# Solving Global Challenges **SUSTAINABLY**

OPTIMIZE -----

INNOVATIVE

ENERGY (3)

**BEHIND THE SCENES. AT THE FOREFRONT.** 

SAFE FOOD

CLEAN

WATER

**SCIENCE** 

- CONSERVE

REDUCE 🕷 WASTE

Corporate Sustainability 2015

SAFETY

PARTNER PARTNER

PERFORMANCE 🔊

MORE AND PROTECT

LESS EXPONENTIAL VALUE

**FAITHY** 

ENVIRONMENTS

고, VALUE CHAIN 🔼

ECAB

## Doing more with less must be part of the picture.



Douglas M. Baker, Jr. Chairman of the Board and Chief Executive Officer

Front cover: Ameer Gobran, area manager, Food Retail Services, helped a chain of U.S. supermarkets save four million gallons of water per year. Learn more about the customer solutions on page 15.

## A Letter from the Chairman and CEO

We are facing challenges today on so many fronts – public experts who continue to develop effective, sustainable solutions, tailored to our customers' needs. Many of them are highlighted in this report. As a pioneer in industrial automation, we leverage more than 36,000 sensing units in customer operations to deliver real-time insights that help inform faster, smarter decisions and better water management. We see considerable opportunity to expand our ability to offer actionable data that drives sustainability improvements. Because we are so confident in our ability to save water, we have set a customer impact goal, aiming to conserve 300 billion gallons of water annually by 2030 by reducing water consumption within our own and our customers' operations. This represents water conservation equaling the annual drinking needs of more than 1 billion people.

health threats, water scarcity and environmental concerns, to name a few. And yet there are many reasons for optimism, which I think are well expressed in a Ralph Waldo Emerson guote: "This time, like all times, is a very good one, if we but know what to do with it." To know what to do in the face of unprecedented change. you need to first understand the macro trends shaping our world. A fast-growing, increasingly urban, increasingly affluent global population has higher standards and is generating great demand for goods and services. For economies to thrive, business needs to meet that demand while using fewer resources. At the same time, technology is reshaping the way people communicate and what they expect from the companies whose products and services they purchase. HOLDING OURSELVES ACCOUNTABLE That means both increased risk and incredible opportunity. We are applying the same insights and science we offer our

customers to our own manufacturing plants, to support our Today business is re-imagining how we provide people growth and at the same time, reduce the resources we use. with food, goods, services, infrastructure, transportation, I'm particularly proud that in 2015 our plant in Taicang, China, healthcare and every other necessary element of life in a received the world's first certification from the Alliance for radically different world. Doing more with less must be part Water Stewardship for adopting the International Water of the picture. While solutions may differ by company, industry Stewardship Standard, which promotes sustainable freshwater and region, one thing is certain: business as usual is not a use. The fact that the plant operates in the water-sensitive sustainable option. region of the Taihu basin of the Yangtze River made this certification even more significant.

### HELPING OUR CUSTOMERS NAVIGATE CHANGE

We're inspired by the commitment of our customers who are Always striving to do better, we are setting bolder seeking new ways to lighten their environmental footprints environmental performance goals that align with our business while continuing to grow and expand. As the world's leader in growth strategy as we continue to work to decouple resource water, hygiene and energy technologies and services, we're use from growth. By 2020, we aim to reduce water usage by dedicated to helping our customers meet their sustainability 25 percent and greenhouse gas emissions by 10 percent across goals through innovative and effective science, service and all our manufacturing plants, compared to a 2015 baseline. insights that drive lasting change across industries.

Every day, 47,000 Ecolab associates around the globe get to work, helping customers across industries by providing solutions at the intersection of performance and sustainability. Our customer-centric business model provides a unique line of sight into the on-the-ground challenges and opportunities companies face today. Industry leaders look to Ecolab to help them enhance performance, reduce costs and minimize environmental impact, and we're proud of our partnerships with them.

### DELIVERING SOLUTIONS TAILORED TO CUSTOMER NEEDS

With our global presence, we are well positioned to help customers across industries and geographies adapt and thrive in an era of resource constraints. Because we have 25,000 sales-and-service professionals around the world, we can provide a consistent level of support, informed by onthe-ground insights. Our sales-and-service team is backed up by more than 1,600 research, development and engineering

It's an exciting time to be at the forefront of sustainable growth. Economic growth and natural resource conservation are not opposing goals. It is our strong belief that they should, in fact, be complementary goals, achieved together to support strong economies and healthy societies as we move further into the 21st century.

Sincerely.

Douglas M. Baker, Jr. Chairman of the Board and Chief Executive Officer

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## SUSTAI CONSER

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## OPERAT

Sust Proc Safe

Reco

ABOUT

Our 2015 Corporate Sustainability Report and complete GRI Index can be found at: ecolab.com/sustainability

## SUSTAINABILITY AT A GLANCE

IMENT TO SOLVING GLOBAL CHALLENGES
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## COMMITMENT TO SOLVING GLOBAL CHALLENGES

## Science + Service = Partnering to Solve Global Challenges Sustainably

## original definition of **sustain** a ble (adj.)

Involving development that meets the needs of the present without compromising the ability of future generations to meet their needs.

This definition brings the work Ecolab does every day clearly into focus. We are working at more than one million customer locations, helping companies rethink operations and business strategies to reduce use of natural resources and ensure long-term viability.

This approach is core to our purpose and ingrained throughout our company. From how we operate and develop products to the way we work with customers and support our communities, we are working to deliver a "sustainable" future for everyone.



## **Global Trends We're Watching**

90% of population growth will be

111

in developing or

EMERGING

**MARKETS**<sup>3</sup>

## **BY 2025...**

the global population will reach 9.7 BILLION

> the older population 60+ will more than double to

# 2 BILLION<sup>2</sup>

## URBAN POPULATIONS will rise from 3.9 billion to **6.4 BILLION**

**40%** more WATFR<sup>4</sup>

Water is recognized as the **#1 GLOBAL RISK** in terms of impacts to economies, environments and people 7

municipal solid volumes will double<sup>8</sup>

## By 2030 the global population will need at least 35% more **30%** more **FNFRCY**<sup>6</sup>

by 2025

and double again from 2025-2050 9

GLOBAL GDP is projected to grow to **\$95 TRILLION** 

between 2015 and 2020<sup>10</sup>

Sources located on page 47.

## **Our Approach** to Sustainability

Population growth, urbanization and the emergence of a much larger middle class are putting unprecedented pressure on the world's most precious and limited natural resources.

These dynamics are creating new, increasingly complex challenges every day. Resource scarcity is the new normal and companies are adapting their operations to meet these growing and changing demands.

Ecolab is behind the scenes – and at the forefront – of helping to solve these global challenges sustainably. As the global leader in water, energy and hygiene technologies and services, Ecolab operates at the center of the water-energy-food nexus, helping companies in more than 40 industries throughout the world grow and succeed while minimizing environmental impact. We help stores and food service businesses produce safe products, hotels and hospitals deliver clean and safe environments and energy companies access harder-to-reach resources more efficiently. While supporting our customers' operations, we also reduce water and energy use and waste everywhere we can.

ELIMINAT

In 2015, we helped customers

BILLION GALLONS **OF WATER** 

CONSERVE

26.4 MILLION POUNDS **OF WASTE** 

10.5 TRILLION **BTUs OF** ENERGY

SAVE

## **47,000** ASSOCIATES







**19** INNOVATION AND TECHNICAL SUPPORT FACILITIES

**\$1 BILLION** IN REVENUE FROM 2015 NEW INNOVATIONS FORECASTED IN NEXT FIVE YEARS

## World-Class RD&E

Ecolab's Research, Development and Engineering (RD&E) scientists are at the front line of customer applications, developing solutions that improve water and energy management, increase operational efficiency, enhance safety and preserve natural resources. In 2015, our research teams delivered the largest number of innovations in company history, and we have no plans to slow down.



**\$12.3 MILLION** DONATED THROUGH ECOLAB FOUNDATION, CORPORATE GIVING AND VOLUNTEER HOURS

Our product systems and services are designed with intention – across sourcing, manufacturing, use and post-use – around the core product stewardship principles of:

- **Performance** uncompromised delivery of outcomes
- Health and safety of the people who develop, use and come in contact with our solutions
- Environment protection and efficient use of natural resources
- Cost asset integrity and operational efficiency

# INNOVATIVE SAFE FOOD ABUNDANT & SAFE ENERGY SAFE PERFORM TNER ĿA SCIENC **TORE WITH** ) N SERVE VALUE

# **BEHIND THE SCENES. AT THE FOREFRONT.**

Ecolab associates partner with customers to help them do more with less – while achieving their business goals.

The numbers tell the story best. Our proprietary eROI<sup>SM</sup> value approach measures the economic, operational and environmental impact of our solutions. With performance outcomes uncompromised, we credibly deliver and document this exponential value to our customers.

e<sup>RO</sup>

Through customer stories, we demonstrate eROI imapct.

Pictured left: Steve Rock, District Account Manager, Energy Services, has been helping refineries in California conserve water for 35 years. Read about a Persian Gulf refinery on **page 27** and a Gulf Coast refinery on **page 29**.





## **RETAIL & SERVICES**

Every day, people's lives are enhanced by products and experiences made more sustainable, in part, because of Ecolab. Our innovative solutions, dedicated service and customized training help raise safety and sanitation standards in restaurants and hospitals, improve food safety standards in food processing operations, and help cooling, boiler and air handling systems perform efficiently.



The ongoing drought in the Western United States crystallized priorities for Raley's Family of Fine Stores: the chain pledged to maintain or surpass high food safety standards and conserve water wherever possible. Based in Sacramento, Calif., Raley's has 121 locations spread across Northern California and Nevada, regions plagued by intense water scarcity.

Ecolab's new (Food Safety) program is just innovation to help us reduce our overall environmental impact. New solutions like

one of the ways our company is leveraging Whiteout and LmENTARY specifically help us achieve significant water and energy savings.



## Toni Hofer

Director Food Safety and Quality Assurance, Raley's Supermarkets Vest Sacramento, Calif.

## Raley's Supermarkets (CONTINUED)

Raley's, a proven sustainability and food safety leader, teamed up with Ecolab to implement four innovative cleaning and sanitizing solutions at each of its stores, with a focus on simplifying store execution.





and end of day labor

### • SaniSave® No Rinse Cleaner Sanitizer

can be used to clean and sanitize deli food slicers and food prep areas. When used as a part of a complete food safety program, Raley's had the confidence it needed to provide quality and food safety to its customers.

• LmENTARY No Rinse Drain & Floor Cleaner Sanitizer

cuts required steps for deli floor and drain sanitation in half and reduces *listeria monocytogenes* by 99.9 percent.

### Whiteout<sup>™</sup> Power Foam

delivers superior cleaning results for sanitation of meat room equipment, floors and surfaces at lower temperatures.

### • Kay<sup>®</sup> SolidSense<sup>™</sup> Sanitizer

a powerful grease-cutting detergent and sanitizer mounted over deli sinks, packaged in easy-to-handle blocks and a dispenser that ensures consistent dilution for reliable results.

Each of these sustainable solutions uniquely combines cleaning and sanitizing products to reduce or eliminate rinsing steps, ultimately delivering faster and more efficient cleaning. Achieving significant water and energy savings has allowed Raley's to deliver sustainable food safety solutions that meet high standards, protect customers and support a great shopping experience.

# OF WATER SAVED IN ONE YEA A SAVINGS OF \$18,500 5.172 METRIC ARE THE RESULT CTION kWh REDU OF ENERGY USE **ONE YEAR**

## **TECHNOLOGY**

SaniSave® No Rinse Cleaner Sanitizer

### Whiteout<sup>™</sup> Power Foam

**LMENTARY No Rinse Drain & Floor Cleaner Sanitizer** 

Kay<sup>®</sup> Solid Sense<sup>™</sup> Cleaning System



## Tang Plaza and Marriott Hotel | CASE STUDY

Smart technology puts water and energy concerns to bed

Tang Plaza and its adjoining 392-room Singapore Marriott Tang Plaza Hotel had a sustainability goal of reducing water and energy use by 20 percent by 2020. In order to deliver on the corporate and local goals of achieving water and energy savings, the hotel was actively pursuing cost-effective ways to improve chiller operational efficiency, optimizing costs and minimizing breakdowns to reduce total cost of operation and ensure guest satisfaction.

Ecolab partnered with Marriott staff to conduct a Mechanical, Operational, Chemical and Sustainability (MOCS) audit to identify the cause of a recent spike in water and energy use by the hotel's four chillers and cooling tower system.

Ecolab's specialists employed 3D TRASAR Optimizer to identify the root cause and propose a solution. The team installed a 3D TRASAR Solid Cooling Water System to monitor inherent variability in water conditions and control fluctuating water chemistry. The new system addressed the hotel's operational challenges and delivered clear sustainability savings, putting the hotel on track to reach its goals by 2020.

## TECHNOLOGY

**e**R0I<sup>™</sup> MPACT | & Marriott **38% REDUCTION** IN WATER USE PER YEAR \$21,238 WATER SAVINGS **REDUCED MAINTENANCE** AND STORAGE FEES 43,738 kWh REDUCTION CONFERENCE USE PER YEAR \$24,29**3** COMBINED ANNUAL SAVINGS

## Linen Supplier | CASE STUDY

## Delivering bright whites with green initiatives

A leading U.S. provider of white linens to hotels and restaurants wanted to employ every sustainable strategy available to reduce its water consumption. Having already invested in water-efficient tunnel washers, the company invited Ecolab to assess its operations for additional water and energy savings opportunities. Ecolab's proprietary Ecometrix<sup>™</sup> meter, which sends high-frequency sound waves, to read water flow and measure water usage through the walls of commercial laundry equipment, diagnosed two tunnel washers registering at excessive volumes. The washers were found to be set at 0.77 rather than the specified 0.55 gallons of water per pound. Correcting the settings saved an estimated 2,904,000 gallons of water over the course of a year. A third tunnel washer was sending treated water to the sewer and taking on fresh water with each fill. Immediate repair of the redirect valve saved an estimated 6,834,000 gallons of water in one year.

With these results and Ecolab's commitment to continuous improvement, the U.S. linen supplier expanded Ecolab's service to all of its laundry operations.



## TECHNOLOGY

**Ecometrix**<sup>™</sup>

## RETAIL & SERVICES 2015 PRODUCT INNOVATION HIGHLIGHTS

### Apex<sup>™</sup> Conveyor

Specifically designed for food service businesses, the Apex<sup>™</sup> Conveyor dishmachine reduces utility costs by up to 50 percent by reducing water and energy use while achieving best-inclass, one-pass cleaning performance. Automated procedures help make operations more efficient and reduce reliance on a dish machine operator.

## Maxx2

Designed specifically for all-purpose cleaning in facilities, Maxx2 minimizes environmental impact by reducing transport and packaging by 75 percent\* while maximizing cleaning and hygiene standards. For every application, the Maxx2 program provides peace of mind and higher performance. Maxx2 can be used at low concentration levels which can also reduce cleaning costs.

\*When compared to competitors' product with a ready-to-use concentration of one percent.

### Sanitizing Wash 'n Walk

Sanitizing Wash 'n Walk is the first Environmental Protection Agency (EPA) registered sanitizing no-rinse kitchen floor and drain cleaner for institutional businesses. Its enzyme-based formula helps reduce slips and falls by breaking down grease. No-rinse technology helps reduce water use and can reduce labor by up to 50 percent.



## **PRODUCTION & MANUFACTURING**

Producing goods and services demands more of our natural resources. Fortunately, companies operating in this sector of the value chain in all corners of the world partner with Ecolab to optimize operations, minimize operational risks, conserve energy and water, reduce waste and improve safety. Evidence has proven that companies who foster a healthier environment enhance their competitive edge. Ecolab helps to enable this customer success.



## Kemps has been a leading Midwest dairy producer for more than a century.

Driven by a mission to "nourish families," the wholly owned subsidiary of Dairy Farmers of America has long embraced innovation to achieve excellent taste and quality. Today, improving sustainability performance has become equally important. When the dairy producer decided to expand its product portfolio in 2013, Kemps turned to Ecolab to help address the two-fold mission of maintaining and enhancing high safety and taste standards while identifying ways to reduce water consumption and optimize cleaning cycles.

We always look for ways to **operate more efficiently**, but never at the cost of safety and quality.



Roger Domask Operations Manager, Kemps Rochester, Minn.

## Kemps (continued)

Kemps installed Ecolab's 3D TRASAR™ Technology for Clean-In-Place (CIP) to improve the efficiency of its cleaning processes. The solution provides round-the-clock monitoring of the plant's existing controls and leverages Ecolab's advanced chemical sensors to monitor cleaning and sanitizing performance. The new technology enabled the Kemps and Ecolab teams to "see" the volume of chemicals used on every single wash of the dairy equipment. This unique insight enabled the team to identify areas for improvement in the cleaning process.

After one full year of operating 3D TRASAR Technology for CIP at its dairy plant, savings have been adding up. More consistent CIP performance helped the plant reduce water and thermal energy use, in addition to saving hundreds of hours of run time, extending the shelf life of its milk products, and reducing risk of cross-contamination.



the numbers on the 3D TRASAR for CIP monitor

The added visibility helps us pinpoint opportunities that affect critical outcomes in efficiency and product quality.

### **Prem Thakur**

Quality Assurance Manager, Kemps Rochester, Minn.

## **TECHNOLOGY**

3D TRASAR™ Technology for CIP



965

HOURS

## Caraustar | CASE STUDY

## California recycled paper board plant taps into recycled water and saves

When the severe drought conditions in California showed no signs of abating, Caraustar Industries faced an operational risk unless it reduced water usage. The solution came in terms the recycled paper board manufacturer understood: use recycled or processed water coupled with new technology. Caraustar implemented Nalco Water PARETO<sup>™</sup> Mixing Technology to optimize its reclaimed water source. By replacing reclaimed water with process water in three cycles of the paper process system, the solution substantially reduced water use.

The challenges of escalating water cost, as well as the recent water shortages because of the **3+ year drought**, have made this project not only a necessity, but a great success as well.



**Mike Grover** General Manager, Caraustar Santa Clara, Calif.



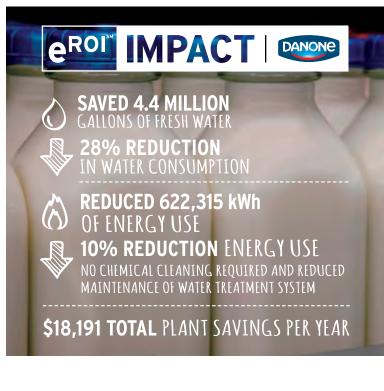
## TECHNOLOGY

**PARETO™** Mixing Technology

## Danone CASE STUDY

## French-owned dairy plant quenches Russian thirst efficiently

Danone, a global food and drink processing company headquartered in Paris, France, had its dairy plant in Tchehov, Russia, operating at full capacity. In 2012, the plant's new chilled water system churned out yogurt, cheese and dairy drinks for all of Russia and Commonwealth of Independent States countries, but it consumed excessive water and energy resources. In 2014, Danone asked Nalco Water, an Ecolab company, to conduct a Mechanical, Operational, Chemical and Sustainability (MOCS) audit of the water treatment system. After diagnosing the problem, Nalco Water installed 3D TRASAR<sup>™</sup> for Cooling Water Technology in 2015. 3D TRASAR provides round-the-clock fine-tuning, faster problem solving and improved system operations, saving water and energy, while making efficient use of chemistry.



## TECHNOLOGY

3D TRASAR™ for Cooling Water Technology

## **PRODUCTION &** MANUFACTURING

## 2015 PRODUCT INNOVATION HIGHLIGHTS

## DrvSan<sup>™</sup> Duo

Designed for dry-processing environments where products such as cookies and potato chips are manufactured, DrySan Duo is a revolutionary two-in-one cleaning and sanitizing solution that is EPA registered and safe to use on food-contact surfaces. Winner of the 2015 Institute of Food Technologies Food Expo Innovation Award, DrySan Duo is a ready-to-use, no-rinse product that effectively eliminates 100 percent of water from this cleaning step.

## **POSITEK™ 4g 9000**

POSITEK<sup>™</sup> 4G 9000 Microparticle is a component of our comprehensive POSITEK™ papermaking performance package. This new colloidal silica dispersion aid is specifically formulated to improve On-Machine-Efficiency (OME) sheet guality, and improves retention and drainage in a costeffective manner. Energy savings are derived from increased water removal and more efficient sheet pressing and drying. The solution delivers improved outcomes when used with PARETO<sup>™</sup> Mixing Technology.

## **METRIX™** Titan Technology

METRIX<sup>™</sup> Titan technology is a novel program that delivers strength development, system charge balance and improved dewatering for the paper industry. It combines a multi-functional reactive polymer with Nalco Water's advanced retention and drainage programs. The end result optimizes machine efficiency and productivity while maximizing sheet quality and strength.

## **PRISM – Fouling Control for Styrene Production**

The new PRISM products (EC3470A and EC3535A) help producers of styrene, a derivative from petroleum and natural gas to produce plastic, reduce and control polymerization with less toxic chemistries. This technology offers cost-effective, optimized polymerization control for styrene back end distillation, as well as reduced NOx emissions. The solution minimizes fouling and monomer loss and protects the unit during emergency shutdowns.



## **RAW MATERIALS & INGREDIENT PROCESSING**

Drilling down through the earth's crust to harvest minerals. Pumping sea water through cooling pipes of an oil refinery. Processing raw sugar for food and beverage manufacturing. These are examples of the critical processes required to provide raw materials and energy for industry and ultimately customers. Ecolab solutions help reduce water and energy use and minimize the environmental impact of some of the most critical operations to produce and process core elements.

## Saudi Aramco | CASE STUDY

## Oil refinery cleans up, repairs less and saves big

Saudi Aramco, a major Middle East oil refinery situated near the Persian Gulf, was experiencing continuous fouling of its heat exchanger tubes and pipes due to algae and other microorganisms around the water inlet. The refinery partnered with Ecolab to identify a solution to address the resulting system failures and poor performance.

Prior attempts to solve the problem with a chlorine dioxide program provided by an Ecolab competitor had been unsuccessful. Refinery management was dissatisfied with the monitoring and control system and had concerns about worker safety related to the storage of chemicals and the handling of generating equipment operations.





On Environmental Day, Riyadh Refinery operations manager Turki Abdulmalik explains the positive impact on safety aspects made by using Purate at Saudi Aramco operations.

Nalco Champion, an Ecolab company, provided an alternative solution. The team installed Purate™ Technology, a chlorine dioxide technology, to maximize the refinery's productivity. This patented technology produces CIO<sub>2</sub> on site from chlorate and is therefore the most cost-effective program for these large once-through seawater systems. Within one month, microbial and fungal counts plummeted and cooling water efficiency and plant reliability steadily improved.

Saudi Aramco decided to use the Purate<sup>™</sup> Technology as the best long-term solution to bio-fouling. The new technology met the customer's sustainability criteria for improving safety standards for key personnel and environmental safety, as well as for reducing energy required to produce fresh water through thermal desalination of seawater.

## **TECHNOLOGY**

Purate<sup>™</sup> Chlorine Dioxide Technology

## Cobre las Cruces | CASE STUDY

## Spanish copper mine strikes gold with water filtration technology

Water quality stands alone as the key to good quality, high-yielding copper extraction. Constant fluctuations in water guality created challenges for Cobre Las Cruces. To open a copper mining operation in southwestern Spain, efforts needed to be made to reduce its energy and water use and lessen its impact on the surrounding communities. A combination of 3D TRASAR<sup>™</sup> Technology to monitor and improve water membrane filtration, plus a water treatment management strategy to enhance overall production, helped the company address this barrier. Even with treating the worst raw water quality due to mining extraction activity, these solutions improved the overall copper recovery system from 65 percent to 85 percent. Close cooperation between Nalco Water and the mining operation helped the company meet its sustainability goals.



## TECHNOLOGY

**3D TRASAR™ Technology** Nalco water treatment management strategy



## U.S. Refinery | CASE STUDY

## **RESOLV<sup>™</sup>** in, sludge out

When a Gulf Coast refinery came back online after a shutdown for cleaning, the crude unit feeding the main crude tank was contaminated with the resulting washings, hydrocarbon, solids and sludge. Analytical data and field observations identified Nalco Champion's solution EC2600A, otherwise known as RESOLV<sup>™</sup> emulsion breaker, as a short-term solution. RESOLV was added to the off-spec crude tank as it fed the crude blending tank, where an additional emulsion for heavy crudes was already in use, EC2472A. The unit responded well to the combined treatment and in three days the off-spec crude was completely processed. By implementing best practice strategies, Nalco Champion also identified ways to reduce electricity and water carried downstream.

e<sup>ROI<sup>®</sup></sup> IMPACT \$104,000 GAS SAVINGS \$160,000 ECTRICITY SAVINGS \$264,000 TOTAL ANNUAL COST SAV

## **TECHNOLOGY**

**RESOLV™** emulsion breaker technology



## RAW MATERIALS & INGREDIENT PROCESSING 2015 PRODUCT INNOVATION HIGHLIGHTS

### **Blue Bell Odor Abatement** (EC5990A)

An additive designed specifically to neutralize nuisance odors common in refineries, hydrocarbon storage facilities and asphalt blending plants, rather than simply masking them. This unique odor abatement chemistry is especially effective for odors emanating from crude oil, heavy oils and asphalt.

## **FLOCMASTER™** light

This top-rated dewatering product now delivers total cost of operation (TCO) savings for small- to medium-sized industrial companies of all varieties. Key features of the integrated operation include reduced waste production by dramatically improving sludge dewatering efficiency, an active polymer solution, automated equipment and a site-specific service program.

## Flow Improvers for Heavy & Extra Heavy Oil

Flow Improvers help extra heavy oil producers economically modify crude oil rheological properties to enhance flow, reducing the amount of diluent used in production and transportation.

## **Color Precipitant Program**

The Nalco Color Precipitant Program helps improve the brightness of sugar by removing the colorants from sugar juice in plantation sugar mills and sugar refineries, while reducing water and energy usage in the mill through centrifuge wash water reduction and reprocessing avoidance.

## **CONSERVING & PROTECTING FRESH WATER**

# Ecolab Supports Water Conservation Efforts Around the World

## Fresh water is the world's most precious natural resource. We all rely upon water and yet demand is putting pressure on limited supplies.

Implications for businesses, communities and individuals are real. We must collectively focus our attention on ways to reduce, reuse, recycle and even restrict water use. The daunting world water outlook calls for immediate and strategic action. That's why Ecolab actively seeks to improve water stewardship within our own operations and within the watersheds in which we operate. Our commitment extends beyond our operations and our customers' operations to partnerships with thought leaders and leading organizations that support responsible use of the world's limited fresh water resources to the benefit of nature, communities and business.

## THE WATER CRISIS

is the global risk of highest concern for the next **10 YEARS**<sup>®</sup>

**47%** of the world's population will be living in areas of high water stress by 2030<sup>°2</sup>

1 IN 10 people lack access to SAFE WATER<sup>13</sup>

By 2025 WATER WITHDRAWALS are predicted to increase by

## **LESS THAN 1%**

of the world's fresh water is readily accessible for direct human use<sup>14</sup>

## UP TO 70% of the world's aquifers have reached peak water

**BY 2030** global water demand is set to overshoot supply by

## -----

40%

## Nearly **50 COUNTRIES** are officially classified as being water stressed

50% in developing countries



## Save the Water: Driving **Global Water Stewardship**

Ecolab supports global water stewardship by working with others to develop and adopt effective principles.

In September 2015, Ecolab's Taicang manufacturing plant was the first site in the world to receive the Alliance for Water Stewardship's (AWS) International Water Stewardship Standard certification.

The Standard provides a globally consistent and locally adaptable framework to inform decisions and encourage collective action to promote sustainable freshwater use.

As a founding partner of the AWS Standard, Ecolab is helping to drive global adoption of the Standard. "As the first to become certified, Ecolab is paving the way for others to use the AWS Standard as a road map towards water stewardship for people, profits and nature," said Karin Krchnak, director of freshwater programs at World Wildlife Fund (WWF).

As a pilot site for the Standard, Ecolab China partnered with the WWF to address the unique challenges of the Taihu watershed area and designed the Taicang plant for environmental sustainability. The plant produces a complete portfolio of cleaning, sanitizing, food safety and infection prevention solutions.

Ecolab engineers, plant operations managers and associates, along with the WWF,

systematically worked through the Standard's six-step continual improvement framework to achieve responsible water stewardship status for the Taicang plant, which opened in 2012.

Benefits reached far beyond the numbers. Moving through the steps of the AWS Standard to achieve certification improved relationships with local government and businesses, reduced system burden through less demand on the Yangtze River, and Ecolab's team in Taicang paved the way for Ecolab facilities around the world to pursue water stewardship projects and facilitate discussions in their local catchments and communities.

In severely drought-stricken Southern California where the government has imposed a strict water-reduction mandate, Ecolab has two plants moving through the steps for AWS certification.

Pictured Above: Protecting the water-sensitive Taihu basin of the Yangtze region outside of Shanghai became a priority for Ecolab when it opened its plant in Taicang.

ALLIANCE FOR WATER STEWARDSHIP

## THE INTERNATIONAL WATER STEWARDSHIP STANDARD'S SIX-STEP FRAMEWORK



Leadership committed to the Water Stewardship Policy to protect the Taihu watershed which suffers from flooding, saltwater intrusion, droughts and significant water challenges.

Beyond the work we do for our customers, we are 'walking the water-saving talk.' We recognize the need for urgent action - and dynamic strides – to reduce our water use and set an example for others in China.



Laura Sheahen, Sustainability, Global Supply Chain





Performance and risks were evaluated and outcomes shared with stakeholders

2.315<sub>M<sup>3</sup></sub> ANNUAL WASTEWATER REDUCTION





The project team defined the scope, gathered catchment and site water data and prioritized water risks.



The team defined steps to reduce water and operating costs and shared opportunities with local government and businesses.



Production team implemented plan: Increased cleaning water pressure, changed shower heads, shortened cleaning time and frequency and reused process wash water.



Ecolab's Taicang team shared their water stewardship story and learnings.



## What's Water Worth?



The Water Risk Monetizer helps businesses understand water's full value.



## Water scarcity puts most of the world's biggest economies at risk.

CITIES EXPERIENCING WATER SCARCITY OR CURRENT DROUGHT

CITIES NOT EXPERIENCING WATER SCARCITY OR CURRENT DROUGH

TOP 10 LARGEST POPULATIONS

• TOP 10 FASTEST GROWING ECONOMIES

TOP 10 BIGGEST ECONOMIES

For companies around the world, water scarcity is becoming more than a hypothetical risk - it is a constraint to growth as demand for goods and services is on the rise. To mitigate risks and maintain their license to operate, companies are seeking to assess site-specific pressures and take action to minimize water use. Despite these increasing physical (quantity and quality), regulatory and reputational risks, water continues to be significantly undervalued in much of the world.

## THE DISCONNECT BETWEEN MARKET PRICE & RISK MAKES IT HARD FOR BUSINESSES TO:

Make the case to invest in effective water strategies level demands and scarcity. Protect against water-related business challenges In 2015, the tool was enhanced to enable businesses to evaluate potential revenue at risk due to water scarcity. By leveraging the information provided by Make optimal decisions about where to locate or expand operations the Water Risk Monetizer, businesses can take action now to reduce water use, and use the information to factor water scarcity into their decisions to support business growth.

"As we continue to expand our presence in over 100 countries around the world, we recognize the growing challenges related to water scarcity. The Water Risk Monetizer helps us identify risks and take action where it's needed most."



Maxime Verstraete, Vice President of Sustainability, Hilton Worldwide

HILTON

None House

Ecolab, in partnership with with Trucost, the natural capital experts, introduced the Water Risk Monetizer in 2014 to help all water users better understand and quantify water-related business risks. The tool provides a risk-adjusted water price that represents the full value of water to a business based on local-

## More than 2,000 unique users have tapped into the tool, which is available at no cost to the public.

www.waterriskmonetizer.com

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## SOLUTION from < Ecolab

## Solutions for Life, a philanthropic program launched in 2014,

enhances the company's mission to conserve water and improve hygiene around the world. The program aims to address urgent challenges with innovative solutions, strategic partnerships and employee volunteerism. Through Solutions for Life, Ecolab supports the work of two strategic global nonprofit partners: The Nature Conservancy and the Project WET Foundation.

## THE PROJECT WET FOUNDATION

Children from China to the Philippines, from Mexico to the United States are learning about water conservation and hygiene through curriculum provided by Ecolab and the Project WET Foundation, a global nonprofit organization. Ecolab committed \$1.5 million for the development of the water-and hygiene-focused curriculum for youth, called the Clean and Conserve Education Program.

Educators and Ecolab associates around the world have downloaded the materials to share in their communities. Through strategic partnerships with education providers, the partners hope to reach two million people with the curriculum by 2017. In 2015, the Clean and Conserve program helped educate more than 24,000 people.

"It was a memorable experience to share with students the messages of health and sustainability that Ecolab lives by."

### Lisa Zhou,

Food & Beverage contract management supervisor in China, and an enthusiastic volunteer with the program.

Pictured Above: Xiao Zhang, Principal Chemist, Research, Development & Engineering, volunteers with a program at BaiQuan Primary School in Chenzhou, Hunan province.

## THE NATURE CONSERVANCY

Solutions for Life expands Ecolab's 25-year partnership with The Nature Conservancy (TNC) with a \$2 million investment over three years in support of TNC's "Securing and Restoring Water Sources Around the Globe," initiative. The commitment will accelerate strategic efforts to conserve and restore irreplaceable sources of clean water in Minnesota and in water-stressed regions of China and Mexico.

**20-40 MILES** 

**OF STREAM BANK & FLOODPLAIN RESTORATION** ALONG THE UPPER MISSISSIPPI RIVER BASIN **BEGINNING AT ITASCA STATE PARK** 

### Minnesota, United States of America

Ecolab became the first company to contribute to the Minnesota Headwaters Fund, established to protect clean water in Minnesota's lakes and rivers for the benefit of nature, people and business. The Fund will support protection and conservation work throughout the Upper Mississippi River basin, including 5,000-6,000 acres of easements, 20-40 miles of stream bank and floodplain restoration, and other projects that prevent pollutants from increased agricultural use, such as nitrates and sediment, from entering key rivers and lakes.

## Monterrey, Mexico

In Monterrey, Mexico, Ecolab expanded support for reforestation and other conservation methods to help slow the flow of water upstream from the city and provide clean water for this sprawling urban and industrial center. In October 2015. Ecolab supported TNC's efforts to plant 20,000 white pine saplings in the Cumbres de Monterrey National Park to reforest 20 hectares along the hillsides, which filter water used by Mexico's third largest industrial center.



WHITE PINE SAPLINGS PLANTED TO SLOW **EROSION AND AID IN WATER FILTRATION** 

"With Ecolab's support, The Nature Conservancy is protecting and restoring lakes and rivers that provide clean water in Minnesota and in water-stressed urban areas in China and Mexico."



Peggy Ladner, Minnesota Director, TNC



PEOPLE WOULD BENEFIT FROM NATURE-BASED SOLUTIONS TO IMPROVE WATER QUALITY

### Shanghai, China

In 2015, Ecolab support enabled The Nature Conservancy to explore nature-based solutions to help secure water for China's rapidly growing cities. This support included meeting with Chinese experts and applying the global Urban Water Blueprint approach to the unique attributes of the Chinese landscape. The resulting research indicates that investment in nature could help improve water quality for more than 148 million people in China..

## **CORPORATE RESPONSIBILITY**

# Sustainability Starts Here



## Sustainability is a foundational pillar of our operations strategy.

While our greatest impact will always be through our work with customers, our ability to do more with less internally is also important to the long-term success of our company and the health of the environment.

Ecolab's Clearing Plant associates saved water and energy in 2015. Learn more on **page 42**.

## Sustainability Goals and Performance

At our more than 115 manufacturing plants, our corporate centers and research facilities, and across our team of 47,000 associates, we imbed sustainable practices to reduce our environmental impact.

In 2015, we reevaluated our footprint and adopted practices that will enable us to deliver greater efficiencies throughout our operations while meeting increasing demand for our solutions and services. The result was incremental reductions in water and energy use across our global manufacturing facilities.

**2015 Environmental Performance** Reduced total water withdrawl: -6.9% Reduced GHG emissions: -3.6% Percent change from 2012 baseline; measured by intensity per million dollars in sales.

## ANNOUNCEMENT OF NEW CORPORATE SUSTAINABILITY GOALS

As we look to 2020 and our ability to help customers do even more with less, we also will hold ourselves to higher environmental standards. New sustainability goals introduced in 2015 align with our long-term business strategy.

BILLION

annually by reducing water

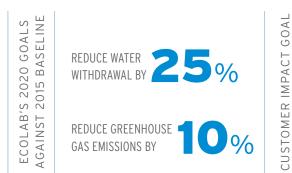
consumption within our own

and our customers' operations.

By 2030, Ecolab aims to conserve

**GALLONS** 

**OF WATER** 





## **COMMITMENT TO CONTINUOUS IMPROVEMENT**

To achieve these aggressive goals, we have expanded our Create & Maintain Value (CMV) program throughout our manufacturing facilities, with an emphasis on the facilities that have the greatest opportunity for resource savings. This approach mirrors the service we deliver to customers – leveraging the expertise of our Nalco Water service engineers, unique auditing and monitoring capabilities, and customized solutions to deliver substantial reductions in water and energy consumption.

## In 2015, this targeted approach had a measurable impact.

### Fawley, United Kingdom

Moving to a closed loop cooling water system made this a "zero effluent plant" and reduced water consumption and effluent discharge by

### **6.8 MILLION GALLONS**

Maribor, Slovenia Automated tank washout procedures,

saved the plant more than 2 million gallons of water which

**REDUCED TOTAL WATER CONSUMPTION BY 14%** 

Optimization of the plant's vessel clean out program and modifications to its softening system **REDUCED WATER USE BY 1.5 MILLION GALLONS** 

Naperville, Illinois

maintained its

Equaling the annual drinking water needs of more than





### Nanjing, China

Pump modifications and improvements to the plant's steam trap and insulation

## **REDUCED ELECTRICITY USE BY 560,000 KWH**

Nalco Water headquarters

LEED GOLD CERTIFICATION

### Vancouver, Washington

Converting all of the plant's outdoor lighting to LEDs SAVED 39,000 KWH AND **REDUCED ELECTRICITY USE BY NEARLY 5%** 

### Corsicana, Texas

The plant avoided sending

## 118,000 POUNDS **OF PROCESS WASTE**

to incineration.



## WATER REDUCTION HIGHLIGHT: CLEARING, ILLINOIS MANUFACTURING PLANT

Ecolab's manufacturing plant outside Chicago in Clearing, Illinois, produces colloidal silica, a product used in industrial processes from paper making to polishing the glass of smartphone screens. Since the production process is relatively water intensive, the plant also is a strategic target for resource savings. Clearing plant manager Jim Kulesa partnered with Nalco Water experts to assess plant operations, develop a plan and implement water-saving strategies – the same process followed with customers.

"These and other steps our focus plants are taking will significantly reduce our water footprint and provide lessons we can use to improve water and energy savings across the supply chain. By improving water efficiency in our own operations, we demonstrate our commitment to being good stewards of our natural resources, aligning to our values as a company."



Alex Blanco, Executive Vice President and Chief Supply Chain Officer, Ecolab

PICTURED ABOVE: Mary Lee, SHE superintendent, and Jim Kulesa, plant manager, stand near the controls for the newly installed 3D TRASAR unit on the Clearing Plant boiler.

## 2015 SUSTAINABILITY STEPS

**Optimized Water Use** in cooling towers for maximum efficiency

### Installed 3D TRASAR™

automation on the boiler to optimize water used in plant and process steam production PROJECTED SAVINGS:

47,000 THERMS of natural gas 1.6 MILLION GALLONS of water/year \$36,000 cost savings/year

**Introduced Clean-in-Place** technology in conjunction with 3D TRASAR to optimize cleaning practices between batches

SOLUTION SAVED:

ENERGY & WATER 75% REDUCTION in vessel downtime





True to our customer-centric approach, we continuously monitor and respond to our customers' demand for solutions that address specific business needs and achieve their sustainability goals. We strive to align product use with customer expectations and external standards to deliver the most effective and sustainable solutions. Our commitment to product stewardship helps our customers tackle emerging issues related to disfavored ingredients, water scarcity, oil and gas reserves, natural resource recovery, contamination control and infection prevention.

We consider it our responsibility to embed sustainability into each of our solutions. Our global chemical management strategy starts with a clear understanding of the human health and environmental safety of the ingredients which make up the building blocks of our product formulations. Next, our product safety team, made up of board-certified and Ph.D. toxicologists, conducts detailed science-based reviews of the substances used in our products and systems. Finally, our scientists screen every substance for compliance with global and regional chemical inventories and regulations.

## Product Stewardship

Sustainability is a foundational pillar of our innovation strategy. Our products and services are known for best-in-class results that help make the world cleaner, safer and healthier.

## **GLOBAL COMPLIANCE**

We comply with regional and global guidelines and standards. For information on the Globally Harmonized System, Classification and Labelling of Chemicals, Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and ethical sourcing, including management of conflict minerals, please refer to Ecolab's 2015 GRI Index on: www.ecolab.com/sustainability.

## SAFETY: Goal ZERO

From the way we operate, to the products we develop, to how we serve customers, our goal is zero: **zero accidents**, **zero incidents and zero environmental releases.** 



At Ecolab, safety is personal. It is a state of mind. Every day, our associates integrate safe practices into their work and life. Goal Zero is not only a company goal; it is a personal goal for every one of our associates because safety matters to each of us.



MAKE SAFETY A PRIORITY 24 HOURS 7 DAYS A WEEK 365 DAYS A YEAR

### **TRAINING & EDUCATION**

Education and training are core components of our strategy to ensure safety is everyone's top priority. We engage our associates in proven programs and processes that improve personal safety. Our leadership practices encourage transparency at every level of our organization. This intentional approach results in continuous improvement of our safety performance.

IN 2015, OUR ASSOCIATES SHARED THEIR REASONS FOR MAKING SAFETY A PRIORITY, TAKING OUR SAFETY PROGRAM TO THE NEXT LEVEL.

IG OUR SAFETY E NEXT LEVEL.

"I will use my bike reflectors, because my goal is zero."

**Pavel Lvov,** Business Development Manager – Russia



"I will bring safety home, because my goal is zero."

**Andrew Watters**, SHE Manager, Energy Services -Dubai





## TOTAL VEHICLE ACCIDENT RATE NUMBER OF ACCIDENTS PER MILLION MILES DRIVEN

2014 3.09 2015 3.06 355% REDUCTION SINCE 2012 -1.0% YEAR OVER YEAR REDUCTION



## **MITIGATING RISKS**

We track our performance on a range of leading and lagging safety indicators. A monthly assessment of our global safety dashboard data helps us identify underlying and potential risks, focus on areas of greatest need and measure the effectiveness of our safety programs.

Our proactive approach to risk identification enhances our comprehensive safety program and improves results. Through safety observations and audits, we identify, assess and address risks at our locations and customer facilities. In 2015, we recorded more than 82,000 safety observations globally, surpassing our goal of 64,000. We also completed 390 safety audits in 2015, an increase of more than 35 percent compared to 2014.

## TOTAL RECORDABLE INJURY RATE



NUMBER OF INJURIES PER 100 EMPLOYEES

LOST TIME NJURY RATE

2015

.77

## Awards & Recognitions

Because of our positive impact, and because of our great global team, we are often recognized as a high-performing and responsible corporate citizen.



## About Our Report

## **SUMMARY**

This summary provides highlights of Ecolab's 2015 Corporate Sustainability Report, focused on where we have the greatest impact on the world: *our customers, our operations and the communities in which we operate.* 

Ecolab's Comprehensive 2015 Corporate Sustainability Report, for reporting period January 1 through December 31, 2015, is available at *Ecolab.com/sustainability*. The report has been completed in alignment with the guidelines of the Global Reporting Initiative's G4 framework.

In keeping with our commitment to transparency and disclosure, Ecolab responds to the Dow Jones Sustainability Index RobecoSAM Sustainability Assessment and the Carbon Disclosure Project's Carbon, Water and Supply Chain surveys. In addition, we are a signatory of the United Nations Global Compact and CEO Water Mandate and file an annual Communication on Progress as part of those commitments.

The customer impact stories included in this summary are supported by comprehensive, verified case studies.

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### MATERIALITY

At Ecolab, sustainability is core to our business strategy of delivering solutions that help companies around the world achieve great results and operate more sustainably. The work we do matters, and the way we do it matters to our employees, customers, investors and communities.

The parameters of our 2015 Corporate Sustainability Report have been established based on a strategic assessment of the issues that our stakeholders care most about, are of greatest relevance to our business strategy and impact our ability to deliver on our promise to make the world cleaner, safer and healthier. This approach to materiality aligns with our corporate sustainability strategy to address some of the world's most pressing and complex challenges through our own operations and the solutions we provide to our customers.

### Our 2015 Corporate Sustainability Report and complete GRI Index can be found at: ecolab.com/sustainability

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Our 2015 Corporate Sustainability Report and complete GRI Index can be found at: ecolab.com/sustainability

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