

# DSM China Integrated Annual Report 2016



# DSM – BRIGHT SCIENCE. BRIGHTER LIVING.™

Our purpose is to create brighter lives for people today and generations to come. We use our unique competences in health, nutrition and materials to create solutions that nourish, protect and improve performance.

DSM uses its Bright Science to create Brighter Living for people today and generations to come. Based on a deep understanding of key global trends that are driving societies, markets and customers, we create solutions to some of the world's biggest challenges, thus adding to both our own and our customers' success.

We believe that DSM's continued success will be driven by our ability to create shared value for all stakeholders, now and in the future. Our customers derive value from being able to offer end-users improved products and services; society and the planet derive value from the impact of more sustainable, longer-lasting, safer, healthier and more nutritious alternatives; and, as a result, DSM and its shareholders derive value from stronger growth and profitability. Finally, our employees feel engaged and motivated both through the contribution they make to a better world and the success this creates for the company in which they work.

#### DSM – Bright Science. Brighter Living.™

Royal DSM is a global science-based company active in health, nutrition and materials. By connecting its unique competences in life sciences and materials sciences, DSM is driving economic prosperity, environmental progress and social advances to create sustainable value for all stakeholders simultaneously. DSM delivers innovative solutions that nourish, protect and improve performance in global markets such as food and dietary supplements, personal care, feed, medical devices, automotive, paints, electrical and electronics, life protection, alternative energy and bio-based materials. DSM and its associated companies deliver annual net sales of about € 10 billion with approximately 25,000 employees. The company is listed on Euronext Amsterdam. More information can be found at www.dsm.com. © 2017 Royal DSM. All rights reserved.

# **DSM AT A GLANCE**

### Nutrition

The **Nutrition** cluster comprises DSM Nutritional Products and DSM Food Specialties. These businesses serve the global industries for animal feed, food and beverages, pharmaceutical, infant nutrition, dietary supplements and personal care.

DSM Nutritional Products is one of the world's leading producers of essential nutrients such as vitamins, carotenoids, nutritional lipids and other ingredients for the feed, food, pharmaceutical and personal care industries. Among its customers are the world's largest food and beverage companies. DSM is uniquely positioned, offering a combination of global products and local solutions, with a strong focus on innovation. DSM Nutritional Products consists of the following business units:

Animal Nutrition & Health addresses the nutritional additives segment of the global feed ingredients market. DSM's products and premixes include vitamins, feed enzymes, carotenoids, minerals and eubiotics.

*Human Nutrition & Health primarily addresses* the nutritional ingredients markets, but is also active in coloration and preservation in the global food ingredients market.

Personal Care & Aroma Ingredients focuses on active and performance ingredients such as vitamins, UV filters and bioactives for the skin care, sun care and hair care market segments.

DSM Food Specialties is a leading global supplier of food enzymes, cultures, yeast extracts, savory flavors, hydrocolloids and other specialty ingredients to the food and beverage industries. DSM Food Specialties' advanced ingredients make a considerable contribution to the success of the world's favorite brands for the dairy, baking, beverages and savory segments.

### Materials

The **Materials** cluster consists of DSM Engineering Plastics, DSM Dyneema and DSM Resins & Functional Materials. These business groups are active in specialty materials for technologically sophisticated applications and offer specialized value propositions.

**DSM Engineering Plastics** is a global player in developing, manufacturing and marketing high-performance plastics, addressing key markets in automotive and electronics, and providing solutions to specialized industries including water management, breathable textiles and flexible food packaging.

DSM Dyneema is the inventor, manufacturer and marketer of Dyneema<sup>®</sup>, the world's strongest fiber<sup>™</sup>. This product, based on ultra high molecular weight polyethylene, is produced by means of DSM's proprietary processes. The Dyneema<sup>®</sup> brand enjoys very high recognition in the value chains served.

DSM Resins & Functional Materials is a global player in developing, manufacturing and marketing high-quality resins solutions for paints, industrial coatings and fiber-optic coatings. Its continuous innovation means that customers can meet regulatory needs and respond better to consumer demands for more sustainable materials.

### **Innovation Center**

DSM Innovation Center serves as an enabler and accelerator of innovation within DSM, providing support to the clusters. With its Emerging Business Areas, the Business Incubator and DSM Venturing & Licensing, it also has a general business development role, focusing on areas outside the current scope of the business groups.

DSM's Emerging Business Areas provide strong long-term growth platforms based on the company's core competences in life sciences and materials sciences. The company has three Emerging Business Areas:

*DSM Biomedical* supplies innovative biomedical materials that enable medical device manufacturers to make less invasive devices. These can speed up recovery, shorten hospital stays and minimize reoperations, lowering health costs and helping people to lead longer, healthier and more active lives.

DSM Bio-based Products & Services is at the forefront of building a more sustainable, bio-based economy with solutions for clean fuel from agricultural residue and for renewable chemical building blocks such as bio-based succinic acid.

DSM Advanced Solar develops and provides solutions to increase the yield of solar panels – Same sun. More power™.

### Partnerships

DSM Sinochem Pharmaceuticals (DSP), a 50-50 joint venture formed in 2011, is the global market leader in beta-lactam active pharmaceutical ingredients (APIs) such as semi-synthetic penicillins and semi-synthetic cephalosporins. It is also a leader in other active ingredients such as nystatin and next-generation statins.

**Patheon** is a global leader in contract development and manufacturing services established in 2014 and approximately 34%-owned by DSM, with customers across the pharmaceutical industry.

**Chemicalnvest** is a joint venture established in 2015 in which DSM has a 35% shareholding, and comprises the former DSM Fibre Intermediates (caprolactam and acrylonitrile) and DSM Composite Resins businesses.

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### **KEY DATA IN 2016**

#### People Planet Workforce Greenhouse-gas (at year-end 2016) emissions, total DSM (in million tons CO<sub>2</sub>eq) 20,786 1.5 Brighter Living Employee engagement Energy use, total DSM favorable score Solutions (in %) (in petajoules) as % of net sales 22.6 71 Number of Water consumption, nationalities total DSM (at year-end 2016) (in million m<sup>3</sup>) 63 98 22 Frequency Index of Innovation sales **Recordable Injuries** as % of total sales (per 100 DSM employees and contractor employees) 0.33 22 Profit Adjusted EBITDA Net sales Net profit, total DSM Capital expenditure (in million) (in million) (in million) (cash-based) (in million) € 1,262 Adjusted EBITDA growth € 621 17% €7,920 € 475

Cash provided by operating activities, total DSM (in million)

€ 1,018

Net earnings per ordinary share, total DSM

€ 3.52

€ 621 € 475 Dividend per ordinary share 10.4ROCE (in %) 10.4ROCE growth (in bps) 280

# LETTER FROM THE CEO

#### Dear reader,

Toward the end of 2015 we presented Royal DSM's strategic plan for the period up to and including 2018. We designed Strategy 2018: Driving Profitable Growth to capture the full potential of the portfolio of business activities we have carefully created over the years, by increasing organic growth, reducing costs, and improving our performance by strict capital allocation and a stronger organizational agility. For the time being we are not focused on major acquisitions. In the coming years we intend to monetize our three large joint ventures.

We set two mid-term headline financial targets for the strategic period, namely a high single-digit percentage annual Adjusted EBITDA growth and a high double-digit basis point improvement in return on capital employed (ROCE). This reflects our commitment to delivering a step-up in financial performance.

We also set out stretching aspirations in the area of sustainability relating to our own operations, our customer solutions, and our impact on the world. At the same time, we aim to further develop our talent pool to ensure that we can sustainably address the challenges and demands placed upon us.

### We are intent on 'future-proofing' DSM, delivering higher value to all our stakeholders.



DSM is making very good progress toward these targets. Starting already in 2015, we have taken demonstrable steps each quarter and posted 2016 results well ahead of our mid-term targets, improving both profit (Adjusted EBITDA up 17% from €1,075 million to €1,262 million) and returns (ROCE up 280 bps from 7.6% to 10.4%). We also succeeded in making our own operations more sustainable while at the same time increasing the proportion of Brighter Living Solutions our customers buy from us.

### Our performance in 2016

Our strong operational and financial progress in 2016 has been driven by both Nutrition and Materials, supported by our growth initiatives, ambitious improvement and cost-saving actions, and strict capital allocation. This has enabled us to translate our top-line growth into a significant step-up in (financial) returns in 2016. Capital expenditure in support of DSM's future growth amounted to just below €0.5 billion. We furthermore undertook numerous actions to manage working capital; total working capital to sales stood at 18.4% at the end of the year, which is better than the 20% we aspire to stay below.

The Nutrition cluster posted strong organic growth figures for 2016, with both the animal and human nutrition businesses contributing. Animal Nutrition & Health maintained momentum from 2015 and had a strong year. We are also pleased with our performance in Human Nutrition & Health, where we clearly saw the benefits of our improvement actions. One of the highlights of the year was the continued rapid pace of growth for our i-Health consumer range of dietary supplements. Having proved its popularity in the US, it is now also available in a number of other countries. Our Food Specialties and Hydrocolloids texturing businesses also showed good results.

Our Materials businesses enjoyed a particularly successful 2016. We recorded strong growth in volumes, above all in specialty materials – a clear indication that our product portfolio upgrade toward specialties and our application expertise resonate well with our customers in higher-growth and higher-value market segments. Furthermore, we worked hard to manage margins in a low-input cost environment. We again recorded a step-up in returns in Materials in 2016, clearly well above the level of previous years.

At the same time as vigorously driving business growth, we are transforming our organization. We are implementing a number of major programs, which are not just aimed at lowering our cost base, but also intend to make our company more agile, resilient and market- and performance-focused, enabling DSM to fulfill its growth ambitions.

The improvement programs target  $\leq 250-300$  million in cost savings versus the 2014 baseline by the end of 2018. All these initiatives are fully on track and the effects are already visible in DSM's financial and operational progress. We are committed to maintaining our focus and fully executing these programs. The adverse consequence of this is a reduction of around 1,000 FTEs between 2015 and 2017 – a decision that was not taken lightly. I continue to be humbled by the constructive and professional attitude shown by those who have been affected by these changes.

### Science and innovation drives our growth

As a science-based company, one of the pillars supporting DSM's success in the marketplace is our ability to develop new, more sustainable solutions. Every day, our scientists strive to provide answers to global challenges, going to great lengths in doing so. In fact, scientists across the world are the unsung heroes of our time, often working in relative anonymity. Yet they inspire us by making a positive difference and a real societal impact. Our 'Science Can Change The World' campaign celebrates this crucial contribution and entered a new phase in 2016 with the Bright Minds Challenge, looking to fast-forward renewable energy solutions.

We introduced a number of innovations in 2016, including specialty materials that help the automotive industry in its quest to make vehicles lighter and safer, and a new technology enabling the production of highly concentrated omega-3 fish oil. We also continued work on programs for the future, many of which are directly linked to environmental or public health challenges. These include our fermentative stevia sweetener platform in Nutrition to help reduce the sugar in our diets, Clean Cow, aimed at cutting methane emissions from cattle, and our Green Ocean partnership to make fish farming more sustainable.

The concept of the circular economy is becoming reality, and the DSM-Niaga joint venture took an important step, announcing that its technology is ready for commercial-scale production. This 100%-recyclable carpet is proof that products can be re-designed along circular economy principles of use and multiple re-use.

Looking to our Emerging Business Areas, we have experienced a delay in the start-up of the advanced biofuels facility in the US together with our partner POET. Efforts to address this took effect toward the end of the year. DSM Biomedical made steady progress, with higher volumes, especially in high-growth segments of the medical device market including cardiology, ophthalmics and orthopedics. We continued to see good growth in solar energy materials with DSM Advanced Solar. The Innovation Center reached Adjusted EBITDA break-even in 2016, as planned.

### Monetizing our partnerships

Over recent years, we have carved out non-core areas of the portfolio in pharma and bulk chemicals and transferred these into partnerships. We will exit these over time, monetizing our holdings. In 2016, we took a first step through our participation in the very successful IPO of Patheon, resulting in a significant first financial gain and creating the opportunity to monetize further in the coming years. DSM Sinochem Pharmaceuticals progressed well, and we will continue to review the best options for divesting this business. Finally, for the third main partnership, Chemicalnvest with controlling partner CVC, 2016 was the first full year of operation and the focus was on improving results. In all these cases we will choose an appropriate moment to exit. Proceeds will initially be used for de-leveraging our balance sheet and to support organic growth, while unlocking the potential for acquisitions over time.

### Sustainability, our core value

For DSM, sustainability is our core value and a key responsibility, as well as an important business driver. We focus on delivering science-based, sustainable and scalable solutions that address the challenges of today's world in our main areas of competence. Not only do these products and solutions offer higher growth rates and better margins; our continuous endeavor for sustainability also makes us focus on reducing operating costs by decreasing our environmental footprint.

In 2016, over 60% of DSM's sales were products offering measurably better environmental performance and/or societal benefits than mainstream alternatives in areas such as working conditions and health. With these Brighter Living Solutions, we help our customers make their own businesses more sustainable.

We have identified three sustainable growth platforms – areas where our core competences intersect with urgent societal challenges. These are: nutrition; climate & energy; and circular & bio-based economy. We will grow these platforms through partnering, advocacy and engagement, and through our proprietary solutions, increasing our positive impact and doing good business at the same time. Africa Improved Foods, the outcome of a multi-stakeholder approach to support the government of Rwanda in tackling stunting and stimulating economic development, is just one example.

Our corporate strategy and our growth platforms are well aligned with the United Nations' Global Goals for Sustainable Development. These goals – often referred to as the 'SDGs' – are increasingly moving into implementation mode, underscoring the need for effective solutions at scale to which businesses like DSM can make an influential contribution. We are particularly proud of our strategic partnership with the UN World Food Programme, which contributes directly to Goal 2 (Zero Hunger). Among others, DSM's activities also strongly address Goal 13 (Climate Action). Achieving the SDGs will help build societal and economic resilience worldwide.

The global economy presented a mixed picture in 2016, with growth remaining patchy. This was reflected in our businesses, where conditions in some territories such as in Latin America were difficult, while in others we grew well – for example, in India, China, the US and Europe. Social inequalities and economic imbalances also led to political turbulence in some parts of the world, which influenced the wider global economy. In the face of these continuing uncertainties, the SDGs remind us of the importance of taking a long-term view.

#### Our social and environmental performance

In 2016, we further improved the social and environmental performance of our operations. The safety and health of our workforce is our most immediate concern and I am happy to report that there was a reduction in the number of recordable injuries during the year. We remain committed to reducing this number still further. For more information on safety and health and on these and other incidents, see People in 2016 and What still went wrong in 2016.

Our Employee Engagement Survey showed a clear improvement versus last year, demonstrating that we are on the right track. We also continued to strive for a representative balance across our organization in terms of gender and nationality, addressing our Inclusion & Diversity beliefs and goals. We are pleased with the improvement in the number of women in executive and senior leadership positions in recent years, yet we realize we must increase this momentum still further. Our ability to hire, develop, evaluate and manage our talented people is a fundamental enabler for DSM's continued success. Last year, we rolled out a revamped global talent management approach across the company and further embedded the DSM leadership model.

We made pleasing progress in 2016 toward our multi-year targets for reducing our own environmental footprint, including further improving our greenhouse-gas efficiency and energy efficiency, as well as taking important steps toward our renewable electricity targets. DSM is among a growing number of companies to have implemented an internal carbon price (in our case of €50/ton CO2 equivalents) to help guide investment decisions toward low fossil-carbon choices. We support carbon pricing as an instrument to address climate change, and I am honored to co-chair, together with Minister Ségolène Royal of France, the Carbon Pricing Leadership Coalition, an initiative launched by the World Bank, the UN and the International Monetary Fund.

All of us at DSM take pride when our efforts receive external recognition. Among numerous other things, we were very pleased to be named the global industry leader in the Dow Jones Sustainability World Index in 2016. We were also delighted to be mentioned in Fortune Magazine's 'Change the World List' of companies that are "doing well by doing good." This resonates well with how we view our purpose as a company.

We continually aim to improve our integrated reporting, and this Report follows the GRI Standards from the Global Reporting Initiative as well as the <IR> framework of the International Integrated Reporting Council. We remain committed to aligning our strategy and operations with the principles of the UN Global Compact, as well as contributing to the realization of the UN Global Goals.

### Our thanks to all who contribute

In conclusion, 2016 was a good year for DSM. We are pleased with our progress and have many reasons to be confident. On behalf of my colleagues, I would like to extend our thanks to everyone who has contributed to this success: our employees, customers, suppliers and other business partners. We are grateful for the trust of our shareholders and will continue to serve the interests of all our stakeholders as well as we can. We also express our gratitude to Stephan Tanda, who has been instrumental on DSM's Managing Board in creating our unique, broad and global Nutrition business, and has moved on to become CEO of the AptarGroup, Inc. We wish him well after nine years of work for DSM. Also many thanks to Ewald Kist, whose final term as a Member of DSM's Supervisory Board came to an end in 2016 after 12 years of service. We highly value his balanced, long-term thinking.

I would like to finish by once again thanking all who contributed to this successful year 2016 and the achievements of the DSM we have built together: we do this all to create brighter lives for people today and generations to come.

Feike Sijbesma CEO/Chairman Managing Board Royal DSM

# STRATEGY 2018: DRIVING PROFITABLE GROWTH

Over recent years, DSM has been transformed into a truly global company that provides innovative, sustainable solutions in health, nutrition and materials. DSM's Strategy 2018: Driving Profitable Growth focuses on capturing the potential of the business portfolio that has been created and translating this into improved financial results. In the period 2016-2018, we aim to step up our financial performance while pursuing our ambitions in the area of sustainability and expanding our positive impact on the world around us.

People, economies and markets worldwide are being affected by a number of fundamental societal trends. These megatrends – predominantly driven by demographic changes as populations grow (including a shift to the faster-growing countries in Asia and Africa) and people become older, more urbanized, wealthier and more connected – are exerting increased pressure on resources and the food chain. In addition they are engendering new patterns of consumption and impacting the environment. Moreover, there is increased attention to health and well-being. These trends present clear challenges, but also offer opportunities for DSM to profitably grow its businesses by supporting customers in developing science-based, sustainable solutions to meet current and future needs.

DSM's strategy and solutions offering addresses three crucial megatrends.

### Global shifts and digital transformation

The accelerating growth of the global population, accompanied by ever more rapid technological advances and the increasing wealth of the emerging economies, is creating a world that is city-oriented, technology-literate, and globally connected. It is also imposing unprecedented demands on the earth's resources and triggering significant societal and cultural changes worldwide. Diets are changing and global spending on housing, transport, lifestyle and energy is on the increase. New technology, hyper-connectivity and big data are impacting individuals, communities, businesses and economies in unprecedented ways, bringing both opportunities and challenges.

### Climate and energy

Scientific consensus on the link between human activity and climate change is clear, and the full and speedy implementation of the Paris Treaty (COP21) agreements is paramount. In the words of the Marrakech Action Proclamation for Our Climate and Sustainable Development, made at the COP22 UN Climate Change Conference in November 2016, "Our climate is warming at an alarming speed and we have an urgent duty to respond... Our task now is to rapidly build on that momentum, together, moving forward purposefully to reduce greenhouse-gas emissions and to foster adaptation efforts, thereby benefiting and supporting the 2030 Agenda for Sustainable Development and its SDGs." This understanding is speeding up the imperative transition to the (bio-)renewable age and the low fossil-carbon economy.



The DSM Managing Board (from left to right): Stephan Tanda, Dimitri de Vreeze, Feike Sijbesma (CEO/Chairman) and Geraldine Matchett (CFO)

### Health and wellness

Advances in medicine, improvements in healthcare, and growing awareness of the importance of good nutrition have created favorable conditions for billions of people to achieve their full potential during the course of long and active lives. Yet these advances are accompanied by massive societal challenges: the growth of diet-related non-communicable diseases in both the developing and the developed world; the aging of the populations of Japan, Europe and North America, for example; and the increasing demand for – sustainable – animal protein in the emerging economies. At the same time, two billion people on the planet suffer from micronutrient and protein deficiencies, and the cycle of deprivation continues from generation to generation.

We provide our customers with the innovations and sustainable, science-based solutions they need to meet the demands arising from these megatrends. Orientating DSM's strategy and businesses around these three megatrends not only provides us with the global scope to pursue attractive commercial opportunities across the full range of our abilities. It also ensures that our efforts target some of the biggest challenges confronting society today.

#### Strategy 2018: Driving Profitable Growth

| Two headline<br>financial targets           | High single-digit percentage<br>annual Adjusted EBITDA<br>growth | High double-digit basis point<br>annual ROCE growth                 |  |
|---|--|---|--|
| Clear actions identified to achieve targets | Businesses aim to outpace market growth in all segments          | € 250-300m cost reduction and<br>efficiency improvement<br>programs | Consistent improvements in capital efficiency                |
| Additional items<br>underpinning strategy   | Stepping up sustainability aspirations                           | Global organizational and operational adjustments                   | Extract value from Pharma &<br>Bulk Chemicals joint ventures |

Taking into account these megatrends, and combined with disciplined focus on performance, we have established a threeyear strategic plan with two headline financial targets: high single-digit percentage annual Adjusted EBITDA growth and high double-digit basis point annual ROCE growth. We have defined clear actions for DSM to achieve these targets, including outpacing market growth in our businesses, the rigorous execution of cost reduction and efficiency improvement programs which will deliver  $\leq$  250-300 million in savings versus the 2014 baseline, and improvements in our capital efficiency. In support of our growth targets, we are adjusting DSM's global organizational and operating model to create a more agile, commercially focused and cost-efficient company.

We do not expect to engage in large acquisitions in the near future and intend to further monetize DSM's main joint venture partnerships in the coming years.

Besides improving the financial outcomes, we are also stepping up our sustainability aspirations with Strategy 2018, both in our own operations and in the positive impact we want to have on the world around us. DSM's competences and business plans have a strong link with the Sustainable Development Goals. While our activities align with many of the SDGs, our businesses can particularly contribute to SDGs 2, 3, 7, 12 and 13. We have identified key sustainability focus areas in which we foster the development of sustainable markets where our products, value chains, networks and partnerships can have a beneficial impact at scale. Our ability to hire, develop, evaluate and manage our talented people is a fundamental strategic enabler for DSM's continued success, and we direct this through our People Strategy 2018.

" Our Strategy 2018 aims to unlock the tremendous potential that DSM's business portfolio offers, out- pacing growth in our markets through innovative solutions addressing important global issues, capturing the benefits <u>of</u> organizational optimization and helping our employees fully develop their skills and talents."

Philip Eykerman, DSM Executive Committee



While driving profitable growth throughout the company via the execution of our Strategy 2018, we continually monitor, assess and strive to respond appropriately to societal, macro-economic and segment-specific developments as they occur. Our approach to managing both opportunities and risks in DSM's businesses is embedded in our operating and governance model and risk management approach.

A full description of Strategy 2018: Driving Profitable Growth can be found on the company website: www.dsm.com.

### Progress in 2016

Having designed DSM's strategy update in 2015, the year 2016 has been about implementing Strategy 2018 in our organization and in our markets.

### Financial results

DSM delivered very strong financial results in 2016, with net sales of  $\in$  7,920 million, up 3% on 2015 ( $\in$  7,722 million). Group organic sales growth came to 4% on the back of strong volumes in both Nutrition and Materials. Adjusted EBITDA from continuing operations grew by 17% to  $\in$  1,262 million, clearly ahead of the high single-digit growth we are currently targeting.

DSM's overall Adjusted EBITDA margin (Adjusted operating profit before depreciation and amortization as a percentage of net sales) was 15.9% (2015: 13.9%). In 2016, Return On Capital Employed (ROCE) was up 280 basis points to 10.4% from 7.6% in 2015, also well ahead of our targeted improvement.

The Nutrition cluster had a strong year with 5% organic growth and Adjusted EBITDA up 13% versus 2015. All businesses contributed well to this growth. Adjusted EBITDA also benefited from the efficiency and cost saving programs. The Adjusted EBITDA margin was 18.0% (2015: 16.6%), already achieving the aspired range of 18-20% for 2018.

Animal Nutrition & Health had a very good year, with 8% organic growth, driven by strong volume growth in all regions with the exception of Latin America, due to the weak economic conditions in that region. Prices were up in a number of vitamins and premixes. Human Nutrition & Health delivered a significant step-up in organic growth versus recent years at 4% in 2016. This underlines the successful implementation of the strategy to drive above-market growth through new market initiatives and innovation. One of the highlights of the year was the continued rapid pace of growth for the i-Health range of dietary supplements. The range has proved its popularity in the US and is now also available in a number of other countries.

Our Materials businesses delivered a strong financial

performance in 2016, reflecting the success of our differentiated approach of focusing on higher-growth specialty businesses in

the Materials portfolio. Volumes grew 4% in the year. Prices were generally down across the Materials sector, including for DSM, as a result of the prevalent low input cost environment created by low oil prices. Adjusted EBITDA was up 13%, driven by strong volume growth in higher margin specialties, the benefits of the efficiency- and cost-saving programs that have been carried out in the cluster, and the support from low input costs. Margins in Materials came in at 17.3% for the year versus 15.2% in 2015. Even when normalized for the approximately one percentagepoint of support resulting from the low input-cost environment, this is a significant step-up in profitability, and clearly well above the levels of just a couple of years ago and ahead of the mid- term aspiration of 15%.

| Financial targets 2016-2018                                   | Realization 2016 |
|---|------------------|
|   |                  |
| High single-digit percentage annual<br>Adjusted EBITDA growth | 17%              |
| High double-digit bps annual ROCE<br>growth                   | 280 bps          |
|   |                  |
| Sustainability aspirations 2020                               | Realization 2016 |
|   |                  |
| Dow Jones Sustainability World Index                          |                  |
| Top ranking (RobecoSAM Gold Class)                            | Industry leader  |
| Brighter Living Solutions                                     |                  |
| 65% ECO+/People+ (running business)                           | 63%              |
| GHG Efficiency Improvement                                    |                  |
| 40-45% (2008-2025)  | 23%              |
| Employee Engagement Index                                     |                  |
| Toward 75% favorable  | 71%              |
| Safety  |                  |
| 0.25 Frequency Index of Recordable Injurie                    | s 0.33           |
| Diversity   |                  |
| 25% Female executives   | 15%              |
| 60% Executives from under-represented nationalities           | 53%              |

From a regional perspective, in North America, economic growth remained steady, with record low unemployment. North America is the only region where all DSM's business groups and Emerging Business Areas (EBAs) have operations and sales grew by 10%. The pace of growth in the EMEA region remains patchy, with some countries and markets developing more strongly than others, influenced also by political events. Regional sales grew by 3%, with good performance in food & beverage and automotive alongside more robust conditions in building and construction.

Sales in emerging economies amounted to 44% of total sales in 2016, in line with 2015. This gives DSM a well-balanced global footprint, putting us in a position to capture opportunities arising from the megatrends in economies such as China, India,

Brazil and Russia as well as in the more mature economies of the West.

In China, the economy is rebalancing toward the 'New Normal', whereby domestic consumption has become the most powerful driver of economic growth. Of relevance to DSM, 2016 saw high growth in automotive, and the food industry continued to develop well, while construction-related industries remained volatile. Environmental regulations have sharpened significantly in recent years, leading many segments to seek more sustainable substitutes for traditional materials. Sales in China grew by 6%. In India, GDP growth continued apace and DSM's sales showed a 16% development, supported by an increased awareness of the importance of healthy, balanced diets, and new standards that came into force for the fortification of staple foods. Sales in Latin America declined by 6%. Economic instability, especially in Venezuela and Brazil, and to a lesser extent in Argentina, continued to affect DSM's businesses in the region. At the same time, there is a growing willingness to address obesity and malnutrition by some governments in this region. The economy in Russia showed initial signs of improvement in 2016. A strong localization drive benefited agriculture in particular, which has been positive for DSM's animal nutrition business. Overall, sales in Eastern Europe were up 6%.

DSM's innovation strategy aims at developing the best, most sustainable and commercially viable solutions to continue to meet current and future market needs and to support DSM's further profitable growth. Innovative and improved products and solutions typically have above-average margins, contributing directly to Adjusted EBITDA growth as well as top-line growth. Innovation sales, defined as sales from products and solutions introduced in the last five years, made up 22% of total sales in 2016 (2015: 24%), in line with our aspiration to maintain a level of around 20% going forward for DSM as a whole. We see this as a healthy proportion in view of the overall balance of our product portfolio and product life cycles. R&D is crucial to the realization of DSM's innovation strategy, and most of the expenditure in this area is directed toward business-focused programs. The overall spend on R&D came to € 426 million in 2016, or 5.4% of sales.

Our three EBAs – DSM Biomedical, DSM Bio-based Products & Services and DSM Advanced Solar – continued to progress during the year. We saw solid volume growth in our Biomedical activities: worldwide, a medical device containing DSM's specialty biomedical materials is now being implanted into someone's body on average once every nine seconds. In Biobased Products & Services, we have made strides together with our partner POET to bring the cellulosic bio-ethanol plant in the US toward full capacity. Furthermore, we are leveraging the expertise and the products we have built up to create new business in making the production of all generations of biofuels more efficient and sustainable. Our Advanced Solar business for solar energy materials again performed well in 2016, outpacing market growth. We also added an innovative new backsheet technology to our portfolio in this segment. Taken together, the EBAs delivered € 16 million in Adjusted EBITDA. DSM's Innovation Center reached Adjusted EBITDA break-even overall in 2016 as planned.

#### Cost reduction and improvement programs

DSM has instigated extensive cost-reduction and improvement programs which will deliver € 250-300 million savings versus the 2014 baseline. In 2016, all these well-identified programs progressed as planned and the programs are on track to deliver the targeted benefits.



### Sustainability results

Sustainability is our core value. As such, we have expended much time and effort over the years in embedding sustainability across our business activities, both in recognition of our responsibility to reduce DSM's environmental footprint and in developing sustainability into a strategic and successful business growth driver. We harness our strong science competences to create and deliver higher-margin, profitable products and solutions that have a positive impact on our value chains and help address global challenges. In 2016, our Brighter Living Solutions comprised 63% of total sales.

We are proud that DSM was named the global leader in our industry group in the Dow Jones Sustainability World Index in 2016. This top ranking means that in 2017 DSM will continue to have RobecoSAM Gold Class status.

We have set targets to drive sustainable operations at DSM relating to greenhouse-gas and energy efficiency, employee

engagement, safety and diversity. These headline targets with a longer-term horizon are supported by a wide range of measures. In 2016, we made good progress in reducing our operational environmental performance, improving both our greenhousegas and energy efficiency in the year toward the targets we have set. This included taking a significant step in the amount of electricity we purchased from renewable sources.

We have defined three key focus areas in sustainability for DSM based on global societal trends that are affecting people, economies and markets. These are nutrition, climate & energy, and circular & bio-based economy.



The members of the Executive Committee are the Managing Board members Feike Sijbesma (CEO/Chairman), Geraldine Matchett (CFO), Stephan Tanda (Nutrition) and Dimitri de Vreeze (Materials), as well as Chris Goppelsroeder (Nutritional Products), Philip Eykerman (Strategy and M&A), Peter Vrijsen (People & Organization) and Rob van Leen (R&D and Innovation)

- In nutrition, DSM has unique expertise in developing products to positively impact global nutrition, health and development in support of SDG 2 (Zero Hunger), which aims to end all forms of malnutrition by 2030. We work together with cross-sector partners to help make good nutrition aspirational, affordable and available to all. Our strategic partnership with the UN World Food Programme reached over 28 million beneficiaries in 2016.

- Effectively tackling climate change is a responsibility and also a business opportunity. We focus on reducing DSM's own carbon footprint, enabling the low fossil-carbon economy with products and solutions and advocating climate action. In April 2016, our CEO Feike Sijbesma was named Co-Chair of the Carbon Pricing Leadership Coalition, which was launched by the World Bank and the International Monetary Fund in 2015. DSM also agreed to participate in a unique partnership for renewable energy from Windpark Krammer in the Netherlands.

- We are committed to securing the future availability of natural resources, and to unlocking more value from the limited resources that are available. At the end of 2016, the DSM- Niaga joint venture announced its readiness for commercial- scale production of 100%-recyclable carpets.

We look to foster the development of sustainable markets in these areas where our products, value chains, networks and partnerships can have a beneficial impact at scale.

### **Organization & culture**

The DSM Employee Engagement Index expresses how our employees rate DSM in terms of commitment, pride, advocacy and satisfaction. The survey held in 2016 resulted in an engagement index of 71% (2015: 69%), just ahead of the global standard of 70%. This is a good result, especially in light of our ongoing transformation to a new organizational and operating model. Our aim is for this outcome to move toward 75% favorable by 2020.

We are well on track with the adjustments to our global organizational and operating model to support DSM's growth and create a more agile, commercially-focused and cost- efficient business. We strengthened DSM's management structure in 2015 by establishing an Executive Committee, which has enabled faster alignment and operational execution by increasing focus on the development of the business, innovation and people. The Executive Committee's efforts are primarily aimed at defining the overall strategy and direction; reviewing business results and functional and regional strategies; budget- setting; and people and organization.

Programs in our new target operating model to globally leverage cross-company support functions in areas such as HR, Indirect Sourcing, Communications, Finance, Legal and ICT are well underway. In support of this transformation, we continued to anchor and embed our new way of working and ONE DSM culture, driving changes in mindset and behaviors. The changes implemented are aimed at establishing DSM as a results-driven, high-performance organization.

We further embedded the DSM Leadership Model in our key processes of hiring, developing, evaluating and managing talent across the organization and for building high-performing teams. We also rolled out a new talent management approach across the company in 2016. We will continue to invest in our talent pipeline to ensure that we can sustainably address the future challenges and demands placed on us.

# Extracting value from our partnerships

DSM has established joint venture partnerships for its former pharma activities (DSM Sinochem Pharmaceuticals and Patheon) and for the remaining bulk chemical businesses (Chemicalnvest). These partnerships have been created with a view to ultimately exiting and monetizing these businesses, and we expect to extract significant value from them in the coming years.

We took a first step in 2016 with the sale of 4.8 million ordinary shares in Patheon N.V. in connection with the IPO of Patheon N.V. in July, resulting in a gain of  $\in$  232 million. Following this transaction, DSM now holds approximately 48.7 million ordinary shares, or approximately 34% of Patheon N.V.

# Building for earnings growth beyond 2018

DSM has set itself strategic targets for the period to 2018. This shorter three-year period is intended to channel the organization's focus and forcefully drive achievement of the step-up in financial performance at which the company aims, creating more value from the promising portfolio we have built over recent years. At the same time, we are also preparing for further longer-term growth; DSM's business cycles are typically longer than the three-year period to 2018. The company has a range of key business and innovation projects across the clusters that will drive earnings growth beyond 2018 and we will continue to develop more initiatives in light of market dynamics.

# LETTER FROM DSM CHINA PRESIDENT

#### Dear reader,

2016 can be summarized in a few words: In the face of significant challenges and opportunities, we have made impressive progress in China. DSM has achieved its growth goals in China across our Business Groups and Units, as defined in our Strategy 2018: Drive Profitable Growth. Throughout 2016, we have celebrated several important milestones and further increased our footprint in many business sectors across China. To Drive Profitable Growth, many practical initiatives have been taken to expand our business portfolio and to explore ever more new growth opportunities.

Our nutrition business continued to grow positively in 2016. A new vitamin B6 plant was opened in Shanghai in June, expanding our capabilities to serve the global market and responding to local customers' needs. Also in June, DSM formed a strategic partnership with Youran Dairy Company, an affiliate of dairy giant Yili. This partnership between DSM & Youran fits perfectly into DSM's "global product, local solutions" strategy, as it creates a brand-new business model to strengthen the collaboration between DSM and Yili, and drive rapid and continuous growth for DSM.

We also develop our capabilities continuously to encourage innovation for specific products and solutions in local market. In September 2016, we took a strategic step in the development of our Personal Care business by launching a new Technical & Application Center in Shanghai to develop innovative solutions for the cosmetic industry in China and Asia-Pacific. Moreover, DSM announced that DSM Hydrocolloids will build a new global innovation center in Tongxiang, Zhejiang, which will help us to address growing global demands for high-end hydrocolloids products.

DSM's Material Sciences cluster performed well in 2016 despite unfavorable external conditions. DSM Engineering Plastics and specialty chemicals producer Zhejiang NHU Special Materials Co., Ltd. (NHU) have formed and inaugurated a new joint venture company, DSM NHU Engineering Plastics (Zhejiang) Co., Ltd. to produce compounds based on polyphenylene sulfide (PPS). The products, branded as Xytron<sup>™</sup> PPS, are targeted at a broad range of sectors, such as automotive, electrical & electronics, water management and specialized industries. Meanwhile, DSM Coating Resins China has made a breakthrough taking the lead on the transition of waterborne and sustainability in China's container industry. This has helped us to achieve a new record in our business of waterborne resins in November, 2016. DSM Dyneema Fibre-based Functional Materials has also achieved significant growth in 2016. Following the shift of its marketing strategy to promote brand awareness among end users, they are increasing the profit margin and lowering business risks by expanding the customer range instead of relying on a single

customer too much.

China is one of the most important markets for DSM. While we constantly focus on delivering innovative products and services in the areas of food, feed, nutrition, new materials, and renewable energy, we also continuously strive to optimize our operations, with a strong focus on sustainability. For DSM, sustainability is a core value and a key responsibility, as well as an important driver for business growth.

DSM China has therefore continually worked to strengthen its sustainability management and to support China in its quest to protect the environment and fight climate change. During the past few years, China has been actively promoting energy transformation. At DSM China, we have taken major steps to support sustainable development, for example in developing our new Emerging Business Areas such as DSM Biomedical and DSM Advanced Solar, which offers yield-boosting solutions for solar



energy. In China's solar industry, we have collaborated with the Chinese National Center of Supervision and Inspection on Solar Photovoltaic Products Quality in The Bright Minds Challenge, a global initiative to harness science to promote renewable energy. Our collaborative project aim was to accelerate the scaling of renewable energy innovation projects in China.

Safety has always been one of our top priorities. In China, the Frequency Index of Total Recordable Injuries improved to 0.15 in December 2016, compared to 0.18 at the end of 2015. In the five months from August to December 2016, DSM China has recorded no injury at all. This achievement has put DSM China into the leading position once again among DSM global regions.

Our employees have always been the core of our success in China and are central to all our undertakings. In 2016, we have come together in driving the One DSM Culture Agenda across our business and supporting functions, thereby strengthening communication and processes between businesses. We continuously welcome new employees into our organization from outside and achieve organic growth within the company, both at the regional and country level. In addition, we actively develop our talents which is an important contributing factor to drive business growth.

The foundation for our long-term success in China is the trust and support from both our employees and all of our external stakeholders. One of the keys to gain this trust is transparency. With our annual report, we can provide updates on a regular basis about our performance and progress across the dimensions of People, Planet, and Profit to our stakeholders. On behalf of the DSM China Leadership Team, I'd like to extend our sincere gratitude to all of our partners, customers and stakeholders. We are looking forward to working with you even closer in the future to create higher value together and to contribute to a more sustainable world.

Dr. Jiang Weiming DSM China President

## **HISTORY - DSM GROWS WITH CHINA**

### 1963-2005 Starting business in China

2005-2008 Deepening engagement

# 1963

With the first Urea License, DSM starts trading with China.

#### 1993



DSM establishes Representative Office in Beijing.

#### 1995



The first production facility is established in Jiangyin to manufacture polypropylene chip compounds.

#### 2005



As the biggest emerging economy, China becomes the focus of DSM's corporate strategy Vision 2010. DSM adds more than 10 manufacturing sites in China, and opens its China R&D Center in Shanghai. DSM enters collaboration with Shanghai's Fudan University to set up a Joint Laboratory.

#### 2007



Premier Wen Jiabao recognizes DSM Citric Acid (Wuxi) Limited in China as a 'Good Corporate Citizen'.

### 2008



In the run-up to the Beijing 2008 Olympics, DSM stepped up its efforts in the fields of sports and innovation, contributing to sporting success.

#### 2008



DSM publishes its first China sustainability report.

#### 2008-2016 Growth and Transformation

#### 2009



DSM opens its new China Campus the new seat of its Regional Headquarters and R&D Center in Shanghai. As one of the first LEED (Leadership in Energy and Environmental Design) Gold-certified buildings in China, it is a symbol of DSM's sustainable development.

#### 2010



The first DSM Hope Primary School in China opens on June 1, Children's Day. It is located in Qiaoxi Township of Guangyuan city, Sichuan province. The school was devastated by the Sichuan earthquake in 2008.

#### 2011



DSM starts up its China Science and Technology Center as the company's main innovation base in China.

#### 2012

DSM Sinochem Pharmaceuticals opens new 6-APA intermediate plant in Jilin Province.

#### 2013



DSM's investment in Yantai Andre Pectin Co. Ltd. creates a China-based hydrocolloids growth platform. The acquisition of German chemical company Bayer's premix activities in China further expands DSM's global premix network. On May 31, DSM opens its second DSM Hope Elementary School, in Lintao County, Gansu Province.

#### 2014



DSM launches a food specialties world-class enzyme facility in Jiangsu to serve both the local and global markets.

In the same year, DSM opens a new animal nutrition center in Bazhou to support the Chinese livestock production industry.

#### 2015



DSM finalizes the acquisition of Jiangshan Pharmaceutical, which allows DSM to further strengthen its position in vitamin C market.

DSM's Hydrocolloids Business Unit breaks ground for its gellan gum site expansion at DSM Zhongken Biotechnology Co., Ltd. in Tongxiang, to make a world-class development center for hydrocolloids including gellan gum.

#### 2016



DSM opens its state-of-the-art vitamin B6 facility in Shanghai Xinghuo Site.

DSM and NHU officially inaugurates the joint venture to produce high performance PPS compounds.

DSM opens its Asia Pacific Personal Care Technical & Application Center in Shanghai.

# **DSM IN CHINA OVERVIEW**

### DSM activities in China

DSM is active across almost its entire portfolio of Life Sciences and Materials Sciences in China, serving the end markets including food and dietary supplements, personal care, feed, medical devices, automotive, paints, electrical and electronics, life protection, alternative energy and bio-based materials.

DSM began trading with China in 1963 and established its first China sales office and first manufacturing facility in early 1990s. The company currently has 46 affiliates in China including 22 manufacturing sites and employs about 4,737 people. DSM China regional headquarters and China Science and Technology Center are located in Shanghai. DSM's business is growing healthily and steadily in China with sales revenue reaching over CNY 7.2 billion in 2016.



# **INNOVATION IN CHINA**

### Local for local solutions

In September 2016, DSM Personal Care opened a new Technical & Application Center on the Shanghai Campus. This center will develop product applications, provide technology services, and create tailor-made solutions for cosmetic industry customers throughout the growing markets of China and Asia Pacific.

In 2016, DSM China introduced several new locally developed high-performance plastics compound grades under the brand name of Xytron<sup>™</sup>. A joint venture with Zhejiang NHU Special Materials Co. manufactures these high-performance plastics compounds that are based on polyphenylene sulphide, PPS. Xytron<sup>™</sup> shows excellent chemical resistance, great dimensional stability and inherent flame retardancy. It can be used for extended periods of time under high temperatures of more than 240 degrees Celsius, as its melting point is as high as 280 degrees. Xytron<sup>™</sup> s intrinsic capabilities open up new fields in sectors such as automotive, electrical & electronics and specialized industries, as the product is ideally suited for a broad range of applications in these industries.

The new product is the result of active local cooperation. During the process of developing Xytron<sup>™</sup>, DSM Performance Materials Research Center (PMRC) scientists in Shanghai have worked closely with the joint venture's product line managers and contributed to continuous improvement of the compound's properties. For example, their deep understanding of the plastic toughening mechanism has shortened the development process of the high-impact Xytron<sup>™</sup> grade. Meanwhile, DSM's unique nucleating agent was employed to accelerate the crystallization of Xytron<sup>™</sup>.

The DSM China Animal Nutrition Center (CAN) is also fostering local development of specific solutions for the China market. In 2016, CAN held several scientific seminars such as the DSM Poultry Scientific Seminar in November with more than 60 key Chinese customers from the poultry industry. Half of the research trials at CAN are focused on local solutions related to supporting animal nutrition and health businesses and the feed and animal industry in China. For example, CAN conducted extensive research on effective combinations in feed additives of enzymes needed to absorb and digest the non-starch polysaccharide (NSP) contained in all feed cereals. Research shows that such NSP enzyme combinations fit better to the China market than the use of single NSP enzymes.

### Collaboration

In 2016, DSM and By-Health, a leading Chinese customer health company, established a strategic innovation partnership to jointly develop a new product for supporting cardiovascular health in China. The product is designed to maintain healthy blood flow. The goal is to gain approval from the China FDA to set up a new function claim for dietary supplement, also with an approval as a health product. One key ingredient of the new product will be DSM's Fruitflow<sup>®</sup> – a natural water-soluble tomato concentrate that is gaining a reputation as a natural alternative to aspirin. Fruitflow<sup>®</sup> is clinically proven to maintain a healthy platelet aggregation and to improve blood flow. The cooperation between DSM and By-Health also includes cooperation on clinic trials, expert consensus, and relevant evaluation and testing methods for new product developments as well as assessments of new functions in existing products.

The DSM China Animal Nutrition Center (CAN) has built up connections with a broad range of top universities and professors in China and worldwide. In 2016 CAN, together with



DSM Science & Technology Award recognizes Young Scientists for their excellent researd in China

the China Animal Nutrition Association, presented the "DSM Science & Technology Award – Animal Nutrition and Health 2016" to recognize and nurture excellence by young Chinese scientists in innovative Ph.D. research on animal nutrition. Dr. Yi Hongbo was selected as the winner for his Ph.D. research work under the supervision of Prof. Wang Yizhen from Zhejiang University. Dr. Yi proved the potential of applying antimicrobial peptides as a promising strategy for the prevention and treatment of diarrhoea and other intestinal disorders frequently occurring among newly weaned piglets.

The Lithium ion battery (LIB) is well recognized for its crucial role in the rise of electrical vehicles and consumer electronics. LIB manufacturers are constantly looking for new materials and processes to meet growing requirements for battery capacity and safety. As a materials provider with a rich product portfolio, DSM has established collaboration in research and development with several leading battery companies in China. This mutual sharing of knowledge and experience facilitates a faster development pace for new product grades in the battery sector. With external aid from these partners, an in-house battery lab line has been built up at the DSM Performance Materials Research Center (PMRC) in Shanghai in 2016. Using this new lab line, PMRC scientists can now transfer existing knowledge about the behavior of materials into the LIB assembly process and instructions for LIB daily usage. DSM's materials such as thermoplastic elastomers, resins and intermediates for polymerization can be applied to several parts of a lithium-ion battery, for example binders, electrode separators and stabilizers for chemical solutions.

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DSM also has a successful cooperation with its customer Huawei, a leading global telecoms equipment maker based in Shenzhen. Since 2015, PMRC researchers from DSM Performance Materials Research Center (PMRC) have worked together with creative product design experts at a Huawei innovation lab. This cooperation has

contributed to accelerate the commercialization of DSM's ForTii<sup>®</sup> grades with a low dielectric constant for mobile phone antenna application. Furthermore, the collaboration is now also extending into the development of functional parts for telecommunication base stations. Both companies also conducted experiments at Huawei's lab using DSM's new Xytron<sup>™</sup> compound. This resulted the successful development of new Xytron<sup>™</sup> grades with reliable dielectric performance even under hush conditions. These grades are used for several parts in base stations needed for the upcoming 5G era.

### Patents

In 2016, DSM has filed 37 patent applications in China. Among these patent applications, 11 were the result of local efforts by DSM China employees. The company actively enforces patent protection in China and is thus ready to file lawsuits against patent infringers to protect DSM's leading position in China in the personal care business and water-soluble vitamin business.

### DSM China IP Awards

Since 2012, DSM internally recognizes inventors of innovations for which patents have been granted or commercialized in China. So far, nine employees have been received this annual DSM IP Inventor China Award. In 2016, Qing HE and Qiong-Mei ZHANG from DSM Nutrition Products received the award.

## **BRIGHT SCIENCE INTO BRIGHTER LIVING** – **BUSINESS CASES**

### Waterborne Coating Pioneer in China's Furniture Industry

### Pollution caused by paint has long been a social concern.

Solvent-borne coatings generate emissions to air, creating health risks for painters and producers at the workplace, as well as inside people's homes. Yet, most Chinese furniture manufacturers still use solvent-borne coatings.



Since 2009, Kunshan Baiyulan Furniture Co., Ltd. (BYL) has applied water-borne coatings instead of solvent-borne coatings on their kitchen furniture, with support from DSM's waterborne coating resin solutions.



### **DSM Life Cycle Assessment**

With a life cycle assessment, DSM supported BYL in determining that waterborne coating is more environmentally friendly than solvent-borne coating in many ways.

From cradle to the application of the final paint on BYL furniture, water borne coatings show lower environmental impact on:



- carbon footprint
- eco footprint
- primary energy consumption
- organic compound emissions



Switching to water borne coating also increases the productivity and improve the working environment for the painting workers, by mitigating the fire risks and reducing exposure solvents.

The successful transition from solvent-borne coatings to water-borne coatings at Baiyulan Furniture has made the company a sustainability pioneer in China's furniture industry.

### A Complete Lead-Free Solution for Faucet System Components



#### Lead contamination in drinking water is a major concern worldwide,

leading to more stringent regulation on lead limits in drinking water. This has driven the industry to look for alternatives, and engineering plastics such as EcoPaXX<sup>®</sup> offer a completely lead-free solution, and fully comply with those regulations.

### DSM's EcoPaXX® Q-DWX10



LOWERED CARBON FOOTPRINT 30% lower than materials with similar function



**LEAD-FREE** 50% glass-fiber-reinforced polyamide 410



**CARBON-NEUTRAL** 70% of the polymer is bio-based

### Eubiotics – Sustainable animal gut health solutions

Overuse and misuse of antibiotics result in bacterial resistance in animals and upon meat consumption to humans.





### China-wide ban on antibiotics for non-medical purposes

DSM has focused on providing solutions that are alternatives to AGPs (antibiotic growth promoters) well ahead of the legislation in China.

**DSM's Solution Range** 

- VevoVitall<sup>®</sup> (benzoic acid)
- Cylactin<sup>®</sup> (Enterococcus faecium)
- CRINA<sup>®</sup> (essential oil)

#### Benefits of our solutions

DSM's sustainable gut health solutions can be used in place of antibiotics. They improve digestibility of nutrients in the feed, thus improving gut health which:

Reduction of agricultural gas production 42% (e.g. ammonia) 80%

Reduction in the use of antibiotics in the feed DSM provides to customers



These savings can reduce production cost for our customers. The saved soy and maize can be transferred to other economic sectors where there is high demand.

### STAKEHOLDER ENGAGEMENT

Engaging in strategic and proactive dialogue with our key stakeholders helps deepen our insights into the drivers of our business and the needs of society worldwide, and thus to be ahead of the competition in adapting to changing demands. We value engaging with our stakeholders – customers, suppliers, investors, employees, companies, governments, academia and civil society – and reach out to them in order to maintain open discussions on topics relevant to our business activities and our role in society, and to align our strategy with their views. These groups have been identified based on their influence on DSM's operations, as well as our effect on them. The outcomes from the various stakeholder dialogues inform many aspects of our strategy, such as risk management, the identification and pursuit of business opportunities, and the overall guidance of DSM's strategic objectives and ambitions. Continuous dialogue with our stakeholders is pursued through a variety of channels.

### Stakeholders

DSM's various stakeholders – both those within our value chain, such as suppliers and customers, and those that influence our business operations, such as investors, governments and civil society – have thoughts and views that must be balanced against our own strategic objectives and focus areas.

We appreciate the open dialogue we have with our stakeholders through a variety of channels. It equips us to respond to the needs of society and to create shared value for all our stakeholders. In the following pages, we present how DSM engages with the key stakeholders, including the partners in our value chain.



### Partners in the value chain Customers

Customers drive our business. They are our most important partners for realizing both our strategic growth ambitions and our vision to improve the lives of people today and for generations to come. Customers buy our solutions to create consumer-facing products, or to distribute our own consumer products through their various channels.

We do our utmost to strengthen DSM's commercial and strategic relationships with customers. We work together to provide the solutions they are seeking while offering them an exceptional customer experience. Our customer-centric approach is manifested in various ways:

- To meet individual customer demands, we apply customer segmentation to ensure that value propositions and service levels are in line with our customers' strategic ambitions.
- Developing consumer insights together with our customers is crucial for driving new business developments that meet consumer needs.

• With our strong science base as a differentiating factor, we share our knowledge at conferences and trade shows and ensure that our valuable insights are accessible to our customers and partners through relevant platforms, communities and our sales force.

• A skilled sales force is crucial for ensuring the best customer experience and personalized interactions. All our sales people are selected on the basis of their industry experience and knowledge, and we invest in their continuous development. For example, we have partnered with a leading business school to launch a learning portal and training program for our Marketing & Sales professionals.

• Digital transformation is allowing us to further optimize customer and consumer interactions by strengthening our global online presence (both through websites and through social media) to improve our outreach. For example, ...

• The success of our customer-centric approach is measured through the use of Net Promotor Score® (NPS). In 2016, DSM increased its overall NPS score to 38 (in 2015: 35), which ensures that it remains one of the leading companies in its sector. In the B2B space, an NPS score in the 30s is considered high. A three-point increase on this is a significant achievement and testifies to our drive to continuously improve in response to customer feedback.

• DSM considers its brand an important business asset and aspires to be a company with a strong brand and reputation for providing innovative and sustainable solutions that fulfill the needs of its market segments and society. DSM's brand value as assessed by Brand Finance has grown considerably over the last five years and for 2016 was valued at  $\notin$  650 million.

DSM China has created an initiative for closer cooperation with the farming industry, called business-to-farmer (B2F). This B2F initiative targets mid-sized farmers in the swine and poultry sectors that have established a brand of their own and their own distribution channels. The DSM China Animal Nutrition Center (CAN) in Bazhou, set up to foster local development for local customers, supports the initiative. The B2F initiative would better serve the mid-sized farmers with more suitable products in a quicker way to respond customers' needs.



Yili strategic supplier

# Supporting carbon footprint reduction efforts in China's brewing industry

Starting from 2015, DSM Food Specialties has worked with China's biggest brewer, China Resources Beer (CRB), in initiating a carbon footprint project to reduce carbon emissions in the beer production process. The goals of the project include understanding the footprint in the beer value chain, establishing carbon management at CRB and achieving leaner production. Based on the life cycle assessment, covering the full life cycle of beer production from raw materials input to product output, the project helped CRB to identify the key areas for saving energy and reducing carbon emissions. In 2017, the partners continue working on the project, focusing now on developing an emission calculation methodology and template, and on further rolling out the concept to other fields such as packaging and logistics.

DSM also advocates sustainability and energy efficient production methods to the brewing sector at large. For example, at the 12th "China Brew, China Beverage" trade show in October 2016, DSM Food Specialties invited its top customers from the brewing industry to a seminar themed "DSM Biotechnology for sustainable development in China's beer industry", where DSM experts introduced the concept of a company's carbon footprint calculation. A survey conducted after the trade show showed participants had an improved understanding of the value of sustainable development in their sector.



Brewing industry sustainablity seminar

### Employees

DSM's employees work in diverse areas of health, nutrition and materials, creating value for customers by helping them provide solutions to some of the world's greatest challenges.

In October, DSM employees answered the Employee Engagement Pulse Survey with a response rate of 78% and an engagement score of 69%. Local management teams will work with employees to improve on focus areas, such as valuing employees' diverse perspectives more strongly.

DSM's young professionals network, DSM NEXT, is committed to share knowledge and gain insight into DSM's businesses through many activities. In 2015, these included site visits, workshops, and webinars.

DSM also organizes regular events to promote sustainability and awareness among employees for the world's challenges such as environmental pollution or climate change, as well as for social issues.

#### Earth Day 2016

DSM celebrates Earth Day every 22<sup>nd</sup> of April. In 2016, the aim was to put a spotlight on the company's commitment to sustainability and the UN Sustainable Development Goals (SDGs). DSM's Earth Day celebrations focused on four of the SDGs.

In China, 23 sites including joint ventures participated in the 2016 Earth Day Campaign. Many DSM employees helped with sourcing ideas for site activities and challenged one another to contribute to the UN Sustainable Development Goals. Each site planned their own specific events and activities which brought this theme to life. Examples were a 'Flea Market' at the Jiangshan Site, a 'Garbage Collection' activity at the Changchun Site and a 'Reduce Bottled Water' campaign on the Shanghai Campus. The activity at the Jiangshan Site has attracted the participation of several neighbors and was reported in the local media.

Moreover, DSM China launched an online challenge on WeChat for employees and DSM China followers during its 2016 Earth Day activities. The participants had to set a challenge or personal goal to themselves on how to contribute to the environment, and report on their progress on the platform. More than 1200 colleagues and followers have signed up, and shared their ideas inside the community, greatly raising awareness for the cause.



DSM Earth Day Campaign in offices and sites

#### DSM 'Rainbow Ambassadors' volunteers team

Since 2015, DSM China employees have engaged in a volunteers' team called "Rainbow Ambassadors" and contributed time, energy, and love for those of the poor children attending our DSM Hope Schools who need some extra help.



On June 1, 2016, 14 DSM China Rainbow Ambassadors went to two DSM Hope Schools in Gansu and Sichuan to celebrate the annual Children's Day. Both teams organized a series of funactivities for the children. The Rainbow volunteer team going to Gansu also mobilized their coworkers and friends to make extra donations. They pooled all the contributions to buy musical instruments such as an electric piano and an accordion, and set up a "DSM music classroom" at the school.

In addition to China Rainbow Ambassadors, 20 DSM China employees offered one-on-one financial aid to "DSM Project Hope Stars" in 2016. "Hope Stars" are students with good grades whose families cannot afford further education for them. The donations are supporting the students to pay for higher education and study. Altogether, the 20 employees donated 32,000 yuan to 48 students from both Hope schools.



DSM Rainbow Volunteer Campaign

### *"Power of 5" project helps rural preschool children to grow*

In 2016, DSM, together with Amway Charity Foundation (ACF) and the China Development Research Foundation (CDRF), co-sponsored the "Power of 5 – Preschool Children's Nutrition Improvement Project". The project helps three-to-five-year-old children living in poor areas of China gain access to the necessary nutritional support to ensure healthy growth during this critical period of growth. The project also promotes health education.

It is the first initiative in China to combat malnutrition specifically in three-to-five-year-old children. This is especially important as China subsidizes school lunches to underprivileged students in compulsory education which only begins at age 6. About 23 million students in 100,000 rural schools are covered by the program. Moreover, the government hands out free daily nutritional supplements for hundreds of thousands of poor rural infants under 2 years of age. For those in between, the cupboard is bare.



DSM "Power of 5" project

To guarantee a long-term approach, DSM and Amway Charity Foundation signed a five-year strategic cooperation agreement to support the "Power of 5" project. To support the administering of extra nutrients, DSM has created innovative, chewable tablets containing the omega-3 fatty acid DHA (Docosahexaenoic acid) as well as multi-vitamins & minerals, replacing the more traditional sachet form. Since May 2016, the "Power of 5" project has been giving nutritional supplements to children under five in poor villages of eight provinces.

### Suppliers

### Supplier Sustainability Program

DSM engages with its 40,000 suppliers through the Supplier Sustainability Program (SSP), which comprises annual supplier sustainability plans and roadmaps. Progress is measured against targets and shared on a quarterly basis within DSM Sourcing and with the Managing Board.

| ions   | Se Better<br>Business<br>S  | Supplier Relationship Management                              |
|--|---|---|
| Solut  |   | Brighter Living Solutions                                     |
|  | Supplier Code<br>of Conduct                                       | Requirements to do business with DSM                          |
| iance  | в   | High Risk – Mandatory Corrective<br>Action Plan / Opportunity |
| e<br>E<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S | Medium Risk – Recommended<br>Corrective Action Plan / Opportunity |   |
|  |   | Low Risk – Opportunity for value creation                     |

### Compliance

DSM ensures compliance to its norms and values via the Supplier Code of Conduct (SCoC), as well as through regular assessments and audits. Whenever we notice a certain risk or breach of standards, we cooperate with the relevant supplier in order to define and execute an improvement plan. If the problem persists despite these efforts, DSM may choose to terminate the relationship with the supplier. In 2016, 96% of DSM's supply chain was covered by the SCoC. Since 2015, sustainability compliance has also been integrated into our standard supply risk management approach and the onboarding process for new suppliers.

We focus on approximately 1,000 critical suppliers worldwide, defined as those that provide critical components, are located in potentially high-risk countries, supply a high volume of products or services, are non-substitutable, or have the potential to create shared value in areas of innovation and sustainability.

Since 2015, DSM has been a member of the Together for Sustainability initiative (TfS) of leading international chemical companies. TfS was founded in 2011 in order to enhance sustainability within the supply chain of the chemical industry, and now has 19 members. It has created a global audit program with a globally uniform questionnaire. This way, TfS has been standardizing supplier evaluations and audits worldwide, which greatly simplifies the evaluation process for both TfS member companies and the respective suppliers.

The system involves independent experts to carry out the assessments and audits of suppliers. TfS's partner for conducting supplier assessments is EcoVadis, a recognized provider of Corporate Social Responsibility (CSR) ratings. The EcoVadis methodology is aligned with international standards and supervised by an independent scientific committee.

TfS membership gives DSM access to worldwide assessments and audits, which are executed by other TfS members and shared on the TfS platform. Thereby, DSM was able to screen more than 4200 suppliers in 2016 alone. 1.4% of them were identified as 'suppliers at risk'. In line with DSM's internal follow-up guidelines, such 'suppliers at risk' face an on-site audit investigating their operation and improvement plans more closely. Among the 4200 suppliers new suppliers accounts for 7%. DSM was able to screen these new suppliers with regard to their environmental performance, impact on society, human rights and labor practices. The average EcoVadis score for DSM's supplier bases how an improvement of 2% in the sustainability performance from 2015 to 2016. The average of the supplier performance level indicates that our suppliers are engaged with sustainability.

The collective supplier base - both actual and potential - of the 19 TfS member companies has been rated through 6383 EcoVadis assessments and 724 TfS audits. In 2016, a total of 1773 sustainability assessments were shared among TfS members, and 241 new TfS audit reports were received by the initiative.

### **Better Business**

While compliance remains the cornerstone for achieving a sustainable supply base, DSM's procurement activities increasingly focus on what we call 'Better Business'. As part of our drive to foster better business through our supplier solution projects, DSM's Sourcing organization engages in proactive dialogue with suppliers in order to move the business agenda forward on topics such as climate change, food & nutrition security, health, and the circular economy. The goal is to collaboratively create joint value, awareness and engagement in areas related to Brighter Living Solutions.

# Sustainable Supply Chain Management training project for Dutch businesses in China

DSM is collaborating with the Dutch Consulate General in Shanghai in a project that focuses on sustainability training workshops across various supply chains in China. For this three-year CSR project, the Consulate General has collaborated with two professional CSR advisors, the China National Textile & Apparel Council, and the China chapter of Solidaridad, a worldwide network of CSR expertise centers. The project established a Sustainable Supply Chain Management Platform for Dutch businesses in China, providing a training program focusing on topics such as EHS (Environment, Health, and Safety), CSR management systems and labor issues. By 2016, 16 Dutch brands, including DSM, and 54 local factories (suppliers of the Dutch brands, as well as member companies of the Jiangsu Federation of Industry and Commerce) were participating. DSM has nominated four of its own suppliers to join the initiative. The participation and commitment of DSM, a Dutch company with extensive business activities in China, has sent an important message in favor of sustainability to Chinese suppliers and government bodies.

### Government

DSM China keeps close contact with China's government to cooperate on sustainable development, and to promote a low-carbon economy as well as Corporate Social Responsibility in general.

### Global CEO Council

In June 2016, DSM CEO Feike Sijbesma joined the fourth summit of the Global CEO Council in Beijing, among ten other CEOs from leading multinational companies. He also co-chaired the council's meeting with Chinese premier Li Keqiang, discussing opportunities and challenges for multinational companies posed by the 13th Five-year plan. Topics included innovation, green development, and China's "One Belt, One Road" international infrastructure initiative.



DSM CEO Feike Sijbesma joined the fourth summit of the Global CEO Council in Beijing

#### China leads the effort to realize climate pact, an article published in the China Daily written by Feike Sijbesma and Xie Zhenhua

On December 30th, 2016, DSM CEO Feike Sijbesma and Xie Zhenhua, China special representative for climate change affairs, jointly published an article in the China Daily. The article elaborates how China has taken practical action to help realize the goal of the Paris Agreement to limit global warming to two degrees Celsius - such as carbon trading pilot schemes or low-carbon demonstrations. It also promotes carbon pricing as a "critical instrument to unlock the public and the private capital needed for the transition to low-carbon technologies". A "reasonable price on carbon will stimulate energy efficiency and make renewable energy more competitive", state the authors. Feike Sijbesma is also Co\_Chair of the international Carbon Pricing Leadership Coalition that brings together leaders from across government, the private sector and civil society to share experience working with carbon pricing. DSM has long been a proponent of internal carbon pricing. It is one of some 500 companies worldwide that have already set an internal carbon price. In DSM's case, this amounts to an internal price of €50 per ton of Co2 equivalent when reviewing large investments.

### China leads efforts to realize climate pact

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Article by Feike Sijbesma and Xie Zhenhua On China Daily

# Collaborative platforms and networks

We collaborate with like-minded peers within cross-sector platforms and business networks to develop social and environmental measurement and performance standards, to find new opportunities within our sustainable growth areas, and to act as advocates on material topics such as climate change & renewable energy, nutrition, the circular economy, and natural and social capital. Below, we describe our engagement with some of the most significant global, partnership-based strategic initiatives.

### World Economic Forum (WEF)

In June 2016, our CEO Feike Sijbesma co-chaired the Annual Meeting of the New Champions in Tianjin and led roundtable sessions about pioneering the circular economy, implementing the climate deal, and the impact of the fourth industrial revolution.



Feike Sijbesma in WEF Tianjin

Public-Private Partnerships

### DSM annual charity event – Bright experience

DSM has played an important role in improving the nutritional value of food. It also regularly raises donations to fight hunger in developing countries. In order to increase attention on child hunger and malnutrition, DSM, together with the World Food Programme (WFP), has been running a charity project called "Bright Experience" since 2007.



DSM annual charity event-Bright experience

Every year, DSM hosts a "Bright Experience" event worldwide to support the goal of ending hunger and malnutrition. In China, it has become a signature annual charity event for DSM, which was held at 16 sites in 15 cities across China in 2016. The events attracted 2,500 DSM employees and their families, as well as people from the respective sites' business partners.

The money collected at the events is donated to the WFP's global School Feeding Programmes and to the China Foundation for Poverty Alleviation. Through the project, DSM provided more than 50,000 nutritious meals containing milk and eggs to children in poor areas of western China in 2016. Till now, some two million people have benefited from this charity program, among them 200,000 children.

# DSM and Hengtong Alpha support local community development

In September 2016, DSM together with a key customer, Hengtong Alpha, a leading fiber and cable supplier, supported a charity project to improve internet access and bandwidth for a school on a remote mountain top in a poor rural area of Fujian Province. More than 100 students, local government officials and representatives from both companies joined the donation ceremony.



Increasing bandswidth for school project

### *DSM's continuing partnership with the China Nutrition Society*

Since 2011, DSM has been partnering with the China Nutrition Society (CNS) in running the DSM-CNS Nutrition Research Foundation that promotes the development of nutritional science & technology in China, and aims to expedite progress in health food research and to improve the nutritional health status of various population groups. DSM provides financial support for related research projects in the Chinese academic community. Meanwhile, CNS is responsible for the daily operation of the fund.

In 2016, eight out of 58 submitted research proposals were

chosen to be funded by DSM with altogether RMB 1.5 million. Their research focuses on middle-aged adults with high health risks, pre-pregnant and pregnant women, and people adversely affected by high levels of fine particles (PM2.5) in the air. The eight chosen projects examine the effects of specific vitamins, carotenoids, and omega-3 fatty acids under certain circumstances, which may provide an important scientific basis for improving the nutritional status of specific population groups.

In total, the DSM-CNS Nutrition Research Foundation has funded 60 projects over the last six years in the fields of infant nutrition, elderly nutrition, nutrition intervention, and dysphagia nutrition. 37 projects have been completed, and over 30 articles have been published in peer-reviewed journals in either English or Chinese. 18 undergraduates, 25 master students and 4 doctorates have benefited directly from the funded projects.

### DSM Scholarship at Sichuan Agriculture University

Since 2011, DSM has been sponsoring a 5-year scholarship program at the Animal Nutrition Institute of Sichuan Agriculture University. This DSM scholarship aims to provide financial support to good students in unfavorable financial situations, and honors students for outstanding academic achievement. As of late 2016, DSM has provided a total of RMB 300,000, and 100 students have received financial support.

# KEY DATA OF DSM CHINA 2016

|   | 2016  | 2015  |
|---|-------|-------|
| PEOPLE  |       |       |
| Workforce by Dec. 31  | 4237  | 4310  |
| Female / Male ratio   | 33/67 | 30/70 |
| Frequency Index of recordable injuries (per 100 employees; DSM and contractors) | 0.15  | 0.18  |
| PLANET*   |       |       |
| Energy use (in PetaJoules)  | 1.85  | 1.39  |
| Energy Efficiency Improvement (in %, reference 2015)                            | -20%  | -     |
| Greenhouse-gas emissions in CO2 equivalents (x million tons)                    | 0.15  | 0.10  |
| Greenhouse-gas efficiency improvement (in %, baseline 2008) **                  | 33%   | 48%   |
| SO2 + VOC + NOx (tons)  | 864   | 1456  |
| Water consumption (in million m³)   | 1.1   | 0.76  |
| Environmental incidents (cases)   | 1     | 0     |
| PROFIT (IN RMB MILLION)   |       |       |
| Net sales China, continuing operations  | 7218  | 6578  |

\* The data of the newly acquired sites cannot be included in the efficiency improvement indictors, since there is no prior reference year available.

\*\*The indicator of "GHG (2008-2025) efficiency" is the new indicator in DSM Responsible Care Plan (2016-2020). It's a target for efficiency value which is the amount per unit of production.

# PEOPLE IN 2016

DSM aims to foster a high-performance culture to support delivery of our targets and aspirations. We seek to attract and retain original thinkers and doers who can further our company's capabilities while actively developing their own credentials and careers. We achieve this by providing a healthy, diverse and, above all, safe working environment for employees and by supporting and encouraging them in their personal development.

DSM's international profile means that its employees represent 98 nationalities, working at more than 200 sites and offices in 46 countries worldwide. This allows us to be close to our key markets and customers, as we pursue profitable business growth around the globe. Our strategy is aimed at stimulating inclusion, diversity and inspirational leadership. It is governed by means of a regional system with clear accountability for performance at Managing Board level.

| Our People Strategy 2018 in support of DSM's Strategy 2018:<br>Driving Profitable Growth focuses on three pillars for attaining a more performance-oriented workforce: |   |           |           |
|--|---|-----------|-----------|
|  |   |           |           |
| Employees  | 1 | Employees | Employees |

This chapter outlines DSM's approach toward its employees, which is embodied in the company's safety and health policies and people strategy, including its Life Saving Rules. Our approach towards external people affected by DSM's operations is governed by our policies on human rights, the company's Brighter Living Solutions program, and our Supplier Sustainability Program.

### Safety and health

### Personal safety and process safety

Rigorous application of DSM's Life Saving Rules has been a significant factor behind DSM's remaining fatality-free for the last five years, among both our own workforce and contractor personnel. Nevertheless, with the ambition to become a completely incident- and injury-free company, the incidents that still occur, along with the severity of their consequences, are always a cause for concern and a spur to action. We consequently set targets and monitor performance regarding both personal and process safety at DSM. These are defined in the DSM Responsible Care Plan 2016-2020.

Personal safety incidents are those incidents which result in personal injuries. It can be measured through a Frequency Index of Total Recordable Injuries in which Fatalities, Lost Workday Cases, Restricted Workday Cases and Medical Treatment Cases of all persons present on-site are shown – employees as well as (supervised and other) contractors and visitors. DSM aims for a Frequency Index of Total Recordable Injuries (per 100 DSM

| Safety                               | DSM China   |      | Aspirations    |
|--------------------------------------|-------------|------|----------------|
| Performance(2016)                    | Rralization |      | 2020           |
| TRI-all<br>(Total Recordable Injury) | 0.15        | 0.33 | TRL-all < 0.25 |

employees and contractor employees) that is less than or equal to 0.25 by 2020. This target is also valid for DSM China. Over the years, DSM China has made steady progress in improving personal safety. In 2016, the Frequency Index of Total Recordable Injuries in China improved from 0.18 to 0.15 compared to 2015. No fatalities occurred in 2016, which means that DSM China has been free of fatalities for fifteen years in a row. This result was achieved through safety culture promotion, people competence development and a loop-closing improvement cycle.



### Process safety

Process safety incidents are those which affect plant or storage facilities directly. They are rare but can have a major impact, with effects on people and/or the environment both within and beyond site borders. As of 2016, process safety is measured by recording incidents that comply with the definition given by the International Council of Chemical Associations (ICCA).

Consistently managing the entire Process Safety Life Cycle (abbreviated as the PSLC) is our way to manage process safety risks, and to learn and to continuously improve our process safety performance. An effective PSLC depends on people and their knowledge. In 2014, DSM China started tracking leading indicators in addition to lagging indicators for process safety. The leading indicators include the percentage of people qualified for a PSLC role (people and competence), the completion rate of action plans resulting from the process safety risk assessments (system and process) and the frequency indicating how often safe operating limits are exceeded in specific workplaces (operation and maintenance). In 2016, DSM China has developed several good practices for preventive maintenance procedures of safety provisions (including mechanical and instrumental safety provisions) and shared with production sites.

#### SHE Competence development

DSM China has been developing a multi-year regional Safety, Health and Environment (SHE) competence plan since 2013. The implementation of the plan was continued in 2016. In addition, more competence roles such as Job Safety Analysis (JSA) was added to the overall competence plan with detailed development activities and qualification criteria defined. The SHE competence plan was monitored on a regular base to ensure progress of the candidates. By the end of each year, successful candidates are certified to carry out their respective roles at production sites. In 2016, competence development candidates received certifications for total 65 roles.

### Hand Safety Program at DSM Engineering Plastics Jiangyin site

Hand injuries are among the most common industrial injuries. Several hand injury incidents occurred at DSM China sites in recent years. In 2016, DSM Engineering Plastics Jiangyin site continued a hand safety program started in 2015. The



program was aimed to prevent hand injuries by raising employees' risk awareness and identifying hand injury risks at the workplace. Total 218 observations related to hand safety were identified and solved by shop floor workers during the program. The site will continue to organize activities in its journey towards becoming a hand-injury-free site.

# *Slip Trip Fall (STF) prevention workshop at DSM Resins Kunshan site*

Slip Trip Fall (STF) incidents are among the most common accidents at DSM. Regrettably, there were several such incidents in the past few years. In November 2016, DSM Resins Kunshan site organized two rounds of workshops specifically targeting STF prevention for all staff. In the workshops, STF incident statistics and winter season factor were discussed, so were past incidents and their consequences. Other topics covered in the workshops include root cause analysis and control strategy recommendations.

During the workshops, the full logic behind each incident, as well as potential hazards and prevention strategies were explained through group discussions, with the aim to improve employees' STF risk perception and mindfulness, and to encourage immediate actions against any unsafe situations once observed. Four prevention and control strategies were developed during the seminar: safety design at the workplace, housekeeping (such as avoidance of wet floors), risk management training and personal protection measures. The STF workshops formed a systematic and proactive risk control mindset among staff in respect to both technical facts and cultural elements, marking a clear step forward along the "care, share, be aware" SHE culture journey.



DSM Kunshan site held STF prevention
#### Behavior Based Safety (BBS) Program at Animal Nutrition & Health China sites

To promote safety culture, as well as to control and correct unsafe behaviors, Animal Nutrition & Health China has been running a Behavior-based Safety (BBS) program since 2010. Over the years, Animal Nutrition & Health China sites have rolled out a series of innovative initiatives to promote employee safety awareness, deepen their understanding of BBS and maintain vitality of and involvement in the program. For example, Hunan Site and Xinghuo Plant utilize social media tools such as Wechat to deliver SHE knowledge and Q&A. Site employees can participate in Q&A sessions and receive immediate feedback.

## *"Summer Safety 6o Days" program at DSM Resins Foshan site*

DSM China sites regularly organize activities and events to promote and strengthen SHE awareness and culture. In 2016, DSM Resins Foshan site held a "Summer Safety 60 Days" program as part of a systematic safety culture development process. Activities included a forklift truck driving safety contest & training for defensive forklift driving, a contest on safety labels, and a basketball game. Through these fun contests, employees were given the opportunity to think about the deeper meaning of SHE, to imagine an ideal vision of an incident-free environment and to understand the importance of teamwork and leadership during their work.



DSM Foshan site "Summer Safety 60 Days"

#### Employee health management

DSM recognizes that healthy working conditions make a significant contribution to employee health and well-being. They also have an important positive impact on employee engagement and productivity. Employees and company alike benefit from healthy working conditions in today's increasingly fast-paced and competitive world. In response, we have implemented policies and initiatives to safeguard employee health by mitigating workplace risks, and to promote and support employee health and well-being.

With a view on prevention, a training program on industrial hygiene was launched in 2014 in China, and continued in 2016. This program aims to ensure availability of adequate industrial hygiene competences at all DSM China sites, with an emphasis on ensuring that appropriate control measures are in place.

DSM fosters a culture of health among its employees through the Vitality® DSM program. This global health management program provides employees with insights into their own lifestyles. It explains the consequences of unhealthy lifestyles, encourages employees to take responsibility for any unhealthy habits and, ideally, change them. Generally, the program is based on four vitality pillars: nutrition, recovery, exercise, and mental health. To maximize engagement, cultural and regional differences are taken into account. The Vitality® DSM program has been running at DSM for almost 10 years, and in 2016 more than 1,500 employees worldwide have participated.

Employees participating in Vitality® DSM receive a general health check-up and fill in a self-assessment questionnaire to evaluate their profile across the four vitality pillars. A personal risk score and action plan is provided to make employees aware of their own specific risks. According to the group report, the productivity gains based on self-reported lifestyle changes of participating employees reached approximately  $\leq$  200,000 worldwide, compared to 2015. Results from the self-assessments completed by employees over the years show that 52% of them face moderate to very high stress risks, 37% are exposed to moderate to very high health risk resulting from poor eating habits, while 28% are overweight or obese, 26% seldom or never exercise.

Many events promoting and supporting employee health and a good lifestyle were organized across DSM sites in China in 2016. DSM China launched a regional Walk@ DSM campaign to encourage employees to improve their physical condition. Some 1200 employees from 15 sites and offices participated in the walks. The campaign lasted 6 months in 2016; and will become an annual event in DSM China.



Individual sites have also organized various vitality events locally. DSM China campus in Shanghai organized a health week covering spine health, nutrition knowledge and weight management, supported by the DSM China management. A spinal doctor from a famous hospital in Shanghai and a fitness tutor with his team were invited to the campus to provide one-on-one consultation to employees. Several vitality teams were set up through a mobile app to foster healthy lifestyles by working together. After five months, all participants have achieved an improved lifestyle and better health condition.

DSM Animal Nutrition & Health China sites, DSM Dyneema Laiwu site, DSM Resins Foshan site have set up their own vitality programs. In these programs, each participating employee set year plan with milestones and periodical health-checks to encourage more physical exercises. Workshops on mental health were also organized as part of these programs. Foshan site distributed fitness wristbands to employees so that they can monitor their daily steps and hours of sleep. Consequently, more than half of the employees at the site increased their daily walking to over 10,000 steps per day. Jiangvin site organized sports groups including basketball, badminton, yoga, football, and hiking. Laiwu site held regular competitions among their sports teams. Participation rates of these programs were high across the sites. And all participants of the vitality and sports programs reported improvements of their physical and mental health, which in turn led to greater engagement and team spirit on the job.



One occupational health case was reported at DSM China in 2016 (2015: 0). This number represents reported cases, and the real figure may be higher. Cases may develop over a prolonged period of time, and causes may be present in both working and private life, with the work-related portion going unacknowledged. Privacy concerns or cultural factors also influence employees' willingness to report and discuss personal health issues. DSM continued to increase employee awareness of occupational health issues and to increase transparency in the reporting of all occupational health cases the company encounters; for this, the DSM Occupational Health network was revitalized in 2016.

# New organizational and operating model

In 2016, DSM continued to implement its new organizational and operating model as part of its Strategy 2018. This focuses on creating a more agile and cost-effective organization. It allows DSM's businesses to focus on growth and leverages the support functions on a global level, and aims to achieve structural cost savings of  $\leq$  125-150 million against the baseline of 2014. The program aspires to deliver these savings in full by the end of 2017.

Strong progress was made on the design and implementation of new operating models for various support functions (Finance, HR, ICT, Indirect Sourcing and Communication), enabling them to deliver better service at lower cost. The creation of a common Shared Service Organization for a number of these support functions underpins this initiative. DSM also looked deeper into the shared R&D units, aiming to increase their effectiveness and obtain more yield from the same investment.

Additional efforts were made in internal communication concerning organizational change and company culture. These are aimed at creating a better understanding of the new operating model among employees. Encouraging the mindset and behavior necessary to make the new organizational set-up a success will help DSM to achieve its long-term goals.

The organizational changes will result in a headcount reduction of 900-1,100 Full Time Employees. Close to 50% of these will be in the Netherlands, and the remaining approximately 50% will be in the other regions in which DSM operates.

DSM provides fair severance compensation and supports redundant employees in their search for new employment. We apply a clear, objective and transparent process in determining which positions and employees are, regrettably, impacted. We align with employee representation bodies where applicable concerning this process, and we actively interact with works councils.

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I am very proud of DSM's employees. We remain focused on delivering business results while the new operating models come into effect. With their dedication and hard work, our employees have shown that it's possible to carry out a significant reorganization and still deliver on our business growth and performance goals.

--- Peter Vrijsen, EVP Group People and Organization, member DSM Executive Committee 66

People seem to be positive on the changes, congratulations to the project team! The mood is supportive thanks to the well-prepared communication and effective training program provided by the HR transformation project team. Looking at the situation now, most people here are happy with the changes, not least because they like the newly introduced systems such as euHReka or Talent Suite. Employees even see the new model as a kind of empowerment, conveying more ownership for HR activities to employees at all levels.

—— Xuebin Yang, Supply Chain Director DSM Engineering Plastics Asia Pacific

## **ONE DSM Culture Agenda**

The ONE DSM Culture Agenda aims to support the company's strategic objectives and to equip employees to respond to the needs of an ever-changing world. The Culture Agenda focuses on four themes, and is aimed at supporting employees in: aligning with the realities of their operating environment; setting ambitious targets and delivering on these; encouraging active (co-)creation; and fostering an inclusive culture that embraces differences. These themes create a common language across the organization, and enhance a ONE DSM culture for all our businesses and regions. External Orientation Collaboration with Inclusion & Diversity Speed and Trust Accountability for Performance (and Learning).



In 2016, particular emphasis was placed on the way the four themes and their related behaviors support the implementation of the new DSM organizational and operating model. The ONE DSM Culture Agenda underpinned the roll-out and communication of new operating models for DSM's support functions (e.g. Finance and IT in 2016) as well as driving adoption of the supportive mindset and behaviors needed to help achieve DSM's ambitious organic growth and cost-saving targets.

#### Continuous improvement

One of the ways in which we drive organizational performance is by fostering a culture of continuous improvement across our sites and operational environments. Our employees are involved in managing processes on a day-to-day basis; they experience bottlenecks and inefficiencies as they occur in practice, often before these are noticed through the application of formal improvement methodologies. The DSM Integral Continuous Improvement (DICI) journey is currently running across approximately 40% of DSM's manufacturing operations. With DICI, we are empowering employees to be able to make continuous process improvements themselves. Sometimes these improvements can be local or relate to specific process steps, but since they can be repeated many times, small changes can add up to have a big impact.

In Shunde (China), a productivity improvement initiative was started that links employee benefits with both business demand (high quality & low cost) and individual competency development. This resulted in more flexibility and productivity from the operators, increased production, and positively impacted their income, leading to a higher engagement with strong reduction in the turnover rate among operators.

#### Inclusion & Diversity

DSM has a focused Inclusion & Diversity strategy, which is aimed at better reflecting and leveraging our global profile in our workforce. For Diversity, our immediate priority is to increase the number of women and under-represented nationalities in executive positions. Our aim for 2020 is for 25% of executives to be female and for at least 60% of executives to be from under-represented nationalities. Over recent years, the number of female executives had increased steadily to reach 15% in 2015. In 2016, this number remained stable at 15%.

DSM China has been very active in creating an inclusive environment for all employees. To further support female

employees and boost people's attention to women's issues and inclusion & diversity, DSM's Women Inspired Network (WIN) in China expanded its activities in 2016 to five Business Units at our sites in Shanghai, Beijing, Tongxiang, Jiangying, Jingjiang, Shunde and Laiwu. Events focused on career development and healthy lifestyles.

In Shanghai, a roundtable discussion themed "Build Your Own Career" was hosted, where several female executives were invited as guest speakers to share their own path and take-aways. Moreover, the Shanghai Campus held Open Talks sessions with Geraldine Matchett, DSM CFO; Cristina Monteiro, SVP Talent Development; and Jacoline van Blokland, DNP's Senior VP HR to connect and inspire our colleagues. These talks proved very popular among participants.

To focus on a healthy lifestyle, the WIN team at the Jiangyin site invited a doctor to give a talk to 100 female employees on Traditional Chinese Medicine therapies in female health care. A WIN event at the Laiwu site stressed the importance of regular exercise and organized two competitions for female employees: Rope-skipping & Square-dancing. A session on "Shaping Sunshine Mentality" was held at the Shunde site. To quote a participant: "This activity showed us how to use different ways to increase positive moods and use our strengths."

#### Workforce engagement

An engaged workforce is essential for DSM to achieve its ambitions. The DSM Employee Engagement Survey, which has been run annually since 2007, is a tool for understanding the level of engagement employees feel for DSM and their work, and the improvements required for DSM to become a high-performing company. The goal is to ensure that DSM is a place where employees feel proud to work, and where they feel they can excel.

In 2016, a total of 2,409 employees completed the questionnaire in China which was distributed to all DSM employees. This high participation level reveals a more complete picture of what is working well and where to improve further. The prime focus of thesurvey is the measurement of DSM's Employee Engagement Index, which is the percentage of employees scoring favorably on a combination of four attributes: commitment, pride, advocacy and satisfaction. The Employee Engagement Index in China measured in 2016 was 73%. This is slightly ahead of the overall global DSM norm of 70%. For the highest-performing companies around the world, the benchmark number is 81%. This is the league in which DSM aspires to be, and we have set an intermediate target for 2020 of getting close to 75%.

The engagement survey also provides essential information about our employees' views on topics such as DSM's new strategy, working conditions, open communication, career development, sustainability, inclusion, and diversity. These insights have led to real and measurable improvements.

For example, the score for "I believe DSM has a promising future" moved up from 78% in 2015 to 82% in 2016. This increase clearly indicates the belief that our employees have in the overall DSM strategy going forward. This conviction is also an important engagement driver at DSM.

# Leadership & people management programs

#### DSM Leadership Model



The DSM Leadership Model specifies the behavior DSM expects from its leaders and people managers. The model provides a common vision and language for leadership at DSM.

In 2016, we continued to embed the Leadership Model in our key processes for hiring, developing, evaluating and managing talent across the organization and for building high-performing teams. The further roll-out of the model to all senior managers continued throughout 2016 with an upgrade of program content, and with 95% of this population being trained by the end of 2016.

To encourage self-learning beyond the training program, DSM created multiple e-learning modules on each component of the Leadership Model in a digital learning platform called Bright Learning, and simplified the process and tooling for providing 360-degree feedback on the model. In addition, the range of employees evaluated in respect of the Leadership Model in their Annual Performance Review has been expanded beyond executives to cover all employees in senior management positions in 2016. development of internal talents via tools such as intensified "talent brokering" to stimulate talent movements across businesses. Senior leaders sponsor talents across China. Furthermore, the acquisition of external talents was professionalized in talent acquisition team.

#### People Manager 2018

DSM recognizes that its people managers (i.e. line managers) play a critical role in achieving Strategy 2018: Driving Profitable Growth. To support them, DSM launched a development program called DSM People Manager 2018. The program offers a monthly virtual development campaign that contains learning resources on a selected topic relevant for people managers at that time of the year. For example, the topic for January was 'Goal Setting', and the May campaign helped them prepare for career development conversations with their employees. People managers can make use of the digital learning resources (e.g. videos, articles and e-learnings) whenever they want. A survey among people managers showed that 66% of respondents visited the campaign sites multiple times. Of the respondents, 54% felt the campaigns were very relevant for their role as a people manager, with 41% neutral and only 5% who did not feel the campaigns were very relevant. The program will run until 2018.

# Developing and managing our talent

#### New talent management approach

In 2016, DSM rolled out a new global talent management approach called "Talent Pipeline Matrix" across the company including China. It provides a comprehensive way of identifying potential and developing talents with different potentials. Talent review sessions called Talking Talent and Talking Development took place at various Business Groups and Service Groups in China.

With the new tool and process at hand, the DSM China Leadership Team reviewed the China talent pipeline and existing assessments of the strength of respective succession plans and challenges for key leadership positions in business units and primary functions. The Leadership Team has committed itself to strengthening the talent pipeline by accelerating the

#### Accountability for performance

Accountability for performance plays an important role in achieving DSM's Strategy 2018. To prepare for this, in 2015 DSM adjusted the goal setting and performance evaluations for its employees, and globally launched an online performance and goal evaluation tool. This tool is globally managed and is available to 13,000 employees. All other employees participate in performance evaluations on paper, or using other local systems. At the beginning of 2016, employees were invited to set 'Fewer, Bigger, Better Goals', to create focus on measurable, relevant and challenging targets.

To make employees' performance reviews more powerful, DSM also introduced a self-evaluation component to the global tool so that employees can review their own achievements as well as reflect on important experiences and key learnings over the past year.

#### Talent acquisition

Talent acquisition is the starting point of the talent pipeline for DSM. During 2016, key progress was made to outsource the operational recruitment through our global partner to enhance process and cost efficiency. To this end, DSM Advanced Recruitment Enterprise ("DARE") was implemented in China for white collar positions up to senior professional level. DARE is a global recruitment process outsourcing solution in partnership with Future Step, aiming to provide best practice end-to-end recruitment solutions for hiring managers.

The integrated China Talent Acquisition team focused to build and deliver functional expertise, by localizing new recruitment processes, policies and guidelines together with our global team in order to fit them into the overall DSM talent management approach.

DSM's China Young Talent Program is one of the key initiatives in China to feed the talent pipeline of the future. Starting from 2014, this program has been aiming to recruit fresh graduates to fill in key positions in commercial, operations and research and development functions. A two-year tailor-made learning and development program supports these young recruits' professional and personal development.

In China, a total of around 150 employees (excluding manufacturing site operators) were hired in 2016 (4% of the total

number of China employees). In an effort to strengthen the talent pipeline, various recruitment channels were explored, including the launch of a LinkedIn DSM China page and some recruitment campaigns. For example, campus Recruitment events in six top Chinese universities attracted more than 5000 applicants, while a WeChat roadshow initiated 1300 participants to post the current vacancies.

#### Learning and development

Our desired learning culture is a learning culture where people learn from experience, feedback, reflection, experiments, and mistakes; employees take ownership for continuous and self-directed learning and development; people managers take their responsibility for employee development. We use the well-known 70/20/10 rule to shape this learning culture.

DSM launched its global Bright Learning portal in China in 2016. This program supports our employees in learning what they need anywhere and anytime. Up to the end of 2016, 98% of all management position holders in China received training on the DSM Leadership Model. During the summer of 2016, the first group of young talents that had joined DSM via the China Young Talent Program, graduated from their two-year learning and development journey, and became solid contributors to DSM. Moreover, DSM launched a global "People Manager Campaign 2018" that was also rolled out in China. Its aim is to further boost human resources managers' capabilities Besides, dozens of global and local training sessions were implemented for thousands of employees in China to meet their learning needs in the fields of management and functional development.

## PLANET IN 2016

DSM's operating network spans more than 100 commercial production facilities in over 40 countries. We report on the environmental impact of these business operations, and commit to delivering improvements, solutions and innovations that contribute to protecting the planet. We aim to improve both our own and our supply chain's environmental footprint, and to deliver environmental benefits to customers and end-users through our Brighter Living Solutions. In our value chain, our key Planet inputs are raw materials (including renewables), energy (including renewables) and water.

## Environmental impact of DSM's operations

### DSM Responsible Care Plan 2016-2020

DSM's Responsible Care Plan 2016-2020 is an integral part of the company's Strategy 2018: Driving Profitable Growth. This plan comprises ambitions, targets and actions in the field of safety, health, environment, sustainable value chains (Product Stewardship and sustainable products) and security.

DSM's main environmental target is a further reduction of greenhouse-gas (GHG) emissions per unit of product - in other words, improving our GHG efficiency. Building on the 20% efficiency improvement achieved from 2008-2015, we raised the bar again last year when we set our current target, which aims for at least a further 25% GHG efficiency improvement for the period 2016-2025. This will bring the anticipated total GHG efficiency gains in the period 2008-2025 to 40-45%. DSM's GHG reductions are being driven by improving our energy efficiency by 10% by 2025 compared to 2015, purchasing at least 50% of our electricity from renewable sources by 2025, and exploiting opportunities for heat and fuel from renewable sources.

DSM operates in some regions where concerns exist about water security and air pollution levels. Consequently, we have also defined targets relating to water and emissions to air. As part of our sustainability ambitions and the transition to a circular economy, a waste recycling target has also been defined.

## Targets & achievements in China

The table below shows the 2016 performance of DSM China and DSM Global in key environmental indicators against the base year. For DSM China, most of the environmental indicators have a target period of 2008-2020/2025, and are on track to be met by 2020/2025 - if they haven't already been met early.

All environmental targets are relative targets. This means that increases or decreases result from calculations that take changes in production volumes into account.

| Key Environment Indicators*                                       | DRCP (2016-2020) Target   | Realization of<br>DSM China 2016 | Realization of<br>DSM 2016 |
|---|---|----------------------------------|----------------------------|
| GHG efficiency improvement**<br>(Baseline 2008)                   | 40-45% (2008-2025)  | 33%                              | 23%                        |
| GHG efficiency improvement<br>(Annual Improvement)                | -   | -29%                             | 4%                         |
| Energy efficiency improvement                                     | >1% annually (>10% in 2025, reference 2015)                       | -20%                             | 2%                         |
| Electricity purchased from renewable sources                      | 50% in 2025   | 0%                               | 8%                         |
| Reduction of emissions to air per unit of product (VOC, NOx, SO2) | 40% in 2020 (reference 2015)                                      | 53%                              | 25%                        |
| Waste   | 80-90% recycled by 2020   | 95%                              | 83%                        |
| Water   | Water risk assessments completed on 90% of selected sites by 2020 | 67%                              | 67%                        |

\* The data of the newly acquired sites cannot be included in the efficiency improvement indictors, since there is no prior reference year available.

\*\*The indicator of "GHG (2008-2025) efficiency" is a new indicator. It's a target for emissions per unit of production. Data for this new indicator are included in the reporting.

### **Energy Consumption**

Improving energy efficiency is the most cost-effective way to reduce GHG emissions in our operations. DSM's energy roadmap prioritizes investment in energy-efficient technologies and practices that reduce emissions and costs. A multi-year energy efficiency improvement program is in place to obtain an annual improvement rate of at least 1%.

DSM's total annual energy consumption in China increased from 1.39 to 1.85 petajoules in 2016, and DSM China's energy efficiency was 20% lower than in 2015. The deterioration was mainly caused by temporary reason. DSM China started up a few new production facilities in 2016. The startup and commissioning activities with high energy consumption while very low production volume had negative impact on the energy efficiency index.

In 2016, DSM China implemented several projects to reduce energy consumption or increase energy efficiency. It also initiated a number of new studies and projects that will lead to further energy reductions in the years to come. The current projects include the replacement of existing process equipment by modern, energy-saving equipment as well as improvements in equipment maintenance.

### Greenhouse-gas (GHG) emissions

In 2016, DSM China emitted a total of 0.15 million tons of CO2 equivalent (location-based). In 2016 DSM China's GHG efficiency was 29% lower than in 2015. This deterioration was caused by the same temporary reason as the one for energy efficiency startup and commissioning of a few new production facilities. Despite last year's setback, DSM China's GHG efficiency improved by 33% since 2008, providing a good basis for reaching the upper end of the GHG efficiency target by 2025.

### Other emissions to air

Other emissions to air include VOC, NOx and SO2. In 2016, DSM China emitted a total of 864 tons of VOC, NOx and SO2, which is a decrease of 592 tons compared to 2015. Measured per unit of product, DSM China has managed to reduce its other emissions to air by 53% in 2016. Thereby, it already meets the corporate target of a 40% reduction per production unit by 2020. The main contribution to this improvement came from the DSM Dyneema site in Laiwu: 2016 was the first full year in which its new emission abatement system was operational.

## Energy saving projects at Hydrocolloids site in Tongxiang

#### • Two-stage alcohol distillation colum

The original alcohol distillation unit at the Tongxiang site was a one-stage distillation column where steam was injected directly into the column. Alcohol vapor condensed through three-stage condensers. In September 2016, the site replaced this system with a new two-stage distillation



DZK ethanol distillation towe

column. The second stage uses the alcohol vapor from the first stage as heating medium. The new design saves both steam and cooling water. When working at design capacity, the new distillation column can save about 39% steam per hour compared to the old one. This results in savings about 3 million RMB per year.

#### • New Air compressors

The site's original air compressors were piston air compressors with a low energy efficiency. In September 2016, the site replaced these air compressors with new screw air compressors which are about 33% more energy efficient than the old ones. The new system can therefore save 0.9 million RMB every year.

### Waste

As part of our ambitions to move toward a circular economy, we aim to reduce the amount of waste produced at DSM and have set waste recycling targets. We aim to recycle our waste whenever possible, while landfilling waste is the least preferred alternative. Our target is measured as the percentage of total waste created by normal operations that is recycled- or, if that is not possible, incinerated off-site with heat recovery. In 2016, 95% of DSM China's waste was either recycled or incinerated in this way - which means that we have already reached the goal for 2020.

## Waste Reduction and Management at DSM Engineering Plastics Jiangyin site

As one of the actions for realizing DSM Engineering Plastics Jiangyin site's vision of "Going Green", the site started a project to optimize waste management on site in 2016. In view of changes in China's regulation for waste classification and handling, the site reclassified the waste generated in the production process with consultation of the local Environmental Protection Bureau. The site has also contracted an external company to collect the powder from the dust extraction system and recycle into raw material for garbage cans, tables and chairs used in public areas, as approved by the government. With this project, the site significantly increased the share of waste recycled, and can achieve savings of RMB 1.8 million per year.

### Water and waste water

Water is essential for life. Global water demand has risen sharply during recent decades, while the availability of water resources is changing due to multiple factors. As a result, more and more regions face water stress, including regions in which DSM operates. Our water program focuses on identifying and mitigating water risks in these regions. DSM sites that are either located in areas with short- or long-term water scarcity risks or have waste water discharge levels above Best Available Techniques have to perform a water risk assessment and implement appropriate measures to mitigate adverse effects on water quality and availability. At the end of 2016, 67% of DSM China's applicable sites had a valid water risk assessment in place, as well as plans to execute the measures defined.

From 2016 onwards, DSM has been reporting its water consumption in addition to water use. Our water use includes water used for 'once-through cooling' that is returned to the original water source after use. Water consumption is the portion of water used that is not returned to the original water source after being withdrawn, and thus is a better indicator to use for managing DSM's impact on water availability. Total water consumption by DSM China increased from 0.76 million m3 in 2015 to 1.1 million m3 in 2016, mainly due to the startup and commissioning of a few new production facilities.

The discharge of Chemical Oxygen Demand (COD) by DSM China, which is an indicator of wastewater pollution by organic substances, increased from 22 tons in 2015 to 26 tons in 2016, mainly due to various sites in China increased production capacity.

## *Waste Water Treatment Plant project at the DSM Food Specialty Yixing site*

The Yixing site launched a waste water treatment project (WWTP) to improve wastewater treatment capacity of the site in January 2016. The new WWTP was completed and commissioned in July 2016. Approval from the local Environmental Protection Bureau was obtained in September 2016. As a result, the site is able to reduce its COD/TN/TP total emissions per year. COD efficiency of the site has improved by 14.3% in 2016 compared to 2015, saving wastewater treatment costs.



Yixing site WWTP

## *New Waste Water Treatment Plant at Hydrocolloids site in Tongxiang*

A brand-new waste water treatment plant was built in 2016 to replace the old WWTP. The new WWTP has both an upgraded odor control design, and increased treatment capacity to meet the demand of increased production capacity of the site. The new WWTP was under commissioning by end of 2016.



Tongxiang site New Air Compressor

## PROFIT IN 2016

In China, domestic consumption has become the most powerful driver of economic growth. Of the sectors relevant to DSM, the automotive industry grew strongly, the food industry continued to develop well, while construction-related industries remained volatile. Environmental regulation has been strengthened significantly in recent years, leading many sectors of the economy to seek more sustainable substitutes for traditional materials. DSM's sales in China for its continuing operations reached RMB 7,218 million in 2016, up 10% from RMB 6,578 million in 2015.

In 2016, DSM opened a new production facility for vitamin B6 in China. The new facility is located inside the current Xinghuo site, Fengxian District, Shanghai. The new vitamin B6 production utilizes an advanced technology platform, which enables lower production costs as well as a reduction in the environmental footprint of the production process.

## Strong Fundation Winning the Future



Vitamin B6 opening ceremony

## **EXTERNAL RECOGNITIONS IN 2016**

Many DSM sites across China were being recognized for their exemplary work in sustainability, for example in the field of Safety, Health and the Environment. Local DSM units are being recognized by their host governments as models for safety, innovation or environmental protection. Listed below are the awards received by DSM in China in 2016.

## Product/Innovation Award

DSM NeoPac<sup>®</sup> E-123 (Waterborne Auto Aluminite) coating resin received Ringier 2016 Technology Innovation Awards in the Coating Industry.

DSM Uralac<sup>®</sup> Superdurable Resin received the Windoor Facade Innovation Award in Windoor expo for Easycure products.

DSM China received the LVA Award- Best Supplier in Electrical Low Voltage Industry China by China Electrical Low Voltage Industry Award Committee.

DSM Zhongken (Zhejiang) Biotechnology Co., Ltd. was honored with "Technology Innovation Award" by Jiaxing Office of Science & Technology.

DSM Zhongken (Zhejiang) Biotechnology Co., Ltd. was honored with "Enterprises Growing Competence Award" by Gaoqiao Municipal Government.

### Sustainability and Corporate Social Responsibility Award

DSM China received 2016 Outstanding Contribution Award the by the China Foundation of Poverty Alleviation.

DSM China received an award of Multinational Corporation with Contribution to Charity 2016 by China International Council for the Promotion of Multinational Corporations.

DSM Dyneema received Value Co-Creation award by Fudan university and Simeng CSR promotion center.

DSM China received the Public Welfare Award by the 6th China Charity Festival.

### Safety, Health and Environment Awards

DSM Vitamins (Hunan) Co., Ltd. was rewarded as "National Youth Demonstration Post of Safety Production" with honor by Central Committee of the Communist Youth League and the State Administration of Work Safety.

DSM Eternal Resins (Kunshan) Co., Ltd. was awarded as "Jiangsu Provincial Safety Culture Construction Model Enterprise" by the Jiangsu Province Administration of Work Safety. DSM Vitamins (Shanghai) Ltd. was awarded as "Fengxian District 2016 annual fire protection work advanced unit" honorary title by Fengxian District Fire Safety Committee.

DSM Vitamins (Sichuan) Co., Ltd. received the honor of "Safety Advanced Collective Award" by Chengdu Administration of Work Safety.

DSM Vitamins (Sichuan) Co., Ltd. received the honor of "Safety Advanced Company Award" by Pixian Municipal Government.

Engineering Plastics (Jiangsu) Co., Ltd. was awarded as "The Advanced Unit of Safe Production" by the Safety Committee of Jiangyin local government.

DSM Engineering Plastics (Jiangsu) Co., Ltd. was awarded as "The Advanced Unit of Environmental Protection" by the Jiangyin Hi- Tech Zone Management Committee.

DSM Vitamins (Hunan) Co., Ltd. was rewarded as "Safety Advanced Company Award" with honor by Hengyang Hi-Tech Zone management committee.

DSM Vitamins (Shandong) Co. Ltd. was rewarded as "Advanced Fire Control Company Award" by Liaocheng Economic & Technological Development Zone Fire Safety Committee.

DSM Vitamins (Shandong) Co. Ltd. was rewarded as "Advanced Safety Company Award" from Liaocheng Economic & Technological Development Zone Management Committee.

DSM Vitamins (Sichuan) Co., Ltd. was rewarded as "Model Enterprise on Feed Quality & Safety Norms" with honor by the Agriculture Department of Sichuan Province.

## WHAT STILL WENT WRONG IN CHINA 2016

Although DSM strives to improve its performance in all areas of its operations, sometimes things can still go wrong.

This chapter summarizes the most important incidents in 2016, across the three dimensions of People, Planet and Profit, in order to identify and learn from business developments that have not progressed as planned. To this end, DSM investigates the root cause of any serious occurrence and takes steps to close the loop to eliminate the cause and start the improvement cycle. DSM subsequently communicates measures as appropriate, such as the application of stricter requirements or operating procedures if necessary.

In 2016, DSM took further steps to raise awareness about mindful behavior among its workforce. In many cases, our own actions are a major contributory factor to the cause of injuries. Rushing, frustration, fatigue and complacency; being in or moving into the 'line of fire'; losing balance, traction or grip – all these things can lead to unintentional risky behavior and injuries. Several sites provided courses to support participants in increasing their awareness and promoting a mindful way of working, thus reducing injuries – at work, at home and on the road.

Where necessary, DSM applies consequence management to individual employees based on its Code of Business Conduct. DSM does not disclose any personal details in cases involving individuals.

In line with its reporting policy on Safety, Health and Environment, DSM includes some serious near misses in this overview. These are incidents that did not result in injury, illness or damage, but had the potential to do so, and are therefore used as a learning opportunity. DSM furthermore recognizes that the period of reorganization that the company is going through puts people under stress; this is an area of attention.

1

### PEOPLE

The following incidents occurred at various sites in China in 2016.

One contractor suffered a fractured toe when he was hit by a reversing forklift, whose driver had failed to notice him.

A cabinet was being moved on a pallet by trolley when it toppled over, catching a contractor as it fell. This resulted in hairline fractures to the contractor's pelvis and an open wound on his right leg.

One operator put the yarn to the winder by hand. The yarn slid out from the bobbin which lead to the fall of tension bar and an increase of the winder speed. The operator's left hand was caught by speeding yarn, resulting in an injury which required treatment of several stitches. One operator was on the way to the second floor of the Utility Building to take an electric torch. After climbing some of the stairs, he slipped and hit the edge of the stairs with his head. He was immediately sent to the hospital and received five stitches on his eyebrow.

One employee's left hand was nipped between a pump bearing and a dike when a temporary pump was manually lifted over the storage tank farm dike. He was sent to the hospital immediately, and diagnosed with a finger fracture. One employee slipped from the stair and injured his right ankle when returning from a routine inspection.

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One contractor used a fall arrester as fall protection when entering a fermenter. The fall arrestor fell off from the anchoring point and almost hit the employee's right arm, while he was climbing down a vertical ladder to the fermenter bottom. Fortunately, the incident caused no injury.

There was an excavation job to repair a damaged underground water pipeline. The site map for underground cables and pipes was missing a 10 KV cable. During excavation, the 10 KV cable was damaged causing power outage in plant. Fortunately, the incident caused no injury.

When hoisting a 13m long pipe with a diameter of 425mm, the pipe hit another water pipe nearby. The impact caused the 13m pipe to lose balance and crashed into the front cabin of the crane. Fortunately, no one was hurt.

### PLANET

In 2016, DSM China experienced several minor incidents that led to a loss of primary containment (LOPC) from our installations. A total of 11 incidents occurred at several manufacturing sites. In all cases, an immediate cleanup prevented any impact to the environment. The resulting waste was properly disposed. DSM is committed to continue to reduce these incidents. A clear reduction was achieved in 2016 compared to 2015, which is reflected in the number of Process Safety Incidents recorded. For more information on process safety, see 'safety and health' on page 34.

## **EXPLANATION OF SOME CONCEPTS AND RATIOS**

### PEOPLE

#### FI

Frequency Index: a way to measure for safety performance. The number of accidents of a particular category per 100 employees per year.

#### LWC-rate DSM own

The LWC-rate DSM own is the number of lost workday cases per 100 DSM employees in the past 12 months: LWC-rate = 100 \* (number of LWCs (past 12 months) / average effective manpower (past 12 months)

#### People+

DSM's People+ strategy will deliver measurably better solutions to improve the lives of people. The company has defined a new People+ framework based on broad stakeholder analyses. The dimensions of health, comfort and well-being, working conditions and community development have been identified as distinct and instrumental categories to measure People+ impact at product level. Based upon the stakeholder input DSM has designed a measurement tool, which will be further developed in collaboration with The Sustainability Consortium, customers and other stakeholders.

#### REC-rate DSM all

The REC-rate DSM all is the number of recordable injuries per 100 DSM employees and contractor employees in the past 12 months: REC-rate = 100 \* (number of RECs (past 12 months) / average effective manpower including contractor employees (past 12 months)

#### SHE

Safety, Health and Environment.

#### United Nations Global Compact

A strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment and anti-corruption.

#### Zero SHE assessment

A zero SHE assessment is a step in the integration process of newly acquired units or new joint ventures. A team led by a corporate SHE manager visits the unit and identifies and assesses the main SHE risks and compliance gaps with the DSM corporate requirements, standards and practices. The team provides recommendations to minimize and control these risks and also identifies good practices that can be of use in other DSM units. During the zero SHE assessment the team elucidates the DSM SHE requirements and supports the unit in formulating and prioritizing the actions in the SHE integration and compliance plan.

## PLANET

#### **Biofuel**

A fuel which is derived from renewable organic resources, as distinct from one which is derived from non-renewable resources such as oil and natural gas.

#### Carbon footprint

The impact of a certain activity in terms of the emission of nonrenewable CO2 to the atmosphere.

#### Circular economy

Circular economy refers to an economy that is restorative and in which materials flows are of two types, biological nutrients, designed to reenter the biosphere safely, and technical nutrients, which are designed to circulate at high quality without entering the biosphere throughout their entire lifecycle.

#### CO2

Carbon dioxide, a gas that naturally occurs in the atmosphere. It is part of the natural carbon cycle through photosynthesis and respiration. It is also generated as a by-product of combustion. Carbon dioxide is a greenhouse gas.

#### Cradle to Cradle®

A holistic economic, industrial and social framework that seeks to create solutions that are not only eco-efficient but also essentially waste free throughout their lifecycle.

#### Chemical Oxygen Demand (COD)

COD is an indicator of the degree of pollution of wastewater byorganic substances.

#### ECO+

ECO+ solutions are products and services that, when considered over their whole life cycle, offer clear ecological benefits (in other words, a clearly lower eco-footprint) compared to the mainstream solutions they compete with. These ecological benefits can be created at any stage of the product life cycle – from raw material through manufacturing and use to potential reuse and end-of-life disposal. ECO+ solutions, in short, create more value with less environmental impact. The qualification ECO+ is based upon internal expert opinions where various impact categories are evaluated. For a growing number of products these expert opinions are supported by Life Cycle Assessments.

#### Eco-efficiency

Eco-efficiency is a concept (created in 1992 by WBCSD) that refers to the creation of more goods and services while using less resources and creating less waste and pollution throughout their entire life cycle. DSM applies the concept to its ECO+program. In the context of DSM's SHE targets, eco-efficiency relates specifically to the reduction of emissions and energy and water consumption, relative to the production volumes of DSM's plants.

## *Greenhouse-gas emissions (GHGE) reduction over volume related revenue (VRR)*

The GHGE definition is according to the Kyoto Protocol and includes carbon dioxide (CO2), methane, nitrous oxide (N2O), sulfur hexafluoride, hydrofluoro carbons and perfluoro carbons. VRR is net sales adjusted for changes in selling prices, exchange rates and the impact of acquisitions and divestments. GHGE/VRR is one of the ratios in the Long-Term Incentive part of the Managing Board remuneration and relates to a three-year period.

#### LCA

Life Cycle Assessment (LCA) identifies the material, energy and waste flows associated with a product or process over its entire life cycle to determine environmental impacts and potential improvements; this full life cycle approach is also referred to as 'Cradle to Grave'. It is also possible to assess a partial life cycle of a product or process with the most common type being 'Cradle to Gate' which assesses the environmental impacts of a manufacturing process without accounting for use phase or end of life impacts. There are many different environmental impact categories that can be assessed using LCA; at DSM the standard approach is to evaluate the carbon footprint and eco-footprint.

#### GRI

The Global Reporting Initiative (GRI) has developed Sustainability Reporting Guidelines that strive to increase the transparency and accountability of economic, environmental, and social performance. The GRI was established in 1997 in partnership with the United Nations' Environment Programme. It is an international, multi-stakeholder and independent institution whose mission is to develop and disseminate globally applicable Sustainability Reporting Guidelines. These Guidelines are for voluntary use by organizations for reporting on the economic, environmental, and social dimensions of their activities, products, and services.

#### Ν

Nitrogen. A mostly inert gas constituting 78% of the earth's atmosphere, nitrogen is present in all living organisms.

#### N20

Nitrous oxide. A gas that is formed during combustion. When emitted to the environment, it contributes to global warming.

#### NOx

Nitrogen oxides. These gases are released mainly during combustion and cause acidification.

#### Renewable resources

A natural resource which is replenished by natural processes ata rate comparable to, or faster than, its rate of consumption by humans or other users. The term covers perpetual resources such as solar radiation, tides, winds and hydroelec tricity as well as fuels derived from organic matter (bio-based fuels).

#### <u>S02</u>

Sulfur dioxide. This gas is formed during the combustion of fossil fuels and cause acidification.

#### VOC

Volatile organic compounds. The term covers a wide range of chemical compounds, such as organic solvents, some of which can be harmful.

### PROFIT

#### General

In calculating financial profitability ratios, use is made of the average of the opening and closing values of balance sheet items in the year under review. The financial indicators per ordinary share are calculated on the basis of the average number of ordinary shares outstanding (average daily number). In calculating Shareholders' equity per ordinary share, however, the number of shares outstanding at year-end is used. In calculating the figures per ordinary share and the 'net profit as a percentage of average Shareholders' equity available to holders of ordinary shares', the amounts available to the holders of cumulative preference shares are deducted from the profits and from Shareholders' equity.

#### Capital employed

The total of the carrying amount of intangible assets and property, plant and equipment, inventories, trade receivables and other receivables, less trade payables and other current liabilities.

#### Capital expenditure

This includes all investments in intangible assets and property, plant and equipment as well as the acquisition of subsidiaries and associates and related cash flows.

#### Cash flow

Cash flow is net profit plus depreciation, amortization and impairments.

#### Core earnings

Core earnings represent profit or loss from continuing operations excluding exceptional items and excluding amortization of

intangible assets recognized from the application of purchase accounting for business combinations.

#### **Disposals**

This includes the disposal of intangible assets and property, plant and equipment as well as the disposal of participating interests and other securities.

## *Earnings before interest, tax, depreciation and amortization(EBITDA)*

EBITDA is the sum total of operating profit plus depreciation and amortization.

#### Earnings per ordinary share

Net profit attributable to equity holders of Koninklijke DSM N.V. minus dividend on cumulative preference shares, divided by the average number of ordinary shares outstanding.

#### Operating working capital

The total of inventories and trade receivables, less trade payables.

#### Return on capital employed (ROCE)

Operating profit as a percentage of weighted average capital employed.



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