

Doing Better Together

Transforming business sustainably





A Letter from the Chairman and CEO

As environmental and economic concerns align, change accelerates. Companies are rethinking the way they work to adapt to growing natural resource constraints and increasing costs. Mindsets and practices are shifting from linear resource use to circular resource management, from simple conservation to sophisticated reuse. The collective impact of these mindful actions is exponential, for both business and the world.

With global factors making the need for sustainable business increasingly urgent, it is evident that we can Do Better Together.

Ecolab is proud to be a collaborative behind-the-scenes partner in this movement, helping customers at more than 1 million locations around the world find new ways – big and small – to achieve their business goals, deliver on customer expectations and at the same time, reduce their reliance on the world’s limited natural resources. In 2016, we helped customers conserve more than 161 billion gallons of water, save 11 trillion BTUs of energy and eliminate 52 million pounds of waste.

Our team is at the heart of how we serve our customers and the greater good: 25,000 highly trained service experts, supported by one of the strongest research, development and engineering forces in the world. Together, they are dedicated to delivering on customer needs and they share a personal commitment to making the world cleaner, safer and healthier.

Innovation has always been central to the value we bring, and that remains true today. But now, more than ever before, we are leveraging digital capabilities to expand the reach and impact of our solutions. Through connected technology and data-driven insight, our ability to help customers understand their operations better and reliably do more with less is even greater.

Sustainability is core to Ecolab’s purpose. From **partnering** with our customers to achieve their goals, to leveraging our expertise to **preserve** fresh water and reduce energy use and waste around the world, to the **performance** of our own operations, we know there is always more we can do to deliver sustainable impact. And that’s what makes every day an opportunity to accelerate the positive momentum that is advancing business growth and moving us all to a better world.

This journey to transform business sustainably is one we are all on together. Thank you for joining us.

Sincerely,

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

SUSTAINABILITY OVERVIEW

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Our 2016 Corporate Sustainability Report and complete GRI Index can be found at www.ecolab.com/sustainability.

Cover photo: When Dow Chemical looked for ways to reduce freshwater use at its energy plant in Tarragona, Spain, Nalco Champion, an Ecolab company, associates introduced a solution that enabled reuse of wastewater and significantly reduced the plant’s freshwater draw from the Ebro River, making more water available for residential use. Read the full story on page 16. Pictured left to right: Sira Barrull Freixes, downstream sales representative, Nalco Champion; Carolina Casanovas, utilities TICA, Dow Chemical; Sandra Gonzalez, utilities run plant, Dow Chemical; Sonia Gomez, technical service representative, Nalco Champion.

Our Approach to Sustainability



At Ecolab, we and our customers are united by our powerful purpose to make the world a better place. Doing Better Together. Our team of 48,000, in partnership with more than 1 million customer locations around the world, brings our best efforts forward every day to help address the world's most pressing global challenges. Collectively, we are working to help meet growing demand for goods and services while at the same time reinventing the way businesses operate to be less reliant on the world's limited natural resources.

OPERATING WITH CARE FOR PEOPLE AND THE ENVIRONMENT

Across every industry we serve, we strive to deliver the best results at the lowest total cost while reducing waste, energy and water use. From how we operate and develop solutions to the way we work with customers and support communities, we are working to deliver a more sustainable future for everyone. Through our unparalleled service, industry-leading innovation and real-time data and insights, we help our customers do more with less.

IN 2016, WE HELPED CUSTOMERS:



ECOLAB AT A GLANCE

7,700 PATENTS

48,000 ASSOCIATES INCLUDING:

25,000 SALES-AND-SERVICE ASSOCIATES

1,600 RD&E SCIENTISTS, ENGINEERS & TECHNICAL SPECIALISTS

\$13 BILLION IN NET SALES

MORE THAN **\$1** BILLION IN REVENUE from new 2016 innovations forecasted in the next five years

\$11 MILLION DONATED through Ecolab Foundation, corporate giving and volunteer hours

WORLD-CLASS RESEARCH, DEVELOPMENT & ENGINEERING

Our Research, Development and Engineering and Marketing associates are continually identifying and developing new ways to exceed expectations, resulting in breakthrough innovations that take our customers' operations to the next level. Our teams put a premium on understanding customer challenges, and find new and better ways to deliver cleaner, safer and healthier solutions.

EXCEPTIONAL SERVICE

At the heart of our impact is our team of 25,000 sales-and-service associates. These industry experts work side-by-side with our customers to ensure reliability with day-to-day solutions and identify long-term opportunities for continuous improvement.

PARTNERING

Conserving the world's limited resources requires productive partnerships.

Every customer challenge is unique – as is Ecolab's ability to help them do more with less. Every day, our 25,000 field associates employ a rigorous process to gather data, apply advanced technology, rethink processes and provide sustainable solutions. We measure our impact using our proprietary eROISM value approach which measures the economic, operational and environmental impact of our solutions, demonstrating the exponential value we deliver to customers around the world.

When economic and environmental benefits align, real and lasting change is accelerated for our customers and the world – proving we are **Doing Better Together**.



Helene Näslund, account manager, Nalco Water, visits her customer at a paper mill in Sweden.

COOL ROOMS ON HOT NIGHTS

RETAIL AND SERVICES CASE STUDY

INSIGHT

A five-star Hyatt hotel in Pune, India, faced complicated issues when its water supply was abruptly cut off due to a municipal water shortage. The expansive Hyatt property includes 209 guest rooms, restaurants and banquet rooms. To maintain heating and cooling comfort for its guests and employees in the face of this cut-off, the hotel used treated sewage treatment plant (STP) water in its cooling towers.

Using STP water in the three HVAC units created two problems: rising approach temperatures of the STP water necessitated more frequent condenser cleanings and more cleanings produced more effluent discharge from blowdowns.

INNOVATION

“Hyatt asked for our help to maximize the reuse of STP water in its cooling water system while minimizing associated challenges,” said Vineet Pillay, territory manager – India West, Nalco Water.

Hyatt implemented 3D TRASAR™ Automation Technology for its HVAC systems to deliver the following results:

- Treated blowdown water with oxidizing and non-oxidizing biocides reduced issues with waste water discharge
- Consistent approach temperature helped to eliminate the need for quarterly condenser cleanings
- More efficient reuse improved HVAC performance

TECHNOLOGY: 3D TRASAR Technology for Cooling Water

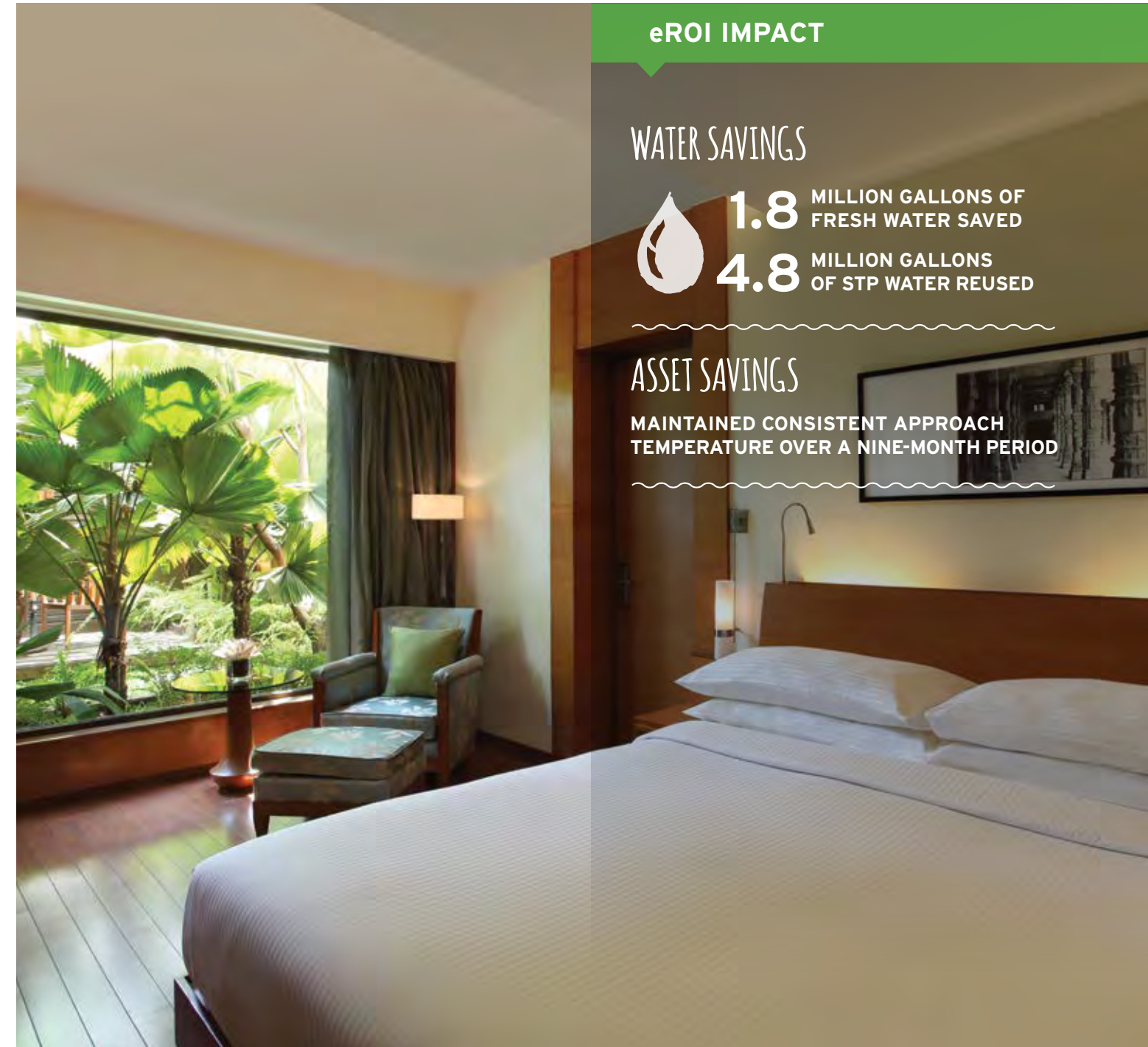


“Reuse of STP water makes sense in the face of ongoing water shortages.”

Vineet Pillay, territory manager – India West, Nalco Water, an Ecolab company



HYATT
PUNE



eROI IMPACT

WATER SAVINGS

 **1.8** MILLION GALLONS OF FRESH WATER SAVED
4.8 MILLION GALLONS OF STP WATER REUSED

ASSET SAVINGS

MAINTAINED CONSISTENT APPROACH TEMPERATURE OVER A NINE-MONTH PERIOD

A NEW GLOBAL PARTNERSHIP BEGINS IN THE KITCHEN

RETAIL AND SERVICES CASE STUDY

INSIGHT

An international retail company with in-house restaurants invited Ecolab to be the new hygiene partner for all of its in-store restaurants operating in more than 300 locations around the globe. The customer wanted consistently clean serving dishes with greatly improved operational efficiency. Additional goals included maintaining the international brand's high level of staff safety and reaching long-term sustainability goals to reduce waste, water and energy within the company's food operations.

INNOVATION

Together with Ecolab's unique solution, the Apex™ warewashing program, the global chain is minimizing the total cost of operations in the company's dish-wash area.

TECHNOLOGY: Apex Warewashing Program



eROI IMPACT

WASTE REDUCTION



PLASTIC

69,000 LBS = 600,000 2-LITER SOFT DRINK BOTTLES

PAPER

2,200 LBS = 22,608 EDITIONS OF FORBES MAGAZINE

(PROJECTED RESOURCE SAVINGS FOR 300 STORES BASED ON 18-MONTH TRIAL)

ASSET SAVINGS

REDUCED REWASH AND SAVED ON DETERGENT AND LABOR COSTS



“The Apex program will give them the information needed to manage dish-wash areas in a more efficient way.”

Marco Stoffelen, global corporate account director – Europe, Ecolab

THE RIGHT LAUNDRY SOLUTION YIELDS SAVINGS AND GUEST SATISFACTION

RETAIL AND SERVICES CASE STUDY

INSIGHT

Dissatisfaction with its current housekeeping service provider compelled a leading U.S. hotel company, Kinseth Hospitality, to ask Ecolab to assess the property's cleaning operations. A site survey revealed that the laundry service was running a significant number of rewash loads at high water temperatures, wearing down the durability of its linens and driving up energy usage. Additionally, the hotel's liquid laundry detergent came in large five-gallon buckets, creating safety concerns for employees from product pile-up, potential spills and cramped storage.

INNOVATION

Ecolab recommended the Aquanomic™ Low-Temp Laundry Solids Program. The innovative chemistry cleans thoroughly in shorter wash cycles using water at 100° compared to 120° F and higher. Lower water temperatures save energy and extend the life of linens. “Employees also appreciate the small, lighter packaging of our solid detergents,” said Jeffrey Sackett, assistant vice president of corporate accounts, Ecolab. “The Aquanomic detergents come in concentrated solids that alleviate safety and storage concerns.”

Ecolab conducted a two-month trial for Kinseth Hospitality. After annualizing potential savings for 70 properties, Aquanomic proved to be a superior solution for the company's laundry operations.

TECHNOLOGY: Aquanomic Low-Temp Laundry Solids Program



RESOURCE SAVINGS

ENERGY **227,000 THERMS**

WATER **33.3 MILLION GALLONS**

ASSETS **LINEN RECLAIMED**



COST SAVINGS

\$446,000

(ANNUAL PROJECTED SAVINGS FOR 70 PROPERTIES)



eROI IMPACT



Above: Ecolab's Brian Bradley, territory manager, and Eric Vollmer, district sales manager, at Hampton Inn, Minooka, Illinois, Kinseth Hospitality

FROM ORGANIC WASTE TO ENERGY WITHOUT WASTING WATER OR SLUDGE CAKE

PRODUCTION AND MANUFACTURING CASE STUDY

INSIGHT

A plant that converts organic waste into electricity, green gas and biomass for power plants set its sights on finding new ways to improve overall sustainability. Reliability of its organic waste digester would be the key to success. Achieving higher dry solids from the dewatered sludge became a priority for this plant in Northern Europe.



INNOVATION

The plant compared two potential solutions. Nalco Water's FLOCMASTER™ Technology was installed on one centrifuge while a competitor's product remained on a second centrifuge. The FLOCMASTER in-line mixer provided optimal distribution of a highly concentrated polymer solution. After a six-month trial, the data clearly demonstrated FLOCMASTER Technology to be the superior product and Nalco Water's expertise and service to be the icing on the cake.

TECHNOLOGY: FLOCMASTER Technology



“Sludge cake coming from the centrifuge we managed had a higher dry content, leading to less dry time and creating more capacity to process more sludge.”

Peter Blom, area manager, Nalco Water



eROI IMPACT

RESOURCE SAVINGS

WATER **85%** REDUCTION IN INDUSTRIAL PROCESS WATER (7.92 MILLION GALLONS PER YEAR)

ENERGY **0.8%** HIGHER DRY SOLIDS SLUDGE CAKE (HIGHER CAKE DRYNESS REQUIRES LESS ADDED ENERGY TO REPURPOSE)

ASSETS **224,900 LB** REDUCTION IN POLYMER CONSUMPTION

COST SAVINGS
\$160,000
(ANNUAL SAVINGS)

SWEDISH PAPER MILL WRINGS OUT WATER AND GENERATES SAVINGS

PRODUCTION AND MANUFACTURING CASE STUDY

INSIGHT

A large, integrated pulp and paper mill in Sweden asked Nalco Water to investigate new methods for improving its overall sludge handling and dewatering operations. The Nalco Water team noted an excessively high volume of various chemicals consumed in the mill's sludge dewatering operations. This also impacted the associated sludge incineration and biofuel costs at its bark boiler unit.

INNOVATION

In a series of trials, Nalco Water introduced FLOCMASTER™ Technology to the fiber dewatering lines and wasted biological sludge dewatering centrifuges. "Our solution increased the heating value of the sludge which in turn improved the quality of the sludge as biofuel," said Giuliano Passeri, senior corporate account manager, Nalco Water. FLOCMASTER Technology exceeded customer expectations, optimizing overall chemical use as well as allowing the mill to shut down one centrifuge.

TECHNOLOGY: FLOCMASTER Technology



eROI IMPACT

RESOURCE SAVINGS

WATER **10.6** MILLION GALLONS PER YEAR

ENERGY **135** kWh PER CENTRIFUGE

COST SAVINGS

\$228,000

(ANNUAL MATERIAL AND OPERATION SAVINGS)

"Our innovative sludge dewatering units contain unique mixing technology combined with automated dosing control systems."

Giuliano Passeri, senior corporate account manager, Nalco Water

ITALIAN MEAT PROCESSOR REDUCES WATER AND ENERGY USE, CAPTURES COST SAVINGS



PRODUCTION AND MANUFACTURING CASE STUDY

INSIGHT

Water is the most precious resource for leading Italian meat processor, Inalca SpA. The company processes up to 40,000 tons of meat per year at its Rieti plant, utilizing the most modern technology available and prioritizing safety and food quality. Inalca asked Nalco Water to strategize on ways to make its operations more sustainable.

INNOVATION

Nalco Water partnered with Inalca on several projects at the Rieti plant to deliver the resource and cost savings Inalca was seeking:

- A reverse osmosis plant replaced the industrial demineralizer plant to eliminate commodity use and reduce the total cost of operation
- 3D TRASAR™ Boiler Technology improved boiler asset reliability and reduced water and energy use
- 3D TRASAR Cooling Technology enabled reuse of cooling water coming from vacuum pumps as makeup water for evaporative condensers
- 3D TRASAR Cooling Technology applied to Stork® hydrostatic sterilizers and STOCK™ (retorts sterilizers at the customer's site) improved cooling water reuse and recycling

TECHNOLOGY: 3D TRASAR Automation Technologies

RESOURCE SAVINGS

WATER **3.7** MILLION GALLONS
 ENERGY **670,300** kWh
 ASSETS **121,000** LBS OF CONSUMABLES
 AIR **120** TONS CO₂ EMISSIONS
 SAFETY ZERO ACCIDENTS DURING THE COOPERATION WITH NALCO WATER



COST SAVINGS

\$72,000
 (ANNUAL OPERATION SAVINGS)

eROI IMPACT

"We were charged with implementing solutions to reduce site water and energy consumption, reduce total cost of operation and improve site process operations."



Alberto Serafini, vice president and market head – South Europe, Ecolab

DOW PLANT IN SPAIN TURNS TO RECLAIMED WATER FOR COOLING SOLUTION

RAW MATERIALS AND INGREDIENT PROCESSING CASE STUDY



Nalco Champion associates Sira Barrull Freixes, sales representative (second from right), and Sonia Gomez, technical service representative (right), helped Dow Chemical in Tarragona, Spain, reuse wastewater and reduce reliance on local freshwater sources.

“...we determined we could control the corrosivity of the reverse osmosis permeate water and yield excellent results.”

Renate Ruitenber, senior marketing manager, Nalco Champion



INSIGHT

In Tarragona, Spain, a Dow team brought in experts, including Nalco Champion, to help their operations embrace a practice of circular economics: to minimize waste by turning it into resources that can be used again. The customer wanted its cooling towers to reduce its draw from the Ebro River, the largest river in Spain, to make more water available to growing municipalities along the river.

INNOVATION


The Camp de Tarragona Advance Water Reclamation Plant, equipped with Dow Technology (reverse osmosis low energy and high fouling-resistant membranes) focused on reclaiming municipal effluent to reuse it as cooling tower makeup in the Dow Tarragona olefins cracker. Nalco Champion stepped in to address issues which could impact the cooling tower such as corrosiveness, microbial activity and variations in salt content in the waste water. “After a series of pilot tests in our R&D labs to evaluate the changing water quality, we determined we could control the corrosiveness of the reverse osmosis permeate water and yield excellent results,” said Renate Ruitenber, senior marketing manager, Nalco Champion. 3D TRASAR™ Technology used to monitor and control the process parameters, combined with a Dual Cathodic Inhibition program to control corrosion, ensured fresh water usage could be reduced reliably.

This project is framed under the European Research and Development funded DEMOWARE Consortium, under the FP7-ENV-2013-WATER-INNO-DEMO Call, and has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under Grant Agreement 619040.

TECHNOLOGY: 3D TRASAR Technology for Cooling Water



eROI IMPACT

<p>WATER SAVINGS</p> <p>310 MILLION GALLONS</p> <p>OF RIVER WATER PER YEAR (1,200,000 cubic meters), equivalent to the average daily water usage of 25,157 citizens</p>	<p>WASTE WATER DISCHARGE REDUCED BY</p> <p>49%</p> 	<p>RECLAIMED WATER USE UP TO</p> <p>40%</p> <p>FOR COOLING TOWER OPERATIONS</p>
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Dow’s cooling tower in Tarragona, Spain, now uses up to 40 percent reclaimed municipal water (160 cubic meters per hour) and has reduced chemical usage by 23 percent. The project enabled Dow to reduce its freshwater withdrawal from the Ebro River by 22 percent and effluent discharge by 49 percent. Depending on the season, this can free up more than 200 cubic meters of water per hour (53,000 gallons per hour) for the municipality. Dow’s goal is to use 90 percent reclaimed municipal water in its cooling tower and to leverage this solution in other plants.

NO AL TRANSVASAMENT (in English: NO TO TRANSFER) is the slogan of the Ebro River protectionists. Ecolab and Dow Chemical significantly reduced freshwater withdrawal from the Ebro River to reserve more for municipalities like Tortosa, Spain, pictured here.



RESOURCE SAVINGS

WATER **647** MILLION GALLONS
 ENERGY **125,000** kWh
 AIR **47.3** TONS CO₂ EMISSIONS
 SAFETY FEWER CHEMICAL HANDLING REQUIREMENTS DUE TO LOWER CHEMICAL PRODUCT CONSUMPTION



COST SAVINGS
\$60,500
 (ANNUAL SAVINGS)

eROI IMPACT

MEXICAN POWER PLANT TURNS TO REUSE AND EXCEEDS WATER SAVINGS GOALS



RAW MATERIALS AND INGREDIENT PROCESSING CASE STUDY

INSIGHT

Caring for natural resources ranks high on the list of priorities for Termoelectrica, a power plant in Mexicali, Baja California, Mexico. At the same time, the power plant must balance its need to reliably respond to power demand fluctuations from heavy agriculture and industry in the area. The cooling tower became the focus for optimizing water and energy savings as well as improved staff safety.

INNOVATION

The plant uses grey water in its cooling tower, which reduces the plant's freshwater use. But grey water can carry high concentrations of calcium, sulfate and chloride, which contribute to scaling and performance issues. Nalco Water conducted studies to determine the

optimal cycles of chemical concentration in the cooling tower to minimize water use and avoid scaling. The team implemented 3D TRASAR™ Technology for Cooling Water to reduce scaling which included continuous monitoring of performance from a remote control room and the application of cutting-edge chemical products.

"Nalco Water has unique polymers that work via charge reinforcement to carry impurities out of a cooling tower before they settle as scale and deposits," said Fernando Garcia, district manager, Nalco Water. "We tailor our solutions to the specific conditions and needs of our customers. Our customized approach helped Termoelectrica significantly improve use of grey water in its cooling tower."

TECHNOLOGY: 3D TRASAR Technology for Cooling Water

POLYESTER PLANT COOLS DOWN AND REDUCES WETLANDS DISCHARGE

RAW MATERIALS AND INGREDIENT PROCESSING CASE STUDY

INSIGHT

A U.S.-based polyester resins and fibers plant had its discharge permit for its cooling tower blowdown restricted for environmental reasons. During times of drought, rather than discharging into nearby wetlands, the state required the plant to send its blowdown discharge to the municipal wastewater treatment plant. The city wastewater treatment plant charged a treatment fee of \$4.00 per 1,000 gallons. Reducing the amount of cooling tower blowdown sent to the city was critical to controlling the customer's overall cost of operations. A limitation on silica in the plant's cooling water prevented plant operators from optimizing cooling tower concentration cycles to control those costs.

INNOVATION

The Nalco Water team introduced the plant to a new line of cooling water treatment products containing Performance Polymer. The new product, combined with 3D TRASAR™ Technology for Cooling Water, allowed the plant to operate at higher cycles of concentration, increasing from six to eight in one tower, and six to 10 in another tower, without being constrained by silica deposition. The Performance Polymer reduced the amount of blowdown water sent to the city's wastewater plant by 29 million gallons annually. The solution helped reduce the amount of treatment chemicals required, supported the plant's sustainability objectives and improved worker safety by reducing chemical handling.

TECHNOLOGY: 3D TRASAR Technology for Cooling Water with Performance Polymer

RESOURCE SAVINGS

WATER **29** MILLION GALLONS



COST SAVINGS
\$116,000
 (ANNUAL SAVINGS)

eROI IMPACT



2016 Innovation Highlights



RETAIL & SERVICES

OxyGuard40™ (Textile Care)

OxyGuard40 is an ultra-gentle, low-temperature wash treatment for hospitality and hospital textile commercial laundries. The solution brings used textiles to a “like new” whiteness level, extends textile life by a factor of three and consumes up to 30 percent less steam and water due to the low water temperatures used. OxyGuard40 earned Ecolabel certification and complies with the AS-4146 disinfection standards in certain markets for washing healthcare textile.

Aquanomic™ 2.0 Low-Temp Liquid Laundry Program (Laundry)

The next generation of the Aquanomic program delivers superior results and extends the life of linens while saving up to 40 percent on water and energy versus traditional laundry programs. The advanced Aquanomic 2.0 formula targets the root cause of graying and yellowing, providing consistently white and bright linens.

PRODUCTION & MANUFACTURING

FirstCLEAR™ (Water Management)

The FirstCLEAR program is a holistic raw water solution for more reliable water quality and improved papermaking. The program combines several of our existing technologies, including Metagenomic Analysis Protocol (MAP), the enVision™ platform and PARETO™ Mixing Technology. The combined program can help control costs, improve operational efficiency and minimize product defects.

Synergex™ (Cleaning & Sanitizing)

Synergex is a leading U.S. EPA-registered antimicrobial product for food and beverage manufacturers. The mixed-peracid-based sanitizer and disinfectant provides food safety and quality assurance, and eliminates many safety issues across plant operations. Using Synergex in clean-in-place (CIP) applications allows for the potential elimination of the acid-rinsing step, reduces water consumption by up to 24 percent and energy consumption by up to 42 percent.

3D TRASAR™ Technology Reverse Osmosis (RO) Control (Water Management)

3D TRASAR Technology RO Control provides low-cost remote monitoring of small RO systems, enabling Nalco Water to directly assist the customer in operating the RO system according to best practices. The new controller is factory installed on RO systems that handle up to 125 gallons per minute (GPM). It both operates the RO system and provides much of the same capability as 3D TRASAR Technology for Membranes: online monitoring, control and analysis. This solution helps customers reduce both the amount of feed water required for RO and the volume of waste water, in addition to improving reliability and reducing unplanned downtime.



RAW MATERIALS & INGREDIENT PROCESSING

Thermogain™ (EC3019C and EC3619A) (Refining)

Thermogain crude oil antifoulant improves heat transfer and pressure drop in heat exchangers by limiting particle growth of organic polymers, destabilized asphaltenes and inorganic foulants. By reducing refinery fouling, these innovations substantially cut fuel costs and reduce CO₂ emissions.

HyClass™ 73HC and HyClass 732HC (Mining & Mineral Processing)

HyClass innovations provide a direct production increase by capturing more fines in alumina hydrate classification, improving underflow-solids-handling characteristics and reducing bauxite processing. HyClass helps save sodium hydroxide, water and energy in the Bayer process. The Bayer process is a chemical refining method to produce alumina from bauxite.

Biodegradable Emulsion Breaker (EC2802A) (Refining)

EC2802A is a biodegradable emulsion breaker designed for oil refinery desalter trains that combines non-flammable chemistry with minimal naphthalene and kerosene content. The new chemistry offers reduced toxicity which meets European Union regulations while performing as well as or better than traditional emulsion breakers. Diminished toxicity results in improved handling characteristics and reduced environmental impacts.

3D TRASAR™ Hardness Response Program (Water Management)

The fully automated 3D TRASAR Hardness Response Program expands on 3D TRASAR Boiler Technology with the incorporation of low-level hardness measurement, upset detection, corrective action and communication of results. Benefits include energy savings achieved by preventing scale, improved efficiency and reduced fuel consumption, as well as asset protection through early detection of upsets and quick corrective action.

PROTECTING



By investing in people and nature, we make our world better.

By combining our passion and expertise with new insights and compelling data, we are helping shape the way businesses and communities preserve and protect water today. And we are educating the next generation of leaders to be stewards of the environment and champions for hygiene tomorrow. We want to do our part to help ensure a healthy and sustainable future for everyone – one innovation, one community, one business at a time.



Ecolab volunteers and their families joined efforts with The Nature Conservancy to help reforest more than 50 acres of the Cumbres de Monterrey National Park. Water flowing from this park provides more than 60 percent of the water used in the metropolitan area of Monterrey, Mexico. Photo credit: The Nature Conservancy

Unlocking Water's Circular Potential

We need to change our relationship with water to ensure that communities and businesses can thrive today and tomorrow. Redefining water's value and unlocking its full, circular potential is a critical part of the solution. When we maximize the potential of water by reducing, reusing and recycling it, the possibilities for its use are endless, and we can achieve better business results.

Ecolab is helping companies shift their mindsets and practices from water conservation to reuse and recycling. With on-site industry expertise, cutting-edge technology, industry-leading data, advanced analytics and a passion for stewardship, we are reinventing how businesses operate – to drive more sustainable water practices and better business performance worldwide.

GETTING MORE OUT OF WATER WITH THE CLOUD

Ecolab is leveraging Microsoft's global expertise and its Azure cloud platform to harness the power of big data. The mobile platform allows us to take water-saving solutions to scale globally. By aggregating and analyzing billions of data points fed from Ecolab sensors in thousands of plants, we help establish world-class operational benchmarks, leverage best practices and accelerate how industries worldwide tackle water scarcity, improve water quality and increase operational performance. Combining our technology, on-the-ground expertise and real-time data, our vision is to help companies across industries such as energy, power, food and beverage, manufacturing and hospitality achieve net-zero water usage: producing exceptional goods with the absolute minimum amount of fresh water.

"Our global partnership with Microsoft is not about a product, it is about building a unique platform to address the world's water challenge," said Christophe Beck, executive vice president, Ecolab, and president, Global Nalco Water. "Water is essential because there is no life without water. There is no economic growth without water. There is no more consumption without water. There are no more people without water. This is an issue we are committed to helping to solve."

CALCULATING WATER'S HIDDEN VALUE

Businesses know all too well that insufficient clean water can disrupt operations and growth. In 2014, Ecolab, in partnership with Trucost, launched the Water Risk Monetizer, a financial modeling tool that helps businesses understand their water-related risks and provides actionable information to help them turn water risk into a business strategy that enables growth.

In 2016, Ecolab and Trucost partnered with Microsoft to enhance the Water Risk Monetizer to deliver a new level of water risk assessment and a more dynamic user experience. By adding water quality to the risk equation, the expanded tool provides a more comprehensive risk assessment and a deeper level of business insights. Our shared goal is to drive more businesses to use data to inform actionable plans to save, reduce and recycle water.

 Learn more at www.waterriskmonetizer.com.

"Ecolab is on a mission to help the world to produce more and better products while using less water and improving operational performance."



Christophe Beck, executive vice president, Ecolab, and president, Global Nalco Water



CONSUMER CLASS
WILL GROW BY

3 BILLION

OVER 20 YEARS¹

BY 2030, WATER
DEMAND WILL EXCEED
SUPPLY BY

40%²

U.S. INDUSTRY
REUSES LESS THAN

10%

OF FRESH WATER³

LESS THAN 3%

OF WASTE WATER
IS RECYCLED GLOBALLY⁴



HOW DRY IS TEXAS?

Microsoft's data center in San Antonio, Texas, is located within the Leon Creek Watershed, an extremely water-stressed region which also presents water quality issues due to flooding, storms and stream bank erosion.

Data from the Water Risk Monetizer revealed that the risk adjusted value of Microsoft's water use at this data center was more than 11 times greater than the current water bill presented by the San Antonio Water System.

The numbers made the business case. Microsoft installed Nalco Water's 3D TRASAR™ Technology which enabled the plant to reliably use recycled water instead of potable water, saving Microsoft more than \$140,000 in water costs and avoiding the use of 58.3 million gallons of potable water per year.

Community Engagement

Our commitment to solving global challenges goes beyond our customers and our operations. In 2016, through the grant and volunteer programs of the Ecolab Foundation, we helped sustain vibrant and healthy communities around the globe with contributions totaling more than \$11 million.

DEDICATED VOLUNTEERS

In 2016, employees volunteered approximately 85,000 hours and more than 3,000 employees worldwide participated in our Global Team Volunteer Grant program through which \$300,000 was granted to non-governmental organizations where our employees volunteered.



Ecolab associates in China volunteered at The Nature Conservancy's Zhejiang Longwu Water Fund Project site. Photo credit: Wan Ming Yang

SOLUTIONS FOR LIFE

Ecolab's "Solutions for Life" program has a mission to conserve water and improve hygiene around the world through nonprofit partnerships, global philanthropy and employee volunteerism. In 2016, we helped advance important global work through partnerships with two leading global nonprofits: The Nature Conservancy and Project WET Foundation.

Project WET Foundation

In partnership with Project WET Foundation, Ecolab invested \$1.5 million to co-create the Clean and Conserve Education Program, focusing on water conservation and healthy hygiene education. This action-oriented education program aims to teach water conservation and healthy hygiene habits to 2 million people around the globe by the end of 2017. The curriculum is customized in Spanish (for Mexico), Chinese (Mandarin) and German, in addition to English, and includes an activity guide for teachers (also available in Canadian French and Brazilian Portuguese).



In 2016, the Clean and Conserve program was introduced in Mexico and China with exciting water festivals for students and teachers. Ecolab associates

embraced these opportunities to share their expertise with children in their local communities. A group of 47 Ecolab associates in Mexico taught proper handwashing techniques to 260 students in Cuautitlán, near Mexico City, and Apodaca in León, near Monterrey. "The kids were eager learners," said Jamice Obianyo, director of community relations and Ecolab's Project WET team leader. "The students will remember this and share what they learned with their friends and family – another way we are helping make the world a cleaner, safer and healthier place."

In Shanghai, China, 18 Ecolab associates helped train 22 teachers and led 97 students from three primary schools to become WaterStars through a Clean and Conserve water festival.

FREE ONLINE TEACHING TOOLS

Clean and Conserve resources and training videos can be downloaded at www.projectwet.org/cleanandconserve.

"Soap and Water Science" from Project WET Foundation teaches children with fun online activities how to protect themselves from germs. Learn more at www.discoverwater.org.



Students in Shanghai listen during a Clean and Conserve education workshop taught by Ecolab volunteers.

"ASK THE SCIENTIST"

Ecolab Chemist Rafael Ornelas was asked how he would teach conservation to 10-year-olds:

"I shared with them that having clean water is a gift! In the world, there are so many kids just like them who don't have that gift. These kids must walk long distances to get even a little dirty water for drinking and basic hygiene. That's why we need to take care of water – because water is a real treasure." said Ornelas, senior project manager, Food & Beverage, Ecolab.



SOLUTIONS FOR LIFE

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 (through 2017). This investment has been critical to TNC's freshwater work in Minnesota (U.S.), Mexico and China. Protecting critical lands and water in these regions has been guided by TNC's Urban Water Blueprint, an innovative mapping tool that looks at the state of water in more than 2,000 watersheds and provides science-based recommendations for natural solutions to improve water quality for the benefit of ecosystems and communities.



MINNESOTA

TNC used the freshwater blueprint to identify 20,000 acres in Minnesota most in need of protection. Ecolab made the initial grant to help protect nearly 180 acres along 8,000 feet of the Pine River in the heart of the Mississippi River Headwaters.

A team from Ecolab's Eagan, Minnesota, campus volunteered at TNC's Ottawa Bluffs restoration site in southern Minnesota to remove invasive sumac bushes and collect prairie seeds for future reforestation.

Ecolab and TNC expanded conservation efforts in the Cumbres de Monterrey National Park which provides 60 percent of the water for 4.5 million people living downstream in the Monterrey, Mexico, metropolitan area. In 2016, volunteers from Ecolab joined TNC to reforest 50 acres of pine forest. These trees increase rainwater capture, mitigate flooding, improve water filtration and regulate water flow.

Ecolab volunteers and their families helped with the reforestation of 50 acres of pine forest in Cumbres de Monterrey National Park.

MEXICO



CHINA



Ecolab was the sole sponsor of the China Urban Water Blueprint that launched in April 2016. This report, which provides important watershed information to public and private sector groups addressing water issues in China, helped TNC decide to start new water funds in particularly water-stressed regions. The first fund will focus on reducing pollution seeping into the Dongjiang River Basin in southeast China, which provides water to millions of people in Hong Kong, Guangzhou and Shenzhen.

A team of Ecolab associates in China at Longwu reservoir, located in the town of Longwu adjacent to Hangzhou, Zhejiang Province.

Photos credit: TNC



\$2 MILLION
INVESTMENT
OVER THREE YEARS

PERFORMING



Corporate sustainability begins with asking the question: What more can we do?

The integrity of our impact hinges on our ability to drive positive, sustainable results across our company. To that end, we deliver on our company's performance goals and commitments to our customers while protecting the health of the environment and communities in which we operate. Our commitment is evolving and ongoing, driven by the belief that we are **Doing Better Together.**





Sustainability Goals and Performance

ECOLAB'S 2020 SUSTAINABILITY GOALS

REDUCE WATER WITHDRAWAL
BY **25%**

REDUCE GREENHOUSE GAS EMISSIONS
BY **10%**

PERCENTAGE CHANGE FROM 2015 BASELINE;
MEASURED BY INTENSITY PER MILLION
DOLLARS IN SALES

We are harnessing the power of our leading-edge technology to gain insights into our operations and ensure sustainable growth. Ecolab has more than 115 manufacturing plants, corporate centers and research facilities and a team of 48,000 associates spanning the globe. In every location, we are in lock-step with our mission to do more with less.

CORPORATE SUSTAINABILITY GOALS REMAIN ON COURSE

Our 2020 environmental goals reflect our commitment to continuous improvement across our global footprint. With a focus on locations where our risks and impact are most relevant, we remain committed to achieving these targets. In 2016, we advanced enterprise-wide efficiency efforts and initiated several large projects to significantly reduce water and energy use at target manufacturing plants. These programs will deliver savings in 2017 and beyond to help us reach our goals.

"Despite headwinds in 2016 which minimized progress toward our intensity-based environmental goals, we took significant steps to further embed sustainability into our supply chain operations as a central element of our focus on safety, service and savings," said Alex Blanco, chief supply chain officer, Ecolab.

2016 ENVIRONMENTAL PERFORMANCE

WATER **+1.8%**

GHG EMISSIONS **+0.6%**

PERCENTAGE CHANGE FROM 2015 BASELINE;
MEASURED BY INTENSITY PER MILLION
DOLLARS IN SALES

"We are confident the water and energy savings projects we started in 2016 along with new projects in 2017 will deliver the performance impact required to keep us on track to achieve our 2020 targets."

Alex Blanco, chief supply chain officer, Ecolab


CUSTOMER IMPACT GOAL

IN 2016, WE HELPED
OUR CUSTOMERS SAVE

BY 2030, ECOLAB AIMS
TO CONSERVE

THIS EQUALS
ANNUAL DRINKING
WATER NEEDS OF

 **161 BILLION**
GALLONS OF WATER

 **300 BILLION**
GALLONS OF WATER
ANNUALLY by reducing
water consumption
within our own and our
customers' operations

 MORE THAN
1 BILLION PEOPLE

STAND-OUTS IN OUR COMMITMENT TO CONTINUOUS IMPROVEMENT

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. By leveraging the expertise of our Nalco Water service engineers, unique auditing and monitoring capabilities and customized solutions, we have implemented new solutions and practices in several plants, resulting in significant progress in reducing our overall water and energy consumption.



Foam cleaning spray system implemented in seven plants saved 3.3 million gallons of water.

Vessel cleaning was identified as a "low-hanging fruit" opportunity. Ecolab's global Materials, Process Delivery and Quality (MPD&Q) team focused on vessel cleaning in production plants as a way to improve efficiency without large capital expense. Cleaning vessels between uses can require significant quantities of water, but new low-cost, water-saving solutions have changed that for the better.

"Vessel cleaning can take up to 30 percent of available vessel time which may lead to capacity constraints for a plant's production line," said Steve Bilek, principal engineer, MPD&Q, Ecolab.



Trials began with a portable spray foam system, which required no upfront capital.

In Ecolab's manufacturing plant in Clearing, Illinois, an early trial spray foam application replaced a full-vessel boil-out and reduced water use by 80 percent per washout. The spray foam system uses Nalco Water chemistry and can be adjusted to clean alkaline, acid, oxidizer or solvent-based chemistries, making it widely applicable throughout Ecolab's global manufacturing plants.

Six additional plants have implemented the spray foam cleaning method.

In 2016, the vessel cleaning optimization project saved more than 3.3 million gallons of water and 4,800 MMBTU of natural gas, improving the environmental health of the community in which each plant operates.



45% SOLAR ENERGY

Ecolab's plant in Mosta, Malta.

CAPTURING SUNLIGHT ON A MEDITERRANEAN ISLAND FOR A BRIGHTER TOMORROW

Ecolab's plant in Mosta, Malta, produces surgical drapes for Ecolab's Healthcare and Life Science customers. Last year, 468 photovoltaic panels were installed on the flat roof of the plant. Solar now provides approximately 45 percent of its energy. In one year, the solar panels reduced the plant's CO₂ emissions by approximately 190 metric tons. Additionally, 70 percent of all lighting

in the offices and production area has been replaced with LED sources. "Investing in these sustainable energy-generation projects and energy-efficient equipment, together with landfill waste reduction, shows our commitment to providing a sustainable, healthy environment in which we all live," said Alexander Aquilina, general manager, Ecolab.

AUTOMATION OF PLANT IN VARSSEVELD, NETHERLANDS, GENERATES SIGNIFICANT ELECTRICITY SAVINGS

Production lines at Ecolab's manufacturing plant in Varsseveld, Netherlands, are moving with new efficiency due to an innovative, automated latex line. The plant produces rubber covers used in hospitals to protect ultrasound transducers. The new automated production line replaced five manually operated dipping lines. The automation and improved insulation in the new machine accounts for the energy savings. Comparing two months of production before and after the automation shows a 12 percent reduction in electricity. Future overall equipment efficiency is expected to achieve 15 percent savings annually.



15% ELECTRICITY SAVINGS ANNUALLY

Ecolab's manufacturing plant in Varsseveld, Netherlands.



REDUCED WATER USE BY 25%

Nalco Champion associates at the Texarkana, Texas, plant.

TEXARKANA, TEXAS, SAYS EVERYTHING'S BIGGER IN TEXAS – INCLUDING WATER SAVINGS

A Nalco Champion oil blends plant in Texas took a bold step to design a water-savings system before water restrictions became a potential business risk. Texas is a highly regulated state for water usage and effluent. The plant now recaptures non-contact cooling water from the plant and uses it in the batching

process. This water recycling system reduced the plant's annual water consumption by nearly 25 percent. It also reduced process cycle time by 60 percent.



The United States Environmental Protection Agency recognized Ecolab as a **2016 Safer Choice Partner of the Year within the Innovators category** for our leadership in furthering safer chemistry and products.

Ecolab is a founding member of the Sustainable Purchasing Leadership Council (SPLC).

“We applaud the company's active partnership with customers to understand and meaningfully influence the health, safety and environmental outcomes of purchasing decisions. We believe that this kind of constructive, solutions-focused, buyer-supplier collaboration can shift entire markets toward a sustainable future.”

Jason Pearson, president, SPLC



Sustainable Solutions

We want every customer to fully understand and have confidence in the safety, health and environmental attributes of our products. This starts with our commitment to managing the impacts of our products throughout the value chain. We do this by developing programs that prevent or reduce human and environmental exposure to hazards and risks in chemical products through safer solid and liquid chemistry and innovative packaging and dispensing systems.

Our approach is driven by:

- An unparalleled understanding of customer needs
- Deep expertise in product application and use phase impacts
- Commitment to comply with, and go beyond, industry, government and non-government standards

PRODUCT TRANSPARENCY

Building on our product sustainability leadership, we have defined a set of nine measurable product attributes relevant to our customers' operations to help explain the safety, health and environmental impacts of our solutions. The technical information supporting these attributes is reported through our enterprise chemical management database and thus, is consistent with our Safety Data Sheet literature.

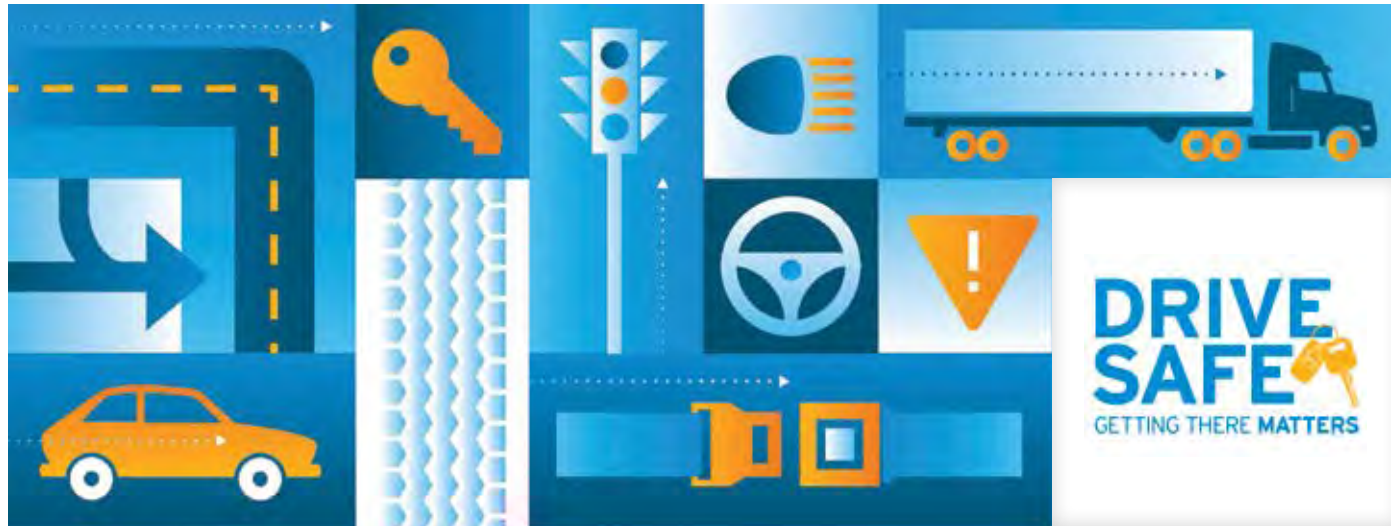
In 2017, we aim to make this information readily available to help customers better understand and manage the use phase impacts of products and make more informed purchasing decisions.

“When executed at the highest levels, sustainability is a win-win proposition. By providing market-specific impact information, we can help customers select products that deliver clean, safe and healthy outcomes. Translating our customers' impact-driven purchasing needs into our innovation process helps us develop solutions that more directly deliver on customer expectations.”

Lynne Olson, Ph.D., corporate scientist, Ecolab

i For additional information on Ecolab's compliance with regional and global guidelines and standards, please refer to Ecolab's 2016 GRI Index on www.ecolab.com/sustainability.

Safety Matters



The entire Ecolab family puts safety first, every day, in pursuit of Goal Zero.

The safety of our associates, customers and communities is vitally important. From the way we operate, to the products we develop, to how we partner with customers, our goal is zero: zero accidents, zero incidents and zero environmental releases.

SAFETY IS A CORE VALUE AT ECOLAB

Driver safety represents one of our greatest opportunities to stay safe and achieve Goal Zero. We challenge our associates to commit to safe driving every day. In 2016, our “Drive Safe Pledge” gave associates the opportunity to describe why staying safe behind the wheel matters to them.

“By keeping this focus, we have a major opportunity to reduce injuries across the company – and ensure we safely reach our destinations, wherever they may be.”

Doug Baker, chairman and CEO, Ecolab



私は、毎日安全に運転します。それは、関わる人全ての笑顔を実現することが大切だからです。

I will drive safely every day because putting smiles on the faces of everyone in my family matters.
Masaaki Tanikawa / Territory manager / Tokyo, Japan

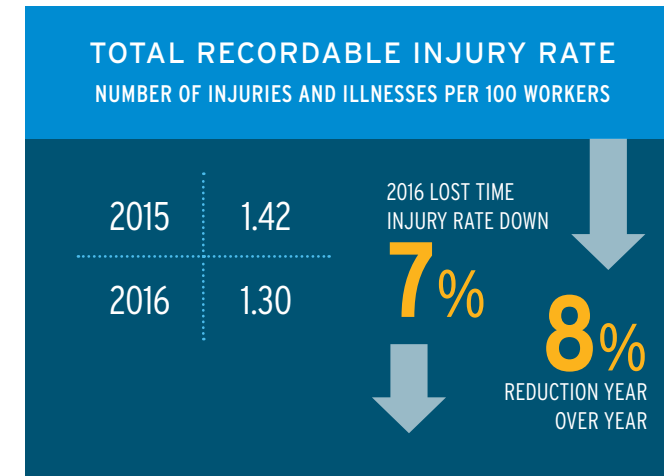


Voy a conducir de manera segura cada día porque llegar a mi hogar sano y salvo para compartir con mi esposa es importante.

I will drive safely every day because getting home safe and sound to be with my wife is important.
Cesar Fabian Cordero Davila / Representante de Ventas / Villavicencio, Colombia

SAFETY MATTERS AT WORK AND IN LIFE

Nearly 90 associates were recognized as 2016 “Safety Champions” and as Safety, Health and Environment (SH&E) Professionals Extra Mile Award recipients. The winners’ efforts helped Ecolab reduce and eliminate risk and enhance a strong culture that supports safety at work and home.



TOTAL VEHICLE ACCIDENT RATE
NUMBER OF ACCIDENTS PER MILLION MILES DRIVEN

Region	2016	% change vs. 2015
NA	2.75	▼ 4%
EU	4.90	▲ 11%
AP	2.53	▼ 17%
Gr China	1.90	▼ 5%
LA	3.24	▲ 33%
MEA	3.81	▲ 59%
One Ecolab TOTAL	3.19	▲ 4%

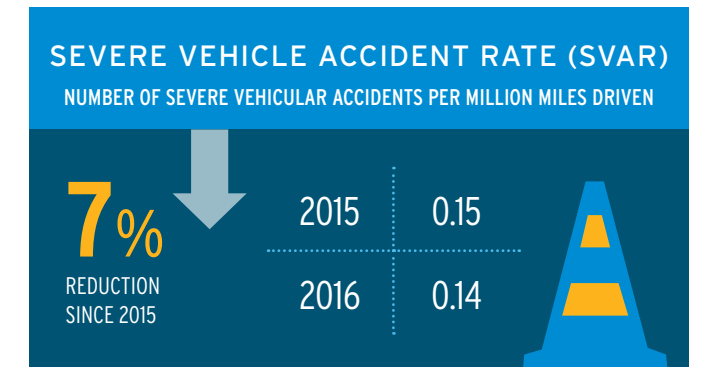
Our safety commitment is supported by an engaged executive leadership council, active safety leadership councils in all regions and large markets, and a board of directors safety, health and environment committee.

TRAINING AND EDUCATION

Training and education 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.

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 2016, we recorded more than 113,000 safety observations globally, an increase of 38 percent from 2015. We also completed 352 safety audits in 2016, exceeding our goal.

Comprehensive safety metrics are reported in our GRI Index and available on www.ecolab.com/sustainability.

Awards and Recognition

We are proud to be recognized by many organizations for our innovation, service and commitment to operating responsibly and sustainably while meeting the needs of our customers.



— **Forbes** —
AMERICA'S BEST
EMPLOYERS



MEMBER OF
**Dow Jones
Sustainability Indices**
In Collaboration with RobecoSAM



About

SUMMARY

This summary provides highlights of Ecolab's 2016 Corporate Sustainability Report, focused on where we have the greatest impact on the world: our customers, our operations and the communities in which we live.

Ecolab's comprehensive 2016 Corporate Sustainability Report, for reporting period January 1 through December 31, 2016, is available at www.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 disclosures, 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 case studies.

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 2016 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 customers.

WATER SCARCITY SOURCES

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Our 2016 Corporate Sustainability Report and complete GRI Index can be found at www.ecolab.com/sustainability.

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