

**LONZA ANNUAL REPORT  
CORPORATE OVERVIEW**

2014

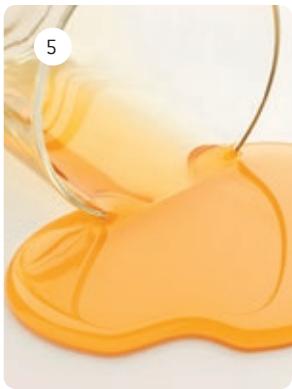
## **PHARMA&BIOTECH**

- 1 Custom Development and Custom Manufacturing
- 2 Bioscience Solutions



## **SPECIALTY INGREDIENTS**

- 3 Agro Ingredients
- 4 Consumer Care
- 5 Industrial Solutions
- 6 Wood Protection
- 7 Water Treatment



## **ABOUT THE COVER**

As one of the world's leading and most-trusted suppliers to the pharmaceutical, biotech and specialty ingredients industries, Lonza covers a wide range of markets within two segments. Each of those markets is illustrated by the photos on the cover of this year's Annual Report. With such a broad reach globally, Lonza is always "closer than you think".



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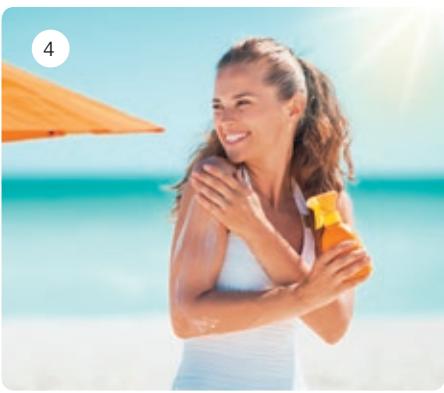
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#### PHARMA&BIOTECH

- 1 Custom Development and Custom Manufacturing
- 2 Bioscience Solutions

#### SPECIALTY INGREDIENTS

- 3 Agro Ingredients
- 4 Consumer Care
- 5 Industrial Solutions
- 6 Wood Protection
- 7 Water Treatment

# **LONZA ANNUAL REPORT**

## **CORPORATE OVERVIEW**

2014

### **About This Report**

For the first time this year, Lonza's Annual Report is primarily an online report with a parallel print version that includes the same information as the digital version. We adopted the "online-first" format as an interactive pdf that allows readers to engage with the material online in an effort to save resources.

By encouraging readers to go online first for background about Lonza in general and in 2014, we can reduce the number of hard copies of the report that we need to print. We are also offering those who still would like a paper copy of the report an option to order only one section of the two sections so that less paper is used.

The Financial Overview section, which includes the Financial Report, Remuneration Report and Corporate Governance Report, is again being offered online as a downloadable pdf.

In the digital version of the Corporate Overview, we have highlighted words in the text to indicate that additional information is available. Readers can mouse-over on the highlighted words to read more.

The parallel printed version highlights the same words as the online version and then shows the additional information in the annex.

Lonza's Annual Report 2014 covers the period 1 January 2014 to 31 December 2014. In it we aim to present a balanced and concise overview of our strategy, performance and prospects.

The two-part report is written for our employees, shareholders, customers, suppliers, business partners, community members, financial institutions, journalists, governmental and nongovernmental organizations and other stakeholders. It includes comprehensive information about Lonza's two segments: Pharma&Biotech and Specialty Ingredients.

In the first part of the Annual Report, the Corporate Overview section, we seek to provide a transparent summary of our corporate structure, practices and processes and to highlight the challenges and successes of 2014.

The second part of the report, the Financial Overview section, includes financial statements and notes, investor background, remuneration details and corporate governance information for Lonza.

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of the back cover.



Richard Ridinger

Rolf Soiron

# DEAR SHAREHOLDERS

We are pleased to present our 2014 Annual Report, which provides valuable insights into the Lonza story. And our story is a good one.

In 2014 Lonza progressed further on our transformational journey. We benefited from measurable progress in implementing our key transformational initiatives; and as a result, we are a more productive and profitable company with greater transparency, less complexity and improved accountability. At the same time, we continued to make solid progress on our shift from a product- and technology-focus to a more market-oriented one.

During the year we put strong emphasis on aligning and optimizing our offerings to the markets we serve. We made a critical review of our portfolio, and we also continued to streamline our internal processes.

Our 2014 results confirmed for the third consecutive year the good progress we have made. Both Lonza's segments – Pharma&Biotech and Specialty Ingredients – delivered a solid performance despite currency headwinds and a sales shortfall in the residential Water Treatment business.

Lonza's solid business performance with continued strong cash-flow development led to a further strengthening of our balance sheet. This improved performance enables the company to reward our shareholders again, and the Board of Directors is proposing to increase the dividend after four consecutive years of stable dividend payments to CHF 2.50 per share.

You can find the full story of our continued transformation within our 2014 Annual Report.

## THREE KEY TRANSFORMATIONAL INITIATIVES

Our key transformational initiatives are an important pillar for our future success, and we continue to make progress in implementing them. At the heart of all these projects are the objectives to enhance our Return on Net Operating Assets (RONOA) performance and to stimulate behavioral change towards true customer- and market-orientation. Since we began this transformational journey in 2012, we have significantly increased our RONOA, as well as other key profitability measures, which proves we are on the right track.

Each of the three initiatives – the Go-to-Market-Excellence program, Business Services Excellence project and the Manufacturing Footprint Optimization project – are vital to creating a highly functioning value chain and a solid administrative network supporting value creation.

## RESULTS FROM OUR SEGMENTS

In a year of continued transformation, we focused on operational improvements and portfolio adjustments. Our efforts resulted in increased profitability, the launch of new and innovative products in both segments and a stronger orientation toward our customers.

In the Pharma&Biotech segment, we substantially increased profitability. This positive development was seen particularly with established technologies like mammalian biopharma and emerging technologies like antibody drug conjugates (ADCs). Lonza will continue to refocus our portfolio by concentrating on higher-margin products and projects.

Product transfers either from our customers or within our manufacturing network were on track. However, time-consuming, complex tech transfers and validations had an impact on sales figures in Pharma&Biotech.

Capacity utilization across the network was at budgeted levels. The markets recognized our enhanced market positioning, broad technology offerings, available capacity and continuous quality improvements to meet regulatory

requirements and to stay at the forefront of the market and the competition. Outsourcing and dual-sourcing trends continued intact. Long-term contracts were signed for new technologies, including immune therapy and viral therapy.

The Specialty Ingredients segment had robust performance throughout the year, driven by market demand, more active portfolio management and marketing efforts, combined with the launch of innovative products in several business units. Increased demand resulted in high capacity utilization in most technologies. Going forward, these new products will continue to contribute positively as they are focused on market needs and customer requirements.

We enjoyed solid performance in Specialty Ingredients from Consumer Care, Agro Ingredients, Industrial Solutions and Wood Protection. In 2014 our residential swimming pool and spa Water Treatment business in the Northern Hemisphere suffered from the extensive winter and cold weather conditions in the peak pool season and beyond. Due to the good performance of the other Specialty Ingredients business units, we were able to partially compensate for the substantially lower revenues in residential Water Treatment.

### **RETAINING THE WOOD BUSINESS**

In 2013 Lonza decided to analyze the Wood Protection business and to perform a review of all strategic options. With the business providing good free-cash flow over a number of years and adding value by strongly contributing to Group RONO A, we also recognized efforts to improve innovation and growth. As external offers did not reflect our internal valuation, Lonza took the decision to retain the Wood Protection business. Indeed, during the course of 2014, we experienced good momentum, improved market conditions, especially in the North American markets, and a more positive business outlook.

### **IMPORTANT PROGRESS ON QUALITY AND SAFETY**

Quality was a top priority for Lonza in 2014. We embarked on a new quality strategy that will support our mission to be the industry-recognized quality leader. To achieve this mission over the next three years, we will focus on four strategic pillars: Customer Satisfaction, Proactive Quality Culture, Effective Workforce and Regulatory/Compliance Excellence.

We made good progress on our quality performance in 2014, benefiting from our Error Prevention System (EPS) and related quality initiatives. This progress is reflected in a remarkable statistic – in 2014 we underwent 34 regulatory inspections and 169 customer audits at our cGMP sites – and all were conducted successfully.

We are also pleased that 2014 marked the safest year in Lonza's history. Our safety performance is benefiting from concrete measures such as behavioral-based safety training, new safe work procedures and intensive safety incident reviews.

### **ENVIRONMENTAL RESPONSIBILITY**

Lonza attaches a high importance to sustainability as we develop, source, manufacture, transport and recycle our products. We are committed to providing the highest-quality products and services for our customers while also minimizing our impact on the environment, conserving energy and natural resources.

In this spirit the leadership of our company invested considerable time, energy and budgets into addressing the mercury contamination in the Visp (CH) area, which dates from a time that showed less respect for the environment than we do today. We made continued good progress in 2014 in our efforts to drive – in conjunction with the state and the communities involved – effective solutions to address and resolve this legacy of industrial production.

## **OUR FUTURE OUTLOOK**

In 2015 Lonza will continue to focus on improving operational efficiency and further strengthening our quality culture. We will continue to balance our portfolio with a more favorable product mix of higher-margin products and services in our key markets. Together with our ongoing efforts to optimize our manufacturing network, this approach will help to continuously improve our RONOA. We will further pursue our debt-reduction efforts and adapt to increasing regulations. Lonza is well positioned for measurable positive development in 2015.

Underlying business performance leads us to be confident that we will grow sales and profits in 2015. However, due to the unexpected volatility in financial and currency markets following the decision of the Swiss National Bank in early January 2015 to give up the minimum exchange rate, we decided to re-evaluate our outlook and to provide guidance for 2015 at a later stage. We have achieved a substantially better natural hedge with the Euro and U.S. dollar since the acquisition of Arch Chemicals, as well as a more balanced spread of our investments globally.

Lonza continues to strengthen its outlook on growth and increasing profitability as we are well positioned in our markets and are continuing to make visible progress in our transformation into a market-oriented company. Although we have challenges ahead that will require focus and rigorous management, we are confident that we have the right leaders, people and systems in place to successfully cope with these challenges. We strongly believe the improvements we have put in place in 2014 will continue to deliver positive results.

## **THANKS TO OUR STAKEHOLDERS**

In conclusion, we would like to thank you, Lonza's shareholders, for your investment and support. We also thank our customers, suppliers and business partners for their trust in our products and services. Finally, we thank our employees on all levels for their energy and commitment. Without them, Lonza's progress would not be possible.

With our best regards



*Rolf Soiron*  
Chairman of the  
Board of Directors



*Richard Ridinger*  
Chief Executive Officer



# CORPORATE SUMMARY

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# LONZA

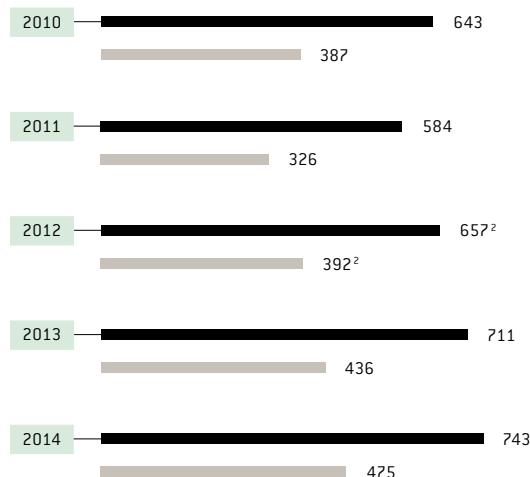
## FINANCIAL

## HIGHLIGHTS

### 2014

#### ■ CORE EBITDA ■ CORE EBIT

million CHF



#### KEY FIGURES LONZA

	2014	Change in %	2013
Sales	3 640	1.6	3 584
Core result from operating activities (Core EBIT) <sup>1</sup>	475	8.9	436
Core EBITDA <sup>1</sup>	743	4.5	711
Capital expenditures	180	(14.3)	210
Net debt	2 011	(4.4)	2 103
Headcount	9 809	(1.3)	9 935

#### SPECIALTY INGREDIENTS SEGMENT

	2014	Change in %	2013
Sales	2 154	2.2	2 108
Core result from operating activities (EBIT) <sup>1</sup>	272	7.1	254
Core EBIT margin in %	12.6		12.0
Core EBITDA <sup>1</sup>	360	4.7	344
Core EBITDA margin in %	16.7		16.3

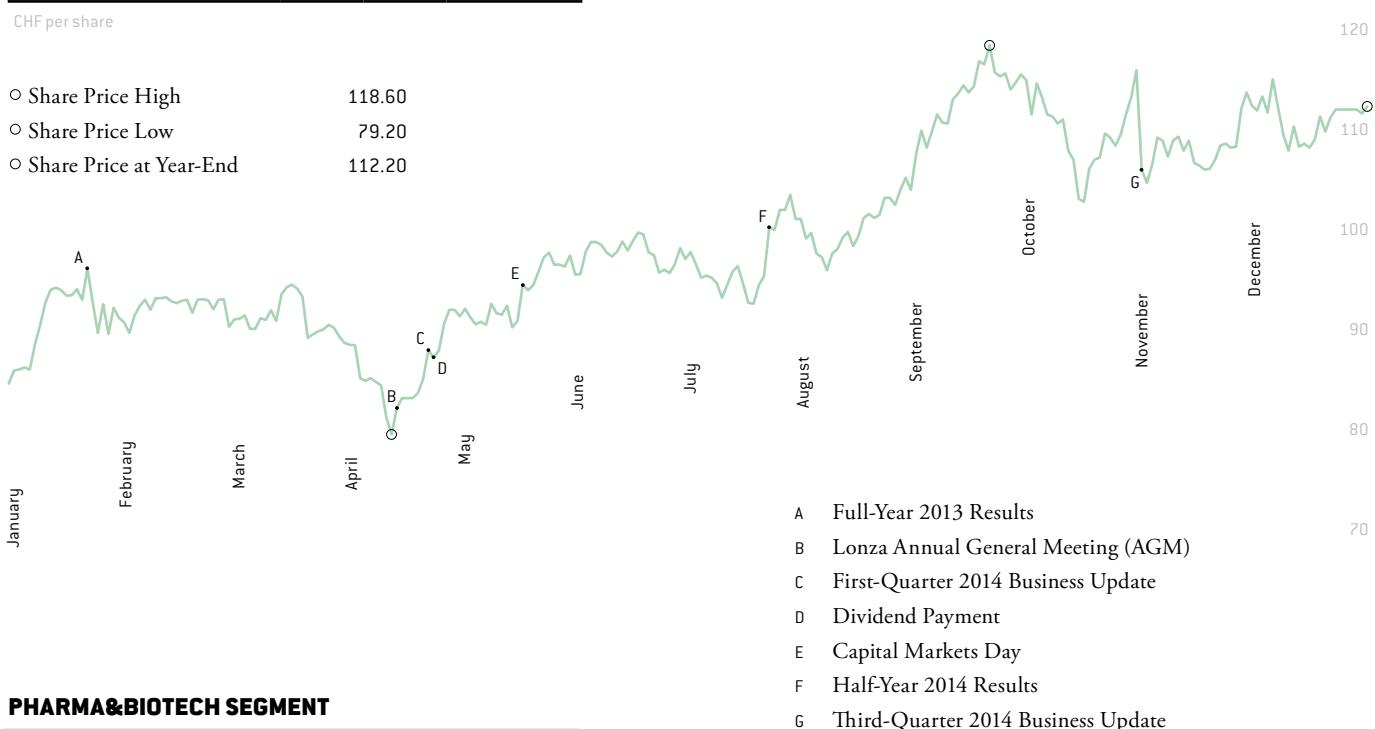
- 1 In the core results for the items "EBITDA" and "Result from operating activities [EBIT]", the impact of amortization of acquisition-related intangible assets, impairment and reversal of impairment of assets, results from associates and other special charges/income from restructuring are eliminated.
- 2 Restated to exclude Performance Products, divested at the end of 2012.

#### NET DEBT

million CHF



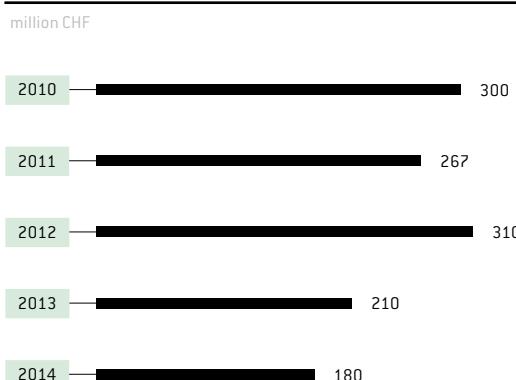
## SHARE PRICE DEVELOPMENT 2014



## PHARMA&BIOTECH SEGMENT

	2014	Change in %	2013
Sales	1 446	1.4	1 426
Core result from operating activities [EBIT] <sup>1</sup>	245	18.4	207
Core EBIT margin in %	16.9		14.5
Core EBITDA <sup>1</sup>	385	9.1	353
Core EBITDA margin in %	26.6		24.8

## CAPEX



## SALES PROGRESSION



# GOVERNANCE

*Audit and Compliance Committee*

*Nomination and Compensation Committee*

*Innovation and Technology Committee*

**BOARD OF DIRECTORS**

**EXECUTIVE COMMITTEE**

## **BOARD OF DIRECTORS**

The Board of Directors is the supreme management body of Lonza, consisting of the Chairman, the Vice-Chairman and the other members. All Board members are elected by the Annual General Meeting. The Board defines the strategic direction and is responsible for the ultimate management of Lonza. It monitors the business and financial performance against agreed goals and objectives, ensures that appropriate controls and systems are in place to manage risks and is committed to maintaining the highest standards of integrity and transparency in its governance of Lonza.

## **EXECUTIVE COMMITTEE**

The Executive Committee is responsible for leading Lonza and for developing and implementing the Lonza policy and strategy after approval by the Board of Directors. It supports and coordinates the activities of the segments, operational units, corporate functions and business service organizations. Appointed by the Board of Directors, the Executive Committee performs the duties delegated to it by the Board. The Executive Committee consists of the Chief Executive Officer, the Chief Financial Officer, two Chief Operating Officers and the Chief Strategy Officer.



The standing Board Committees in the following areas provide corporate governance guidance and support for the Board of Directors. Their chairpersons are selected by the Board:

### **Audit and Compliance Committee**

Meets and consults regularly with the Executive Committee, the Lonza Audit Services and the independent auditors to review the scope and results of their work and performance, according to the Audit and Compliance Committee Charter. The Audit and Compliance Committee reviews the systems of internal control and financial reporting, as well as compliance with laws and regulations.

### **Nomination and Compensation Committee**

Is entrusted with the review and recommendation of compensation policies and programs, as well as the compensation of the members of the Executive Committee and key executives. Furthermore, the Nomination and Compensation Committee is continuously evaluating potential members of the Board of Directors.

### **Innovation and Technology Committee**

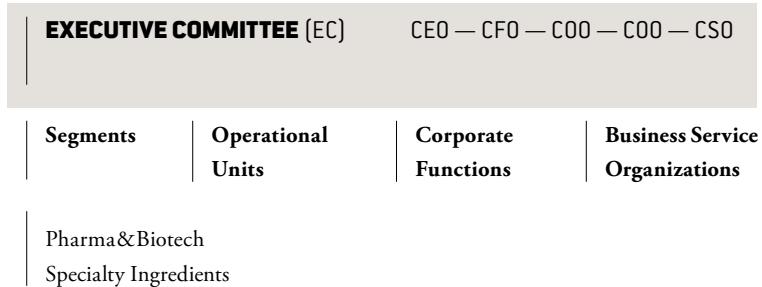
Supports innovation and technology by monitoring potential technology breakthroughs, supporting management in driving innovation projects and providing and facilitating contacts, e.g. with academia and research institutions.

For more information, please see the 2014 *Corporate Governance Report*.

# MANAGEMENT AND COMPANY STRUCTURE

Lonza's organizational structure, consisting of the two market-focused segments Pharma&Biotech and Specialty Ingredients, enables a dedicated focus on our target markets and allows us to serve our customers' needs in the most efficient way possible.

## Lonza's Organizational Structure



### Segments

The core competencies that span Lonza's segments are advanced manufacturing and quality-control systems, superior regulatory expertise, in-depth market knowledge, sales, marketing and business development, as well as extensive technical customer-support and R&D capabilities. Lonza participates in the following segments:

Pharma&Biotech Segment

*Custom Development*

*Custom Manufacturing*

*Bioscience Solutions*

Specialty Ingredients Segment

*Consumer Care*

*Agro Ingredients*

*Industrial Solutions*

*Wood Protection*

*Water Treatment*

### Operational Units

include Operations and Research & Technology groups that support the two segments.

### Corporate Functions

such as EHS, HR, Finance, Sourcing and IT, act as corporate internal service providers, setting targets, providing guidelines and enforcing standards. Also, they have the clear goal of fulfilling the global governance role for all enabling functions of the company.

### Business Service Organizations

are regional units that support our market activities and implement corporate guidelines from a regional perspective.

# LEADERSHIP





## LONZA AT A GLANCE

With sites that span the world – from Canada to China, from Switzerland to South Africa, from the US to the UK and from Singapore to Spain – Lonza is a global company that supplies the pharmaceutical, biotech and specialty ingredients markets.

Drawing on more than a century of experience, we apply our biotech expertise and fine chemical know-how to create customer solutions that contribute to healthier living and that enhance the overall quality of life.

7  
Markets served

Our services and products range from active pharmaceutical ingredients and stem-cell therapies to drinking water sanitizers, from vitamin B compounds and organic personal-care ingredients to agricultural products, and from industrial preservatives to microbial control solutions that combat dangerous viruses, bacteria and other pathogens.

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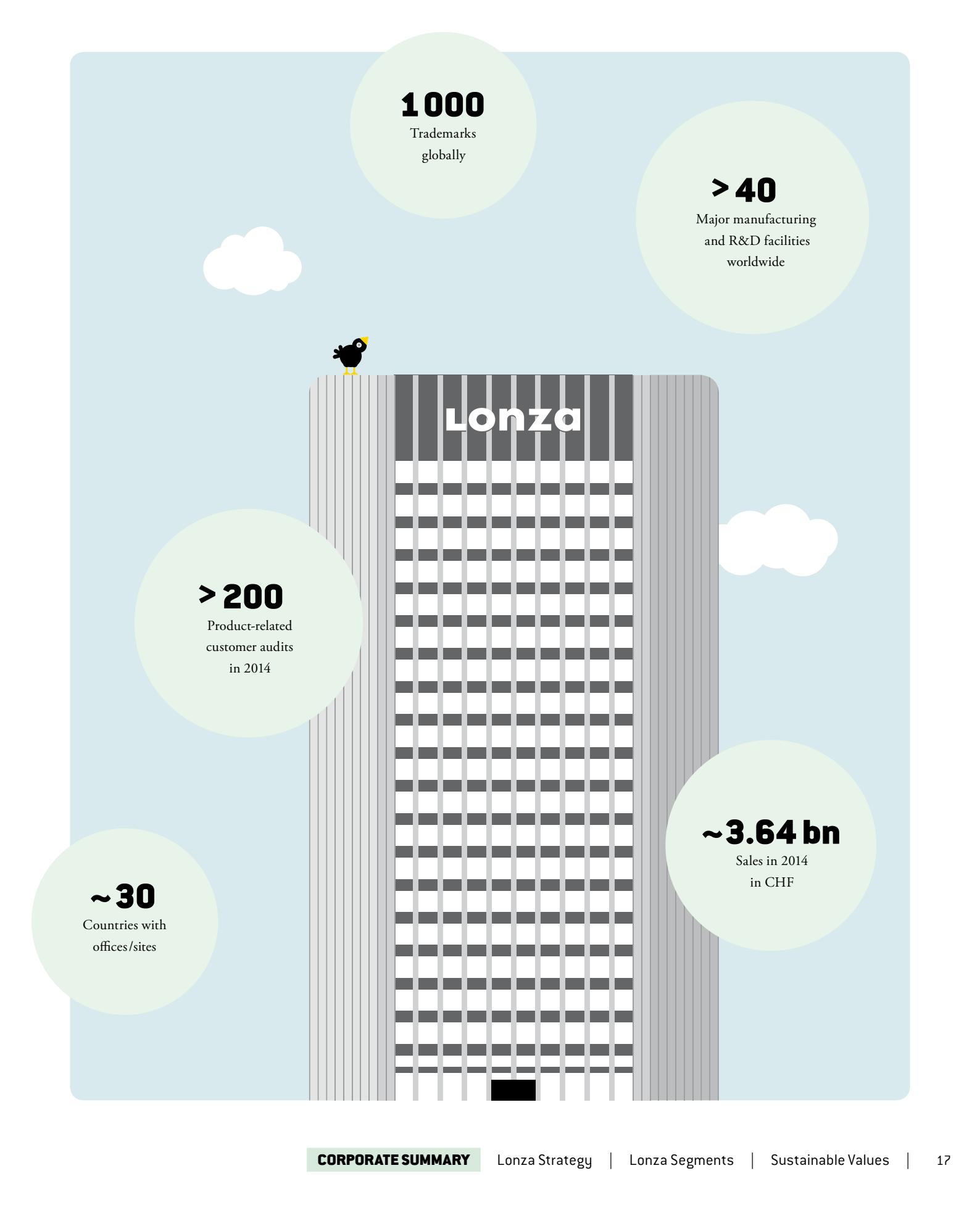
Year founded

2

Market-focused  
Lonza segments

~9 800

Employees  
end of 2014



**1000**

Trademarks  
globally

**> 40**

Major manufacturing  
and R&D facilities  
worldwide

**> 200**

Product-related  
customer audits  
in 2014

**~ 30**

Countries with  
offices/sites

**~ 3.64 bn**

Sales in 2014  
in CHF

# GLOBAL FOOTPRINT

## 2014

**TOTAL  
SALES**  
**3 640 m**  
Sales 2014 in CHF

**EMPLOYEES**  
**9 809**

This world map shows the Lonza sites with 15 employees or more. Lonza also has a sophisticated network of sales offices around the world where Lonza representatives are in close proximity to our customers, understand their needs and speak their language. We operate about 90 sites and offices in approximately 30 countries, providing production, research and development (R&D), and sales services to customers worldwide.

- Production
- R&D
- Production + R&D
- Sales and Support
- ◆ Headquarters Basel (CH)

### AMERICAS

**1 771 m**

48.6% of total sales in CHF

**3 123**

31.8% of total employees

48.6%

31.8%

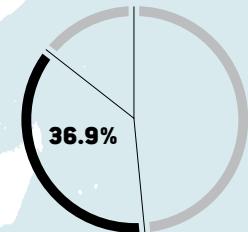
## EMEA

**1 342 m**

36.9% of total sales in CHF

**5 050**

51.5% of total employees



## APAC

**527 m**

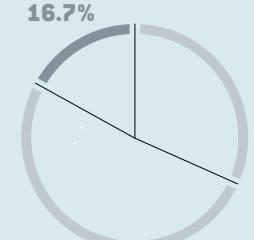
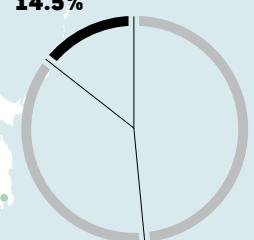
14.5% of total sales in CHF

**1 636**

16.7% of total employees

**14.5%**

**16.7%**





DISINFECTANT  
WIPES

ANTI-AGING  
ACTIVES

VITAMIN B3

ACTIVE DRUG  
INGREDIENTS

DRINKING WATER  
SANITIZATION

ANTIDANDRUFF  
AGENTS

FOOD  
PRESERVATIVES

ABRASION  
RESISTANTS

FUNGAL-DECAY  
PROTECTION

**LONZA**

CLOSER  
THAN YOU  
THINK

ANTI-FOULING  
COATINGS





# LONZA STRATEGY

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## OVERVIEW

*Science for Health and Well-Being*

Founded in 1897 in the Swiss Alps, Lonza today is one of the world's leading and most-trusted suppliers to the pharmaceutical, biotech and specialty ingredients markets with more than 40 major manufacturing and R&D facilities and approximately 9 800 employees worldwide. We harness science and technology to create products that contribute to health and well-being and that enhance the overall quality of life.

Lonza has a unique capability to connect our biotech expertise with fine chemical know-how to provide the best solutions for our customers' needs. By continuously developing our technologies, we enable our customers to meet some of the world's greatest challenges, such as the vital need for disease prevention and treatment, clean water, abundant food, and enhanced hygiene and wellness.

The company operates in two segments. Lonza's Pharma&Biotech (LPB) segment clusters all of our offerings for pharmaceutical markets, with strong Lonza positions in Custom Development, Custom Manufacturing, Cell Therapy, Viral Therapeutics and Bioscience Solutions. Our Lonza Specialty Ingredients (LSI) segment includes consumer-oriented offerings in our Consumer Care business. Specialty Ingredients also benefits from market-leadership positions in Agro Ingredients, Industrial Solutions, Wood Protection and Water Treatment.

Not only are we a custom developer and manufacturer, Lonza also offers services and products ranging from active pharmaceutical ingredients and stem-cell therapies to drinking water sanitizers, from the vitamin B compounds and organic personal-care ingredients to agricultural products, and from industrial preservatives to microbial-control solutions that combat dangerous viruses, bacteria and other pathogens.

Lonza generated sales of about CHF 3.64 billion in 2014, and our stock is publicly traded on the Swiss and the Singapore stock exchanges.

## CROSS-BUSINESS SYNERGIES

The approach to our segments is twofold: capitalizing on cross-business synergies offered by vital technology links and balancing the risk profile between a more volatile, demanding Pharma&Biotech segment and the more stable, GDP-plus growth Specialty Ingredients segment. Synergies between the segments show how Specialty Ingredients clearly benefits from decades of experience gained from our highly complex Pharma&Biotech activities.

## GLOBAL MEGATRENDS

With more than a century of experience, we have a unique capability to connect our biotech expertise with our fine chemical know-how to provide the best solutions for our customers now and in the future. As we continuously develop our technologies, Lonza is uniquely positioned to address global megatrends and thereby generate sustainable, long-term rewards for all our stakeholders.

## ENABLING STAKEHOLDERS

Lonza's stakeholder groups are diverse with a wide range of needs, expectations, opinions, priorities and concerns, all of which require different approaches and responsive actions from our side. We strive to meet those needs with tailored approaches that enable their – and our – success.

## CORPORATE STRATEGIC PROJECTS

Both of our segments are benefiting from our three Corporate Strategic Projects, which will be decisive for the success of the company: Manufacturing Footprint Optimization, Business Services Excellence and Go-to-Market Excellence. The common goals of these major change projects are improving Lonza's productivity and profitability, reducing our complexity and costs, increasing transparency and accountability, capturing synergies and initiating a new, broader market focus with an emphasis on innovation.

## QUALITY INITIATIVES

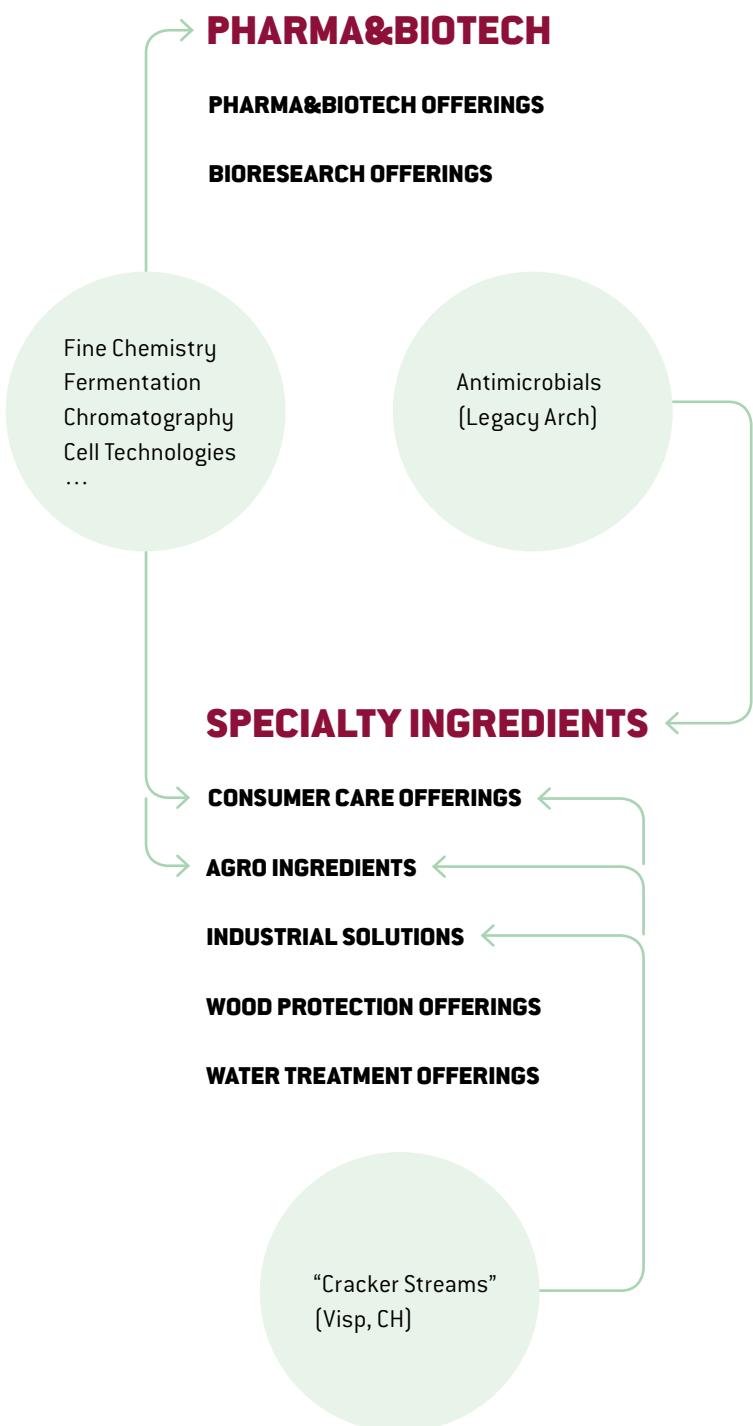
Around the world we are driven by our firm commitment to quality as we strive for operational excellence across regions and functions, every day. We are harnessing continuous improvement principles and practices to provide a safe working environment for our employees and to ensure our products and services are the best they can be.

# ENABLING CROSS-BUSINESS SYNERGIES

*Applying Knowledge Across the Business*

One of the goals of our transformational efforts is to improve our ability to transfer knowledge, experience, technology and business practices around the organization. We are enabling our businesses to work together more easily by removing barriers to collaboration.

A main focus of our three Corporate Strategic Projects is to fully capture cross-segment and cross-business synergies we can offer our customers. The Manufacturing Footprint Optimization project is aimed at consolidating technologies in centers of excellence and improving the productivity and profitability of our major sites so that the customer benefits from these efficiencies. The Business Services Excellence project is focused on creating benefits for our customers by streamlining and improving the support services that corporate functions provide to our businesses. And the Go-to-Market-Excellence initiative is aimed at creating a broader, more customer-centric focus on our target markets across all businesses. By sharing best practices throughout the organization, we become better day by day.



## **APPLYING EXPERTISE ACROSS BUSINESSES AND CAPITALIZING ON CROSS-BUSINESS SELLING**

Over the years Lonza teams have been sharing technical expertise and business practices<sup>1</sup> across the company. For example, we have decades of expertise in current Good Manufacturing Practices (cGMP) and highly regulated environments from Pharma&Biotech and have transferred this expertise to non-cGMP but still regulated environments in Specialty Ingredients.

Also many of the new cross-business products being offered by Agro Ingredients are a direct outcome of Lonza's new market-oriented approach to doing business. Agro Ingredients can benefit from the available expertise and the range of formulation additives and technologies that Lonza offers in allied industries. This knowledge can then be combined with the development and regulatory expertise in the agricultural industry to best market those cross-business products.

## **TAKING ADVANTAGE OF CROSS-BUSINESS TECHNOLOGIES**

Our expertise and our technologies, such as those in our Agro Ingredients<sup>2</sup> and Consumer Care<sup>3</sup> businesses, have been used effectively across industries.

Over the years Lonza's outstanding knowledge and expertise in the Pharma&Biotech segment has led to the creation of innovative cross-business solutions<sup>4</sup> offered by our Personal Care<sup>5</sup>, Nutrition and Agro Ingredients businesses, too. A Research and Technology (R&T) group with representatives from Pharma&Biotech and Specialty Ingredients has been formed to explore mutually beneficial solutions across the business segments and to facilitate sharing of technologies<sup>6</sup>, raw materials and intermediates.

A Lonza Agro Ingredients formulation brochure, available on our website, explains how we are making use of the existing, cross-business portfolio from Consumer Care, Water Treatment and Industrial Solutions.



# CAPITALIZING ON GLOBAL MEGATRENDS

*Preparing for the Future*

With more than a century of experience, we at Lonza are uniquely positioned and equipped to harness our biotech expertise along with our fine chemical know-how to help our customers meet some of the world's greatest megatrend challenges, such as the vital need for disease prevention and treatment, clean water, abundant food, and enhanced hygiene and wellness.

Specifically, Lonza's businesses address the following key global megatrends:

**1 GROWING WORLD POPULATION**

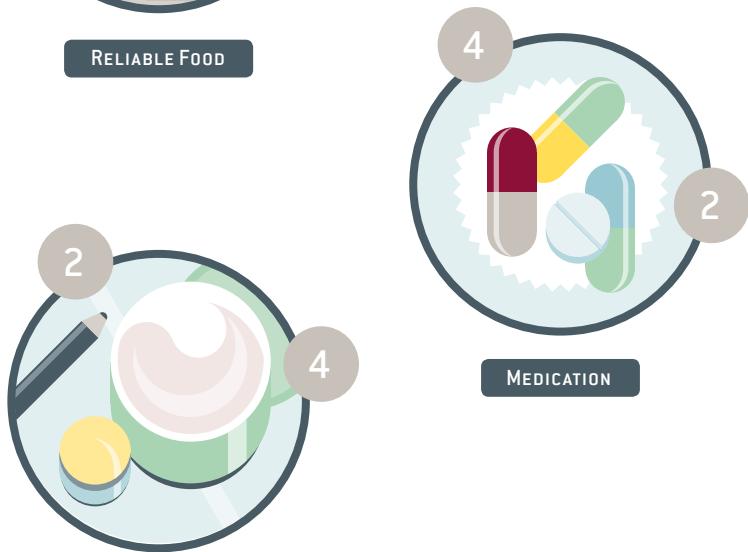
**2 AGING OF GLOBAL POPULATIONS**

**3 RAPID GROWTH OF MEGACITIES**

**4 GROWTH OF MIDDLE CLASSES IN  
BRIC AND VISTA COUNTRIES**

## BRIC and VISTA Countries

BRIC countries are Brazil, Russia, India and China. VISTA countries are Vietnam, Indonesia, South Africa, Turkey and Argentina.



PERSONAL CARE



HYGIENE



## THE GROWING WORLD POPULATION

In a world where the population exceeds 7 billion people and will reach an estimated 10 billion by 2050, significant fast-growth opportunities exist for leading global companies like Lonza.

### *The increasing demand for clean water:*

For example, Lonza is pursuing growth opportunities created by megatrend demands for clean water across multiple market segments in emerging markets<sup>7</sup> and around the globe. Whether for drinking, cooking, agricultural irrigation, beverage production, food processing or industrial applications, water is an increasingly scarce and valuable resource.

Lonza Water Treatment's Industrial, Commercial, Municipal and Surface Water (ICMS) business offers drinking water sanitizer feeder systems that have a strong presence in North America, including sanitizing one-third of the municipal systems on Long Island, NY (USA). We also provide algaecides to address occasional toxic algae blooms<sup>8</sup> that can affect the taste, odor and quality of water drawn from surface water reservoirs.

### *The need for safe, healthful and abundant foods:*

Our Agro Ingredients<sup>9</sup> and Nutrition businesses<sup>10</sup> are at the forefront of helping address consumers' growing need for safe, healthful and abundant foods as feeding our burgeoning global population is a priority for Lonza. For example, our Consumer Care business is capitalizing on this trend by supplying vitamin B3 pre-mixes for poultry, swine and cattle to supplement protein-based diets. Feeding our burgeoning global population is a priority for the Consumer Care Nutrition business.

Agro Ingredients' custom-manufactured crop growth and protection products help our customers optimize yields, often with less water and other inputs. Lonza also is a world leader in molluscicides, with proprietary products that protect lettuce, other greens and rice from the damage caused by slugs and snails.

## THE AGING OF GLOBAL POPULATIONS

Rapid growth of elderly populations in the West and in Asian nations such as China and Japan is driving ever-rising demand for healthful foods and nutritional supplements, affordable medicines and anti-aging cosmetics and other personal-care products.

### *The need for affordable medication:*

Lonza's Pharma&Biotech segment is a world leader in the custom development and manufacturing of chemical and biological active pharmaceutical ingredients, cell therapies and other life-saving and life-enhancing treatments. Our efficiency and expertise in process development, technology transfer and manufacturing help us reduce time and costs for our customers in order to enable their drug candidate's success<sup>11</sup>.

### *The need for enhanced personal care:*

There is strong demand among the aging for cosmetic and personal-care products that help make them look and feel their best. For example, our Consumer Care business is capitalizing on this trend by supplying natural, organic and other anti-aging skin treatments<sup>12</sup> and other cosmetic ingredients.

Our Nutrition business also provides vitamins and nutritional supplements that provide many benefits, from boosting the immune system and energy levels to aiding cardiovascular health.

## THE RAPID GROWTH OF MEGACITIES

The movement of populations from rural areas to megacities is generating a need for improved hygiene and protection products, as well as water and sanitation systems. Consumer Care addresses the hygiene market by offering single-use wipes, sprays, janitorial liquids and other tools for tackling the public threat of dangerous viruses, germs and other pathogens. Around the globe, we effectively deliver our sanitizers and disinfectants in hospitals and other medical settings, industrial cleanrooms, homes, restaurants and institutional food-preparation facilities, schools, offices, gymnasiums, cruise ships and more.

In crowded urban areas, there is so much pressure on water that municipalities and industries are treating and recycling waste waters so that they can be used for other purposes. We provide both sanitizers and organic coagulants that treat the water and reduce the amount of sludge, which in turn means less waste disposal. Our simple, reliable, drinking-water sanitizing systems also are providing clean drinking water in urban areas throughout the world.

Lonza's Wood Protection business is playing a role in safe construction with fire-retardant treatments<sup>13</sup> for wood used in schools, apartment complexes, homes and more. And our Industrial Solutions business is fighting mold and the "sick-building syndrome" in buildings by providing protective biocides and fungicides<sup>14</sup> for paints and building products.

## THE GROWTH OF MIDDLE CLASSES IN BRIC AND VISTA COUNTRIES

The continuing growth of affluent consumers in the developing world is driving demand for everything from better nutrition and hygiene to cosmetic ingredients<sup>15</sup> that enhance beauty and well-being, and from affordable medicines to recreational water treatment<sup>16</sup> chemicals for pools and spas.

Lonza is well situated to meet the needs of these new consumers. For example, our Pharma&Biotech segment, with facilities in Singapore, is capitalizing on rising demand in Asia Pacific and elsewhere for affordable medicines and biotech therapies<sup>17</sup>.

### *The need for energy conservation and sustainability:*

Lonza is playing a vital role in helping customers to develop new energy resources and alternative fuels and to conserve energy. For instance, Lonza's electrolyte chemistry speeds charging of electric vehicle batteries<sup>18</sup> while other products in our Industrial Solutions portfolio, such as our antifouling paints, help ships<sup>19</sup> travel more quickly and efficiently.

In addition, with our broad water treatment experience, we can help protect groundwater in shale oil and gas hydraulic fracturing or fracking operations. We also provide biocides to Brazilian energy producers to protect renewable, sugarcane-based ethanol fuels from bacteria.

# ENABLING OUR STAKEHOLDERS' SUCCESS

*Building Engagement and Trust*

Enabling our stakeholders' success has always been important for Lonza. While our stakeholders can be categorized as global and local stakeholders or as internal and external ones, their engagement and trust is vital for us to be successful and sustainable as a company. We remain in continuous contact with all our stakeholders, engaging them in ongoing dialogue.

The needs of our external stakeholders vary by business. For example, we enable our Pharma&Biotech customers – whether small, mid-sized or large – to provide patients state-of-the-art, cost-effective therapies. In Specialty Ingredients, we enable our customers to provide end consumers better products for everyday life.

With global expertise in a broad array of technologies and products and with functional know how, Lonza's dedicated employees represent a distinct competitive advantage for the company and especially for our customers. That is why we believe that enabling the success of our internal stakeholders depends on our continuous investment in training and professional development, not just in compensating them fairly.

## ENGAGING STAKEHOLDERS IN ONGOING DIALOGUE

Lonza's stakeholder groups are diverse with a wide range of needs, expectations, opinions, priorities and concerns, all of which require different approaches and responsive actions from our side. Being in continuous dialogue with our stakeholders, we can use tailored information and engagement channels suitable to each audience. We do so to provide transparency into our business and activities and to inform them about news, our positions on different issues and our actions regarding critical topics.

At the same time, we are listening and responding to their questions and concerns because we depend on our stakeholders' opinions to help us to further improve the company. Having an open dialogue<sup>20</sup> and building formal and informal partnerships<sup>21</sup> with our stakeholders will create sustainable value – for them and for Lonza.

## CUSTOMERS

At Lonza we transform our practical knowledge and technical expertise to deliver a portfolio of products, services and technologies to meet the critical needs of our customers.

In our Pharma&Biotech<sup>22</sup> segment, we enable our customers to select the most-promising drug candidates with the best safety and manufacturability profiles and to decrease development time to bring compliant products to market faster. We also help our customers manufacture high-quality products that meet all regulatory requirements, such as cGMP manufacturing regulations. These offerings enable our customers to focus on the discovery of new drugs and the marketing aspects of their therapies, rather than on development and manufacturing.

Our Specialty Ingredients<sup>23</sup> businesses enable our customers to focus on their own areas of expertise while relying on us for technical, regulatory and marketing expertise that will enhance their capabilities. We grow hand-in-hand with our customers by understanding their end-market drivers and by delivering innovative solutions to meet those needs. Our global presence enables our customers to have access to experts around the world, as well as local expertise in operations, regulatory affairs, research and technology, etc.

In addition, our global strategic sourcing expertise enables our customers to mitigate supply risk and to reduce costs of sources used. Our supply flexibility enables us to meet each customer's rapidly changing requirements by providing additional high-quality supplies to support new demands.

## PATIENTS

Our Bioscience Solutions<sup>24</sup> and our Custom Development and Manufacturing<sup>25</sup> teams work to enable our customers' patients to receive a wide range of high-quality, efficacy-based ingredients and tailored products to satisfy their critical health needs. We enable them to have reliable access to targeted therapies and new breakthrough medications. With novel technologies to smoothly transition our customers' products from preclinical to clinical and commercial stages, we can decrease the time that it takes for a drug to reach the patient.

## CONSUMERS

In Specialty Ingredients we strive to be best-in-class product stewards and industry thought leaders who deliver innovative products and solutions for our customers' end consumers. Because Lonza is mostly engaged in business-to-business activities, end users may not recognize that they directly benefit from our Specialty Ingredients businesses<sup>26</sup>, such as Consumer Care, Agro Ingredients, Industrial Solutions, Wood Protection and Water Treatment.

## INTERNAL STAKEHOLDERS

Our Human Resources (HR) team supports our human capital and empowers our internal stakeholders – our employees – to enable our clients and their customers or end consumers to succeed. Acquiring, developing and retaining top talent is a critical requirement for ensuring Lonza's continued success as a high-performing company. HR, in alignment with key internal stakeholders, will continue to focus on this requirement.

Actions include building the processes and systems that support the development and retention of employees, hiring the right talent to match our needs and providing meaningful global HR processes that make it easier for our people managers to manage their teams in a consistent manner globally. By driving effective retention programs that reduce turnover, HR helps to ensure more business continuity, thereby reducing costs.

<b>STAKEHOLDER GROUP</b>	Sample Engagement Channels		
<b>CUSTOMERS / CONSUMERS</b>	Social media Customer satisfaction survey Customer audits Customer/Consumer hotlines Brand and corporate websites Ads, brochures, manuals, tech guides Exhibitions, congresses, summits Webinars, workshops, training courses Scientific studies	<b>COMMERCIAL PARTNERS</b>	Supplier audits Ongoing dialogue
<b>EMPLOYEES</b>	Intranet Employee surveys Townhall meetings Dialogue platforms Walk-the-talk activities In-house publications/videos	<b>LOCAL COMMUNITIES</b>	Sponsoring activities Support measures Open days at Lonza sites Ongoing dialogue
<b>INVESTORS / ANALYSTS / SHAREHOLDERS / DEBT HOLDERS</b>	Annual General Meeting Annual Report and supplements Financial reporting and conferences for Q1, HYR, Q3 and FYR Individual investor meetings Investor roadshows Capital Markets Day	<b>GOVERNMENT / AUTHORITIES</b>	Regulatory audits Ongoing dialogue
		<b>NGOS / TRADE ASSOCIATIONS</b>	Ongoing dialogue
		<b>TRADE UNIONS / EMPLOYEE REPRESENTATIVES</b>	Contract negotiations Ongoing dialogue
		<b>MEDIA</b>	News releases Media conferences and events Interviews and features

# CORPORATE STRATEGIC PROJECTS

*Supporting Our Growth as a Top-Tier Company*

## LONZA'S THREE GLOBAL TRANSFORMATIONAL INITIATIVES

Our three corporate and transformational initiatives – Manufacturing Footprint Optimization (MFO), Business Service Excellence (BSX) and Go-to-Market Excellence (G2ME) – are becoming increasingly interlinked.

They are continuing to contribute positively to the overall Group performance by bringing us bottom-line benefits and helping us to achieve the forecast growth in our Core Return on Net Operating Assets (Core RONO).

The overall goals of the three corporate strategic projects are to improve Lonza's profitability and our productivity, which will be reflected in our Core RONO performance. They focus our efforts to reduce complexity and costs, to increase transparency and accountability, to capture synergies and to initiate a new, broader market orientation and customer focus with an emphasis on innovation. Each of the three strategic corporate projects has a specific role to play in supporting and contributing to our transformation into a top-tier company. Additionally, we have launched several follow-up projects called Anchor Projects to increase the return on our assets.

## MANUFACTURING FOOTPRINT OPTIMIZATION PROJECT

The Manufacturing Footprint Optimization (MFO) project focuses on enhancing Lonza's long-term productivity and Core RONO by optimizing the efficiency of our manufacturing performance infrastructure and support services. This initiative has already contributed to the success of several businesses by reducing fixed costs and increasing productivity, both of which have definitely helped to improve our results. A good example of a successful project is the Liquid Line 5 Improvement Project<sup>27</sup> at our Alpharetta, GA (USA) site.

## BUSINESS SERVICE EXCELLENCE

Business Service Excellence (BSX) is focused on improving our business-support processes. One vital element of BSX is to establish standard and harmonized global processes for Business Service Organizations to increase transparency and accountability, which can be achieved by Global Process Ownership<sup>28</sup> (GPO). The BSX project strongly contributed to our improved performance in 2013 and throughout 2014, with much enhanced and more efficient processes, including our new, consolidated SAP platform. BSX also played a key role in the successful integration of Arch Chemicals, which went beyond our initial expectations in terms of costs saved and synergies achieved.

## GO-TO-MARKET EXCELLENCE

Go-to-Market Excellence<sup>29</sup> (G2ME) is a holistic approach to transform Lonza into a truly market-oriented and customer-focused organization. That approach will help us achieve profitable and sustainable growth by improving sales processes and excellence, driving targeted portfolio management and stimulating innovation processes. G2ME was launched as the last of the three projects but is gaining good traction throughout the organization.

## ANCHOR PROJECTS

Launched as a joint initiative of the MFO team and a sub-stream of the G2ME project, the so-called “Anchor Projects” focus on carefully selected, high-priority assets. They are a combined effort of a business unit’s (or sub-business unit’s) marketing and sales teams, site operations and controlling. Through a consistent, but tailored approach, each Anchor Project gathers the appropriate, highly specialized staff around the table to find ways and means to jointly improve the gross profit return of a specific selected asset.

## FOCUS AREAS FOR CORPORATE STRATEGIC PROJECTS



Chart summarizing how the three Corporate Strategic Projects combine to improve our overall performance as a company, which in part is measured by growing our RONOA.

# QUALITY

*Becoming the Industry-Recognized Quality Leader*

The different segments of Lonza are active in a highly regulated environment, which is governed by ISO or cGMP standards, among others. Following the standards and regulations in these areas is a critical part of our daily business. However, there is more to quality than just following rules: in order to be recognized as a high-quality organization, Lonza is expected to manufacture products without deviations, deliver products at the right time with the right quality and have successful regulatory inspections and customer audits. These fundamentals form the basis for customers to seek Lonza. Maintaining a strong quality and compliance culture throughout the organization substantially increases the likelihood of being successful in all three areas.

In early 2014 Lonza introduced a new view on general operational performance, including the beginnings of a new quality culture with operational excellence and proactivity at its core and the appointment of a head of Global Quality.

Within Lonza both Quality and Operations work hand in hand toward the goal of embedding a common quality mission, celebrate successes together and tackle problems together. Across the company Quality teams keenly understand the production environment and its challenges and opportunities for improvement.

Building a proactive quality culture across the company is a far-reaching activity that will result in a more positive work environment and better operational outcomes. In turn, these changes will bring more satisfied customers because they recognize that we have excellent quality performance and that we are doing the right things to ensure we remain a quality leader in our industries and markets. It is also beneficial because by preventing errors, we can improve our financial performance and our delivery of products on time to our customers, which is one of their key expectations.

# EMBEDDING A COMMON QUALITY MISSION

In October Lonza embraced a new global quality mission: “To Be the Industry-Recognized Quality Leader”. This new mission expands far beyond operations with significant impact on all areas of our organization.

Our mission relies on four quality pillars<sup>30</sup>: Customer Satisfaction, Proactive Quality Culture, Effective Workforce and Regulatory and Compliance Excellence. For each of these critical areas, we have outlined actions over the next three years.

## BUILDING A PROACTIVE QUALITY CULTURE THROUGH ERROR PREVENTION

One key action in 2014 to support our mission “To Be the Industry-Recognized Quality Leader” was the launch of Lonza’s new Error Prevention System<sup>31</sup> (EPS), which establishes a proactive quality culture based on five core beliefs.

In developing the overall structure for EPS, we looked back at how we had behaved in the past; and we understood that we focused too much on error correction and mitigation. Effectively dealing with mistakes had been the primary point of view. We needed to change this substantially so the focus now and going forward would be on preventing errors through an embedded error prevention awareness and culture. Ultimately, we are aiming to make it harder for an employee to do something wrong than right. And we are changing.

Governance and organizational structure have been important to our success. We have sponsorship at the highest level, a broad steering committee and a team from all areas of the organization. Also we have linked implementation of EPS to leader compensation and global training so that at the end of the day, everybody has a stake in quality.





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## OVERVIEW

Lonza's Pharma&Biotech segment is well positioned to build on its market-leadership positions in custom development, custom manufacturing, research and testing technologies and services. With our solid 2014 financial results and strong reputation, we are positioned to profitably capture a growing share of the global pharmaceutical market.

We are sharpening our customer focus to improve our chemical and biotech pipeline of products and services, as well as building additional partnerships with world-leading pharmaceutical companies. In addition, we are strengthening our innovation and market-leadership positions by focusing on new technology trends and services. We are also building our world-leading strengths in antibody drug conjugates, cytotoxics, induced pluripotent stem cell lines and platforms, along with our proprietary GS Xceed™ and XS Expression System™ technologies and new endotoxin-testing systems.

Lonza's Pharma&Biotech segment encompasses Custom Development and Custom Manufacturing offerings to the Pharma&Biotech market, as well as offerings from our Bioscience Solutions business to our BioResearch market.

## MARKET OVERVIEW

The marketplace for Lonza's Pharma&Biotech products grew in 2014 with market-volume growth driven by an increasing number of patients globally and other megatrends like the world's aging population requiring access to additional medications.

### MARKETS

#### PHARMA&BIOTECH MARKET

Lonza was one of the first companies in the world to provide both Custom Development and Custom Manufacturing of active pharmaceutical ingredients (APIs) for pharmaceutical companies. In addition to our wide range of development technologies, Lonza is one of the few companies in this market to offer customers small-scale, mid-scale and large-scale manufacturing capabilities.

#### BIORESEARCH MARKET

Lonza's Bioscience Solutions business provides tools for the discovery, development, production and release of therapeutics. Our products include cell-culture, transfection and molecular-biology tools for life-science research; media used in the production of therapeutics; and endotoxin detection assays to assure the safety of injectable drugs.

# MARKET OVERVIEW

## *Market Conditions, Changes and Challenges*

The overall pharmaceutical market is expected to continue its value growth in the coming years with an acceleration vs. the previous five-year period. Recent increases in venture-capital spending contribute to the overall positive market environment in pharmaceutical drug development.

In developed countries the main drivers of growth will be the launch of new innovative medicines, price increases and a lower number of patent expiries than in the previous five years. Economic recovery in some of the major drug markets (particularly European countries) is predicted to have a positive impact on government budgets for healthcare. Savings generated in primary care in an environment of economic acceleration are more likely to be reinvested into innovative drugs. This approach improves patient access to innovative drugs in those markets. In emerging markets expansion of state healthcare programs, as well as demographic and epidemiologic changes, will foster spending growth for medicines.

Over the next five years, market analysts expect higher global launch rates of new molecular entities, with more products focusing on specialty medicines that target smaller patient populations. Within this higher number of molecules, the share of biologics is seen to increase predominantly because of a growing number of monoclonal antibody drugs but also because of the advancement of new technologies such as cell and viral therapies and antibody drug conjugates (ADCs).

In addition, more affordable medical treatments and growing affluence in developing nations will increase access to medicines there.

Known challenges still exist in this overall promising market environment. Increasingly strict regulatory requirements, increasing product competition in several therapeutic areas and continued emphasis of governments on controlling healthcare budgets – all pose risks to the investment returns for innovative new drugs, as well as for already commercialized drugs. To address the

risks associated with these trends, it is critically important for the pharmaceutical and biotechnology industry to achieve greater cost efficiency from early development to launch and beyond.

Lonza as an outsourcing partner is reacting to these trends and is well positioned to serve the needs of our customers by providing cost-effective, cutting-edge technologies, as well as custom drug development and manufacturing services on all scales. We have expanded our capabilities in emerging technologies such as ADCs, cell and viral therapy to provide our customers new service offerings that meet their changing needs.

## **VALUE GROWTH**

In the six-year period from 2007 to 2014, spending on medicines increased slowly due to a combination of two effects:

- A series of patent expirations in major developed markets like the United States and EU countries
- The impact of the economic slowdown with government programs focusing on reducing the healthcare spend and driving a higher adoption of generics

However, the global market for pharmaceutical products is expected to grow more quickly now, from USD 990 bn in 2013 to approximately USD 1 300 bn in 2018, according to IMS Health.

In that forecasting period, the improved growth outlook is supported by fewer patent expirations and the recovery of economic growth in key pharma markets, particularly in the European Union.

# CUSTOM DEVELOPMENT AND CUSTOM MANUFACTURING

*Turning Promising Discoveries into  
Viable Products*



For more than 30 years, Lonza has been helping emerging and established pharmaceutical and biotech companies increase product quality, improve production processes, navigate development and regulatory processes, lower the cost of goods and get to market faster. We help our customers advance their therapeutics through the clinical pipeline and ultimately to the patient.

As service providers we understand the day-to-day challenges pharmaceutical and biotechnology innovators face. It is Lonza's goal as a Custom Development and Manufacturing organization to leverage our experience in expression technologies, development and scale-up of robust production processes, analytical services, and regulatory compliance in order to provide our customer with complete solutions for their short- and long-term objectives.

We recognize that every organization has unique needs and those needs are likely to change over time. So throughout the manufacturing partnership, we innovate and remain flexible as the client's goals change. Lonza offers small-scale, mid-scale and large-scale commercial manufacturing capabilities, which is vital as our customers move through the clinical pathway. Smooth and quick transition through each clinical phase while having a secure commercial supplier, is a critical factor for drug success.

## BUSINESS DESCRIPTION

The pharmaceutical industry is facing a growing number of challenges, including escalating Research & Development (R&D) costs and more stringent regulatory scrutiny. Screening of potential candidates in the discovery process will help reduce costs, risk of attrition and overall development time.

Being able to assess the manufacturability and safety at the pre-clinical stage, before large investments are made, allows companies to focus on the most probable candidate and maximize R&D spending. Our Custom Development<sup>32</sup> business includes services and licensing options to address these potential risks at the start of drug development.

Through our Custom Manufacturing<sup>33</sup> business, we are uniquely able to offer our clients synergies between chemical synthesis and biotechnology to enable the production of tailor-made intermediates and active pharmaceutical ingredients (APIs) for use as pharmaceuticals, biotherapies, nutraceuticals, cosmetics and animal health products. Together with our technological expertise, solid track record, process development and innovation, proprietary technologies, regulatory experience and global footprint, we are well positioned to meet therapeutic needs at any scale.

## MARKETPLACE OVERVIEW

Today's pharmaceutical development landscape presents unprecedented challenges, including increasing generic competition, high attrition rates and tightening new product regulations. Outsourcing<sup>34</sup> to custom development and custom manufacturing specialists with early risk-assessment services, proven expression technologies and years of technical and scale-up experience can help drug companies reduce costs and the time to develop new therapeutics.

## BUSINESS HIGHLIGHTS 2014

Custom Development's focus in 2014 on selling our Research & Development capabilities resulted in bringing in new early-phase customers, as well as landing additional development work with existing customers on late-phase projects, across all technologies. Other highlights this year for Lonza Custom Development included the launch of vaccine design and development support services. These services provide support for the global initiative on developing new vaccines for world health pandemics. In addition, the value of our Developability Assessment offering has been increasingly recognized by consultants and venture capitalists like Index Ventures, who are recommending that their biotech clients perform this assessment on drug candidates.

Our Custom Manufacturing team contracted new early-phase, late-phase and commercial projects across nearly all technologies, such as peptides, conjugates, small molecules and high-potency active pharmaceutical ingredients (HPAPIs) and mammalian. And this year we continued to have an excellent track record for facility inspections by authorities around the world, with a total of 34 regulatory inspections and 169 customer audits. Also in 2014 Lonza's Custom Development and Custom Manufacturing teams increased our visibility and exposure with conference presentations and technical roadshows across all technologies and in all geographies. For example, at more than 30 major cell therapy manufacturing conferences globally, the cell therapy team presented our Custom Development capabilities for scaling-up cells to meet commercial demand by using bioreactors.

## GROWTH AREAS

In response to the regulatory challenges and cost pressures our customers are facing, our Pharma&Biotech segment has a multi-faceted growth strategy to develop innovative technologies that support the development and production of new, complex therapeutic drugs.

To continue to grow our Custom Development organization overall, we are committed to ongoing investment in process development and analytical services that will augment and enhance automation, specifically within our formulation development capabilities.

And in Custom Manufacturing, Lonza is well positioned to capitalize on significant growth opportunities with our market-leading offerings and innovative technologies and services.

Find out more about the marketplace<sup>35</sup>, the 2014 business highlights<sup>36</sup> and the growth areas<sup>37</sup> for a particular technology in the annex:

- Chemical Development and Manufacturing (Peptides, Antibody Drug Conjugates, Cytotoxics, Small Molecules and HPAPIs, etc.)
- Biological Development and Manufacturing (Mammalian and Microbial)
- Viral Therapy Manufacturing
- Cell Therapy Development and Manufacturing

# BIOSCIENCE SOLUTIONS

*Providing Industry-Leading Research,  
Discovery and Manufacturing Tools*



Lonza Bioscience Solutions provides tools for two distinct business areas: research and disease discovery tools for innovative research in academic and industrial research facilities across the world, as well as products and solutions for the pharmaceutical and biopharmaceutical manufacturing and cell therapy markets.

Our Pharma&Biotech segment includes our Bioscience Solutions team, which serves our BioResearch market, and our Custom Development and Custom Manufacturing teams, which serve the Pharma&Biotech market.

## BUSINESS DESCRIPTION

Our BioResearch offerings include cell culture, transfection and molecular biology tools for life-science research. We serve customers across the world in academic and government institutions and in major biotech and pharmaceutical organizations.

Lonza Bioscience Solutions has long set the industry standard for product quality and customer support in life-science research with our Clonetics™ and Poietics™<sup>38</sup> primary cells and stem cells; cell culture media; Nucleofector™ transfection technology; electrophoresis devices and reagents; and services.

For the drug discovery and translational research markets, we offer products and services targeting cardiovascular, respiratory, neurological, metabolic, cancer and other disease research areas. We deliver biologically relevant and convenient cell culture solutions to enhance research findings, including custom primary cell isolation, cell expansion and immortalization, and transfection services.

Our Testing and Therapeutic Cell Culture Media business serves customers in the pharmaceutical and biotech industry. Therapeutic cell culture media are used in the production of therapeutics like antibodies, antibody drug conjugates (ADC), vaccines and other biologics.

Lonza's endotoxin-detection assays<sup>39</sup> are applied in pharmaceutical product release testing to assure the safety of injectable drugs, implantable medical devices and dialysis samples. Our fully integrated software solutions streamline Quality Control (QC) processes and offer complete insight into manufacturing operations, with quick access to management, compliance and trending data.

## MARKETPLACE OVERVIEW

The marketplace and the competitive landscape in the life-science research<sup>40</sup> industry have been changing recently with mergers and acquisitions, which have resulted in market consolidation, further growth of already dominant players and increased price pressure throughout the market.

One thing that hasn't changed, however, is Lonza's strong reputation for excellence and innovation in the dynamic global marketplace. Lonza Bioscience Solutions business's state-of-the-art cell culture media are used globally for research, as well as for manufacturing of pharmaceutical biologics, vaccines and cell therapeutics. Also, with our well-known and trusted Biowhittaker™ and Clonetics™ branded products, Lonza leads the industry in primary cell culture quality.

Due to its regulated nature, the competitive market situation for Quality Control (QC) testing<sup>41</sup> remains relatively stable. With a rising global demand for injectable pharmaceuticals in emerging regions, these markets have a vast growth potential.

As the QC testing market expands, the need for better data management follows with it. These same market trends, along with global regulatory scrutiny of QC, are forcing manufacturers to identify, resolve and prevent quality issues faster than ever before.

Labor-intensive and error-prone paper tracking of test data is being rapidly replaced with automation. Lonza leads the market with its best-in-class informatics solutions, MODA-EM™ and WinKQCL™, empowering QC organizations to make better quality decisions and reduce costs as their testing and compliance demands increase.

## BUSINESS HIGHLIGHTS 2014

One of the highlights of 2014 was our successful entry into the promising pluripotent stem cell market with the introduction of the new L7™ hPSC Culture System<sup>42</sup>, which supports every-other-day feeding of human pluripotent stem cells (hPSCs).

In 2014 Lonza celebrated the 30th anniversary of the Clonetics™<sup>43</sup> Primary Cells and Media product line, which has supported cell culture research in many critical areas, including angiogenesis, cancer, respiratory and cardiovascular disease, diabetes, renal disorders and neurobiology.

Also during 2014 our therapeutic media collaboration with Sartorius Stedim Biotech continued to contribute to our growth as a business.

In the informatics field, our MODA™<sup>44</sup> software solution experienced significant industry adoption in 2014. Growth followed market trends in the industry overall, with the addition of several new biotechnology customers, as well as key new customers in emerging markets. MODA™ is also being adopted as the QC Microbiology standard for a number of global pharmaceutical firms, with expansion to several new site installations this year. Customer-driven product innovation, focus on strategic partnerships, and entry into new markets contributed to positive performance in 2014 and will be the basis for future growth and success.

The growing trend in the industry to reduce animal usage and work with sustainable supplies has led to a greatly increased interest in animal-free methods. Our PyroGene™<sup>45</sup> Recombinant Factor C (rFC) Assay provides a sustainable, animal-independent and robust alternative to conventional Limulus Amebocyte Lysate-based (LAL-based) endotoxin-detection kits, which rely on blood drawn from live horseshoe crabs. The recent publication of the European Pharmacopeia draft monograph (Issue 26.4), which accepted the recombinant Factor C assay as an alternative LAL method, again underlines the growing importance of this product in the testing market.

We have also seen strong growth in our WinKQCL™ Endotoxin Detection Software and will continue to expand our strength in this arena.

## GROWTH AREAS

To strengthen sales and profitability, the Bioscience Solutions business is focusing on launching new products and otherwise widening its portfolio of tools and services for faster-growing sectors such as biomedical and applied research markets, as well as diagnostic, therapeutic and industrial life-science markets involved in cutting-edge new therapies and treatments.

We see increasing interest among customers, for example, in our pluripotent stem cell technologies and our Nucleofector™<sup>46</sup> technology. In addition, we are benefiting from PyroGene™ rFC Assay<sup>47</sup>, which is approved by the FDA and listed by the European Pharmacopeia as an alternative method. PyroGene™ is a sustainable alternative to conventional endotoxin-detection methods and is based on Limulus Amebocyte Lysate (LAL). We also continue to innovate with a competitive focus on product improvements and complete solutions that address growing customer needs to increase the efficiency and cost-effectiveness of their internal processes.

Business consolidation will continue in the future as we remove lower-profit offerings and expand our portfolio<sup>48</sup> in order to grow the business and increase profitability.



## OVERVIEW

In the Specialty Ingredients segment, we supply innovative solutions that promote health, wellness, beauty, nutrition, hygiene and materials protection.

### **CONSUMER CARE**

Lonza's Consumer Care business is a global leader in several important chemical ingredient categories, including actives for antidandruff shampoos, natural and organic cosmetic ingredients, vitamin B3 compounds (niacin and niacinamide), L-Carnitine and microbial-control solutions such as disinfectants and sanitizers that help protect us from dangerous and unwanted microbes. These ubiquitous materials provide health, wellness, beauty and protection claims for our fast-moving consumer goods customers.

### **AGRO INGREDIENTS**

Capitalizing on our broad experience in custom manufacturing in our Pharma&Biotech and Specialty Ingredients segments, Lonza's Agro Ingredients business offers – in addition to active ingredients for mollusk control – custom agricultural manufacturing services designed to improve crop yields and food quality.

### **INDUSTRIAL SOLUTIONS**

Specialty Ingredients also offers a wide array of Industrial Solutions, including preservatives and biocide blends that deter the growth of mold, mildew and/or other contaminants on painted and coated surfaces, wallboard, flooring and ceiling materials, bath mats, carpeting, adhesives and sealants.

### **WOOD PROTECTION**

Lonza's Wood Protection business supplies products and services that enhance the quality of wood and protect this sustainable, renewable resource from termites and other insects, mold, fungus, moisture and fire.

### **WATER TREATMENT**

Our Water Treatment business within Specialty Ingredients is one of the world's largest suppliers of sanitizers and other treatment chemicals for pools, spas and water parks. We are also rapidly growing sales in the treatment of surface waters, as well as water for drinking, agriculture, irrigation, food processing and industrial applications. In addition, we offer top-of-the-line feeder systems to deliver clean drinking water, maintain and enhance surface water, and provide sanitizing solutions within the agriculture industry.

# CONSUMER CARE

*Focusing on Health, Wellness, Beauty and Protection*



Consumer Care within Specialty Ingredients is focused on enhancing the quality of life and people's lifestyles and draws on science to promote health, wellness, beauty and protection. The Consumer Care business includes hygiene products, nutrition ingredients and personal-care offerings.

Together, Consumer Care is capitalizing on people's desires for nutritious food, for protection from dangerous viruses and other pathogens, and for the ability to look and feel their best. While we help to protect the health and well-being of people and companion animals around the world, we also offer innovative hair- and skin-care formulations and ingredients for the cosmeceutical and nutricosmetic markets and are the global leaders in vitamin B3 and L-Carnitine.

Billed as Lonza's "lifestyle" business because of our focus on health, wellness, beauty and protection, Consumer Care is benefiting from powerful megatrends and market drivers that in large part address people's demand for products that help to enhance lives.

## BUSINESS DESCRIPTION

Today consumers around the world are passionate about looking and feeling great. Consumer Care delivers the solutions our customers need to market successful products that meet consumer needs and desires. We do this by working with our customers to really understand today's and tomorrow's demands for health, wellness and beauty products and by focusing our research on those areas with the greatest potential to keep them ahead of the competition.

Our market-oriented, collaborative approach to delivering the ingredients our customers need is further strengthened by Lonza's regulatory expertise. This advantage means that our customers have the regulatory support to obtain approvals required by local governmental agencies and backed by science in order to make marketable claims that deliver commercial success.

Serving the three markets of Hygiene, Nutrition and Personal Care<sup>49</sup>, we enable our customers to improve the lives of their consumers by ensuring healthier environments, delivering more nutritional ingredients, and offering more advanced hair-, scalp- and skin-care products.

## MARKETPLACE OVERVIEW

Lonza Consumer Care<sup>50</sup> has been actively promoting our products in the Hygiene market as new viruses come to the forefront of the public's awareness. In the Nutrition and Personal Care markets, continued consolidations and restructurings have occurred, so Lonza's stability is appreciated by our customers.

With increasingly strict regulatory requirements, Consumer Care is leveraging our global regulatory expertise and registrations on behalf of customers, as well as offering them innovative blends of existing ingredients that have passed regulatory scrutiny. To deal with ongoing pressure on particular preservative chemistries, for example, we have worked with customers to help defend their positions and to find replacement formulations, if needed.



## BUSINESS HIGHLIGHTS 2014

In Consumer Care's<sup>51</sup> Hygiene and Personal Care businesses, 2014 we saw the launch of a host of new products, which quickly met commercial success. The highlight of 2014 for our Nutrition business was the start-up of the new niacinamide facility in Nansha (CN) and the closure of the former Guangzhou (CN) facility. In addition, the Carnipure™ L-Carnitine franchise within the Nutrition business has been extended into hair care with the inclusion of this ingredient in Personal Care products.

Strong hygiene and antidandruff sales resulted in high capacity utilization of our operating facilities in 2014, thereby increasing our financial performance as a business unit.

Finally, in 2014 Consumer Care developed a new brand identity to create a distinctive positioning in the market and clear messaging about the value we bring to customers, with a new Consumer Care landing page on the Lonza website.

## GROWTH TARGETS

Building on already strong positions in developed regions, Consumer Care<sup>52</sup> is growing sales in China, South America and other emerging nations where increasingly affluent populations now have the purchasing power to pursue aspirational desires for better hygiene, more nutritious foods and more innovative cosmetic products.

To serve those and other regions of the world, we are focusing our growth efforts in Hygiene, Nutrition and Personal Care on four strategic thrusts<sup>53</sup> to propel innovation, launch new products and find additional sales opportunities. In order to do so, we will continue our debottlenecking activities at key facilities in all businesses to lower costs and increase throughput.

# AGRO INGREDIENTS

*Helping Customers Do More with Less*



Lonza's Agro Ingredients business is growing by helping our customers do more with less – meaning optimizing the use of increasingly scarce natural resources such as arable land and clean irrigation water.

The aim of the value-added chain in the agricultural sector is to make every effort to cut losses and boost productivity. This target will be impossible to achieve without more and better agrochemistry. Meeting these requirements will take huge efforts in the research and development of essential, efficient and sustainable solutions. It will require innovation – and cutting-edge technology companies like Lonza are making an important contribution in this regard.

## BUSINESS DESCRIPTION

Lonza's offerings to the agricultural market are based on a strong chemical and biological technology background<sup>54</sup>. With broad experience, high professionalism and unrelenting passion to satisfy our customers, Lonza provides state-of-the-art custom manufacturing for modern herbicides, insecticides and fungicides. Additional offers include preservatives and additives for crop-protection formulations.

Lonza is also one of the world's market leader in molluscicides by offering Meta™ metaldehyde active ingredients as well as Meta™-based formulated products (e.g. Axcela™<sup>55</sup>). In addition, we offer sanitizing agents for the agricultural industry and fertilizers.

## MARKETPLACE OVERVIEW

Because of our broad-based technological expertise and other competitive advantages, Lonza ranks among the top players in the market for contract manufacturing. Backward integration and a combination of chemistry and biotechnology have enabled Lonza to stand out from the competition.

In 2014 high stocks and good harvest conditions for some main crops like corn or soybean caused price pressure on crop prices, resulting in some short-term destocking in crop-protection applications. We compensated for such destocking by using our flexible, multi-purpose assets for other businesses where production capacities<sup>56</sup> are tight and making use of "make-or-buy" options to leverage such volatilities.

Lonza's market-oriented approach supports our efforts to establish Lonza as a recognized partner for the agro-chemical industry in business models complementary to the contract manufacturing business model. For example, formulation and laboratory support, as well as formulation development, are offerings we make available to our customers in the industry.

In addition, in Brazil, one of the main agricultures in the world, we sell finished commercial products under the Frexus™<sup>57</sup> brand name. The many options we provide make Lonza Agro Ingredients a unique partner for the crop-protection industry.

## BUSINESS HIGHLIGHTS 2014

Much like medicines, consumer-care disinfectants and other products where Lonza has expertise, agro active ingredients must be formulated in such a way that they can be applied by the end-user in a safe and user-friendly manner, achieve maximum efficiency and satisfy rigorous regulatory requirements. Lonza's Agro Ingredients business is doing just that, and the results of those efforts in 2014 were positive. In addition to high capacity utilization in our chemical multi-purpose and fermentation plants, the growing capacity utilization and project pipeline in our biopesticide development and manufacturing services reflect the increased interest in this sector.

We successfully contributed this year to four launches of new active crop protection products from some of the world's most innovative agrochemical companies with the manufacturing of complex advanced intermediates of these actives.

Also our molluscicide business<sup>58</sup> around the Meta™ active ingredient experienced an extremely strong demand in the main markets, especially in Europe and in the Asia-Pacific region. Our strategic geographic expansion proceeded according to plan in 2014 for our active ingredient Meta™ and specific formulations in North America, Asia, South America and South Africa.

In 2014 we also announced a strategic partnership with INCOTEC to develop, register and market Meta™-coated rice seeds for the control of the golden-apple snail<sup>59</sup> pest on paddy rice in Asia.

## GROWTH AREAS

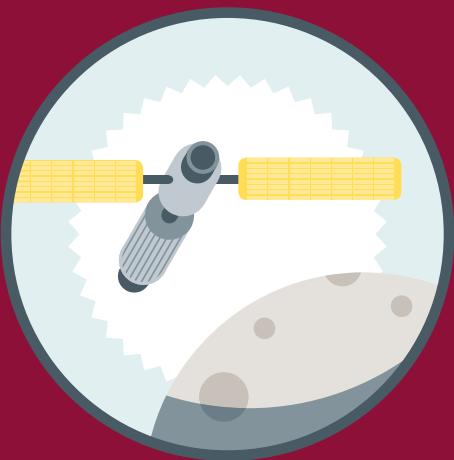
The future growth of our Agro Ingredients business looks promising when considering the overall global megatrend<sup>60</sup> of a growing and aging world population that causes an increasing demand for food, the tougher regulatory landscape, the growing interest in biological crop protection and the long-term view on high capacity utilizations.

Lonza's growth in the agrochemical ingredients field is also benefiting from our broad chemical formulations expertise<sup>61</sup>, which enables us to tailor biocides and other products for new and exciting uses in the agricultural industry. Our ready-to-use preservation agents (Proxel™), as well as our pre- and post-harvest treatments for the agro industry (Frexus™ line), are examples of the ongoing demand in the industry for innovative solutions to improve crop protection formulations with adjuvants and activators.



# INDUSTRIAL SOLUTIONS

*Conserving Energy and Improving  
the Quality of Life*



Lonza's Industrial Solutions business was recently reorganized into two distinct business areas: Coatings and Composites is the group that drives growth through innovation, and Performance Ingredients is the preferred supplier of our more "mature" products and delivers value to Lonza through excellence in portfolio and asset management.

## BUSINESS DESCRIPTION

### COATINGS AND COMPOSITES

The Coatings and Composites business group is the leading innovative partner for our customers in the materials protection and high-tech composites markets where we are active. We offer the widest range of biocides<sup>62</sup> and formulated products and a unique selection of thermoset resins<sup>63</sup> and systems. The major growth and innovation areas of our Coatings and Composites business are in paints and coatings, antifouling paints, metal working fluids, plastics and building products, as well as high-tech composites for electronics and aerospace.

### PERFORMANCE INGREDIENTS

With our Performance Ingredients products<sup>64</sup>, our customers can reduce their environmental impact when producing vitamins, pharmaceuticals and crop-protection products through efficient high-yield processes. We also offer an innovative and environmentally friendly portfolio of performance chemicals to the oil and gas industry to increase efficiency and safety of production.

## MARKETPLACE OVERVIEW

Pressure from the Asian me-too chemistries has been felt throughout the chemical industry globally. The impact on Lonza's Industrial Solutions business was minimized because of our continuous efforts in cost control and our long-standing reputation as a high-quality, reliable, innovative supplier.

Our experienced team of regulatory and technical experts supports our customers in navigating through regulatory changes<sup>65</sup> and challenges.

As the marketplace changes, our innovation<sup>66</sup> teams continuously develop and invent novel technologies and processes, which is what makes Industrial Solutions a recognized leader as an innovative supplier in its core markets.



## BUSINESS HIGHLIGHTS 2014

The generally favorable demand situation in all regions bolstered our results in 2014. Good operational performance helped us to deliver in some high-demand situations, particularly those where other large suppliers either exited the market or faced significant production issues. Lonza as a reliable supplier<sup>67</sup> took the necessary actions in order to respond in a timely manner to the higher product demand, which demonstrated our commitment to the market.

New product launches<sup>68</sup> during 2014 met with market success, particularly in the paint industry and the electronics and industrial composites markets. We also captured growth from the upswing of antifouling paints for the shipbuilding<sup>69</sup> and repair industries.



## GROWTH AREAS

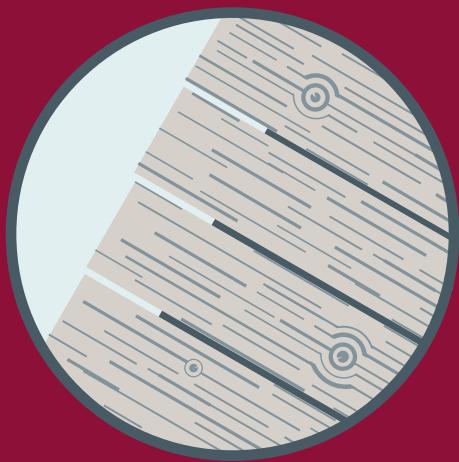
Industrial Solutions is pursuing markets where we see good growth and where we also have a good position in terms of technology, branding, market share and regulatory experience. These primary markets are high-tech composites in electronics, aerospace and industrial areas; construction for paint, wallboard and other materials-protection applications; antifouling coatings for ship hulls and aquaculture nets; and oil and gas chemicals.

We see attractive growth opportunities in developing regions<sup>70</sup> while we continue to develop new products for our key markets and leverage our global experience.

In addition, we see growth areas related to environmental solutions<sup>71</sup>. For example, as the chemical industry in Asia is adapting to increased environmental controls, we are capitalizing on that growth with sales of chemical building blocks.

# WOOD PROTECTION

*Growing Through Product Innovation and Global Expertise*



Over the last 80 years, Lonza's Wood Protection business has become a leading name in the industrial pretreatment and surface protection of wood. Lonza offers the world's broadest portfolio of wood protection chemistries, with operations spanning North and South America, Europe, Asia Pacific and Africa.

Our products and services enhance the beauty and versatility of wood – the only sustainable, renewable building material – making it resistant to termites, fungi, mold, fire and moisture.

## BUSINESS DESCRIPTION

Lonza's Wood Protection business supplies copper azole wood preservative technology, which is the most widely used in the world, as well as industrial preservatives, fire retardants, water repellents, mold inhibitors, pole-climbing enhancers, sapstain-control chemicals, and other pressure and non-pressure treatments.

We also provide engineering, technical, environmental health and safety, regulatory, and marketing advice and services<sup>72</sup> to help our customers succeed. With Research & Development facilities around the globe, Lonza's Wood Protection business continues to be a leader in diverse markets<sup>73</sup> in the wood preservative industry.

Lonza's product portfolio offers protection to a wide variety of wood products for residential, commercial, agricultural and industrial uses. Our customers produce brands of treated wood that rank among the most effective, best known and longest established. These brands include:

- Wolmanized® Outdoor® wood
- Wolmanized® CCA-treated wood
- Tanalised® wood
- Vacsol® Azure-treated wood
- Chemonite® ACZA-treated wood
- Dricon® fire-retardant treated wood

We have drawn on industry-leading products like those listed above, as well as our strong partnerships with customers, to capitalize on the promising growth in relevant construction, industrial and agricultural wood markets in the midst of the prolonged global economic downturn.

## MARKETPLACE OVERVIEW

The housing market in North America – for single-family and multi-family new construction, as well as repair/remodeling – experienced an upward trend in 2014, which had a positive impact on our Wood Protection business results.

In the global wood preservation market, the growing industrialization and rising infrastructure<sup>74</sup> needs are the key drivers for growth. Another key driver is the decking<sup>75</sup>, fencing and landscaping market, particularly in North America, where the housing market continues to rebound. Major market demand contributors are North America and Europe because of the increased residential and commercial uses.



## BUSINESS HIGHLIGHTS 2014

The year began with a strategic review of options for the Wood Protection business. During the year positive momentum continued in the business, which provided good free-cash flow and continued to add value by strongly contributing to Group Core Return on Net Operating Assets (RONOA) in 2014. Based on these factors, as well as a positive business outlook and increased internal valuation, Lonza took the decision to retain the Wood Protection business, as announced with the third-quarter results.

Several innovative new products were also launched in 2014 in the United States<sup>76</sup> and the Asia Pacific<sup>77</sup> region and were well received by our customers.

## GROWTH AREAS

The Wood Protection business is pursuing growth in established markets, like the multi-family market<sup>78</sup>. At the same time, we are looking for opportunities for further penetration into the industrial sector<sup>79</sup> with new products and successful commercialization of our entire product pipeline, such as our BARamine® technology<sup>80</sup>.

We are placing increasing emphasis on value-added pricing to counter lower commodity prices and are negotiating lower raw material contracts for key active ingredients.

The many favorable environmental, economic and aesthetic benefits of treated wood suggest that the wood protection industry will continue to be economically viable over the coming years.

# WATER TREATMENT

*Growing by Quenching Megatrend  
“Thirst” for Clean Water*



Water treatment is one of the major strategic growth markets for Lonza with strong market-leadership positions around the world. With a long heritage and more than a century of experience developing innovative water treatment solutions, the Lonza Water Treatment business is one of the leading suppliers of treatment chemicals, sanitizer feeder systems and services to the global water treatment market.

From drinking-water supplies and industrial applications to backyard swimming pools, our products aim to keep water clean. Lonza Water Treatment product applications include residential and commercial swimming pool and spa water, as well as drinking water, process water, wastewater, irrigation, surface water and industrial water applications for papermaking and cooling systems, for example. We build customer relationships by offering technical customer support, R&D, formulation expertise, regulatory excellence, powerful brand marketing and product reliability and quality.

## BUSINESS DESCRIPTION

The Water Treatment business is categorized by customer need into two major channels: Residential<sup>81</sup>, which encompasses Pro Dealer and Mass, and ICMS<sup>82</sup>, which is composed of Industrial, Commercial, Municipal and Surface Water Chemicals and Services.

Lonza manufactures and markets both chlorine and non-chlorine-based products as sanitizers, along with ancillary chemicals and accessories under a number of premium brands. Keys to continued success in these channels are to grow customer intimacy, to launch effective consumer marketing, to develop innovative, differentiated products and to maintain efficient manufacturing and distribution operations.

## MARKETPLACE OVERVIEW

Our Water Treatment business has built strong positions in the industry by being both a manufacturing and a marketing leader known for our commitment to safety, unmatched customer service, sophisticated brand marketing and product innovations. We are one of the world's largest suppliers of swimming pool and spa treatment chemicals, led by our popular HTH® brand. Additionally, we are the world's largest producer of calcium hypochlorite sanitizers, with manufacturing plants in United States, Brazil and South Africa.

Overall, our leadership positions and growth platforms are driven by a global network of manufacturing, R&D, marketing and customer-support capabilities. We are benefiting in this market from the rising middle classes in Brazil, South Africa and other developing regions where Lonza is already considered an innovative market leader in the pool and spa water-treatment business.

Being market-focused, we keep a sharp eye on industry and market trends<sup>83</sup>. The consumer's desire for more convenient solutions and the growth of internet sales are some of the emerging trends within the North American market. We are addressing each with strategies that will help us leverage these developments.

Recent challenges in the North American market include economic pressures and unfavorable weather. While the majority of the ICMS water-disinfection market is serviced by low-value commodity chemicals<sup>84</sup>, we are concentrating on providing value-added specialty solutions.

## BUSINESS HIGHLIGHTS 2014

Unfavorable weather negatively impacted the residential Water Treatment business in North America, the largest recreational water treatment market for Lonza. To help balance the weather-related factors, we are focused on growing our non-residential ICMS business. We are also focused on building relationships with customers in other markets, expanding our geographic reach and launching new products and services such as our new kiosks<sup>85</sup> and our innovative and differentiated market-specific products<sup>86</sup>.

## GROWTH AREAS

Following the global megatrend for clean water, we have placed increased emphasis in Lonza on the ICMS<sup>87</sup> market. By constantly improving our mix of products in the future, we are focused on the development of a world-class product portfolio to enhance the position of Lonza as a global partner for our customers. This focus will help to counter-balance the dependence on weather conditions in our Residential Water Treatment business going forward.





# SUSTAINABLE VALUES

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# SUSTAINABLE VALUES

## OVERVIEW

As a leading custom developer and manufacturer of products that promote health, well-being and the overall quality of life, Lonza has identified sustainability as one of its most vital, fundamental values. We strive to develop products that not only benefit our customers and consumers but that also are environmentally sound, and, in many cases, socially beneficial.

Throughout the year we are constantly looking for ways to increase the sustainability of our products and processes, including improvements in innovation, raw material sourcing, energy and water use, manufacturing, transportation, packaging and product use. We also work hard to use recyclable packaging materials for our products and either to use byproduct chemicals in our own manufacturing processes or to sell them to other companies for productive re-use.

In addition, we invest in our communities, with sponsorships and philanthropic donations that promote educational excellence, safety and emergency response and other needs identified by community members and partners. For example, in Brazil our Water Treatment business participates in a recycling initiative that promotes access by citizen waste pickers to recycling centers, a vital stream of personal income. All of these efforts involve empowering our employees to make sustainability a critical consideration in their work.

In 2014 we made noteworthy progress in sustainability by strengthening the present in order to secure the future for the benefit of our customers, our stakeholders and the world we share. We are sharing some of these efforts in this section of the Annual Report within the following articles:

### **INVESTING IN SUSTAINABILITY**

### **INVESTING IN RESPONSIBLE SOURCING**

### **INVESTING IN ENVIRONMENT, HEALTH AND SAFETY**

### **INVESTING IN ENTERPRISE RISK MANAGEMENT**

### **INVESTING IN OUR PEOPLE**

### **INVESTING IN OUR COMMUNITIES**

## **INVESTING IN SUSTAINABILITY**

In the Investing in Sustainability article, we explain how an innovative new manufacturing process at our Water Treatment plant in Tennessee is sharply reducing energy use and related greenhouse gas emissions, as well as improving productivity and reducing costs. These and other win-win examples demonstrate how sustainability works to the benefit of all.

## **INVESTING IN RESPONSIBLE SOURCING**

The article on Investing in Responsible Sourcing describes how our Global Strategic Sourcing function helps secure raw materials for our businesses that are sustainably produced and sourced. In many cases this approach means satisfying strict customer, industry and regulatory standards in terms of everything from kosher and halal food quality to natural and organic ingredients for our cosmetic and personal-care products.

## **INVESTING IN ENVIRONMENT, HEALTH AND SAFETY**

The article on Investing in Environment, Health and Safety explains how the principles of continuous improvement drive progress in how we use our resources, advance environmental quality and help achieve our vision of zero workplace accidents and injuries.

## **INVESTING IN ENTERPRISE RISK MANAGEMENT**

Our comprehensive risk-management approaches result in Lonza's balanced, appropriate risk appetite, as explained in the article on Investing in Enterprise Risk Management.

## **INVESTING IN OUR PEOPLE**

We also provide compelling examples of how our Human Resources team is Investing in Our People – including young people who may become future Lonza employees – with innovative apprenticeship training, talent acquisition, leadership development and incentive programs. The HR team in 2014 also launched a global job-grading system that provides the foundation for positive career development and performance management across Lonza businesses, geographies and functions.



**LONZA  
THE PLACE  
TO GO,  
STAY AND  
GROW**

## **INVESTING IN OUR COMMUNITIES**

In the Investing in Our Communities article, we provide a wide range of examples of ways we are improving the quality of life in our communities and the world at large, both through philanthropic sponsorships and the invaluable work of Lonza employee-volunteers.

# INVESTING IN SUSTAINABILITY

*Strengthening the Present to Secure the Future*

Sustainability is at the core of our activities at Lonza. We are committed to providing the highest-quality products and services that delight our customers while also minimizing our impact on the environment, conserving energy and natural resources, and helping to improve the quality of life. The key elements we include in our approach to sustainability are the following:

- Empowering our employees within a culture of innovation
- Extracting the highest efficiency from our raw materials, including energy
- Measuring and reporting our environmental impact
- Collaborating with industry associations and other stakeholders to continuously improve

Overall, our actions are aimed at strengthening the present in order to secure the future for our customers and other stakeholders. We take into account the effects of our actions on the local community and the global environment, with the important guiding principle that what we do today should not compromise the well-being of generations to come. Many of Lonza's products help sustain and enhance life. These products and ingredients certainly include the medicines, cell therapies and other treatments provided by our Pharma&Biotech segment. And in our Specialty Ingredients' businesses, our Consumer Care business, for example, provides disinfectants and sanitizers that are used to protect people from dangerous viruses and pathogens, including the deadly Ebola virus and the Norovirus that causes acute gastrointestinal illnesses.

Our Industrial Solutions business also helps to promote energy conservation and otherwise improve the quality of life by making aircraft, satellites and automobiles lighter and stronger; by reducing algae and other foulants on ships hulls to improve fuel efficiency and reduce maintenance costs; and by improving yields and protecting workers and the environment in the production of oil and gas. Sustainability is top of mind at Lonza as we source, manufacture, transport and recycle our products.

# RELYING ON INNOVATIVE SOURCING AND R&D

At Lonza sustainability begins from the moment that we conceive and begin development of new products or improvements to existing products. Both our Research & Development (R&D) teams and our Process Technology organizations draw on well-regarded sustainability systems and frameworks, such as the "12 Principles of Green Chemistry" as defined by the U.S. Environmental Protection Agency.

One vital goal for our R&D scientists is to design products that satisfy customer needs while also addressing safety and environmental quality. One sterling example is a collaboration with our customer to provide rice seeds with a coating of our metaldehyde-based molluscicide to combat the invasive golden-apple snail in Malaysia. This SnailWise technology<sup>88</sup> protects the rice plants from this voracious pest that threatens the livelihood of paddy rice farmers, as well as this vital source of food in Asia.

Another example comes from the Consumer Care business at Lonza. Faced with consumer desires for natural and organic ingredients in their personal-care products, research and product development scientists from our Personal Care team have created a sustainable source for an innovative anti-aging skin-care<sup>89</sup> ingredient.

## **MAXIMIZING SUSTAINABILITY DURING MANUFACTURING**

Our Operations staff focuses on improving the efficiency and sustainability of our manufacturing operations worldwide. Sustainability is a key consideration in our capital appropriations process so that we can do our utmost to ensure that new or improved production processes are safe and environmentally sound and that they conserve energy<sup>90</sup> and other vital resources. Many of our plants are ISO 14000 certified or compliant, and each location pursues improvement goals and projects to positively influence its environmental footprint.

The Custom Development business unit within the Pharma&Biotech market segment has proprietary microreaction manufacturing processes<sup>91</sup> that greatly reduce the volume of solvents required and waste in typical active pharmaceutical ingredients manufacturing operations.

## **PRODUCT USE AND RECYCLING**

Lonza products – and the packaging they come in – have concise and clear directions for use and recycling. Our industrial hygienists and technical sales support personnel also work closely with customers to ensure that they are handling, using and recycling<sup>94</sup> our products and packaging<sup>95</sup> in the safest and most advantageous ways possible. We also work closely with customers<sup>96</sup> to respond in creative and proactive ways to their own green-product and sourcing initiatives.

For example, Lonza's Water Treatment business offers pool and spa owners toll-free hotlines and online chat rooms where they can get expert advice about product use, dosage, storage, recycling and solving pool-chemistry challenges, such as ridding pools of algae or properly adjusting pH or other water-quality issues.

## **TRANSPORTING PRODUCTS SUSTAINABLY**

Lonza's Logistics team is constantly working to maximize product load and route efficiency while we continue to deliver needed products to customers in a timely manner. One of our major freight and logistics suppliers, for example, is SmartWay<sup>TM</sup><sup>92</sup>, which is certified by the U.S. Environmental Protection Agency.

Our Wood Protection business also helps protect the environment in North America by using dedicated, custom-made tank trucks<sup>93</sup> to safely transport our wood preservatives to saw mills and other customers.

# INVESTING IN RESPONSIBLE SOURCING

*Serving as a Business Partner for Sustainability*

The Global Strategic Sourcing function is part of the glue that helps bind together and create an efficient network out of our >40 major R&D and manufacturing sites worldwide. In 2014 this function delivered significant cost savings and reacted creatively to supply constraints and pricing pressures, supporting Lonza's competitive market positions as well as top-line growth and bottom-line profitability, as we respond to our customers' needs.

Working in close partnership with our businesses and operations, Global Strategic Sourcing purchases a diverse range of strategic raw materials and indirect products and services, with an annual spend in excess of CHF 1 billion.

The strategic importance of this vital function to Lonza and the value of harmonized, streamlined and automated processes to the company's success were demonstrated by the recent consolidation of our Supply Chain and Information Technology (IT) functions under one leadership.

## RESPONDING TO CUSTOMERS' NEEDS

In Global Strategic Sourcing, we help our Specialty Ingredients businesses respond to consumers' and customers' desires for natural, organic and certified ingredients<sup>97</sup>.

## PURCHASING

At Lonza the Global Strategic Sourcing team manages more than 400 suppliers worldwide who provide in excess of 400 vital raw materials. Reflecting the global nature of our businesses, the majority of our suppliers are spread across the United States, European Union, China and Switzerland.

We source approximately 25% of our company-wide purchasing spend with our 20 largest suppliers, which gives us the ability to negotiate favorable pricing and terms in return for substantial purchase volumes and other elements of mutually beneficial strategic relationships<sup>98</sup>.

Last year, Global Strategic Sourcing was able to play a vital role in helping our businesses deal with some tight raw material markets<sup>99</sup>, such as for C8 alcohol and durene, by sourcing increased quantities at competitive prices to support business volume growth. Through these efforts we successfully approved new qualified sources<sup>100</sup>, thus enhancing our supply security to support future business growth.

## CONSOLIDATION

As part of Lonza's Business Service Excellence initiative, the "backbone" Supply Chain and IT functions have been combined under new leadership. The new organization will drive improved service<sup>101</sup> to Lonza businesses and leverage state-of-the-art technologies.

Looking to the future, Strategic Sourcing is working with Quality Assurance to upgrade supplier quality management programs, to provide systematic raw material risk profiling and mitigation strategies, to further bundle indirect spend sourcing to capture additional cost savings and to expand raw material price forecasting in order to enable better product-pricing decisions.

# INVESTING IN ENVIRONMENT, HEALTH AND SAFETY

## *Protecting Our Stakeholders*

The ethical principle that underscores all our efforts in the realm of the environment, health and safety (EHS) is our “Vision Zero” program, which sets the ultimate goals of achieving zero injuries, zero manufacturing process incidents, zero distribution incidents and zero environmental incidents. We are proud to report that in 2014 we experienced the safest year in our recorded history, with 15 lost-time incidents and a corresponding Lost-Time Incident Frequency rate (LTIFR) of 0.76.

Of course, under our “Vision Zero” ethic, even one lost-time incident is one too many; but our record performance in 2014 makes us feel that “Vision Zero” is far more than an attractive slogan – it is an achievable reality.

The EHS function also oversees our company-wide sustainability efforts. That is because the same continuous improvement tools and disciplines that drive improved safety and environmental quality can also be applied to making sustainable use of natural resources, reducing our carbon footprint, minimizing hazardous waste and otherwise improving the quality of life for our stakeholders.

We made good progress in 2014 on implementing critical EHS process guidelines to harmonize and standardize Lonza’s approach to safe chemical and pharmaceutical manufacturing. For example, we have standardized our energy lock-out procedures to ensure that all workers are protected from the unexpected energization or startup of machines and equipment, or the release of stored energy that could cause injury to personnel.

EHS risk assessments also serve as valuable tools in our business and operating practices and in our planning processes. We review new ventures, capital investments in production equipment and systems, and other major projects not only for the business opportunities they present, but also for their environmental, health and safety impact.

None of our plants reported material incidents or breakdowns, nor were there any severe accidents or damage inflicted to the public or the environment in connection with the transportation of Lonza products and raw materials. We will do everything in our power to ensure that all sites continue to operate safely and that no one is harmed during the transportation and distribution of our products to customers. In the unfortunate case that hazardous Lonza products would be involved in a transportation incident or manufacturing plants experienced a significant breakdown with associated threats to stakeholders, Lonza maintains a proven hazard communication and crisis management system to keep harmful effects to a minimum.

The following articles show how we invest in our environment, health and safety to protect our stakeholders:

**RECORD SAFETY PERFORMANCE**  
**CHEMICALS MANAGEMENT**  
**ENVIRONMENTAL QUALITY**  
**CORPORATE RESPONSIBILITY**  
**INDUSTRIAL HERITAGE AT SWISS MANUFACTURING SITE**  
**EHS SCOPE**  
**GOALS**  
**INDICATORS**

## RECORD SAFETY PERFORMANCE

The record 0.76 LTIFR that we achieved in 2014 far exceeded the goal of 1.05 LTIFR we had established for the year. Many factors helped to drive this positive performance, from behavioral-based safety training to new, critical safe work procedures<sup>102</sup>.

As part of our long-term planning, several years ago we established a reasonable goal of a maximum of 1.0 for our LTIFR for the year 2015; and we confirm this target. Building on our progress last year, we certainly hope once again to surpass this goal. In these efforts we will be aided by some new steps we have taken, such as strengthening our process for reviewing every safety incident and challenging assumptions about causes and remedies. We also will continue to make sure to share the results of safety incident reviews widely, so that the lessons learned can be applied to identical or similar challenges elsewhere.

The safety culture is strong throughout Lonza, which is evidenced by the fact that many of our sites in 2014 had zero lost-time incidents, and some sites have enjoyed years without even a single recordable injury. Our superior safety performance<sup>103</sup> has also been recognized by key stakeholder groups.

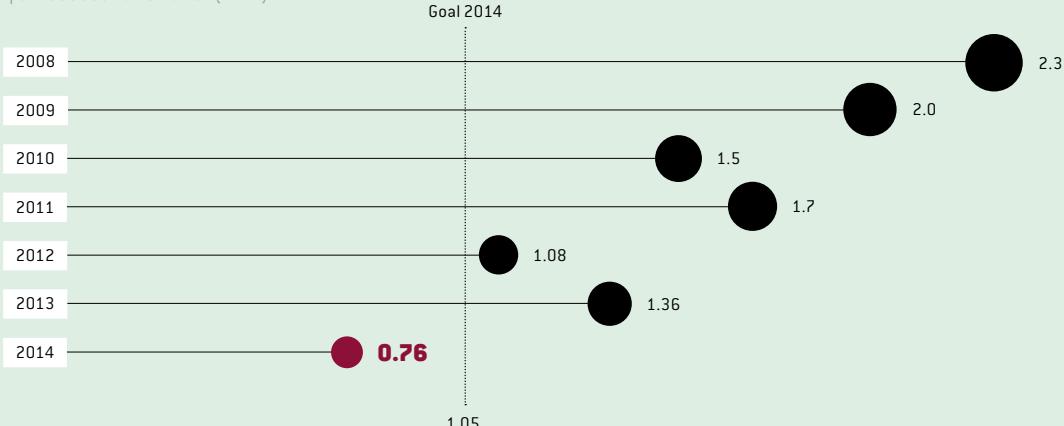
## CHEMICALS MANAGEMENT

Lonza's product formulation skills, wide product regulatory assurance and global regulatory expertise provide us with distinct competitive advantages in a world of increasingly strict chemical management regulations, and added value to our customers.

During 2014 we focused on analyzing the supply chain and identifying all third-tier chemicals sourced or sold in the European Economic Area and on assessing Lonza's related regulatory obligations<sup>104</sup>. Cooperation with key suppliers was strengthened to ensure continued compliance throughout the supply and value chain. The process focused on prioritizing low-volume chemicals (<100 tons per year) for registration under REACH (Regulation (EC) No 1907/2006). Lonza continues to invest significantly in regulatory assurance processes.

### OCCUPATIONAL ACCIDENTS

per 1 000 000 hours worked (LTIFR)



## ENVIRONMENTAL QUALITY

We made solid progress in 2014 on efforts to optimize our use of natural resources at our global facilities, including our energy and water consumption.

At our Water Treatment facility in Charleston, TN (USA)<sup>105</sup>, 2014 marked the first full year of production with two new spin-flash dryers, which led to significant energy savings and emissions reductions. Aided by the installation of this vital new equipment, which occurred over several years, Charleston's power consumption to support HTH® production decreased by 39% between 2011 and 2014. In addition, combined HTH® steam and natural gas consumption was reduced by 47%, and chlorine air emissions declined by 44%. These improvements helped reduce total plant greenhouse gas emissions by 20%.

The Pharma&Biotech plant in Walkersville, MD (USA)<sup>106</sup> reduced its energy consumption in 2014 by installing new, energy-saving, long-lasting, low-maintenance LED lighting to replace old outside lighting systems and lighting in cell therapy clean rooms, media operations and endotoxin-testing production. Additionally, the old reverse osmosis water system was decommissioned, resulting in considerable material cost savings and energy savings. Safety-wise, by year-end 2014 the Walkersville plant celebrated 1.5 million hours without a lost-time injury.

The Singapore Tuas facility invested in debottlenecking change-over times and the reduction of waste and cleaning cycles by reducing the number of drum storage containers, by eliminating unneeded cleaning cycles, and by replacing the mobile buffer tank with buffer bags.

At our large chemical complex at Visp (CH), a number of initiatives to improve process efficiency and energy efficiency<sup>107</sup> are in the course of implementation. These vital projects were identified during an on-going efficiency analysis project, which is driven by both internal and external technical experts. Realized, planned or identified projects since 2013 should contribute to an energy-savings potential of 90 000 MWh per year. Significant emission reductions<sup>108</sup> were also realized last year at the Visp site, including reduced emissions of volatile organic compounds (VOC) and carbon dioxide equivalents (CO<sub>2</sub>e).

## CORPORATE RESPONSIBILITY

Providing transparent evidence of corporate sustainability practices is part of our commitment to excellence. In addition to information shared on our corporate website, we disclose climate data and activity assessments in the framework of the Carbon Disclosure Project and as an active participant in the UN Global Compact foundation. We also participate in and respond to a variety of sustainability assessments<sup>109</sup> and surveys.

As a company that makes medicines, personal-care products, nutritional ingredients, drinking water sanitizers and hygiene disinfectants, we are sensitive to concerns about the use of animals to test the safety of these products for human use or consumption. Whenever possible, we do our utmost to promote the use of alternatives to animal tests<sup>110</sup>; but in many cases, we are required by law and regulations to conduct such tests. Such required testing is conducted by external, state-of-the-art laboratories that Lonza approves and audits.

Lonza is accredited by the Association for Assessment and Accreditation of Laboratory Animal Care because we apply high standards for the humane care and use of laboratory animals. The company is also recognized by the U.S. National Institutes of Health Office of Laboratory Animal Welfare as complying with the Public Health Service Policy on Humane Care and Use of Laboratory Animals.

## INDUSTRIAL HERITAGE AT SWISS MANUFACTURING SITE

The Lonza site in Visp (CH) made continued progress in 2014 to address mercury contamination in an old wastewater discharge canal (“Grossgrundkanal”), on surrounding soil near the canal and in certain other areas where canal sediments were deposited as fill many decades ago. This industrial legacy traces back to when Lonza used large amounts of mercury as a catalyst in chemical processes, and the site discharged industrial wastewater with mercury containing effluent into the canal between 1930 and the mid-1970s.

Lonza was never the owner of the canal, and various parties were involved in its maintenance by dredging and excavating sediments from the canal. The removed material was used as fill material on various land properties. Only during the 1970s did people become aware of the full problem in connection with mercury. In 1976 Lonza commissioned its wastewater treatment plant, where mercury-containing effluent has subsequently been treated.

During 2013 and 2014, Lonza worked closely with the community<sup>111</sup> and pre-financed a number of technical examinations<sup>112</sup> in residential areas and agricultural zones between Visp and Niedergesteln.

The investigations to identify potential contaminated terrains is just about to be concluded. All in all roughly 4 000 soil samples have been analyzed for mercury; 71 lots of a total of 469 investigated in residential areas were identified to requiring remedial actions, whereas only 4 of the 752 agricultural investigation areas are candidates for remediation. Following a detailed investigation of the identified lots and areas to characterize the extent of the contamination, the start with the actual soil remediation activities is planned for late 2015.

According to currently available data, neither historically nor in the recent past have adverse health effects to humans or animals been linked to the mercury contamination found in the investigated region. To obtain a scientific evaluation on possible health effects, an epidemiological study by experts of the University of Zurich is currently underway; and the results are expected to be available at the end of 2015. In the meantime the current land use restrictions in place, issued by the authorities, and the upcoming remedial actions will continue to protect the safety of the residents of the area including the thousands of Lonza employees and family members in the Visp area.

The Lonza Board of Directors and the Cantonal Government continue their discussions to solve the mercury issue, and experts on both sides discuss the required technical measures and the remediation planning in their regular meetings. Lonza has voluntarily decided to pre-finance on-going necessary technical investigations, without prejudice, because we recognize the need for a quick and efficient rehabilitation, in particular in the residential areas.

For the same reasons, Lonza has willingly also taken over, without prejudice, the sole pre-financing of the costs of remediation of contaminations of above 2 mg Hg/kg of soil in residential areas in the perimeters agreed with the Canton of Valais (Hg is the chemical symbol for mercury). Notwithstanding the future final decision on the responsibility among the various parties involved with the existing widespread contaminations, Lonza wants to drive forward effective and efficient solutions to address this legacy of industrial production.

## EHS SCOPE

Lonza commits considerable resources to EHS activities. At the end of the reporting year, a total of 218 people, 2.2% of our employees, worked in the EHS field, a percentage that has been fairly stable over the years. EHS operational costs amounted to CHF 56.4 million in 2014, 6% down on the previous year. Capital expenditure on EHS was CHF 27 million, equivalent to 0.7% of sales and 15% of the Group's total investment in fixed assets.

## GOALS

The systematic application of high safety standards and the sustained motivation of our employees worldwide are at the base of the achieved historic record safe year for Lonza with an LTI rate of 0.76. Though year-on-year variance will be observed at this low range, we are satisfied with the long-term falling trend, and we confirm our 2015 goal of 1.0 LTIFR. After the successful introduction of a new and robust comprehensive EHS performance data system in 2014, we now have the tools to define new and ambitious environmental goals for the medium-term period to follow. Lonza's executive management will decide in the third quarter of 2015 on the 2016–2020 medium-term sustainability goals. They will be communicated together with the annual report in 2016. These goals will include direct (scope-1) and indirect (scope-2) greenhouse gas emissions (GHG), as well as established lead parameters. Current GHG data as shown here consider scope-1 emissions only and make the table consistent with data reported in earlier years. The inclusion of the late 2011 acquisition of Arch in combination with the original absolute emissions goals of 2010, which were not altered, make the achievement of the stated objectives all the more challenging.

## INDICATORS

Intensity indicators for 2014 continue to show the falling trend since 2009, which indicated that the resource consumption, with process efficiency and product mix have created a path of growing sustainability in the last years. We will continue to closely monitor consumption and emission intensities in the years to come, as we expect more complexity of influencing factors.

### SAFETY<sup>1</sup>

per 1 million hours worked	Basis	Goal	Status end 2010	Status end 2014	Goal
	2000	2010	2010	2014	2015
Frequency of accidents					
LTIFR <sup>2</sup>	9.5	2.0	1.5	0.76	1.0

Severity of accidents	Basis	Goal	Status end 2010	Status end 2014	Goal
LTISR <sup>3</sup>	1 460	330	183	117	250

### ENVIRONMENT<sup>1</sup>

	Basis	Goal	Status end 2010	Status end 2014	Goal
	2000	2010	2010	2014	2015
in 1 000 metric tons					
CO <sub>2</sub> e scope-1 emissions <sup>4</sup>	930	400	445	401	360
in metric tons					
VOC emissions <sup>5</sup>	759	300	549	369	270
in metric tons					
Air impurities <sup>6</sup>	1 485	900	1 014	828	810

### INTENSITIES 2014<sup>7</sup>

	Change on 2013
Energy consumption	16.2 GJ/t
Industrial water	9.8 m <sup>3</sup> /t
CO <sub>2</sub> e scope-1	649 kg/t
Air impurities	1.3 kg/t
Hazardous waste	110 kg/t

<sup>1</sup> Includes all active production and R&D sites, as well as headquarters in the referenced years

<sup>2</sup> Lost-time injury frequency rate: number of accidents per 1 million hours worked

<sup>3</sup> Lost-time injury severity rate: number of hours lost by accidents per 1 million hours worked

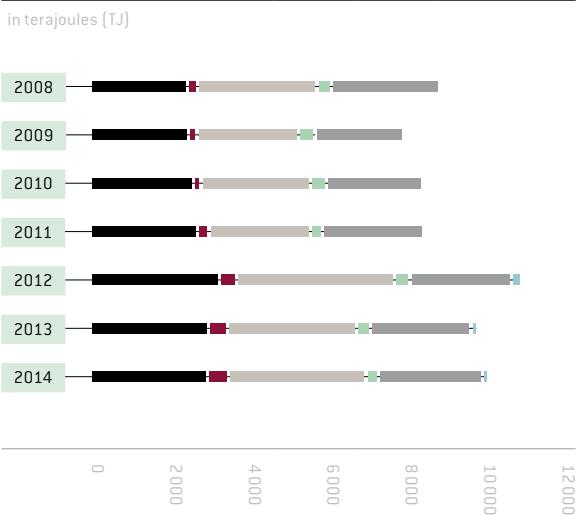
<sup>4</sup> Carbon dioxide equivalents (scope-1)

<sup>5</sup> Volatile organic compounds (VOC)

<sup>6</sup> Air impurities comprise VOC, nitrogen oxides (NO<sub>x</sub>), sulphur dioxide (SO<sub>2</sub>) and particulate matter

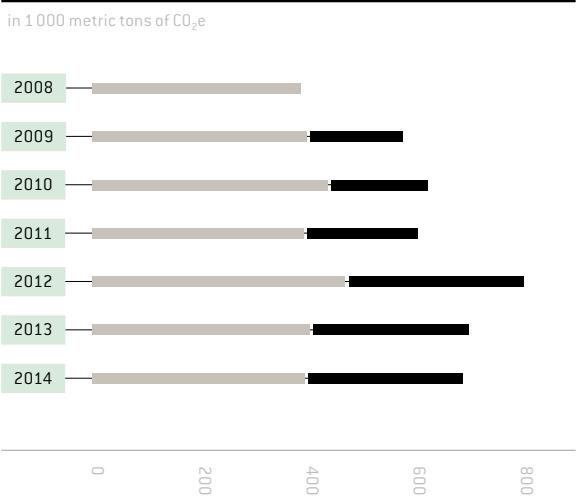
<sup>7</sup> Intensity: consumption of a resource or emission of a pollutant in relation to the production of one metric ton of finished goods

## ENERGY



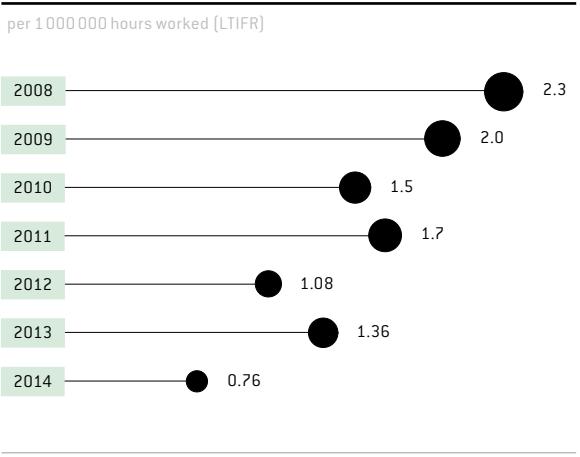
The total energy requirement in 2014 was 10 029 Terajoules (2 786 GWh), 3% up on the previous year. This slight increase and essentially stable consumption has been achieved in spite of a production volume increase of 15% in the same period. The main energy sources used by Lonza in 2014 were natural gas (36%), electricity (30%) and self-generated energy, mainly by incineration of waste (27%). Liquid, mainly fossil-based fuels, accounted for 2% of the overall energy consumption.

## GREENHOUSE GAS EMISSIONS



Total output of GHG in 2014 was 693 000 metric tons of carbon dioxide equivalents (CO<sub>2</sub>e), 1.5% down on the previous year. Direct emissions (scope-1) amounted to 401 000 metric tons and were reduced by 2.4% while indirect emissions (scope-2) remained constant. Almost half of all scope-1 CO<sub>2</sub>e (48%) emitted is generated by the thermal treatment of waste materials or by chemical reactions during normal production processes, and an equal percentage originates from stationary fuel incineration. Indirect scope-2 emissions are calculated by standard emission factors from the consumption of purchased electricity, and amounted to 293 000 metric tons.

## OCCUPATIONAL ACCIDENTS

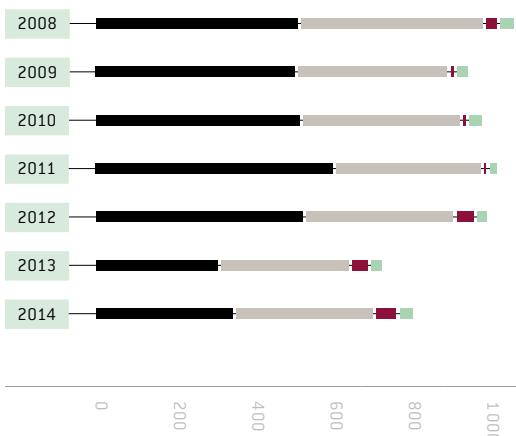


The occupational accident frequency rate in 2014 reached a record low level of 0.76 accidents per 1 million hours worked, almost halving the prior year's result. This is Lonza's safest year in history and could only be achieved by the common commitment to safe behavior of all employees working globally and across all segments. Vision "Zero" is guiding our safe work practices, and gets high-level management attention from the Executive Committee. While in 2013 two-thirds of the injury cases were of the slip-fall or manually-moving-container types, these kinds of injury causes were reduced to one-third in 2014, a clear sign that targeting behavioral safety was successful.

Volatile organic compounds (VOC) and nitrogen oxides (NO<sub>x</sub>) were responsible for 90% of all air impurities, totaling 828 metric tons in 2014, up 11% on the previous year. While material technical measures have already taken a sustainable reductive effect in 2013, the reduction of specific emissions (intensity) during 2014 continued. While NO<sub>x</sub> are generated essentially by incineration processes, VOC emissions are mainly the result of solvent use in production, cleaning and maintenance processes. Whereas the Group's VOC emissions in total increased by 12%, they were significantly reduced by almost 10% at our largest single contributing site. Halogenated VOC made up 13% of total VOC, a decline of 2% on the previous year.

## AIR IMPURITIES

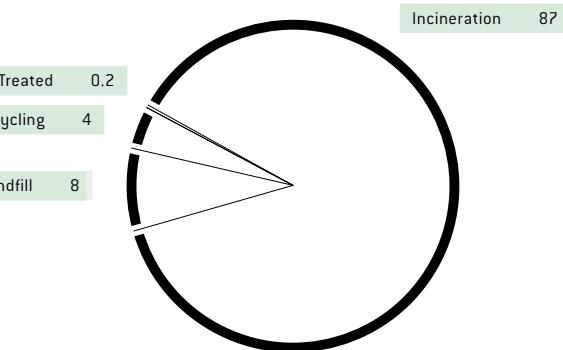
in metric tons



In the reporting year, 92% of hazardous waste materials were incinerated, externally recycled or treated to render them non-hazardous, and 8% went to secured landfills. Hazardous waste generation in total decreased by 28%. All companies involved in the transportation, processing and final disposal of wastes are known to Lonza. In all countries, hazardous waste is handled by institutionalized manifest systems. Waste treatment is a matter of trust; so the selection of the vendors is based on quality and EHS criteria, as well as economic factors. As a matter of principle, we work only with reputable firms that comply with all legal requirements.

## FINAL TREATMENT OF SPECIAL WASTE

in %



The total quantity of waste produced by Lonza in 2014 was 127 200 metric tons (16% down on the previous year), of which 67 900 metric tons consisted of special (hazardous) wastes and 59 300 metric tons of non-hazardous wastes or inert materials. Lonza has a specialized waste disposal concept at all our sites, dedicated to the principle of avoidance, reduction, recycling or recovery, and environmentally sound disposal. The categorization into special (hazardous) waste and non-hazardous waste at all sites conforms to the applicable national legislation.

## WASTE CATEGORIES

in 1 000 metric tons



# **INVESTING IN ENTERPRISE RISK MANAGEMENT**

*Managing Risks Carefully*

For an innovative company that is a technology leader in a large number of divergent fields, effective risk management is a key issue, which makes it a critical part of our company culture. Changes in personnel in the strategic business fields, operations involving critical chemicals, highly potent compounds, complex information systems and rapid technological advances, as well as the dynamic nature of the relevant markets – all demand a critical assessment of the attendant risks on an ongoing basis.

Top management consistently emphasizes the importance of managing risks carefully. At both the July and October 2014 meetings of the Board of Directors and the Executive Committee, our Enterprise Risk Management (ERM) program was reviewed with updates on the ERM process, year-to-year risk positions, mitigation efforts and remediation status.

Further improvements to the Lonza risk environment were realized during 2014 through new and completed mitigation activities and consolidation of activities.

Throughout the year additional routine risk reviews were performed as a component of cultural risk awareness programs that have been implemented. Also, a full internal audit of the ERM process and outcome was completed in 2014, along with a benchmark of practices.

An important factor guiding Lonza's management of risks is our balanced, appropriate risk appetite. Our chosen approach of embedding risk management in our daily behavior and carefully managing risk will be continued. Financial Risk Management is disclosed in Note 27 of the Financial Report.

## **CULTURAL RISK AWARENESS**

Lonza has made a concerted effort to ensure that all employees consider and include risk mitigation and remediation in their everyday decision making and work efforts through routine updates directly to their management, to the Executive Committee and ultimately to the Board of Directors. Each major project includes a risk assessment, and regular business reviews include key risk updates.

## **BALANCED, APPROPRIATE RISK APPETITE**

Management is willing to accept considered risks in order to deliver competitive advantages and shareholder value. However, Lonza is risk averse with regard to environment, health, safety and reputation risks.

## **EMBEDDING RISK MANAGEMENT**

Robust risk management not only corresponds to our ethical principles, but also is clearly expected from us, particularly by our customers in the Custom Manufacturing area for business continuity, as well as by our worldwide customers in all facets of secure supply. The protection of employees, production facilities, raw material supplies, distribution channels and information systems from imminent negative influences and the preparation of alternative production capacity in case of unforeseen events are key prerequisites for the selection of Lonza as a partner.

# INVESTING IN OUR PEOPLE

*Making Lonza the Place to Go,  
Stay and Grow*

The Human Resources (HR) team at Lonza is working to strengthen the competitive advantage that we as a company can gain from our talented employees by ensuring that Lonza is “The Place to Go, Stay and Grow”. We are investing in our valuable human capital in many ways, from development and global apprenticeship programs that help build our future workforce to devising new incentive schemes that reward our people for embracing the broader market-orientation focus that will define and drive our future growth.

Early in 2014 the HR team conducted an extensive company-wide employee engagement survey called Life@Lonza. Among other findings the survey revealed that employees are eager for help in understanding the changes and seizing the opportunities created by our transformational initiatives. We are responding with more-effective communication strategies, initiatives to support change readiness across our workforce and an enhanced cross-functional global talent management process that focuses on employee development.

## GLOBAL APPRENTICESHIP PROGRAMS

Lonza is finding creative ways to deal with our various HR challenges, such as the intense competition in Singapore for skilled biotech workers. This talent shortage poses a challenge to the availability of skilled labor required to support our fast-growing Pharma&Biotech operations there.

In response, we are partnering with the Economic Development Board (EDB), a governmental organization in Singapore, to develop training and development programs. These programs will draw on our experiences with our world-class apprenticeship program at our major site in Visp (CH)<sup>113</sup>.

In close collaboration with the EDB, the Singapore Workforce Development Agency and Temasek Polytechnic, we have recently recruited 23 trainees in Singapore through the “BOOST” program. These trainees will receive on-the-job training in Singapore and at various Lonza manufacturing sites globally.

In addition to our efforts in Singapore, we continue to address entry-level talent development across the organization. As part of this focus, we now have a new partnership with the UK government for an apprenticeship program in Slough (UK)<sup>114</sup>.

## INCENTIVE SCHEMES

Working in conjunction with the Go-to-Market Excellence (G2ME) and Sales leadership teams, HR has worked to redesign our sales incentive plans. Where business models allow, we have made them and their associated key performance indicators more consistent across our business units.

We also have defined career ladders and a consistent job-grading system<sup>115</sup> for our Sales and Marketing teams, and we are developing training programs for our commercial organizations to ensure their team members are armed with the vital new skills and competencies that will allow them to excel.

## GLOBAL TALENT MANAGEMENT

To attract and retain the best and brightest employees, we are strengthening our global talent management and succession planning processes by offering new learning strategies<sup>116</sup> and courses and by developing new policies and practices<sup>117</sup>.

We are also benefiting from our diversification initiatives, including the hiring of disabled individuals<sup>118</sup>, who can bring to their jobs a strong work ethic, an exacting attention to detail and an eagerness to learn.

# **INVESTING IN OUR COMMUNITIES**

## *Caring About Communities Around the Globe*

In the communities where we operate, Lonza is much more than a faceless corporation. We are neighbors, a vital source of jobs, a charitable sponsor of local schools and civic and cultural projects, and often a significant contributor to local economies. In short, Lonza and our employees are “citizens” of these communities; and we do our utmost to contribute to the quality of the life that we share.

Sustainable value for Lonza comes not only from investing in the communities where we live and work, but also from investing in the wider world where we see opportunities to contribute to sustainability and the greater good. Sponsorships and philanthropic donations are an integral part of how we express our corporate social responsibility. We want to be a reliable long-term and active partner and engage at the earliest possible stage of any community project we sponsor in order to optimize the use of available resources. Accordingly, we focus our resources on a small number of selected projects where our engagement can make a significant difference, rather than on a vast number of projects.

Whenever possible, we try to reach out to our neighbors, civic organizations, industry associations and others in determining what they consider the greatest community needs that Lonza and our employee-volunteers can help address.

While our financial donations are vital, our employees also play a critical role by volunteering in programs and projects in our priority areas of education, the environment, culture, health and social welfare. Some employee-volunteers have been engaged in supporting local schools for so long that it's almost a second career.

By contributing our knowledge, expertise, logistics and financial support, Lonza is creating sustainable value for our communities around the world including Switzerland, United States, Brazil, Czech Republic, England, Spain and South Africa.

# **DETERMINING COMMUNITY NEEDS**

In Charleston, TN (USA), for example, our Water Treatment manufacturing plant has been engaged for decades in a dialogue with our neighbors through a Community Advisory Panel. The active panel is composed of members of the Charleston plant staff, nearby neighbors, community leaders and area emergency response personnel. At the panel's bi-monthly meetings and during Lonza plant tours and other events, we solicit ideas about local projects and needs that can benefit from Lonza support and then share with the community information of interest about the Lonza operations in Charleston.

# **ENGAGING AS EMPLOYEE- VOLUNTEERS**

Dr. Kym Baker, who is now Head of Manufacturing, Science and Technology at the Pharma&Biotech site in Slough, UK, recalls giving her first lecture at the local Burnham Grammar School back in 2002, a year after she joined Lonza. Now, more than a decade later, Kym and other employee-volunteers are still engaged at the school in a range of activities from sponsoring and judging science competitions to offering career advice, running science practice sessions and lectures, offering internship work experiences and donating lab equipment.

# **SWITZERLAND**

## *Partnering with Swiss Youth in Science*

Lonza Corporate Sponsoring entered into a three-year partnership with Swiss Youth in Science in July 2014. Founded in 1967 the foundation “Schweizer Jugend forscht” (Swiss Youth in Science) supports inquisitive and motivated children and young people with the aim to awaken joy and fascination for scientific work.

Lonza's support is focused on helping to organize four annual study weeks for 10- to 13-year-old girls (girls@science) and boys (boys@science) each year. Two study-week topics – “Chemistry and Material Science” and “Biology and Medicine” – are geared for young people at



the high-school level. Approximately 300 children and adolescents participate in the study weeks each year. In subjects such as mathematics, computer science, natural sciences and technology, there is a deficit of qualified talent leaving the Swiss schools. With the foundation's series of courses, children and young people become more interested in those subjects and learn about options for their future studies or professional careers. During the study weeks, the children and young people develop a project at a university or in a company to solve a given scientific issue and to build their expertise in using active scientific methods.

With this engagement Lonza contributes to the promotion of science and helps in the development of the next generation of scientific professionals.

## UNITED STATES

### *Supporting School Activities and Stocking Food Banks*

Lonza's Charleston, TN, facility was awarded highest honors (Platinum) at the Chamber of Commerce's 2014 BEST (Business & Education Serving Together) partnership for their work with neighboring Walker Valley High School throughout the year. We began the school year by welcoming back teachers and staff with boxes of apples. Walker Valley sophomores toured Charleston's chemical manufacturing facility as part of National Manufacturing Day. Several Lonza staff members served on advisory panels at the school, taught Junior Achievement classes and volunteered at their annual Reality Check event. Lonza also purchased books for the teacher plan centers.

In the spirit of partnership, Walker Valley provided several season passes for all athletic events to Lonza employees. And this year Walker Valley again allowed our Employees Credit Union to use their cafeteria for the annual meeting.

Also Lonza employees in Allendale, NJ, created and executed a "Supermarket Sweeps" team exercise as an integral part of the North American Business Services Organization Leadership Team meeting. This event resulted in the donation of enough pantry items to help two food banks in the greater New Jersey area sustain and provide their clients through the winter with food and other pantry items.

## BRAZIL

*Creating Safe Daycare Centers and Orphanages*

In both Igarassu and Salto, Lonza sponsors different programs to ensure a better quality of life for children and adolescents who are assisted by daycare institutions. With the help of Lonza volunteers, a roof lining at one daycare center was installed to protect the children in the nursery from soot coming through the roof. Air conditioners were also mounted in the dentist room and in the baby nursery area to avoid airborne infection and to let the babies sleep with proper ventilation. Another daycare center received donations of cleaning materials and food for the children. Furthermore, rescue equipment was donated to a local fire brigade and Lonza donated building materials to an orphanage that assists children who had been badly treated.



## CZECH REPUBLIC

*Revitalizing a Community Center for All Generations*

As part of the revitalization and reparation of the town fortifications in the 100-year-old Kouřim town park, Lonza Biotec sro made a sizeable donation towards the cost of creating a natural community center for all generations. Additionally, this work was partly performed by volunteers with the contribution of Lonza equipment.



## ENGLAND

*Helping Injured Combat Veterans Thrive*

In 2014 Lonza Slough supported the RAFT (Restoration of Appearance and Function Trust) and Walking with the Wounded groups at the Hurlingham Club. The purpose of RAFT is to help make war survivors' lives better with medical care and innovative solutions, whilst Walking with the Wounded funds the re-training and re-education of wounded ex-servicemen and women with the aim of helping them find long-term employment outside of the Armed Forces.



## SPAIN

### *Building a Future Workforce*

Lonza Biologics Porriño and the Regional Ministry of Education signed an agreement to prepare industrial chemistry students to succeed in the biotechnology industry by hosting them in a training residency followed by an internship period. They are then included in a talent pool for highly trained people ready to start work immediately. Students benefit not only from best-in-class facilities and technical capabilities but from highly qualified and experienced professionals who shared their know-how.

In addition to the benefits for the students, the program has allowed Lonza to address business growth needs and significantly reduce recruitment periods. About 20% of the initial scholars are still employed at Lonza in Operations. This long-term agreement will be continued and even reinforced during 2015 because of the good results.



## SOUTH AFRICA

### *Transforming a Rural School in South Africa*

Eight years ago, Graham Ponter, the Financial Manager for Lonza Wood Protection in South Africa, recognized that a small elementary school in an indigent, rural area of Bethania near Lonza's operations in Shelly Beach was in desperate need of help. Over the years Graham and many fellow employee-volunteers have worked hard to transform the school into a vital educational and community resource.

Lonza first helped construct a soccer field at the school and soon after teamed up with local people to build a jungle gym with timber treated with Lonza's Tanalith™ preservative. Since that time we have built an extra classroom for the school, expanded the kitchen, constructed seven new toilets and two wash basins, and have donated a computer and other school supplies. Lonza also sponsors fresh food supplies that are used to provide the children with a cooked meal every day.



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<b>INVESTING IN OUR PEOPLE</b>	101

# ENABLING CROSS-BUSINESS SYNERGIES

## APPLYING EXPERTISE ACROSS BUSINESSES AND CAPITALIZING ON CROSS-BUSINESS SELLING

1

### Sharing Technical Expertise Across Segments – Pharma&Biotech and Specialty Ingredients (Agro Ingredients)

The Agro Ingredients business profits from Lonza's global experience in other Specialty Ingredients and Pharma&Biotech segments. Our new generation of agricultural products, for example, has become more selective in the use of active ingredients. This evolution comes in response to regulatory pressure and consumer preferences. Because these products are more complex, they require sophisticated support for development, production and regulatory approval.

Here, Lonza brings to the table its expertise in custom synthesis, integrated project management capabilities, broad chemical and biological technology, a flexible market-launch process and customized contracts for the financing of investments and development efforts.

### Sharing Business Practices Across Segments – Pharma&Biotech and Specialty Ingredients (Consumer Care)

Contractual concepts and business expertise from the Pharma&Biotech segment have been shared across the organization. Specialty Ingredients businesses have used this information to better manage their customer contracts for products and projects.

The Pharma&Biotech businesses have provided Specialty Ingredients' Consumer Care team access to cutting-edge technologies and have shared with them knowledge of how to apply tailored manufacturing systems and development services.

### Capturing Synergies Between Segments – Pharma&Biotech and Specialty Ingredients (Consumer Care)

The Consumer Care team is working to capitalize on cross-selling synergies to serve exciting new markets. For example, our Laracare™ Quat is a hair-conditioning agent derived from a Nutrition ingredient. In another example, the Specialty Ingredients team is drawing on Pharma&Biotech fermentation technologies to expand existing fermentation- and bio-based offerings in Nutrition, including an infant formula ingredient providing the benefits of human milk.

### Applying Commercial Best Practices from Water Treatment Teams

Lonza's Water Treatment business looks for cross-business selling opportunities within and outside the water industry. We also look for ways to transfer and apply commercial best practices across global teams.

For example, knowledge, experience and lessons learned from our successful HTH® social media efforts in the United States were shared with our team in Brazil to prepare for the launch of their social media marketing campaign in 2015. On the other hand, innovative and high-performing products from Brazil and South Africa markets have been transferred to the U.S. market for the 2016 HTH® brand re-launch.

To further support commercial efforts in 2015, the global Water Treatment team is also launching advanced software that streamlines the new-product commercialization process, packaging development and marketing material development and management.

### **TAKING ADVANTAGE OF CROSS-BUSINESS TECHNOLOGIES**

2

### Using Biocide Expertise in the Agricultural Sector – Agro Ingredients Example

Lonza is harnessing key biocides elsewhere in its portfolio, as well as associated formulation expertise to expand the formulated products and services that we supply to agrochemical customers. One good example of how Lonza's microbial-control formulation expertise is opening up new opportunities lies in Agro Ingredients' use of specific biocides for the pre- and post-harvest treatment of seeds and crops. Preventing losses starts with sowing and does not end with the harvest. Treatment with special biocides just before or after harvesting helps to ensure that the harvested fruit and vegetables are delivered fresh to distributors and end consumers.

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### Utilizing Pyrithione Technology Across Industries – Consumer Care Example

Pyrithione technology (including zinc, sodium and copper pyrithiones) is one of those exciting, cross-Lonza focus technologies that extend well beyond Personal Care to encompass other Specialty Ingredients businesses. Our zinc pyrithione, for example, is the world's leading active antidandruff agent, but it is also used by our Industrial Solutions group. They tailor these pyrithione products for use as active biocides in marine antifouling coatings to control the growth of algae and other foulants on ship hulls and aquaculture nets.

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### Finding Cross-Business Solutions Together – Pharma&Biotech and Specialty Ingredients Example

Lonza's Pharma&Biotech Custom Development team is working with many flavor and fragrance customers with high-volume requirements who want to reduce their cost of goods so they come to Lonza. Our Custom Development team then introduces the customers to Specialty Ingredients businesses like Consumer Care or Agro Ingredients for large-scale production.

As an example, teams from Consumer Care, Pharma&Biotech and Research and Technology (R&T) launched a project in 2014 to create a marketing platform called “Beyond Beauty”, which focuses on the skin-care market segment and provides targeted topical benefits for skin conditions. Our platform brings together ingredients and formulations from our existing Personal Care portfolios with our Pharma&Biotech peptide and media technology in order to create new, innovative products. This collaboration is expected to yield potential offerings in several years.

Also teams are already working with skin-care customers to explore the opportunity of utilizing our Pharma&Biotech technology for their manufacturing needs or using our active pharmaceutical ingredients (APIs) for their advanced skin-care products.

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### Using Parallel Technologies from Pharma&Biotech – Personal Care Example

The old saying – “From a tiny acorn a mighty oak tree grows” – is vividly illustrated by Lonza Personal Care’s ReGeniStem™ Red Rice, a sustainable, anti-aging skin care ingredient. It is derived from a tiny meristem of Himalayan Red Rice that is then cultivated in a bioreactor. This process – which is similar to bio-fermentation technologies in Pharma&Biotech – enables the creation of sizeable quantities of reproducible biomass and the concentration of actives that are incorporated into our bioactive skin care ingredient. It can be found around the world in anti-aging skin-care creams and related products.

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### Transferring Technologies, Raw Materials and Intermediates Across the Company

Taking advantage of the 50-year-old cracker and related technologies at the Lonza site in Visp (CH), the Industrial Solutions business has developed some solid niche markets. This business is also important to Lonza overall, as it provides vital raw materials and intermediates to other Lonza businesses, such as Pharma&Biotech, Agro Ingredients and Nutrition.

## CAPITALIZING ON GLOBAL MEGATRENDS

### THE GROWING WORLD POPULATION

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#### Emerging Markets

Our Water Treatment business is also capitalizing on opportunities as water-hungry agriculture and industries expand in emerging markets. From South America to South Africa and beyond, Lonza Water Treatment’s calcium hypochlorite sanitizers and feeder systems are being used in the pre- and post-harvest cleansing of fruits, vegetables, poultry and seafood, as well as in beverage-bottle sanitization and other food-preparation processes.

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#### Toxic Algae Blooms

The importance of treating drinking water reservoirs was underscored during the summer of 2014, when the city of Toledo, OH (USA), warned nearly 500 000 customers not to drink their tap water or wash in it because of high levels of a dangerous toxin produced by an algae bloom in a lake where the city gets its drinking water.

In the United States, the U.S. Environmental Protection Agency (EPA) reports that 211 million people (out of a total population of 320 million) get their drinking water from surface water reservoirs and other sources while the remainder of drinkable water typically comes from wells. The market for surface water treatments is extensive, and these systems typically generate much higher volumes or flow rates of water (millions of gallons per day) than wells.

Lonza also offers a range of feeder systems that can address the disinfection needs of potable water plants up to 10 million gallons per day.

Applied Biochemists, the Lonza surface water treatment business, treats reservoirs with products that address algae and other nuisance aquatic vegetation that can cause taste and odor problems with the water, excessive treatment costs and even potentially dangerous toxins. This business also provides treatments and services for other surface waters, including golf course water hazards, private lakes and ponds, and agricultural irrigation waters.

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#### Agro Ingredients

For billions of people around the world, rice remains a vital staple of their diet. Our Agro Ingredients business is on the front lines of this industry. Lonza brings to the table its role as a world leader in Metaldehyde-based molluscicides that protect crops from slugs and snails, which can threaten the livelihood of the farmer. Besides supplying the active material and formulated products to Southeast Asia, we also developed a new revolutionary delivery system – along with INCOTEC, a major seed-coating technology customer – to protect rice in the region from the golden-apple snail.

We have combined our molluscicide with INCOTEC’s seed-coating technology to provide the SnailWise, metaldehyde-based, rice-seed coating. To be first marketed in Malaysia, this innovative product aims at protecting the rice plant during its first days of growth in direct-drilled paddies against attack from the golden-apple snail. Considered one of the top 100 invasive species, this snail is one of the most important rice pests in South East Asia and can significantly impact farmers’ crops and lead to major economic losses.

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#### Nutrition

To address growing demand for protein in developing nations, Lonza’s Nutrition business supplies niacin and niacinamide vitamin B3 compounds used in feeds for production animals, including beef cattle, poultry and fish raised in aquaculture. Lonza supplies more than half of the world’s vitamin B3 for both animal and human nutritional markets.

## THE AGING OF GLOBAL POPULATIONS

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### Enabling Drug Candidate Success: Lonza's Developability Assessment Toolbox

To help our customers reduce the risk and cost of drug discovery and to increase the chances of a drug candidate's success, Lonza Pharma&Biotech offers a Developability Assessment Toolbox, a suite of in-silico tools and protein-structure expertise. The platform includes Manufacturability and Safety Assessment Services applicable to customers in both discovery and early-stage biological protein and antibody drug development.

In addition to reducing development costs and time, the early risk assessment also can accelerate the lead candidate selection process, identify ways to optimize processes before problems arise in development and improve the chance of a successful manufacturing scale-up. If high-risk issues are identified in the initial assessment, our experts have an extensive range of protein-engineering capabilities that have the potential to improve the structure, biological activity and manufacturing properties of a customer's drug candidate.

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### Anti-Aging Skin Treatments

Lonza Consumer Care's ReGenistem™ Red Rice is an innovative, sustainably produced anti-aging skin-care ingredient used in customer products around the world. Our bioactive skin-care ingredient draws on a tiny portion of the Himalayan Red Rice plant that is then cultivated in a bioreactor, creating the biomass needed without growing monocultures of this plant with all of the associated use of water, pesticides, herbicides, etc.

## THE RAPID GROWTH OF MEGACITIES

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### Fire-Retardant Treatments

As a controlled, industrially applied fire-retardant wood treatment, Lonza Wood Protection's Dricon® has been used in major construction projects throughout the world for more than 30 years. The product provides trusted protection for solid timbers and panel products used in interior or weather-protected exterior situations. From hospitals, schools, theatres and airports through to underground railway projects, Dricon® offers a built-in and permanent fire protection that will limit the effects of fire and give confidence and reassurance to the building's designers and its occupants.

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### Biocides and Fungicides

Growing urbanization is driving increased demand for paints; and in many areas, this demand includes specialty paints that can play a role in helping to protect human health. Lonza Industrial Solutions addresses this need with ingredients such as our Zinc Omadine™ ZOE Antimicrobial, also known as Zinc Omadine™ ZOE Dispersion in Europe. The letters ZOE stand for Zinc Omadine™ Enhanced.

Approved for use in both interior and exterior paints and coatings, ZOE products provide durable, dry-film protection against algae and fungi, such as mold. The basic Zinc Omadine™ compound (zinc pyrithione) is familiar to consumers as the world's leading antidandruff active agent, used in shampoos for more than 50 years.

Also, our new Densil™ FAZ (and ZOD) antimicrobial ingredient for exterior paints and coatings is tailored for use in humid environments such as the Asia-Pacific region, where harsher conditions exist and problems with mold and algae growth can be severe. As an added advantage, our ingredient does not contain volatile organic compounds.

## THE GROWTH OF MIDDLE CLASSES IN BRIC AND VISTA COUNTRIES

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### Cosmetic Ingredients

Lonza Consumer Care is the world's largest supplier of actives for antidandruff shampoos, and we also provide a wide range of other skin- and hair-care ingredients, including biotechnological actives, protein delivery systems, preservatives and numerous certified natural and organic ingredients. We tailor our ingredients to address the unique skin- and hair-care needs of different markets around the world.

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### Recreational Water Treatment

Lonza's Water Treatment business is solving the need for more convenient, multi-function, versatile pool-treatment solutions. As a leading global supplier of swimming pool and spa sanitizers and related treatment chemicals, we offer globally popular brands such as our HTH® family of products.

We are also growing our offerings for the treatment of industrial water, with leading chemistries and brands such as our Equinox™, Barquat™ and Bardac™ products. Equinox™ is used in the paper-making industry and related applications to reduce corrosion while maintaining chlorine stability for reductions in biofilm formation. Bardac™ and Barquat™ are used in cooling water sanitization, also related to biofilm control. Other compounds within the product grouping are used for hard-surface cleaning and disinfection and for algae control in swimming pool water.

Scientists in our Water Treatment labs in both Salto (BR) and Igarassu (BR) developed our breakthrough product – the potent, all-in-one style HTH® Mineral Brilliance product. This product offers attractive consumer benefits as a multi-functional sanitizer that eliminates algae and makes water sparkle.

With manufacturing conducted in Igarassu, the value-added HTH® Mineral Brilliance 10-in-1 product provides 10 benefits to pool owners in

one treatment. While it acts as a sanitizer to eliminate bacteria, algae, germs and other pathogens (including ringworm and candida fungi), it also releases mineral ions that clarify the pool water continuously. The mineral ions are able to enhance the reflection of light to create the unique Mineral Brilliance™ effect of water that is so clear it seems to shine

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### **Biotech Therapies**

Lonza's Pharma&Biotech segment develops robust, reliable systems for advanced stem-cell banks to meet the needs of patients in the future. The U.S. National Institutes of Health (NIH) reached out to Lonza Bioscience Solutions when it sought a reliable way of transferring life-saving stem-cell research into affordable, real-world therapies.

Our challenge was to develop a GMP-compliant, clinical-grade, master cell-bank process for induced, pluripotent stem cells (iPSCs), as well as for human embryonic stem cells. Both of these stem-cell types have the ability to indefinitely self-renew and become any cell type in the body. Because of these attributes, they are spurring advancements in basic research, disease modeling and drug development, such as the use of cell transplantation therapies for the treatment of degenerative diseases like diabetes, Parkinson's and a number of cardiovascular diseases.

Rising to the NIH challenge, Lonza scientists soon realized that existing products did not provide the optimal, xeno-free, defined conditions for human pluripotent stem cell (hPSC) cultures, so the L7™ hPSC Culture System was created. As an added benefit for biotech customers, this same system is used in Lonza's clinical-grade manufacturing of induced pluripotent stem cells and derivatives, which allows an easy transition to clinical applications.

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### **Electric Vehicle Batteries**

Offered by Lonza's Industrial Solutions business, our electrolyte chemistry enables longer battery life and faster charging of electric cars, buses and other vehicles, as well as phones and laptops.

The demand for electric vehicles is increasing among consumers, particularly as cities, states and other institutions switch to electric vehicles in their fleets.

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### **Ships**

Our Industrial Solutions business is one of the world leaders in supplying environmentally preferable co-biocides for use in marine paints that deter the growth of foulants such as algae and plant materials on ships' hulls. These protective coatings enable the ships to travel more quickly and efficiently, reducing fuel use and emissions.

Industrial Solutions also supplies resins used in carbon-fiber composites and other materials that reduce weight, increase strength and help conserve fuel for high-performance automobiles, planes and satellites.

## **ENABLING OUR STAKEHOLDERS' SUCCESS**

### **ENGAGING STAKEHOLDERS IN ONGOING DIALOGUE**

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### **Open Dialogue**

We engage our stakeholders in the media, for example, with open dialogue during face-to-face meetings and interviews. Financial results are presented to media and analysts during on-site news conferences and teleconferences. Corporate news releases are sent to mass media journalists and interested investors and analysts, while product news releases are sent to trade media. Also we engage with investors, analysts, agencies and shareholders at meetings and events like roadshows, the Annual General Meeting, etc. Our investors and analysts were also invited to participate in Capital Markets Day in May 2014 at our Visp (CH) facility.

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### **Partnerships with Stakeholders**

We engage our stakeholders to help us act in a sustainable and socially responsible manner. Our commitment is demonstrated in part by being a member of the UN Global Compact and by aligning our businesses and strategies with the 10 universally accepted principles in the areas of human rights, labor, environment and anti-corruption.

### **CUSTOMERS**

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### **Pharma&Biotech**

We supply tools that life-science researchers use to develop and test therapeutics, from basic research through to final product release. Also we enable our customers' success by producing their active pharmaceutical ingredients for clinical and commercial use and providing them a steady supply of high-quality products, as well as R&D, process development and analytical services.

For example, as the largest provider of allogeneic cell therapies, we work with customers to scale up and stabilize their processes in preparation for regulatory review and commercialization. Other examples of how we enable our customers can be found in the Pharma&Biotech section of the Annual Report.

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### **Specialty Ingredients**

In Specialty Ingredients we enable our customers to bring to market high-quality products at a competitive price that will provide critical value to their end consumers and their commercial sector.

For example, our Industrial Solutions business offers the widest range of biocides and formulated products tailored for the required application. We then work closely with the customer to adapt our offerings to meet the changing needs of the marketplace. Other examples of how we enable our customers can be found in the Specialty Ingredients section of the Annual Report.

## PATIENTS

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### Bioscience Solutions

Our Bioscience Solutions business serves research institutions and customers worldwide in pharmaceutical, biopharmaceutical, biotechnology and personal care companies, as well as academic and government research institutions.

For example, we enable customers to give patients the best therapies available by supporting medical research and drug development (cell biology and cell analysis) and delivering tools (endotoxin testing kits) for product release in the pharmaceutical industry. Other examples of how we enable our customers to serve their patients can be found in the Bioscience Solutions section of the Annual Report.

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### Custom Development and Manufacturing Services

As custom development and manufacturing experts, Lonza enables our customers to provide patients with reliable access to complex, innovative active ingredients and breakthrough therapies at an affordable cost.

For example, we enable our Microbial-business customers to supply their patients with ingredients for HIV and cancer drugs, etc. With these diseases it is critical that patients receive a steady supply of the best-available medicines. Other examples of how we enable patients can be found in the Pharma&Biotech section of the Annual Report.

## CONSUMERS

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### Agro Ingredients

We enable our Agro Ingredients customers to manufacture regulated herbicides, fungicides and insecticides in our state-of-the-art chemical and biotechnological production facilities. In addition, we enable our farming and gardening community consumers to have better crop yields and plant quality when using our Meta™ products, developed on the basis of the latest technological

findings on slug and snail control. Besides selling the active ingredient to agricultural firms, we also market our own slug and snail formulation directly to consumers under our Axcela™ brand name. Other examples of how we enable end consumers can be found in the Agro Ingredients section of the Annual Report.

### Consumer Care

Our Consumer Care business produces and markets ingredients that promote health, beauty, wellness and protection in the final consumer goods. We enable consumers to have access to scientifically proven and regulatory-accepted products that enhance their lives, from dandruff shampoos to vitamin B3 to disinfectants used in the battle against the Ebola virus. Other examples of how we enable end consumers can be found in the Consumer Care section of the Annual Report.

### Industrial Solutions

Lonza's Industrial Solutions business is a key player in the value chain of industrial markets, supplying products with unique benefits that contribute to helping end consumers in their everyday life. For example, consumers have access to more efficient batteries in electric vehicles, faster smartphones and communications networks, more comfortable airplanes, longer-lasting paints and more vividly white garments. Other examples of how we enable end consumers can be found in the Industrial Solutions section of the Annual Report.

### Wood Protection

Our Wood Protection business helps end consumers by providing globally recognized brands that are supported by the industry's leading technologies. For example, our wood preservative chemicals are historically proven to provide our customers' end users with global products that offer high performance, as well as robust protection of lumber against wood decay and termites. Other examples of how we enable end consumers can be found in the Wood Protection section of the Annual Report.

## Water Treatment

Our Water Treatment business sells not only to Industrial, Commercial and Manufacturing customers, but also to end consumers. We enable end users to have disinfected, clear, clean, sparkling pool and spa water, thereby helping them maintain these assets in good operating condition so that they can enjoy the numerous benefits of owning a pool or spa. In addition, we work on disease prevention and disinfection of water during outbreaks, like malaria, Ebola virus, etc. Other examples of how we enable end consumers can be found in the Water Treatment section of the Annual Report.

## CORPORATE STRATEGIC PROJECTS

### **MANUFACTURING FOOTPRINT OPTIMIZATION PROJECT**

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### Liquid Line 5 Improvement Project

The purchase of a second-hand, semi-automated, case erector and packing station (for swimming pool, spa and surface-water treatment products) was made to reduce manual handling activities on one of the most heavily scheduled assets on site. Realized benefits include improved throughput on standard bottle runs, reduction of material handling motion by better positioning of packers, and reduction of one packer employee on the line.

### **BUSINESS SERVICE EXCELLENCE**

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### **GPO**

Global Process Owners hold key positions of responsibility for driving standardization, harmonization and automation through an end-to-end process. Examples include the order-to-cash process and the purchase-to-pay process.

## GO-TO-MARKET EXCELLENCE

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### Sales

Our goal is to become the partner of choice for our customers on our journey to sales-process excellence.

### Portfolio Management

We are continuously optimizing our portfolio of products and services to adapt to changing market and customer needs.

### Innovation

In all parts of our business, we are focusing on innovating new solutions for the present and future needs of our customers.

## QUALITY

### EMBEDDING A COMMON QUALITY MISSION

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### Four Quality Pillars

The four pillars of our quality program are the following:

#### 1 Customer Satisfaction

As a trusted and reliable partner for our customers and regulators, we deliver safe and effective products and services in an excellent and efficient manner.

#### 2 Proactive Quality Culture

We integrate quality through all areas of the organization by implementing a proactive culture focused on "Right First Time", Continuous Improvement and Increased Productivity.

#### 3 Effective Workforce

We build an efficient and capable workforce by attracting, engaging and developing high-performing people and providing clear guidance that supports and motivates.

#### 4 Regulatory and Compliance Excellence

We adhere to regulatory expectations, and we identify and evaluate industry trends and continually ensure audit readiness.

## BUILDING A PROACTIVE QUALITY CULTURE THROUGH ERROR PREVENTION

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### Error Prevention System Phases

Beginning in early 2014, scores of employees were trained in Error Prevention System (EPS) Phase I – to shift behavior and reduce human errors. Following training, leaders began conducting "EPS Observations" in their daily work in order to identify error-likely situations and share error-prevention coaching tools. These observation walks help keep error prevention top-of-mind and resolve error-likely issues in the departments.

In October EPS Phase II was finalized and approved. Phase II includes newly defined standards for our guiding documents and implementation of these new standards across the company. It also includes designing and implementing a new system for learning and qualification.

Standard formats and nomenclature for Standard Operating Procedures, Work Instructions and Batch Records were developed and a Learning and Qualification module was designed to provide comprehensive and self-directed learning, as well as to document the assessment of knowledge/skills. Comprehensive learning is the foundation for consistent knowledge and competency – empowering every employee to anticipate, manage and prevent errors.

Phase II decisions were made based on external best practices, including inputs from our industry's BioPhorum Operations Group, along with internal best practices and feedback from pilot programs in Singapore and Walkersville, MA (USA). Employee feedback about the effectiveness of existing document templates and training programs was also important to the process.

### Five Core Beliefs of EPS

A systematic approach to predict, manage and prevent errors, the Error Prevention System (EPS) improves consistency and reliability in the areas of safety, quality and the delivery of goods and services. It is not an initiative – it is the way our industry as a whole is moving: toward proactive quality. And it is based on best operational and quality assurance practices of the pharmaceutical and nuclear industries. EPS is based on five Core Beliefs:

- 1 People are fallible, and even the best make mistakes
- 2 Error-likely situations are predictable, manageable and preventable
- 3 Individual behavior is influenced by organizational processes and values
- 4 People achieve high levels of performance based largely on the encouragement and reinforcement received from leaders, peers and subordinates
- 5 Events can be avoided by understanding the reasons mistakes occur and applying the lessons learned from past events

### Implementation of EPS

At Lonza managers are held accountable for, and everyone is personally involved in, error prevention. People managers and team leaders demonstrate commitment by practicing error prevention principles and completing frequent Error Prevention System (EPS) observations as they engage with our workforce.

Lonza has been asked to present our quality processes to many organizations and conferences where people are taking a keen interest. And while it has become more popular than before, we are aware that achieving our quality mission and goals will take time. The work has begun, but it is not a quick achievement. Operating in the current way took years to develop, and we will not change the minds of all employees overnight. In this multi-year journey, some benefits will be visible short-term; but a full shift will only take place over time.

# CUSTOM DEVELOPMENT AND CUSTOM MANUFACTURING

## BUSINESS DESCRIPTION

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### Custom Development

In Custom Development we offer proven expression technologies, such as our Mammalian GS Xceed™ and Microbial XS™ Systems, via both research and commercial licenses, allowing our customers to access our technologies in their own research facilities. These technologies, together with our protein design services offering, allow for early assessment of our client's lead drug candidates in a rapid and cost-effective manner. Following molecule selection, we offer custom contract services for mammalian and microbial cell line and strain construction, in addition to process development and optimization for robust scale-up through clinical development.

In our Chemical Development business, we have recently extended this licensing model to our small-molecule Microreaction Technology (MRT) platform. Use of microreaction technology allows customers to perform hazardous, high-temperature and pressure reactions in a controlled and safe environment. This innovative alternative to traditional chemical batch processing directly leads to a higher facility-throughput and a lower cost of goods.

Lonza's Development Services business is an extension of our customer's Research & Development team and allows them to remain focused on the clinical success of their therapeutic. Our cutting-edge development expertise in emerging technologies like cell therapy allows customers to come to us with a scientific discovery and leave with a clinical process. For our more established areas like mammalian cell culture, we provide systems that have already been successful in a large number of commercial products.

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### Custom Manufacturing

As one of the first companies to custom manufacture active pharmaceutical ingredients (APIs) for drug companies, Lonza's biological manufacturing services range from vector construction and cell-line development to full-scale manufacturing, all backed by a complete range of analytical services and regulatory support for clinical trials and in-market supply.

Lonza's experience in microbial fermentation began in 1983 in Visp to support the development of industrial enzymes, biotransformation technologies and other fermented ingredients. We then entered the microbial biopharmaceutical business, where we have successfully delivered almost every type of microbial parenteral API, including antibody fragments, vaccines, cytokines, plasmid DNA, fusion proteins and PEGylated products.

Founded as a chemical company in 1897, Lonza has continued to be a stable provider of chemical custom services, including advanced chemically derived active ingredients, peptide syntheses and high-potency active pharmaceutical ingredients (HPAPIs), as well as antibody drug conjugates (ADCs), cytotoxic compounds and small organic molecules.

The custom manufacturing landscape continues to evolve and grow with each new therapeutic discovery. As a committed partner to the pharmaceutical and biotechnology industry, Lonza recognizes the need for established and dependable global manufacturing facilities. Lonza has 11 contract development and manufacturing sites worldwide, spanning three continents. Each site offers superior regulatory expertise and adheres to the guidelines of the international, national and regional authorities.

## MARKETPLACE OVERVIEW

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### Outsourcing

Outsourcing and dual-sourcing decisions are mainly driven by four aspects – cost, timeline, technical expertise and quality – and are part of a customer's risk mitigation strategy. Custom Development and Custom Manufacturing organizations like Lonza can help pharma companies reduce costs and accelerate timelines with flexible offerings and scale-up capabilities for any stage of development through to commercial manufacturing.

Along with the outsourcing trend, another related trend in the marketplace is that as large pharmaceutical companies reduce their Research & Development workforce, they are looking to extend workbench agreements with custom development organizations like Lonza.

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### Chemical Development and Manufacturing

The market for antibody drug conjugates (ADCs) continues to grow at a rapid pace, with increased competition from new entrants. Lonza's Development business has various innovative projects in the development pipeline to maintain our leadership position in this high-growth market.

Small molecules and high-potency active pharmaceutical ingredients (HPAPIs) are increasingly being used in the oncology market, where Lonza is at an advantage as we can leverage our unique high-containment experience, track record and cytotoxic offerings. Additionally, peptides are still an attractive technology with many new products or cocktails of products entering clinical phases.

Development projects are being established in our Nansha (CN) facility for early-phase peptides and small molecules, providing a cost and speed advantage for early development projects. Nansha's development quality standards are being sought after in the local market.

## **Biological Development and Manufacturing**

In 2014 we saw increased interest in Lonza's Custom Development services for plasma DNA (pDNA) production, a technology that produces new molecule types, such as gene therapy products. The strong presence of venture-capital funding, particularly in gene therapies and stem cell- and progenitor cell-based therapeutics, along with the generally high level of molecule partnering in the global marketplace, have led to an increased number of inquiries from early-phase customers. This trend is particularly true in the United States.

Our Singapore development facility has seen an increase in business from a mix of large pharma and small biotech companies from the United States, Europe and Japan. It is also well positioned to support the emerging market of China as they begin to invest in biologics development.

Lonza's Custom Manufacturing has become one of the leading suppliers in the growing field of microbial manufacturing due to our strong assessment profile. We have also seen a strong demand in the mammalian market for large-scale cell-culture capacity.

## **Viral Therapy Manufacturing**

The viral therapy market continues to grow at a steady rate as we are seeing increased business from existing and new customers. As products continue to move towards commercial production, Lonza has designed strategic partnerships with our customers to allow for new commercial-production space. This clear commitment to the viral therapy market provides emerging viral therapy clients with the scale-up and commercial expertise on which our biologics business was founded.

## **Cell Therapy Development and Manufacturing**

In an expanding marketplace like that of cell and gene therapy, keeping up with commercial demands is always a challenge. To solve that concern in the field of cell therapy, Lonza's Custom Development and Research & Technology (R&T) teams are working to overcome scale-up bottlenecks in order to meet the increasing commercial demands for large-scale production of cell therapies. At the same time, competition is getting stronger and new competitors are entering the marketplace, which is a sign that cell therapy is becoming an attractive market.

## **BUSINESS HIGHLIGHTS 2014**

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### **Chemical Development and Manufacturing**

In September 2014 Lonza launched worldwide licensing options for our chemical Microreaction Technology (MRT). This platform offers research and commercial licensing options, allowing customers access to Lonza's chemical technology for internal development and manufacture.

The MRT Research Evaluation Agreement includes access to Lonza's proprietary operating procedures, process protocols and algorithms for early candidate assessment using the FlowPlate® Microreactor Platform for set-up, scale-up and system operation. A manufacturing license enables customers to manufacture a single product at their own facility, which results in faster initial process development and shorter time to large-scale production.

Recently, Lonza invested in the addition of single-use technology and facility upgrades to its antibody drug conjugate (ADC) clinical manufacturing facility in Visp (CH). These facility optimizations have resulted in a larger ADC production area and allowed for the acceptance of novel ADC platforms to our portfolio. Currently, Lonza's clinical ADC plant in Visp produces toxicology lots, early-phase GMP lots and GMP re-supply lots to support ongoing clinical trials for several different product candidates.

## **Biological Development and Manufacturing**

Mammalian interest remained high in 2014 for our broad antibody drug conjugate (ADC) capabilities from monoclonal antibody expression in Slough (UK) to bioconjugation in Visp (CH). And in Singapore we continued to invest in automation to improve project throughput and product quality from cell-line construction to process development.

In late October 2014, Bristol-Myers Squibb and Lonza announced a multi-year expansion of the existing biologics manufacturing agreement to include the production of commercial quantities of a second Bristol-Myers Squibb biologic medicine at Lonza's mammalian manufacturing facility in Portsmouth, NH (USA).

Four new products using the GS Expression™ Technology were approved in 2014, bringing the total number on the market to 18 products. These products are used to treat cancers, diabetes and other debilitating diseases.

In 2014 the versatility, performance and problem-solving capabilities of our XS™ Technologies toolbox continued to bring more development and manufacturing projects to Lonza's Custom Development organization. For example, in April Lonza and AMYRA Biotech signed a comprehensive development and manufacturing services agreement for AMYRA's enzyme-based oral treatment of celiac disease (gluten intolerance).

Our Custom Development team will also develop and manufacture AMYRA's two proprietary enzymes targeting gluten using our XS™ Pichia System at our microbial manufacturing facility in Kouřim (CZ). The XS™ Commercial License provides access to Lonza's multi-host XS™ Microbial Expression Technology Platform.

In 2014 a new service for rational vaccine design and development was launched that uses *in silico* and *in vitro* tools to design and assess the ability of a given molecule to provoke an effective immune response. The immunogenicity potential of vaccines is evaluated by directly measuring T-cell response in the human population using peripheral

blood mononuclear cells (PBMCs). By identifying T-cell epitopes, Lonza's Epibase™ In Vitro assessment allows for a direct comparison of the immunogenic profiles of all lead candidates. When combined with Lonza's Epibase™ In Silico tool, these cellular assays allow for a complete immunogenicity assessment of the client's vaccine targets. The tools aid in the selection of optimal vaccine leads, which helps to maximize an effective immunogenic response in humans prior to the first clinical trial.

In addition, the complete Developability Assessment Toolbox can also be used for protein therapeutics to assess early candidates for safety, manufacturability and immunogenicity. The potential anti-drug antibody (ADA) response to protein therapeutics may ultimately reduce efficacy and compromise the pharmaco-dynamics and safety of a drug candidate. High levels of immunogenicity have led to increased toxicity and even potential life-threatening side effects. Assessing immunogenicity in preclinical discovery is critical to the success of a therapeutic candidate. This early assessment allows clients to optimize their molecule before clinical trials, which helps to reduce R&D costs and ultimately increase the chances of clinical success.

#### **Viral Therapy Manufacturing**

Lonza, as a trusted partner for the scale-up of emerging technologies in preparation for commercial launch, entered into a facility-construction and commercial-supply agreement with Celladon Corporation in November 2014. The agreement provides for the potential future commercial production of MYDICAR® (AAV1/SERCA2a), Celladon's enzyme replacement therapy for advanced heart failure that is currently in Phase 2b clinical development.

As part of this agreement, Lonza is initiating the design of a new commercial viral therapeutics facility in Portsmouth, NH (USA), while Celladon obtains the option to trigger construction of the facility and commit to long-term commercial supply of this potentially life-saving treatment.

Upon Celladon's decision to trigger construction and commitment for commercial supply, Lonza will purchase USD 10 million (approximately CHF 9.6 million) of Celladon common stock.

#### **Cell Therapy Development and Manufacturing**

Our innovative induced pluripotent stem cell (iPSC) therapy represents a major scientific breakthrough in that it avoids the controversial need to use embryonic stem cells to develop targeted cell therapies for a variety of disease indications. We developed the L7™ Pluripotent Stem Cell Culture System that was launched by Lonza's Bioscience Solutions team.

Now we are manufacturing the first cGMP iPSC master cell bank for the U.S. National Institutes of Health (NIH). No other Custom Manufacturing organization has been able to make clinical-grade iPSCs. These cells will be accessed by anyone in the world for the development of iPSC-based therapies.

Following initial research studies, a customer can come to Lonza for development and manufacture of these cells for later-stage trials. For example, our Custom Development business is working diligently with a client to bring iPSC therapy to the clinic by 2016.

#### **GROWTH AREAS**

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#### **Chemical Development and Manufacturing**

In Custom Development we plan to focus our Chemistry business on bioconjugates, cytotoxic compounds and new microreaction technology (MRT) chemical routes. Our Chemistry business within Custom Development is global and pays close attention to local markets, too. For example, it will continue to target Chinese customers for their local market and focus on pharmaceutical companies that want to upgrade their quality to address local and Western customers. These companies are willing to pay a premium for higher-quality products.

Lonza's Custom Manufacturing will remain focused on broadening our overall product portfolio with new customers and projects while renewing long-term contracts with mature commercial products. Strong sales and business-development efforts will help Lonza build market share.

#### **Biological Development and Manufacturing**

Our Custom Development organization is focused on tailored development offerings, like rapid cell line construction, to support our customer's need to get to the clinic as fast as possible.

We are also seeing increased global business opportunities for immunogenicity assessment services for biosimilar and next-generation products. Our protein experts are expanding Lonza's comparability studies using in vitro tools for these product types.

The pipeline of monoclonal antibody (mAb) alternatives as the next class of therapeutic products is increasing; these molecules are dominantly expressed in microbial systems – and the breadth of the Microbial XS™ Expression Toolbox is well positioned to address these high-value projects. We will continue to further expand the Microbial XS™ Expression Toolbox to meet the demands for new molecule compounds.

Lonza's large-scale antibody pipeline is also experiencing steady growth, benefiting from our first-in-class technologies and Lonza's unique position as a large-scale manufacturer with a proven regulatory track record. Our mAbs for cancer treatment and autoimmune disorders now represent the latest gold-standard therapies.

Although we are well known as mAb experts, we are also beginning to further emphasize our extensive non-monoclonal experience, which has already resulted in more non-mAb projects currently and for the future.

Another growth area for Custom Manufacturing is a focus on portfolio rationalization and asset optimization. With these concentrated efforts, we can increase the throughput of large-scale assets and expand our capacity for our existing and new customers.

## **Viral Therapy Manufacturing**

In our Custom Manufacturing viral therapy business, we are experiencing growing customer demand. To meet future increases in demand, we are focusing on growth by creating more innovative, flexible facility designs that are modular and more capital efficient.

## **Cell Therapy Development and Manufacturing**

Future growth in our Custom Development cell therapy business will come from expanded service offerings through the development of innovative technologies and new bioreactor process solutions for current process development and manufacturing challenges. Utilizing these novel suspension technologies, we look to enable the smooth transition of our clients' products from pre-clinical to clinical and commercial stages. We will also pilot an educational series on process development requirements for early-phase clinical cell therapy products.

In addition, Lonza's Custom Development and Custom Manufacturing teams are continuing to discuss how to establish a development and manufacturing footprint in Japan to better serve the rapidly emerging Japanese market.

## **BIOSCIENCE SOLUTIONS**

### **BUSINESS DESCRIPTION**

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#### **Clonetics™ and Poietics™**

Our primary cell and media portfolio continues to expand to offer the most biologically relevant tools for human disease research. Over the last year, our top-selling respiratory disease product portfolio has grown more than 20%. This portfolio includes primary airway epithelial, smooth muscle and fibroblast cells from normal and diseased donors diagnosed with Chronic Obstructive Pulmonary Disease (COPD) or asthma.

The optimized media we offer with these cells provide researchers with the tools they need to create in vitro models that simulate the air-liquid interface environment used in infectious-disease research and vaccine development.

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#### **Endotoxin-Detection Assays**

For nearly 40 years, Lonza has been the trusted provider of endotoxin-detection solutions within the pharmaceutical and medical device industries. As a manufacturer ourselves, we understand the challenges of a regulated manufacturing environment. Since the introduction of our first endotoxin-detection assay, we have transformed our practical knowledge and technical expertise to deliver an innovative portfolio of products and services that supports the critical needs of regulated manufacturing environments.

## **MARKETPLACE OVERVIEW**

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#### **Research**

The biotechnology and pharmaceutical research market segments are showing some recovery from the years of economic crisis with new projects emerging and increases in spending on cell culture consumables and devices, especially in the United States. However, the academic market segment continues to struggle with limited budgets and is looking for cheaper alternatives to primary cells, such as immortalized cell lines that yield more cells per donor.

The contract research organization (CRO) services market continues to grow as an increasing number of large pharma and biotech companies outsource their R&D projects. Only a few CROs dominate this space; they work with other small- and mid-sized service companies to provide complete offerings to their customers. Lonza Bioscience Solutions is supporting these CROs with state-of-the-art research products, and we increased our focus on these accounts in 2014.

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## **Quality Control (QC) Testing**

While the developed regions in North America and Europe presented flat growth rates in 2014, the emerging regions showed double-digit growth rates. Selling directly in China with the testing business in late 2013 has allowed us to enter this high-growth market and secure market share in 2014. Overall we can leverage from our long-lasting and well-established relationships with large pharma to expand our market into these regions.

## **BUSINESS HIGHLIGHTS 2014**

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#### **L7™ hPSC Culture System**

Lonza's new L7™ hPSC Culture System supports every-other-day feeding of human pluripotent stem cells (hPSCs) while maintaining pluripotency, differentiation potential and normal karyotype. We developed this robust, xeno-free and defined culture system for the U.S. National Institute of Health (NIH) Center for Regenerative Medicine in the scope of a contract to manufacture a clinical-grade induced pluripotent stem cell (iPSC) master cell bank. The L7™ hPSC Culture System includes:

- L7™ hPSC Passaging Solution – Non-enzymatic, chemically defined PSC subculture reagent
- L7™ hPSC BulletKit™ Medium – Culture medium optimized to support maintenance of human induced pluripotent stem cells (hiPSCs) and human embryonic stem cells (hESCs) under every-other-day feeding conditions
- L7™ hPSC Matrix – Chemically defined matrix supporting the feeder-free culture of hPSCs
- L7™ hPSC Cryosolution – Solution allowing cryopreservation of precious hPSCs under defined conditions

### **Clonetics™ Anniversary**

This year Lonza celebrated the 30th anniversary of the Clonetics™ Primary Cells and Media product line, which has supported cell culture research in many critical areas, including angiogenesis, cancer, respiratory and cardiovascular disease, diabetes, renal disorders and neurobiology.

The pioneering Clonetics™ products, first marketed in 1984 by Clonetics™ Corp., represent the largest primary cell and media selection on the market. Our brand is well recognized for our outstanding scientific support team and for our dedication to providing consistent, high-performing products.

### **MODA™ Paperless QC Micro Solution**

MODA™ is a best-in-class informatics solution for Quality Control (QC) Microbiology because it eliminates the time, cost and errors associated with paper-based QC methods. It automates the full spectrum of QC activities in regulated manufacturing, including environmental monitoring, utility testing and product testing.

Paper-based QC micro laboratory processes can be expensive and error prone, as well as time and labor intensive, with a negative impact on regulatory compliance. With the MODA™ solution, QC organizations can:

- Make sound product quality and release decisions with comprehensive analysis and reporting
- Automate data collection from devices and people to eliminate redundant data entry and transcription errors
- Increase worker efficiency (focusing QC professionals on science, not paper)
- Improve regulatory compliance and “right-first-time” performance
- Advance their green initiatives more quickly

MODA™ provides a complete solution with hardware, software and implementation services designed to get projects into production quickly, while directing time and resources to higher-value initiatives and achieving operational excellence.

### **PyroGene™ rFC Assay**

The PyroGene™ Recombinant Factor C (rFC) Assay is the next stage in the evolution of endotoxin-detection testing. Lonza scientists have produced a recombinant form of Factor C, the first component in the horseshoe crab clotting cascade activated by endotoxin. Recombinant Factor C is activated by endotoxin binding, and the active enzyme then cleaves a synthetic substrate, resulting in the generation of a fluorogenic compound. Advantages of the PyroGene™ rFC Assay:

- Endotoxin-specific, recombinant technology eliminates false-positive glucan reactions
- Predictable, reliable lot-to-lot assay performance
- Sustainable resource – no animal utilization
- Comparable performance to other quantitative Limulus Amebocyte Lysate (LAL) methods
- FDA and European Pharmacopeia acknowledge it as an alternative method

Our WinKQCL™ Endotoxin Detection Software is considered the gold standard in the industry. It serves the needs of our customers for a fully integrated solution for streamlined testing processes, user-friendly data access and the ability to trend results to prevent Out-of-Specifications (OOS) well in advance.

### **GROWTH AREAS**

### **Nucleofector™ Technology**

For reproducibly high transfection efficiencies without major impacts on viability and functionality, the chosen method of transfecting biologically relevant cells – like primary cells or stem cells – must be easy to administer and flexible. Lonza’s electroporation-based Nucleofector™ Technology is an easy-to-use non-viral technology with high transfection efficiencies for hard-to-transfect cells.

Transfection reagents require cell proliferation for transferring the DNA into the nucleus for expression. However, with Lonza’s Nucleofector™ Technology, the DNA is transferred directly to

the nucleus, which also allows transfection of non-dividing cells. To minimize optimization efforts, our flexible Nucleofection™ formats and platforms offer customers a broad range of ready-to-use protocols for primary cells, stem cells and cell lines and serve the need for small and high cell numbers or low and high throughput.

The Nucleofector™ Technology benefits from the growing field of stem cell research as it offers unique advantages in the generation or transfection of stem cells, as well as in subsequent alterations of stem cells such as in genome editing. In 2015 we will continue to leverage these unique benefits and strengthen our position in the stem cell research arena with our innovative and integrated research offering.

### **PyroGene™ rFC Assay**

Lonza has been the leading global supplier for endotoxin detection assays since the 1970s. Endotoxins are pyrogenic substances that can cause fever, shock or even death if high levels are introduced into the body. For that reason endotoxin detection is a standard release assay for any injectable therapeutic, as well as for medical devices. Lonza Bioscience Solutions has developed PyroGene™ rFC Assay, a synthetic alternative to the horseshoe crab blood lysate traditionally used in endotoxin-detection assays.

In 2015 and beyond, we will use our competitive advantage to grow our share of the endotoxin market with the PyroGene™ product line. Because the natural resource of horseshoe crab blood is limited and supply will ultimately not suffice to serve the world’s growing demand, our intention is to convert the market to using a sustainable and equally functioning alternative.

We will also build on our software expertise and expand our offering with fully automated endotoxin-detection solutions, which allow better prevention of human error and savings on personnel costs.

## **Portfolio Expansion**

We are investing in new product development internally, as well as expanding our in-licensing portfolio in order to continue to grow the business. For example, in our cell biology business, we are introducing the CytoSMART™ System in 2015, a ground-breaking new system for live cell imaging that can be applied in virtually any research laboratory. And in our Nucleofector™ Technology business, we are developing next-generation applications.

# **CONSUMER CARE**

## **BUSINESS DESCRIPTION**

### **Hygiene**

Lonza's Hygiene products are used to disinfect and sanitize industrial cleanrooms, schools, food processing plants, restaurants, grocery stores, hospitals and operation theaters, homes and more. We are a global leader for registered biocides, preservatives and antimicrobial formulations for use in disinfectants, sanitizers, institutional and household-cleaning products. Our extensive portfolio of products includes global solutions registered and approved by the U.S. Environmental Protection Agency (EPA), the Canadian Therapeutic Products Directorate (TPD), the competent authorities of many EU Member States, the China and Japan Ministries of Health, as well as many other regulatory agencies around the world.

### **Nutrition**

For the Nutrition market, Lonza supplies branded health ingredients that are supported by scientific research, regulatory compliance and marketing expertise. Clear benefits and a broad array of product applications make our products attractive for the dietary supplement, food and beverage, nutrition and pharmaceutical industries. Some of our prominent products include the following:

- Carnipure™ ingredients feature high-quality L-Carnitine, a nutrient essential for energy metabolism.

- Lonza has been the world's leading supplier of vitamin B3 (niacin and niacinamide) for more than 40 years. Vitamin B3 is an essential vitamin normally supplied to the body through diet or direct supplementation.

### **Personal Care**

In the Personal Care market, Lonza is a comprehensive solutions provider with an extensive portfolio of innovative hair-, scalp- and skin-care technologies. Our focus is on creating a broader and more strategic orientation toward markets and customers, versus the more traditional, product-centric approach.

Applying the expertise of our global manufacturing and R&D centers, which include three Global Centers of Excellence, Lonza is poised to meet the beauty and preservation needs of our customers and their consumers. Two of the three Global Centers of Excellence – for Skin Care and for Preservation – are based in New Jersey (USA) while Lonza's recently announced Hair Care Center will be opened in the United Kingdom in 2015.

Lonza Consumer Care is a leading supplier of traditional and non-traditional preservation and protection systems, custom-developed fermentation, biotechnological and natural botanical actives, and cosmeceutical and nutricosmetic products. We also remain the world's largest supplier of antidandruff actives with our Zinc Omadine™ product portfolio. Lonza Consumer Care has strong capabilities in peptides, amino acids and niche bio-products, all of which play an important role in the development of advanced personal care products and applications.

## **MARKETPLACE OVERVIEW**

### **Hygiene**

Lonza has been building our reputation in the global marketplace with a wide range of hygiene and preservation solutions to combat the Ebola virus and enterovirus, as well as Avian bird flu, swine flu and other influenza viruses.

### **Nutrition**

Consumption of vitamins in the human-food nutrition market has moderated due to decline in the sales of cereal and cholesterol-reduction products, while the consumption in production-animal feed products has increased markedly, mirroring the trend toward protein-based diets with poultry, beef and swine. Prices for vitamin B3 and L-Carnitine are stabilizing in all major segments due to constant competitive pressure. Lonza continues to lead market development for all our major ingredients with investments in new clinical research and superior product quality.

### **Personal Care**

In Personal Care many traditional preservation technologies have come under regulatory challenge. Lonza is committed to helping customers ensure the safety of their products and has launched alternative preservation technologies to meet these needs. Also, to address the growing desire for anti-aging solutions in Western markets, Lonza is developing new active ingredients that moisturize, protect skin and enhance skin tone.

## **BUSINESS HIGHLIGHTS 2014**

### **Hygiene**

Lonza's Hygiene business entered the medical instrument disinfection arena with the launch of Formulation CE-50 in Europe and ID-50 in Brazil, which represents a new market entry for Lonza. In addition, we expanded the hygiene-wipes business in 2014 to acquire a leading share of the private-label market.

### **Personal Care**

During 2014 our Personal Care business launched LONZEST™ DC Emollient Ester for skin care, Rômacil™ V Multifunctional Cosmetic Ingredient and Laraquat™ Specialty Conditioning Polymer for hair care. The third product is a synergistic combination of nutrition and quaternary technologies.

<b>Nutrition</b>	53	<b>Strategic Thrusts</b>	57
Nutrition's new niacinamide plant in Nansha (CN) is helping Lonza meet growing market demands and fulfill long-term customer commitments. The facility, which has been running and stable since 1 July 2014, also reinforces our global leadership role in food, feed, pharmaceutical, cosmetic and chemical markets. With significantly increased capacity, the facility will satisfy the growing market demand in terms of both capacity and products. Overall the Nansha site covers an area of 220 000 square meters. Products and services include niacinamide (vitamin B3) and the L-Carnitine series of products for both human and animal foods and supplements; the hygiene and preservatives series of products; active pharmaceutical ingredients (APIs); chemical intermediates and custom development services.	Lonza Consumer Care has four strategic thrusts to propel our business into the future. The growth driver in Hygiene is "Health Care", and in Nutrition it is "Active Ingredients for Living Actively". "Skin-Care Leave-On" and "Hair & Scalp Care" are the two other focus areas within Personal Care.	<b>Freexus™</b> Freexus™ products in Brazil are sold as fertilizers, as disinfectants for fruits and vegetables (post-harvest treatments) and as tank-mix adjuvants for crop protection and fertilizer tank-mix applications.	
<b>GROWTH TARGETS</b>		<b>BUSINESS HIGHLIGHTS 2014</b>	
<b>52</b>		<b>AGRO INGREDIENTS</b>	58
<b>Hygiene</b>	54	<b>BUSINESS DESCRIPTION</b>	<b>Molluscicide Business</b>
Our Hygiene business growth will focus on formulated solutions for medical instruments and hand hygiene.	Lonza has remained the chemical fermentation development and manufacturing partner for leading innovative agrochemical companies by providing full life-cycle management for their products out of our facilities in Visp (CH) for development and Kourim (CZ) for development and manufacturing. We provide small- and large-scale chemical fermentation capacity of fermentation-derived biopesticides.	Favorable wet weather conditions during most of 2014 caused strong slug infestation. Also the number of countries where we obtained the registration for our own branded formulated product Axcela™ in Europe, NAFTA, South America, Asia and South Africa exceeded 10; and the launch of the product in these countries seems promising.	
<b>Personal Care</b>	55	<b>Axcela™</b>	59
In our Personal Care business, the opening of Lonza's new Hair Care Center of Excellence in Blackley (UK), an already existing site, in early 2015 will enhance our technical and applications expertise and support a focus on new ingredients that will drive improvement in hair conditioning, color retention and styling.	With Lonza's new innovative formulation technology, we serve the professional and home-and-garden market with Axcela™, Lonza's own fully formulated end-use molluscicide. In all main markets, we collaborate with strategic partners and leading local distribution companies to support the growth of our premium-quality product.	<b>Golden-Apple Snail</b> In 2014 we announced a strategic agreement with our partner INCOTEC to develop, register and market Meta™-based seed coatings of paddy rice in Malaysia. This technology protects the plant in the first days of growth after direct-seeding against attack from the rapidly growing and economically important golden-apple snail.	
<b>Nutrition</b>	56	<b>MARKETPLACE OVERVIEW</b>	<b>We are launching the SnailWise technology in Asia to attack this devastating species of pest that is now spreading through Asia and threatening to invade Bangladesh, India, Pakistan and Australia and that significantly impacts the life of local farmers and consumers.</b>
The Nutrition business will move into ingredients to bolster nutrition of infants and utilize Lonza's vast fermentation capability. In addition, Lonza will expand our L-Carnitine franchise into both pet food and animal feed by using our scientific approach to innovation.	<b>Production Capacities</b> Lonza's overall capacity utilization for our Agro Ingredients business remained on a high level in 2014. Also the new manufacturing plant in Visp (CH) that we started at the end of 2013 had high utilization in 2014 driven by solid market demand. In the area of biotechnological fermentation for agrochemicals, for example, we observed further growing demand for capacity.	<b>GROWTH AREAS</b>	
		<b>Global Megatrend</b> Faced with feeding an ever-expanding and aging world population that demands more nutritional value from its food, the global agrochemical sector is on a growth trajectory. Lonza is well positioned for that growth by supplying the world's largest agricultural companies.	

**Formulations Expertise**

Overall Lonza has a wide range of preservatives, adjuvants and surfactants. In the light of the market-orientation and the definition of Agro as a key focus area in the new Lonza organization, we published a catalogue with more than 60 of Lonza's products also applicable as formulation ingredients for the agrochemical industry. In this comprehensive brochure, we provide an overview of our inert boosters to increase the biological activity of active ingredients and our preservatives to stabilize the integrity of aqueous-based crop-protection formulations. Lonza's strong process engineering capabilities, along with the competencies from our other business units, allow us to produce tailor-made surfactants to suit our customer's particular formulations. On the service side, we can also provide preservative efficacy testing to determine the best preservative and its optimal level for our customers' formulations. Furthermore, Lonza is able to give support globally concerning regulatory and toxicological issues.

## INDUSTRIAL SOLUTIONS

### BUSINESS DESCRIPTION

**Biocides**

Our products help to control mold and mildew in building materials like paints, wallboards and emulsions and improve performance of plastics, textiles and inks. By preventing fouling on ocean-going ships, we help them to preserve fuel and reduce maintenance costs.

**Thermoset Resin Systems**

Using our Primaset™ and Lonzacure™ thermoset resin systems, our high-tech composite customers build lighter, more fuel-efficient and more comfortable aircraft and produce faster, smarter mobile phones, tablets, computers, routers and telecommunications equipment. We have been intensifying our efforts in product and performance improvements in this area.

**Performance Ingredients Product Examples**

Significant application areas include chemical intermediates for production of pharmaceuticals and crop protection active ingredients, as well as lubricants and enhancers in the production of precision automotive parts, plastics, inks, pigments, optical brighteners, coin production and flexible circuit boards for electronic devices.

The Performance Ingredients team focuses on continual optimization of the product portfolio, excellence in asset management and on controlling production costs to maintain profitability.

### MARKETPLACE OVERVIEW

**Regulatory Changes Examples**

Regulatory changes in Europe, for example, create opportunities for our biocides businesses especially in paints and plastics markets. The coming into force of the Biocidal Products Regulation (BPR) has led to the discontinuation of specific biocidal products in Europe. Such products need to be replaced, thus creating unique business opportunities for Lonza's BPR-approved biocides.

Additionally, regional labeling regulations will apply in Europe as of June 2015. As a result, many currently used biocides will incur an allergenic classification (risk phrase). Using carefully designed and tested combinations of key active substances, we are able to give customers an alternative solution, which will avoid such labeling requirements.

**Innovation Examples**

With a focus on Coatings and Composites as a key growth driver for the Industrial Solutions business, we have begun closer cooperation between our own applications development teams and Research and Technology (R&T) in order to expedite the highest-priority innovation projects.

These projects are longer-term ones that will require several years of development leading up to market launch. To assess the progress made, we are tracking all innovation projects closely and monitoring progress against our pre-defined timelines.

In Performance Intermediates, for example, our oil and gas team continues to bring innovative, high-performing products to market that combine chemistries from our wide portfolio.

### BUSINESS HIGHLIGHTS 2014

**Reliable Supplier Example**

The pyromellitic dianhydride (PMDA) production line in Nanjing (CN) performed well in 2014 as we responded to the surge in demand caused by the exit of a major provider and operational problems at several of our competitors. At several other plants that are running at high utilization rates, we have been working on debottlenecking activities to make more output available to supply the increased market demand and prepare us to grow in 2015 and beyond.

**Product Launch Examples**

Coatings and Composites introduced two new products for the paint industry in 2014: Densil™ ZOD and Densil™ FAZ. They are added to protect exterior architectural paint film from fungal and algal attack, especially in humid climates, where microbial contamination is an extreme problem.

In addition, Industrial Solutions and our innovation partner Novoset, LLC, launched new thermoset resins in 2014 into the electronics and industrial composites markets in 2014: Primaset™ ULL-950S and HTL-300.

The first one, Primaset™ ULL-950S, is particularly well suited for high-speed telecommunication equipment and bendable electronic devices. Primaset™ HTL-300 was developed for advanced semiconductor packaging materials and next-generation processors in mobile phone integrated circuit-substrates.

### **Shipbuilding Example**

In the shipbuilding industry, the market dynamics of antifouling paints are changing drastically with immediate to mid-term effect. Ships built in the booming years of 2008–2009 are coming back for service now. The order book for ships showed significant increase in 2013 after five years of downturn and lower spending on maintenance, and these new orders are expected to be delivered end of 2014–2016. Lonza's Industrial Solutions will continue to capture growth from that expansion.

### **GROWTH AREAS**

### **Developing Regions**

In Brazil and Southeast Asia, our biocides business is growing as the economy demands more modern and environmentally sound solutions for preservation of paints, emulsions, mineral slurries and leather.

We have been doing business in India for more than 30 years with our Verbund chemistries from Visp (CH), and we continue to find new opportunities in selected industrial markets in India.

Our biocides production site in Suzhou (CN) is well placed to support the recent recovery of the ship-building industry in China, Korea and Japan as demand for our antifouling co-biocides for ship paints has taken off.

Also in Korea and Taiwan, we have experienced strong growth of our Primaset™ resins in the electronics industry.

### **Environmental Solutions Examples**

The drive for a more sustainable and environmentally responsible aquaculture led Lonza Omadine™ products to gain momentum as they show proven efficiency to protect fish nets from algae growth while fulfilling required environmental needs.

Also, strongly growing needs for more efficient and environmentally friendly production of crop protection products in Asia has led to new business growth of chemical building blocks supplied by Industrial Solutions.

This success is based on several key factors. Firstly, Lonza can support our customers to implement unique manufacturing processes with excellent product yield and improved productivity in the production of pesticides. Secondly, the processes using Lonza's building blocks show superior ecological impact profiles compared with alternative synthetic routes; and thirdly, our customers benefit from a reliable and cost-competitive supply.

### **MARKETPLACE OVERVIEW**

### **Industrial/Infrastructure Markets**

Railroad infrastructure programs continue at a healthy pace. Demand for railroad ties is expected to remain strong, as railroads continue to implement robust capital expenditure programs that include tie and track replacement, refurbishment and expansion to accommodate heavier traffic. One demand-driving factor is the growth of shipments of crude oil by rail – and other rail traffic related to shale drilling and the energy industry. Lonza's Wood Protection business is positioned to capitalize on this growth in North America.

## **WOOD PROTECTION**

### **BUSINESS DESCRIPTION**

### **Distinguished Advisory Services and Support**

Not only do we help customers design new treatment plants and conduct full audits on their treatment practices, we also offer expert advice in areas such as incorporating new technologies and achieving the optimal production and drying practices for different wood species. We offer customized marketing services to customers needing support. All of these services are aimed at helping both the customers and Lonza to prosper. Furthermore, this advisory capacity is an area that sets Lonza's Wood Protection business apart from our competitors.

### **Diverse Markets Served**

In applications from decks, marinas, railroads and utility poles to roof sheathing, millwork and framing, our products serve not only the construction market but also infrastructure preservation and development. Among our more recent developments are specialty products or ingredients that further enhance existing technologies and allow us to break into new competitive markets.

### **Decking Market**

We estimate that the U.S. decking market is growing 4–5% per year, and that trend is expected to continue for the next several years. Growth drivers include recovery in new construction and the repair and remodeling market, as well as continued growth in the outdoor living segment. One recent study reports that wood products continue to grow at a faster rate than composites (with the exception of new capped composites) because of competitive pricing and new technologies to improve performance and product selection.

### **BUSINESS HIGHLIGHTS 2014**

### **U.S. Product Launch Examples**

In the United States, Lonza launched a BARamine® additive for improved treatment of the Western Timber and Southern Yellow Pine species in 2014. This product allows for better penetration of chemicals into wood, provides a broader spectrum of coverage against rot and decay and reduces cycle time for those customers who are treating the wood.

The U.S. team also launched in 2014 a new Borate additive for improved treatment of railway timbers. This product provides improved timber protection at reduced cost for those who treat the wood.

### **Asia-Pacific Product Launch Example**

During 2014 in the Asia-Pacific region, which includes Australia, New Zealand, Malaysia and Japan, we launched Tanalith TI™, a product that provides improved protection at lower cost for softwood framing applications.

### **GROWTH AREAS**

### **Growth in Multi-Family Market**

Though the market exhibits month-to-month swings, the compelling recovery in U.S. multi-family construction offers growth opportunities for our fire-retardant products.

### **Penetration into Industrial Sector**

Lonza's Wood Protection business is poised to penetrate the growing industrial market in Africa, as well as the railroad sectors in North America and Europe, with patented preservative technologies such as Tanalith® copper azole technologies and Chemonite® ACZA.

### **BARamine® Technology**

Our customers are increasingly adopting patent-pending BARamine® technology, a value-added product that augments copper azole sales. Additional market share is expected from competitors' customers looking to implement this new technology.

## **WATER TREATMENT**

### **BUSINESS DESCRIPTION**

#### **Residential**

The Mass channel maintains focus on the strength, consumer trust and long-standing heritage of our flagship brand, HTH®, to reinforce our dedication to superior quality and value for the customer and consumer. We continue to focus on improving the consumer experience, both at the shelf and the pool, while delivering high quality and innovative products. As a result, we are recognized as a trusted supplier for our key customers.

Our Pro Dealer channel competes with strong brands that feature differentiated products and customer-targeted programs. This approach enables us to serve multiple outlets within a market. Customer relationships play a vital role in this channel. Globally the Pro Dealer channel is anchored by three cornerstone brands: poolife®, Baquacil® and HTH®.

#### **Industrial, Commercial, Municipal and Surface Water (ICMS)**

The Industrial, Commercial, Municipal and Surface Water (ICMS) business includes a variety of products and services for water sanitization and treatment. Highly specialized service providers offer a wide range of branded products to the market and then provide on-site support for the end-use customers.

End users served include commercial pools, municipal drinking water, food and beverage cooling towers, waste water, pulp and paper mills, and algal control in surface water. We are widely known for our proprietary calcium hypochlorite sanitization solutions, which are delivered via patented feed technologies. Customer focus, convenient storage and handling, reliability and product performance are key factors in growing this market. Brands include Pulsar®, Constant Chlor®, Dry Tec®, Dantabrom®, Equinox®, Easi-flow® and Frexus®.

### **MARKETPLACE OVERVIEW**

#### **Industry and Market Trends**

The use of salt chlorine generators (SCG) in the North American residential market presents a challenge. Consumers are receiving misinformation about the benefits of salt chlorine generators. Many consumers falsely believe these systems are "chlorine-free" or have salinities similar to that of the ocean. These beliefs are perpetuating the popularity of SCG systems.

Another trend is the growth of pool and spa chemical sales on the internet. It is estimated that internet sales of pool and spa chemicals for 2013 held 3% to 5% of the total market. However, this statistic represents a change in purchase location rather than a shift in market share. Lonza participates in internet sales by offering multiple products and brands through our retail partners.

#### **Commodity Chemicals**

While chlorine gas and bleach are the most widely used products for disinfecting water, stronger regulations and heightened safety concerns around storage, handling and transportation are leading engineers and water treatment plant operators to source alternative solutions for disinfection.

### **BUSINESS HIGHLIGHTS 2014**

#### **Kiosks**

We launched the HTH® Test to Swim™ Station kiosks in more than 250 key retail locations across the United States in 2014. These kiosks impart the importance of water testing to keep pools sparkling clean for families and provide the end consumer with a recommended product list and easy-to-understand dosage instructions to simplify shopping for pool and spa products.

### **Innovative and Differentiated Market-Specific Products**

Products launched within the Pro Dealer channel in 2014 include GLB® Algimycin® 3000, a multi-functional algaecide that is the first of its kind in the industry. Salt Solutions by Ultima® is a unique line of chemicals designed specifically for use in pools equipped with salt chlorine generators.

To grow our share of the All-in-1 Sanitizer category, we also re-launched HTH® Clear4Weeks in South Africa. This product capitalized on our HTH® heritage as we targeted emerging markets.

The launch of the innovative 10 in 1 HTH® Mineral Brilliance™ in Brazil continues to enjoy great success. This unique product was awarded Lonza's 2014 CEO Innovation Award.

Offering market-specific products that fulfill complex needs has allowed the Industrial, Commercial, Municipal and Surface Water (ICMS) business to expand into niche markets and to showcase the unique features and benefits of our portfolio of products and services.

### **GROWTH AREAS**

### **Industrial, Commercial, Municipal and Surface Water (ICMS)**

In the future we will drive the growth of our Industrial, Commercial, Municipal and Surface Water (ICMS) business by segment-specific customer strategies. Using our global capabilities and resources, we will introduce innovative products that meet regional market requirements.

## **INVESTING IN SUSTAINABILITY**

### **RELYING ON INNOVATIVE SOURCING AND R&D**

#### **SnailWise Technology**

The SnailWise technology is a combination of Lonza's molluscicide and customer INCOTEC's seed-coating technology. Considered one of the top 100 invasive species by the Global Invasive Species Program, this snail has brought about significant economic losses to aquatic crops, estimated to range between USD 55 million and USD 245 million per annum globally.

To control this mollusk, resource-poor farmers resort to a "shot-gun approach," using toxic and non-specific agrochemicals, which aggravate ecosystem pollution, risk their health and cause loss of aquatic biodiversity. By contrast, the rice-seed coating technology is a targeted, effective approach to treatment. It will first be launched in Malaysia.

#### **Anti-Aging Skin Care**

Lonza Consumer Care uses a bioreactor to transform a tiny meristem of red rice into our Re-Genistem™ Red Rice, a sustainable, anti-aging skin-care ingredient. This process enables the creation of sizeable quantities of reproducible biomass, avoiding the need to grow monocultures of a plant and other sourcing practices that can have a negative effect on native ecosystems.

### **MAXIMIZING SUSTAINABILITY DURING MANUFACTURING**

#### **Conserving Energy and Reducing Greenhouse Gases**

In 2014 our Water Treatment plant in Charleston, TN (USA), completed the final phase of a major project that simplified and improved the efficiency of the process of drying wet slurries of calcium hypochlorite. This production step is vital in transforming the slurries into the end-product dry granules and briquettes of this water sanitizer, which is used in everything from treating swimming pool and spa water to drinking water.

The drying project eliminated more than 100 pieces of mechanical equipment and converted the plant to a one-step drying process. As a result the plant has reduced its overall energy usage by 25%; and this savings has reduced related greenhouse gas emissions by 14 000 tons annually, which greatly improved the plant's carbon footprint.

#### **Proprietary Microreaction Manufacturing Technology**

Manufacturing in the pharmaceutical industry typically produces more than 25 kilograms of waste for every kilogram of product. To help customers reduce that waste, we have developed innovative FlowPlate® Reactors and Flash Chemistry technologies to replace traditional and wasteful batch processing with continuous flow as often as possible.

Drawing on our proprietary microreaction manufacturing technology, the Flash Chemistry approach is based on high-resolution reaction time control, which serves as a powerful tool for the synthesis of organic compounds. This approach means that multiple steps of a traditional chemical process can be replaced by a single Flash Chemistry step, leading to shorter synthetic routes, reduced processing time, decreased waste by-products, and lower cost of goods. The use of this chemistry also creates processes that are inherently safer due to their higher level of containment.

## TRANSPORTING PRODUCTS SUSTAINABLY

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### SmartWay™

Under the SmartWay™ Transport Partnership with the U.S. Environmental Protection Agency (EPA), participating logistics firms help businesses such as Lonza move goods in the cleanest, most-efficient ways possible. This approach involves everything from maximizing loads to using the least energy-intensive transportation modes possible. Since 2004 SmartWay™ partners have significantly reduced carbon and other greenhouse gases and reduced costs by sharply cutting fuel usage.

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### Dedicated Tank Trucks Safely Transport

#### Wood Preservatives

Designed exclusively for the environmentally safe shipment of liquid wood preservatives, our custom-made tank trucks have extra-thick steel hull containers and redundant safety controls built into the product-unloading apparatus, among other safety features.

Drivers also receive intensive training in safe driving, product loading and unloading procedures and responding to emergencies. Some drivers have accumulated millions of hours on the roads without a single accident.

## PRODUCT USE AND RECYCLING

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### Recycling to “Give a Hand for the Future”

Our Water Treatment business in Brazil has participated in a recycling project that is the soul of sustainability. Known in Portuguese as “Dê a Mão para o Futuro” (“Give a hand for the future”), this project’s main objective is to ensure that post-consumer waste products such as recyclable plastic and cardboard pool chemical containers are not wasted by being discarded in landfills or incinerated.

Conducted in coordination with government and social-services organizations, this project helps support waste-picker organizations such as the many recycling cooperatives that operate in Brazil.

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### Packaging

In North America our Water Treatment team has created a new product – our HTH® Advanced Pure Bleach formula – that has such a high level of concentrated liquid chlorinator that it can be shipped in much smaller packaging. This approach means less corrugated cardboard for shipping and reduced weight for lower shipping costs. It also treats the same volume of pool water as one gallon of our regular 10% HTH® Liquid Chlorinator product.

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### Customer Example

Walmart is a major retail customer for our swimming pool and spa sanitizers and related treatment products and accessories. To reduce our own packaging and shipping costs and to make life easier for Walmart and for pool owners, we have combined two former pool-care kits into one: the HTH® Start-Up and Maintenance Kit and the HTH® Winterizing Kit are now combined into the HTH® Pool Care Kit. This approach allows us to ship the combined kit at the beginning of the pool season, when pool owners use the Start-Up Kit, and then they can use the Winterizing Kit at the end of the season. It also avoids the need to make separate shipments – or trips – to Walmart.

## INVESTING IN RESPONSIBLE SOURCING

## RESPONDING TO CUSTOMERS' NEEDS

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#### Ingredients

Lonza secures raw materials for food additives that satisfy strict kosher, halal or non-genetically modified organism certifications. This approach also applies to the sourcing of natural and organic raw materials, such as botanical extracts, for our cosmetic and personal-care business.

## PURCHASING

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### Strategic Relationships

Faced with industry consolidation within the bio-pharma supplier base, Global Strategic Sourcing placed a greater emphasis in 2014 on supplier relationship management to strengthen Lonza’s position. By coordinating the management of key suppliers across multiple regions and categories, the Global Strategic Sourcing team has successfully leveraged global Lonza spend to secure the most favorable pricing, terms and conditions.

Every year the function works hand in hand with Quality Assurance personnel in our Pharma&Biotech market segment to ensure that the raw materials purchased for medicines and biotech products adhere to stringent cGMP quality standards and regulatory requirements. Working with Quality Assurance personnel in Specialty Ingredients, we ensure that our suppliers meet the requirements of food, cosmetic and biocide regulations across the globe.

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### Raw Material Markets

To help our businesses better react to and plan for volatile and ever-changing supply conditions, the Global Strategic Sourcing function in 2014 enhanced the analysis and reporting of key raw material price variances and future price projec-

tions. Drawing on its world-class purchasing professionals, the function is also sponsoring greater in-house training and sharing of expertise and best practices across Lonza.

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#### **Qualified Sources**

In addition to meeting raw material specifications, suppliers to Lonza must adhere to the requirements defined in our Supplier Code of Conduct. This code defines standards of business ethics, labor practices and health and safety that all suppliers must meet. We routinely conduct audits of suppliers to ensure they continue to meet Lonza's standards.

### **CONSOLIDATION**

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#### **Improved Service**

The “marriage” of two functions – Global Strategic Sourcing and Quality Assurance – has already created automated Information Technology (IT) solutions to replace manual processes, which has led to greater efficiency, accuracy and traceability of sourcing data.

## **INVESTING IN ENVIRONMENT, HEALTH AND SAFETY**

### **RECORD SAFETY PERFORMANCE**

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#### **Safe Work Procedures**

Lonza's safety training empowers employees to speak up when they see a potential hazard and requires supervisors to intervene when production deadlines and other pressures compromise worker safety. We also conduct a management-of-change review before proceeding with significant changes to an operation or task to assure that the new approach does not pose safety hazards. Critical work procedures in the areas of confined space entry, line breaking, lock-out and tag-out, high

work and fall protection have all been thoroughly reviewed and refined to promote the next level of safety at our manufacturing sites and to align procedures across the Group.

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#### **Superior Safety Performance**

Lonza Biologics Porriño (ES) was recognized in late 2014 by the industry association Asociación Gallega de Organismos de Control Autorizados (Galician Association of Authorized Control Bodies or ASGOCA), as one of the safest companies in Spain's Galicia region in the category of more than 250 employees.

In addition, Lonza Biologics Tuas and Lonza Bioscience Singapore Pte Ltd received a silver award at the July 2014 Workplace Safety and Health Performances Awards (WSHPA) meeting for their outstanding safety record. Singapore's strong safety performance continued through the second half of the year; and by the end of 2014, Lonza Singapore celebrated 777 days without a Lost-Time incident (LTI) and registered more than 1.8 million man-hours without an LTI.

In early December 2014, the Lonza Rochester Specialty Ingredients' facility was recognized for exemplary efforts in improving its environmental quality, workplace health and safety, and plant security by the Society of Chemical Manufacturers and Affiliates (SOCMA). As of year-end 2014, Lonza Rochester employees worked for more than four years without a recordable injury, and the plant has had five years without an environmental incident.

### **CHEMICALS MANAGEMENT**

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#### **Lonza's Registration Obligations**

Registration assessments included our suppliers (Lonza buys from EU and non-EU manufacturers), our own manufacturing units (Lonza manufactures in EU and non-EU countries), and our downstream users (Lonza sells to EU and non-EU customers). The supply chain assessment included all third-tier chemicals to ensure compliance of all of the thousands of Lonza products sold throughout the EU.

### **ENVIRONMENTAL QUALITY**

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#### **Charleston, TN (USA) Spin-Flash Dryers**

This project eliminated more than 100 pieces of mechanical equipment and converted the plant to adopt a more efficient, simpler, one-step process for drying slurries of calcium hypochlorite for subsequent transformation into briquettes, pucks and pellets. Sustainability achievements accomplished with this project included a reduction in overall plant energy usage by 25% and the reduction of greenhouse gas emissions by 14 000 tons annually.

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#### **Walkersville, MD (USA) Sustainability Measures**

The new LED lighting and accompanying power savings yielded energy cost savings of more than USD 20 000 per year; additionally, more than USD 10 000 savings in electricity can be realized annually with the decommissioning of the reverse osmosis system pump.

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#### **Visp (CH) Process and Energy Efficiency**

Energy savings at Visp for report year 2014 benefited from measures implemented during 2013 and 2014, such as distillation optimization in the MEP plant and the acetic acid process (~1200 MWh/a). Additionally, two measures realized at the cracker plant provided for a further reduction of 4 600 MWh/a of consumed energy.

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#### **Visp (CH) Emission Reductions**

Improvements realized at three VOC-emitting plant processes (FCC, Hydrazol, Penta) resulted in a further reduction of VOC emissions of 8.5 t/a, or 5% of total VOC emissions at the Visp site.

At the nitric acid plant in Visp, process revamping and a new De-N<sub>2</sub>O-catalyst enabled a 80–90% reduction of N<sub>2</sub>O emissions (from 400 ppm to 45/40 ppm in the off-gas) and resulted in a CO<sub>2</sub>e emissions reduction of 60 000 metric tons, compared with pre-measure conditions in 2011–2013.

## CORPORATE RESPONSIBILITY

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### Sustainability Assessments

Lonza takes part in sustainability assessments and surveys such as that conducted by the Carbon Disclosure Project (CDP), an organization that works to transform the way the world does business to prevent dangerous climate change and protect our natural resources.

In 2014 Lonza Group Ltd completed an annual request for information from CDP sent on behalf of 66 CDP supply chain members with more than USD 1.3 trillion spend. Lonza's score was benchmarked against 3 400 other companies that responded to CDP's supply chain information request. We scored in the upper-middle field with strengths in Corporate Governance and Strategy and in Emissions Management.

Our U.S. facilities are certified under the Society of Chemical Manufacturers and Affiliates (SOCMA) ChemStewards™ initiative. Lonza Ltd in Switzerland is a Responsible Care® company, and our expanded facility in Nansha (CN) is certified under both ISO 14001 and OHSAS 18001.

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### Alternatives to Animal Tests

For many decades the primary endotoxin test used to assess the safety of injectable medicines and medical devices has relied on blood drawn from live horseshoe crabs. This well-established approach has placed a strain on the four species of these crabs in places around the world.

Concerned about the future of these valuable prehistoric animals, Lonza Bioscience Solutions offers the synthetic PyroGene™ endotoxin-detection method that does not rely on the use of horseshoe crab blood as the raw material. The PyroGene™ assay's recombinant technology is endotoxin-specific, so it eliminates false-positive glucan reactions; and it offers exceptional performance and reliable lot-to-lot consistency, compared with biologically based products.

## INDUSTRIAL HERITAGE AT SWISS MANUFACTURING SITE

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### Visp Community Outreach

Throughout 2014 we conducted press conferences, held community meetings, interacted with key stakeholders and issued the first in a series of newsletters developed to keep area residents up to date on the development of the remediation activities and related efforts. A copy of the brochure in German, French or English is available on our website.

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### Technical Examinations

During 2014 we conducted numerous technical phase II investigations to determine the levels of mercury contamination in the sediment of the canal, its embankment and the adjacent road strip, as well as continued in-depth investigations in the residential areas of Turtig and Visp. In particular, the Visp West, Kleegärten and Visp South neighborhood were and are being examined more closely. The focus in agricultural areas is on land parcels adjoining the Grossgrundkanal and on the total remediation area between Niedergesteln and Visp. By the end of 2014, we established a comprehensive inventory of the existing mercury pollution in the defined investigation perimeter, which covers a land area of around 10 square kilometers (2 500 acres).

## INVESTING IN OUR PEOPLE

### GLOBAL APPRENTICESHIP PROGRAMS

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### Visp (CH) Apprenticeship Program

To maintain a pipeline of highly trained future talent, our Visp (CH) apprenticeship program provides on-the-job training and workshops for people who have completed their obligatory education and who choose to go on to apprenticeship programs. These apprentices complete their training after three or four years and then are awarded a Swiss-government certification.

At present a dedicated team of trainers is providing this hands-on training to approximately 175 apprentices in 13 different professional areas. After their years of learning at Lonza, the apprenticeship graduates can apply for employment in the various laboratories, factories and workshops where they worked and gained real-world experience. Some graduates decide to go on to university and return to Lonza after completion of their studies.

Ultimately our aim is to develop these employees and enable them to grow into expert or leadership positions over time. This representative example shows how we are strengthening our talent acquisition and retention skills to ensure that we attract and retain the next generation of talented employees who will drive our future business growth.

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### Slough (UK) Apprenticeship Program

To strengthen internal talent pipelines, our Slough site has created a series of learning programs aimed at the science community throughout Lonza. A three-tiered training program supports scientists from their early career roles through to positions of scientific leadership.

We are currently working with the UK government to introduce a scientific leadership program for workforce development, and we plan to deliver this program to 80 scientists in Slough in 2015. This initiative forms part of a blended learning curriculum that supports employees with apprenticeships, degree work and professional qualifications, as well as workplace learning.

## INCENTIVE SCHEMES

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### Global Job Grading

As our company-wide business-growth strategy evolves, our goal to effectively manage our talent on a global scale and harmonize our reward systems depends on our ability to compare jobs accurately across Lonza. We, therefore, have introduced a globally aligned and harmonized job-grading system for all positions that are not subject to a collective bargaining agreement.

The global job-grading system is a job-classification approach based on each position's accountabilities, complexity and impact on the business. A vital part of any effective talent development and performance management system, the global-grading tool ensures that jobs are assessed in a fair, objective and culturally neutral manner – creating a common language about jobs across different business areas and geographies.

This harmonized approach, in turn, sets the foundation for defining appropriate career ladders, creating effective development programs and designing transparent and consistent reward programs.

## GLOBAL TALENT MANAGEMENT

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### New Learning Strategies

In 2014 we launched Lonza's first Leadership Acceleration Program (LXP). This program involved 11 high-potential employees participating in a pilot program designed to enhance and develop their leadership skills. They were assigned real, business-relevant projects that allowed them to work predominantly in teams. Their results are already being adopted and are proving to be a significant contribution to the business.

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### New Policies and Practices

As recognition of our efforts towards helping employees in reconciling work and family life, Lonza Biologics Porriño (ES) has received a finalist award as part of the Spanish Flexible Company 2014 Awards, sponsored by National Ministry of Health, Social Policy and Equality. Approximately 1 500 companies nationwide participated in the competition.

Employee engagement, continuous improvement and innovative employee development practices also explain why the Lonza Pharma&Biotech site in Portsmouth, NH (USA), has been recognized for several years now as one of the best large companies to work for in New Hampshire. The recognition comes from a partnership of New Hampshire Businesses for Social Responsibility, *Business New Hampshire* magazine, and Bruce Mast & Associates.

In addition, nearly 30% of vacancies in Portsmouth during the year were filled with internal applicants. The site has a strong internship program, and some Portsmouth employees are benefiting from job-development assignments at our sister Lonza site in Singapore.

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### Disabled Individuals

For many years our Pharma&Biotech operations team in Cologne (DE) has supported the work of the regional GWK Institute, which is dedicated to training, employing and housing disabled individuals. At present our Cologne production team is benefiting from the work of two GWK clients, who help assemble our Nucleofector™ cell therapy devices and kits and who ensure that each vital component part is up to our high quality standards.

#### **Forward-Looking Statements**

Forward-looking statements contained herein, which can be identified by terms like “believe”, “assume”, “expect” or similar expressions or implied discussion of potential new projects or future revenues, plans or intentions, are qualified in their entirety as there are certain factors that could cause results to differ materially from those anticipated. Investors are cautioned that all forward-looking statements involve risks and uncertainties. In addition to those discussed above, factors that could cause actual results to differ materially include the timing and strength of new product offerings; pricing strategies of competitors; the company’s ability to continue to receive adequate products from its vendors on acceptable terms, or at all, and to continue to obtain sufficient financing to meet its liquidity needs; and changes in the political, social and regulatory framework in which the company operates, or in economic or technological trends or conditions, including currency fluctuations, inflation and consumer confidence, on a global, regional or national basis. All forward-looking statements are based on data available to Lonza at the time of preparation of this Annual Report. Lonza does not undertake to update any forward-looking statements contained in this Annual Report as a result of new information, future events or otherwise.

This publication is accessible online at [www.lonza.com](http://www.lonza.com). In this report, “Lonza” and “the Group” refer to the whole group of Lonza companies, “Lonza Group Ltd” refers to Lonza Holding. Lonza is listed on the SIX Swiss Exchange, with a secondary listing on the Singapore Exchange Securities Trading Limited (“SGX-ST”). Lonza is not subject to the SGX-ST’s continuing listing requirements. Lonza is subject to the listing rules of the SIX Swiss Exchange. By publishing this Annual Report, Lonza fulfills its obligations under the SIX Swiss Exchange, as well as its obligation towards SGX-ST.

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## ANTICIPATED KEY REPORTING DATES

Annual General Meeting for the Financial Year 2014

**8 April 2015, 10:00 am**

Congress Center Basel Switzerland

Half-Year Report 2015: **22 July 2015**

Full-Year Report 2015: **27 January 2016**

Annual General Meeting for the Financial Year 2015

**22 April 2016**

Congress Center Basel, Switzerland

### Dividend Transfer to Banks

As a rule, Lonza Group Ltd pays the dividend to its shareholders on the fifth business day following the Annual General Meeting.

## LISTING AND SECURITY INFORMATION

### Stock Exchange Listing/Trading

SIX Swiss Exchange, SGX Singapore Exchange

### Common Stock Symbols

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