extreme events across the spectrum from drought to inundation, creating challenges like waterborne diseases.

According to recent data from the World Health Organisation, four out of ten people around the world are affected by water scarcity, many of them in low-income communities. In addition, the global rise in urbanisation means large numbers of people are moving from the countryside to towns and cities, where they will often likely live in overcrowded slums with inadequate or non-existent water and sanitation services.

Grundfos has the ability, capability and technology that offer solutions to these challenges. We embrace SDG #6 on a strategic level because it gives us insights into the issues that lead to business opportunities, where doing well and doing good meet. Making a positive difference, when given the opportunity, is a responsibilty we take very seriously.

As signatories of the UN Global Compact, we undertook The CEO Water Mandate as part of our commitment. We gave an account of our water strategies and results in our Sustainability Report 2017, which was based on the GRI Standards. We believe transparency is the way to go and it helps us to better understand of our impact on the environment, society and local communities.

On the following pages, you will find concrete examples from 2017 of our active involvement in tackling global water challenges. Starting a journey of expanding our commitment beyond our own products and facilities, we have included issues around water consumption in our supplier audits, rewarding suppliers who do well. It is because we cannot do it alone. It takes collective action even to meet local water challenges.

Enjoy the reading.

Mads Nipper
Grundfos CEO

SALT BRINGS SAFETY AS NEW DISINFECTANT SOLUTION

CHINA: The Selcoperm electrochlorination system

Chlorine gas. It is cheap. It is easy to work with. But if there is a leak or an accident, it can be deadly. Despite the dangers, chlorine gas has been the disinfectant of choice for many years in water treatment plants all over China. Haiyan County Sandi Tap Water Treatment Plant, Ltd took action to eliminate the use of this toxic chemical.

The water plant, located south of Shanghai, has been in operation since 2010 and serves about 400,000 people with about 110,000 tonnes of processed water a day. Understanding the danger of the substance, some communities and plants are beginning to value long-term safety higher than the material cost, including the Haiyan County Sandi Tap Water Treatment Plant, Ltd.

"Our plant has been using this very dangerous chemical substance," says Zhi Haibin, the plant's manager, adding that everyone from its customers – the local citizens – to its workers were put at risk. "This has been a serious safety problem both in terms of water quality and the safety of our operators. It is because every time we replace the bottles of chlorine, our workers must change them manually, which means that they are handling dangerous chemicals each time. So for us, worker safety and operational safety was very unreliable."

Jiaxing Prefecture – the nearby governing city –began bringing awareness to the dangers of chlorine gas disinfection in 2011, eventually passing legislation in 2015 that forbid the disinfectant at all local water plants. In 2016, Selcoperm electrochlorination system was installed. The selcoperm has been reliable and has simplified operations. "The level of automation is very high now. You don't need people to operate it. The only person you need for operations is someone to add some salt. It has reduced our number of workers, reduced our labour intensity and increased the plant's safety."

"We have removed these toxic chemicals and this is naturally very meaningful for our plant, community and society," says Zhi Haibin.

He adds that the trend of using systems like the Grundfos Selcoperm is catching on across the entire country. This is as he explained, "Because human safety is one of the most critical concerns."

"We have removed these toxic chemicals, and this was naturally very meaningful for our plant, for our community and for all of society."

Zhi Haibin, Plant Manager, Haiyan County Sandi Tap Water Company

Watch the film on grundfos.com/cases

NEW BUSINESS MODEL BRINGS **ENERGY AND WATER SAVING**

CAMBODIA: The demand-driven distribution system (DDD) & new business model

In the Cambodian province of Takéo, The Takéo Safe Water Supply Company experienced a high non revenue water (NRW) loss of an estimated 26% and high costs on pump spare parts for replacement. The plant found a solution in our new business model.

Takéo Safe Water Supply teamed up with Grundfos to implement a well-tested technology – demand-driven distribution (DDD) – with a new financing model called a "Performance-Based Contract." For the DDD to work, Grundfos conducted an audit of the Takéo plant's pump system, including main data points such as pressure, flow and energy consumption.

Based on the audit's results, Grundfos installed a DDD system, including high-efficiency pumps for water distribution, control panels and pressure sensors. Grundfos installed the sensors at critical points in the network, which measures pressure and flow based on local water consumption and sends this information back to the control panel at the water plant.

Over time, the system learns to predict the village's consumption patterns from hour to hour. It adjusts overall system pressure – or switches pumps on or off to compensate – accordingly.

The villages surrounding the water plant now have water 24 hours a day. Residents no longer have to buy extra water. They just have to turn on the tap. "Now we have water, my family and I am comfortable," says Nab Orn. The plant's technical manager, Mr. Sila, says, "We have made the price of producing water much cheaper and gained more profit, and we are able to provide a constant water supply, which makes our customers happy."

"We saved a lot after we installed the new technology. We saved around 10-15%."

Mr. Sila, Technical Manager, the Takéo Safe Water Supply Company

How the performance-based contract works

In this business model, Takéo will pay in annual instalments, based on the savings it has achieved by upgrading. Thus, if the system is projected to save X-dollars over five years in energy and NRW, Takéo agrees to pay 50% of that as payment to Grundfos for the equipment, and then Takéo keeps the rest.

"For performance-based contracts, the water plant operators only need to come up with a very minimal sum of investment to get state-of-the-art technology in terms of pumps," says Aloysius Chan, Manager of Grundfos Water Utility in South Asia. "Secondly, they are able to justify the performance in terms of numbers. They can justify the flow, they can justify the energy consumption, they can even justify the pressure they are pumping. And they will see a complete trend over a period of time."

Watch the film on grundfos.com/cases

FROM **INSIGHT** TO **ACTION**

For the past few years, Grundfos Suzhou had been struggling to meet its water consumption targets. After analysing how water was consumed in the facility, it initiated a project that could save up to 10,000 m³ of water per year.

Two of its biggest water consumption points were for the cooling towers in the facility, which consumed around 9,000 m³ of domestic water whereas its deionized (DI) water system consumed approximately 12,000 m³ per year. The facility also treated wastewater in a wastewater line and it was directly drained after qualifying the requirements to be discharged.

The facility ambitiously started to search for ways to save water and evaluated how water was being consumed. They gathered some insights and looked for a potential savings project from there. They initiated a project that would recycle the waste shower water and waste CED production water for cooling tower and production process usage. The grey water undergoes bio-chemical and other treatments and it is reused to supply cooling towers and the DI water system. Their goal was to save 10,000 m³ of water per year.

“The quality of the water was a great challenge for the project, not only in the installation but also in future maintenance. Finally being able to reach the water quality that we aimed for was the best reward for all the effort we put in,” says Joy Xu, Facility & EHS Manager at Grundfos Suzhou, who also led the project.

“The project is an excellent practice of water recycling. As we used our own products and solutions, such as PPS and CR pumps, it is a good showcase for our potential customers. It also shows the Grundfos ambition to save water,” she continues.

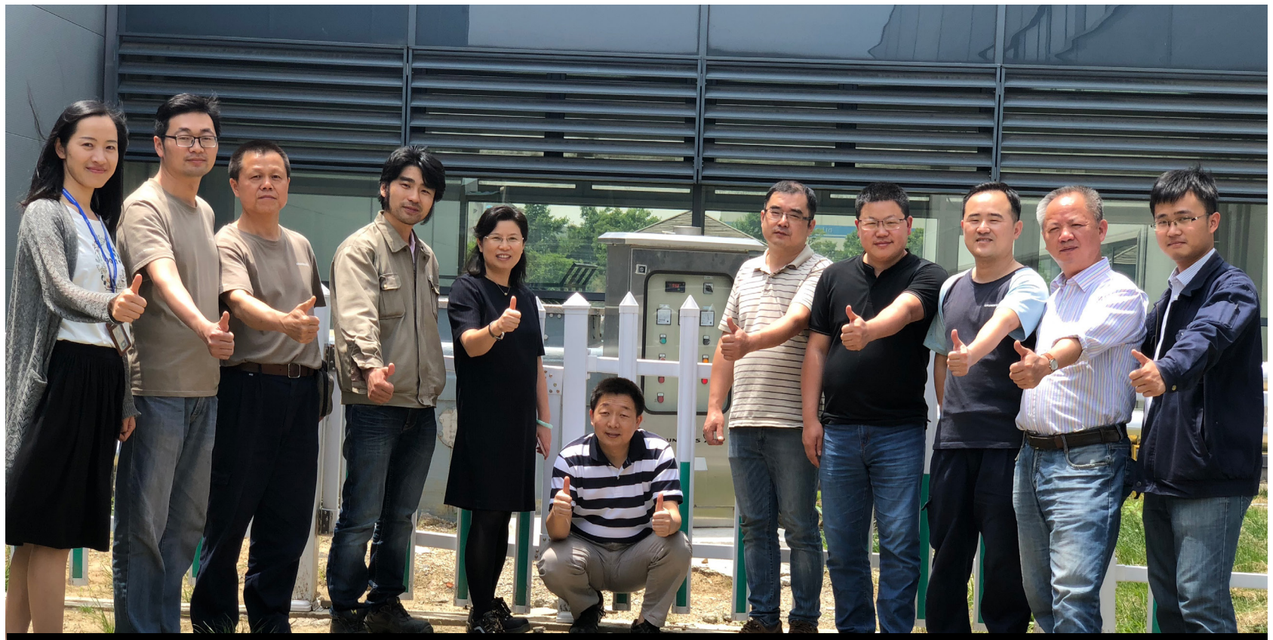
Through this initiative, they significantly reduced their domestic water consumption. Meanwhile, the amount of wastewater discharged was also dramatically cut, creating a greener environment.

HOW GRUNDFOS SUZHOU SAVES ITS WATER CONSUMPTION

It invested in the installation of new filters, pumps, pipes and electrical cabinets. By utilizing a Reverse Osmosis (RO) system and constructing grey water collection tanks, the facility is able to biochemically cleanse the grey water of impurities and use the water for other production processes.

Through this project, it is estimated that the company will save over 10,000 m³ (1,000,000 litres) of water per year.

More stories on grundfos.com/sustainability



Meet the team behind the project’s success

“The project is an excellent practice of reycling water that shows Grundfos’ ambition to save water.”

Joy Xu, Facility & EHS Manager at Grundfos Suzhou

Together with Ghana

During 23 to 25 of November 2017, Grundfos was in the West African country to work for water. There was a visit to Ghana by Danish delegation spearheaded by Her Majesty the Queen of Denmark, top Danish companies and the respective ministers of foreign affairs, environment and food. Through the visit, the ties between Ghana and Denmark were strengthened.

New business, aid and trade, a growth in sustainable development and strengthening of the ties between Denmark and Ghana were some of the vital benefits of the Danish delegation visit to Ghana.

Grundfos happened to be one of the Danish firms that partook in the state visit. We already have a presence in Ghana via a local firm, as well as via partnerships with government entities and organisations. The Ghanaian Minister for Sanitation and Water Resources and Grundfos signed an MOU (Memorandum of Understanding) during the visit with the concept of improving clean water supply for every individual in Ghana.

The Ghanaian Minister of Sanitation and Water Resources, Hon. Joseph Kofi Adda, says, “One of our key focuses is to make sure that all people in Ghana have access to clean and safe water. We are very pleased to enter this partnership with Grundfos. Solar-driven pumps are part of the solutions proposed by Grundfos to enable a proper flow of water in both rural and urban areas of Ghana. These Solar driven pumps are great for fetching water in places that have unstable or lack power supplies.”

2030 Water Resources Group

In 2016, we joined the prestigious 2030 Water Resources Group, named for the 2030 Agenda for Sustainable Development and the SDGs that guide its goals. The group brings together public, private and civil society at country level to have an open discussion about water management and to develop concrete proposals that can help drive action on the management of water resources.

Our role at the UN General Assembly

One of the vital agendas of the UN General Assembly (UNGA), which was held in September 2017 in New York, was sustainable development. Grundfos was among the companies that participated in the actions and discussions.

Amongst many themes, Focusing on People: Striving for Peace and a Decent Life for All on a Sustainable Planet happened to be a vital topic during the opening debate.

Grundfos was part of the programme at UNGA, concentrating on water problems of the world at different meetings and events. This included a special event that concentrated on the Sustainable Development Goal #6; to secure easy access for every individual by 2030. Offering solutions was part of our agenda, besides hosting events, partaking in debates and meeting with CEOs and head of states.

According to the Group president, Mad Nipper, there is a need to triple investment in water infrastructure to hit the global goals by 2030. Besides that, he stressed the importance of having sustainable business patterns to seal up the investment gap between investors and utilization of water in developing, water-stressed countries.

Floods controls in Asia

According to a new study, the Southeast region of Asia gets flooded due to the low-lying elevation of most of the countries. It is predicted that the situation will worsen due to more intense rains in future.

The sustainability-focused social enterprise Eco-Business released a report titled Flood Controls in Southeast Asia. Grundfos sponsored the study, which surveyed 417 sustainability industry leaders all over Indonesia, Vietnam, Malaysia, Thailand and Singapore.

The paper also touched on climate change as the mastermind behind the increased evidence of flood in the region. Increased average temperatures, which are a big problem to low-lying coastal areas of Southeast Asia, are also predicted to bring an increase to sea levels.

According to the Group Senior Vice President and Regional Managing Director, Grundfos Asia Pacific Region, Okay Barutçu, “Storm water management, green urban designs combined with recycle/reuse of initiatives, new river policies, treatment solutions that make use of smart sensing, analysis and control technologies and intelligent pumping are ways to move forward.”

Download the report and learn more about flood control in Grundfos

UGANDA: AQtaps

The first water solutions for the Bidi Bidi refugee camp in Uganda were successfully installed

The refugees usually queue for up to 10 hours to have clean water

AQTAPS IN A REFUGEE SETTING

There are more than one million refugees in Uganda and more arrive every day; 82% of them are women and children younger than 18. Thousands arrive every month in need of food, water and shelter as a first response. Water trucks deliver clean water, but they usually have to travel around eight hours from Kampala. On top of that, water trucking also eats up budgets. The average cost of water is 540 Ugandan shillings for a 20-liter jerry can, more than seven times as much as the official water rate.

Grundfos partnered with the Danish Refugee Council's Business-Humanitarian Partnership Lab, bringing the first water solutions to the Bidi Bidi refugee camp, Uganda. We installed Grundfos AQtap water ATMs powered by solar panels. The refugees can access the water kiosks 24/7.

What is Grundfos AQtap?

Grundfos AQtap is an intelligent water ATM that addresses some of the main challenges of providing reliable and sustainable water supply in the developing world. Through an integrated platform for revenue collection and online management of water kiosks, Grundfos AQtap supports the financial viability and accountability of water service operations.

Grundfos AQtap is a single product that combines three elements essential to smarter water management: smart cards (where water credits are stored on WaterCards), AQtap water ATM units, where water is tapped and credits managed, and a water management system, where data from transactions and operations are processed and published. More about Grundfos AQtap.

WATER2LIFE IN HONDURAS:
Employee engagement programme

Grundfos together with Water Mission and San Isidro Hospital's employees in Honduras

Since 2010, the hospital has been serving more than 9,000 patients every year

YOURS SINCERELY, **WATER2LIFE**

In some areas, access to clean water is a problem that needs to be addressed fast. Water2Life plays an important part of our charity and employee engagement effort that addresses this challenge.

It is a programme initiated by our employees that seeks to provide clean water to some of the world's most vulnerable communities. It works in partnership with a local NGO that suggests where the greatest impact can be seen within a region or country. We determine which projects to focus on and proceed to fundraise the first half of the project, while the local NGO fundraises the second half and manages the daily responsibilities.

In 2017, we wrapped up our Water2Life project in Vietnam. More than 100 km of pipeline was built and connected the homes of 28,000 people to local waterworks. The project also provided sanitation and hygiene education for more than 3,600 school students, as well as created both a sustainable business model and jobs for locals.

Later that year, Water2Life and the NGO, Watermission, kicked off our project to bring clean water to schools and hospitals in Honduras. Our aim is to help provide a better future for the patients of hospitals and the local community. We aim to donate more than $250,000 for the drilling of wells and provision of clean sources of water.

Through Water2Life, we aim to improve the conditions of not only San Isidro Hospital over the next years, but also other hospitals and schools, so that the local communities can have a better and healthier life.

OUR PROJECT AT SAN ISIDRO HOSPITAL

The hospital has 79 beds for treatment, and 20 beds in the observation and emergency. According to the regulation, the hospital can accomodate 4,526 patients per year. In reality, it has more than 9,000 patients, including 5,000 births every year, since 2010.

The hospital needs access to clean water for its operations, as well as drinking and washing. However, as a community hospital, it lacks a sufficient budget for repairs, maintenance and development. Furthermore, it has an insufficient budget to acquire an improved source of clean water.

Our project aims to make sure that the hospital will have its own water source, filtration and chlorination treatments to deliver safe water. Plumbing, sinks, showers and toilets will also be renovated. The pumps will also be powered by solar panels, ensuring stability and sustainability.

More about Water2Life

KENYA:
Grundfos Lifelink Solutions

A total of 60 AQtaps have been installed in 46 kiosks, sering more than 21,000 people
World Vision images - ©2017 World Vision, photos by John Warren (left) and Gregory Woodman (right). Used with permission

EASY AND SUSTAINABLE ACCESS TO CLEAN WATER

In partnership with World Vision Kenya, the East African Country now has 46 automated water kiosks with Grundfos AQtap water ATMs that are connected to mobile payment services.

By jointly implementing automated water kiosks, we're piloting a new market-based water supply approach to significantly improve sustainability. The project, which can be scaled up to bring a broader impact through public-private partnerships, was funded by the Stone Family Foundation through its Water, Sanitation and Hygiene (WASH) programme. Its aim is to improve the sustainability of WASH projects for the rural poor in Kenya, which have struggled with accountability issues and faced operational, maintenance and management challenges.
A total of 60 AQtaps have been installed in the 11 projects under the scheme, half in Kalawa in the Makueni county and half in Wema in Nakuru county. The amount of water dispensed and the resulting revenue have increased significantly – revenue was 62% higher in 2017 compared with the same period the previous year, before the installation of AQtaps. The system has also brought more transparency and accountability to the management of water kiosks, ending the revenue losses that used to occur through vendors and water committees. Consumers can access the water kiosks 24/7. The efficient revenue collection makes the project more sustainable and expansion plans possible.

After the installation, the revenue was 62% higher in 2017 compared with the same period in previous year.

AQPURE TREATS SURFACE WATER

The water in Charalkhali village, India contains either high levels of arsenic or coliform bacteria. The West Bengal Public Health Engineering Department (PHED) determined to find a sustainable solution to purify the water.

At this village, water is typically sourced either from tube wells, which have high levels of arsenic and Total Dissolved Solids (TDS), or open ponds, that contain high levels of coliform bacteria. The contaminated water caused the villagers to develop acute diarrhea and skin diseases. They could not opt for the traditional solution of an energy-consuming water treatment plant due to the remote location and the lack of reliable power supply.

PHED set up and commissioned a pilot pond-based solar powered ultra filtration (UF) water purification system (AQpure) that treats local pond water in the village. After treatment, the clean water is then dispensed through a solar powered water ATM (AQtap).

The system provides 10,000 litres of low-cost, clean and safe water drinking to around 2,000 community members every day.

INDIA:
Grundfos Lifelink Solutions

learn more about Grundfos Lifelink Solutions

ABOUT THE REPORT

At Grundfos, we want to contribute to the global water challenge through our expertise, technology and by utilizing new business models to introduce sustainable solutions for the benefit of our customers and the environment.

We have supported the UN's Global Compact principles since 2002. We became a signatory of the CEO Water Mandate in 2012 and we disclose our water-related initiatives every year. Further information about the company, strategy, data and our water-related initiatives in 2017 can be found in Grundfos Sustainability Report 2017, which has been prepared in accordance with the Global Reporting Initiative (GRI) Standards: Core Option.

For further information about Grundfos and sustainability, visit www.grundfos.com/sustainability

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