

DSM Greater China Sustainability Report 2018



DSM – Bright Science. Brighter Living.™

At DSM, we have a long and rich heritage, and it is on that basis that we now enter a new era as a purpose-led company. Our purpose is fully anchored in our purpose-led, performance-driven strategy: creating brighter lives for all. This will serve the interests of all stakeholders – customers, employees, shareholders and society at large – creating value across three dimensions simultaneously: People, Planet and Profit.

As a company active in Nutrition, Health and Sustainable Living, we address the opportunities that are driven by global megatrends and the United Nations' Sustainable Development Goals (SDGs). We contribute to these with our science-based solutions to create brighter lives for people today and generations to come.

Our bright science has delivered benefits across multiple dimensions, already reaching ~2.5 billion people in the world today in our three focus domains of Nutrition & Health, Climate & Energy and Resources & Circularity.

We are a company that is striving to do well by doing good – because ultimately, we cannot be successful, nor even call ourselves successful, in a world that fails.

We are proud to be recognized as a positive contributor to a changing world. We have achieved this through working side by side with governments, industry bodies and peers. Working with and for our stakeholders, we will create a brighter future. We are truly excited about what we can achieve together.

DSM – Bright Science. Brighter Living.™

Royal DSM is a purpose-led global science-based company in Nutrition, Health, and Sustainable Living. DSM is driving economic prosperity, environmental progress and social advances to create sustainable value for all stakeholders. DSM delivers innovative business solutions for human nutrition, animal nutrition, personal care and aroma, medical devices, green products and applications, and new mobility and connectivity. DSM and its associated companies deliver annual net sales of about €10 billion with approximately 23,000 employees. The company is listed on Euronext Amsterdam. More information can be found at www.dsm.com.

DSM at a Glance

Nutrition

DSM Nutritional Products and DSM Food Specialties form our Nutrition business. DSM Nutritional Products provides solutions for animal feed, food and beverages, pharmaceuticals, infant nutrition, dietary supplements, and personal care. DSM Food Specialties is a leading global supplier of specialty food enzymes, cultures, bio-preservation, hydrocolloids, savory, and sugar reduction solutions.

Materials

DSM's Materials business includes DSM Engineering Plastics, DSM Dyneema, and DSM Resins & Functional Materials. DSM is a global player in specialty plastics for the electrical components and electronics, automotive, flexible food packaging and consumer goods industries. The materials portfolio also includes Dyneema®, the world's strongest fiber™, as well as resins for paints, industrial applications, and optical fiber coatings.

Innovation Center

DSM Innovation Center accelerates the innovation power and speed of our core businesses. It also has a business development role, focusing on areas outside the current scope of the business groups. The company has three Emerging Business Areas: DSM Biomedical, DSM Bio-based Products & Services, and DSM Advanced Solar.



Key Data for DSM Global 2018

People

Workforce (at year-end, excluding affiliates)

20,977
~23,000¹

⌚ **21,054** in 2017

Employee Engagement Index

76%

⌚ **75%** in 2017

Female / male ratio²

28/72

⌚ **27/73** in 2017

Female executives

19%

⌚ **17%** in 2017

Frequency Index of recordable injuries (per 100 DSM employees and contractors)

0.33

⌚ **0.36** in 2017

Planet

Greenhouse-gas emissions, market based (scope 1 + 2, in CO₂ equivalents (x million tons))

1.2

⌚ **1.5** in 2017

Greenhouse-gas efficiency improvement (in %, baseline 2008)

33%

⌚ **26%** in 2017

Purchased electricity from renewable sources

41%

⌚ **21%** in 2017

Energy efficiency improvement versus 2015

5.1%

⌚ **3.8%**³ in 2017

Water consumption (in million m³)

22

⌚ **23** in 2017

Brighter Living Solutions

Sales of Brighter Living Solutions

62%^{4&5}

⌚ **62%** in 2017

Profit

Net sales (in millions)

€8,852⁴
€9,267

⌚ **€8,632** in 2017

Adjusted EBITDA (in millions)

€1,532⁴
€1,822

⌚ **€1,445** in 2017

Adjusted EBITDA growth (versus previous year)

+6%⁴
+26%

⌚ **15%** in 2017

ROCE

13.3%⁴
16.8%

⌚ **12.3%** in 2017

ROCE growth (in bps)

+100⁴
+450

⌚ **+190** in 2017

Cash provided by operating activities (in millions)

€1,126⁴
€1,391

⌚ **€996** in 2017

Total net profit (in millions)

€1,079

⌚ **€1,781** in 2017

Net earnings per ordinary share

€6.10⁶

⌚ **€10.07** in 2017

Proposed dividend per ordinary share

€2.30

⌚ **€1.85** in 2017

Innovation sales / net sales underlying business

19%

⌚ **21%** in 2017

Notes

1. Including affiliates.
2. Companies that are not integrated into the HR system (approx. 2% of the total) are not taken into account.
3. The 2017 number has been adjusted positively because of improved data quality.
4. Excluding temporary vitamin effect.
5. For a small percentage of sales (approx. 2% of sales) classified as BLS, the impact is considered "best in class" together with other solutions. For a full description of Brighter Living Solutions, see 'Explanations of Some Concepts and Ratios' on page 52.
6. Including temporary vitamin effect.

Letter from DSM China President



Dr. Jiang Weiming
DSM China President

“2018 was an excellent year for DSM China. With our global expertise, networks and deep understanding of the local market, we adapted to changes, maintained our competitive edge, and pursued sustainable growth in the country.”

Dear reader,

2018 was a year full of changes and uncertainties. Rise of protectionism has influenced the global economy. The global discussion on climate change puts forward new requirements for the sustainability of regional economic development. In China, the ‘Blue Skies policy’ was announced to limit pollution. China is also accelerating fast towards becoming an economy of high-quality development. Despite the challenges, 2018 was an excellent year for DSM China. With our global expertise, networks and deep understanding of the local market, we adapted to changes, maintained our competitive edge, and pursued sustainable growth in the country.

Last year, as we delivered again well ahead of our strategic targets, we put forward the new strategy over the next three years (2019-2021) to be a purpose-led and performance-driven company. We positioned ourselves towards being a Nutrition, Health and Sustainable Living company fully aligning with UN’s 2030 Sustainable Development Goals most relevant to us. Under the new strategy, our Nutrition business will focus on human nutrition, animal nutrition, and personal care and aroma ingredients whilst the Materials business will further develop into a high-growth, higher-margin specialty business with a focus on health, bio-/green applications, new mobility and connectivity applications.

In 2018, our Life Science cluster achieved sustainable growth, whilst pursuing a better world through our commitment to People, Planet and Profit. DSM upgraded the Jiangshan Vitamin C site as part of its ongoing commitment to quality, safety, sustainability, and production efficiencies. The upgrades also proactively address the Blue Skies policy which will help reduce greenhouse-gas emissions in Jiangsu province. Besides, we teamed up with Evonik to form the Veramaris® joint venture to use natural marine algae as raw material for EPA and DHA instead of fish. The collaboration has a huge impact on the health of the world’s oceans. DSM Hydrocolloids Innovation Center was officially put into use in Tongxiang and more recently we also announced the branding of Gellaneer™, ClariXan™, and XanTreme™ to not only protect our patent but also build safer products for our customers.

Meanwhile, DSM’s Materials Science cluster also grew steadily with rising demand for products that are also eco-friendly. To help create a safer and healthier

environment for Chinese consumers and further fulfill our commitment to the local market, DSM launched Discovery® in China, a plant-based resin containing renewable materials creating a high-quality paint for everything from walls and ceilings to kid’s furniture. In April, DSM Engineering Plastics, Dyneema®, and DSM Additive Manufacturing formed cross-business cooperation and jointly participated in CHINAPLAS 2018, showcasing high-performance engineering thermoplastic solutions with applications across key markets including electrical and electronics, automotive packaging, and 3D printing materials.

DSM has also been continuously innovating in Emerging Business Areas (EBAs). In the field of solar energy, DSM is dedicated to enabling clean energy to become more widely available. For example, we reduced the cost of photovoltaic power generation through our science-backed technological advancements and unique product innovations. Last year, with a series of photovoltaic combination products, DSM emerged as the preferred supplier of high-efficiency photovoltaic module material solutions. Moving forward, DSM will adhere to open innovation and work closely with various stakeholders to accelerate the diversification and integration of the industry.

At DSM, sustainability is a key differentiator and our core business driver. We have been named on Fortune Magazine’s ‘Change the World’ List for three consecutive years now. In China, DSM was named in the “2017-2018 Most Respected Companies in China” twice in consecutive years by The Economic Observer. The award recognizes companies that have demonstrated excellence in areas including financial performance, operations and management, innovation and corporate social responsibility. These serve as testimonies to DSM’s commitment towards delivering science-based and sustainable solutions that face up to the challenges our world faces today.

Our employees are the company’s core assets. DSM is also striving to realize a strong inclusion & diversity workplace through the comprehensive set of initiatives across policies, leadership, learning, training, communication, networking and partnering. As recognition for our efforts, DSM was awarded “2018 Best Female Leadership Companies in China”, by Shanghai Daily.

Safety is our top priority, and we set targets and monitor performance regarding both personal and process safety across all business units and operations. In China, the Frequency Index of Total Recordable Injuries was 0.21 at the end of 2018. We will continue to pay close attention to employee and contractor safety.

China is one of the most important markets for DSM. We are committed to investing in and being a part of China’s development in nutrition and health, circular economy, and resources and energy; market orientation driven by innovation; developing and exploring its China business relying mainly on local talent so that China will remain and even further grow into an important part of DSM’s business. We are ready to contribute to the transition and development of China’s real economy and a shared future with China.

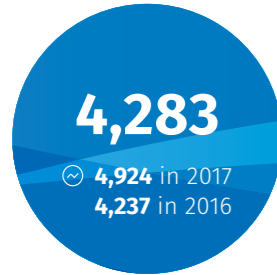
Our close relationship with external stakeholders remains the cornerstone of our sustainable growth and long-term success in China. We place our customers at the center of what we do, and we continuously maintain close relationships with industry organizations and the government. We firmly believe that mutual trust and transparency are the catalysts of close working ties. On behalf of the DSM China Leadership Team, I’d like to thank all our partners, customers, and stakeholders for your continued trust and support. We look forward to working even more closely with you in the future. Let us keep up the momentum and strive for a purpose-led company that creates brighter lives for all.

Dr. Jiang Weiming
DSM China President

Key Data for DSM Greater China 2018

People

Workforce by Dec. 31



Female / Male ratio



Frequency Index of recordable injuries (per 100 employees; DSM and contractors)



Planet

Energy use (in Petajoules)



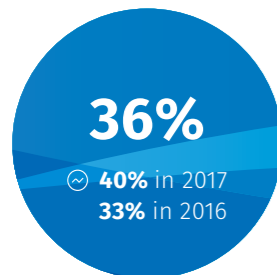
Energy efficiency improvement (in %, baseline 2015)



Greenhouse-gas emissions, market based (scope 1+2, in CO₂ equivalents (x million tons))



Greenhouse-gas efficiency improvement (in %, baseline 2008)



Water consumption (x million m³)



Profit

Net sales, continuing operations (in RMB million)



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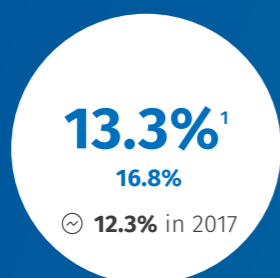
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Strategy 2018

Adjusted EBITDA (in millions)



ROCE



Organic sales growth versus 2017



Employee Engagement Index



Sales of Brighter Living Solutions



Notes

1. Excluding temporary vitamin effect.
2. For a small percentage of sales (approximately 2% of sales) classified as BLS, the environmental impact is considered 'best in class' together with other solutions. For a full description of Brighter Living Solutions, see 'Explanations of Some Concepts and Ratios' on page 52.

In 2015, we communicated our three-year strategy called Strategy 2018: Driving Profitable Growth, which has a strong focus on capturing the full potential of our new business portfolio after the extensive transformation that occurred in the period 2010–2015 and translating this into strong financial results.

Strategy 2018 had two headline financial targets: high single-digit percentage annual Adjusted EBITDA growth and high double-digit basis point annual ROCE growth.

Strategy 2018: Driving Profitable Growth

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

To deliver on these targets, we defined clear actions, including outpacing market growth, cost reduction, and efficiency improvements, and making a continuous push for consistent improvements in capital efficiency. We initiated extensive cost-reduction and improvement programs to deliver €250–300 million in cost savings by the end of the strategic period versus the 2014 baseline.

“We have become a growth company with ambitious sustainability efforts across the three dimensions of People, Planet and Profit.”

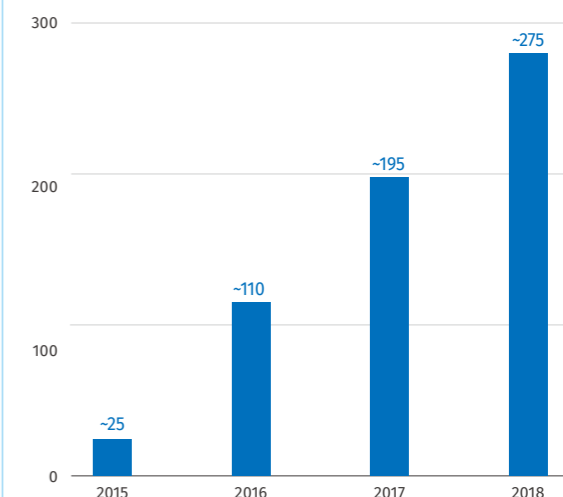
Philip Eykerman, DSM Executive Committee

We successfully executed our strategy. With a very strong 2018, we have outperformed our ambitious financial and sustainability targets. We delivered strong organic growth, with greatly improved operational and financial performance and with significant value creation in all our businesses. Also, we took important steps to monetize our non-core Pharma and Bulk Chemicals joint ventures. Even considering the additional profitability in the Nutrition business driven by an exceptional temporary vitamin effect, 2018 was a strong year.

For the strategic period 2016–2018, we:

- Outperformed on our financial targets on Adjusted EBITDA growth and ROCE growth
- Outpaced market growth in both Nutrition and Materials - Created a strong and focused innovation pipeline to enhance long-term growth
- Executed extensive cost-reduction and improvement programs which delivered run-rate cumulative savings of €275 million at the end of 2018 versus the 2014 baseline - Achieved improvements in capital efficiency
- Extracted significant value from our joint venture partnerships Patheon, Chemicalinvest and DSM Sinochem Pharmaceuticals. The combined proceeds of these divestments were around €3 billion. We plan to divest our remaining minority shares in AOC Aliancys (18.9%) and AnQore (35%) in the coming period
- Strengthened the organization, enabling a stronger result-oriented company and culture

Timing of Cumulative Cost Savings¹ (x € million)



¹Versus 2014 baseline

Another key part of the strategy was to continue to strengthen our commitment to sustainability by:

- Reducing our environmental footprint,
- Enabling other stakeholders, especially our customers, to be more sustainable, and
- Advocating on key areas of competence by actively raising awareness and sharing knowledge.

By doing so, we continued to work toward the United Nations Sustainable Development Goals, especially SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), SDG 7 (Affordable and Clean Energy), SDG 12 (Responsible Production and Consumption) and SDG 13 (Climate Action). For more information, see 'DSM China & SDGs' on page 25 and throughout this Report.

During the execution of our Strategy 2018, we continually monitored, assessed and responded appropriately to societal, macroeconomic and segment-specific developments as they occurred. Our approach to managing both opportunities and risks in our businesses is embedded in our operating and governance model and risk management approach.

Strategy 2018 Successfully Delivered

Total DSM financial results

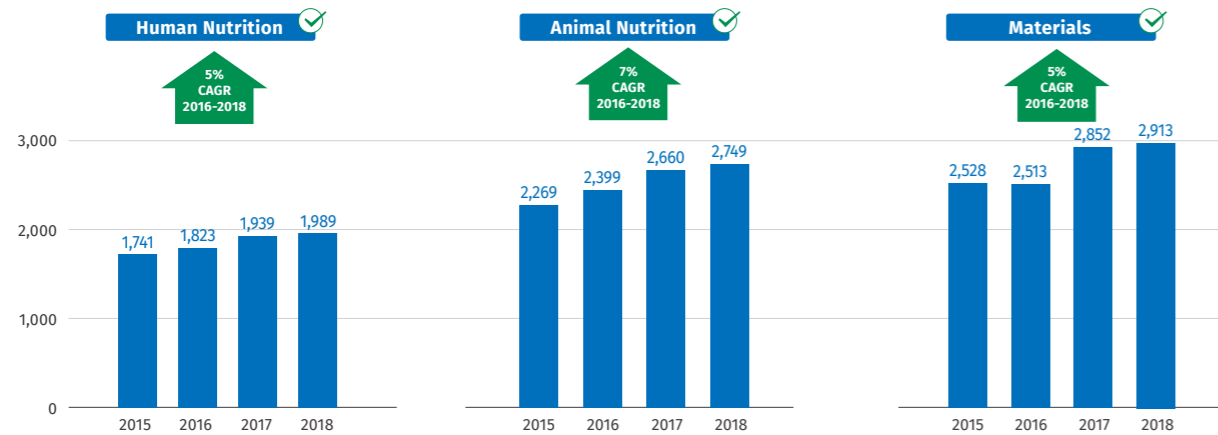
We significantly outperformed our financial targets in 2018. Even considering the estimated impact of the temporary vitamin effect, caused by extraordinary supply disruption in the industry, we have delivered strong results. In the underlying business, we achieved 6% organic growth compared to 2017, with €8,852 million in sales. The Adjusted EBITDA from the underlying business was up 6% from 2017, to €1,532 million. Adjusted for currencies, our growth was 10%, above our high single-digit percentage target. Our Return On Capital Employed (ROCE) from the underlying business was up 100 basis points, to 13.3%, versus our target of high double-digit basis points.

Including the estimated temporary vitamin effect, we realized €9,267 million in sales compared to €8,632 million in 2017, a 7% increase. We achieved a 26% total Adjusted EBITDA growth, up to €1,822 million from €1,445 million in 2017. Our ROCE was 16.8%, up 450 basis points from the previous year. Net profit was €1,079 million.

Over the strategic period 2016-2018, we consistently outperformed our targets. We realized an average Adjusted EBITDA growth of 13% against an average high single-digit percentage yearly target. The same goes for the average high double-digit basis point ROCE growth, which was 190 basis points per year over the period 2016-2018.

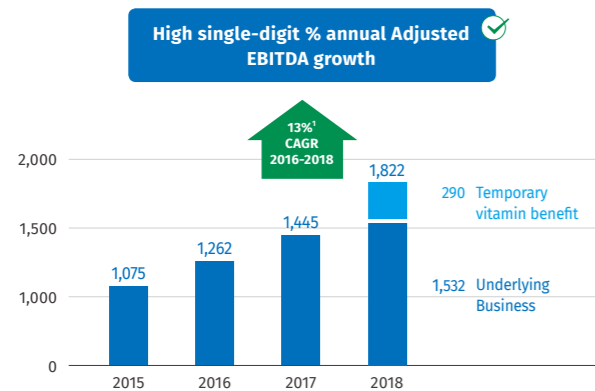
In 2018, we delivered strong organic growth, with greatly improved operational and financial performance and significant value creation in all our businesses. Both our Nutrition and Materials businesses contributed to this strong performance. Nutrition's broad, global portfolio in food and feed ingredients, as well as its expanded portfolio of solutions, drove strong growth. Meanwhile, Materials continued its 'silent transformation', successfully focusing on higher-growth, higher-margin, specialty segments and delivering higher-performing solutions that are innovative, safe and lightweight, as well as being more sustainable and environmentally friendly.

Underlying Sales Growth¹ (x € million)



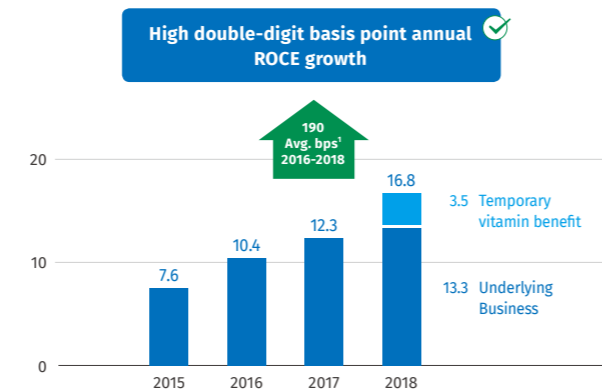
¹CRGR of underlying business

Adjusted EBITDA (x € million)



¹CRGR and average bps of underlying business

ROEC (in %)



Financial targets 2016-2018	Realization	
	2018	2017
High single-digit percentage annual Adjusted EBITDA growth		
- based on underlying business	6%	15%
- total business	26%	15%
High double-digit bps annual ROCE growth		
- based on underlying business	100 bps	190 bps
- total business	450 bps	190 bps

Nutrition financial results

Our Nutrition business performed strongly, benefiting from a temporary exceptional vitamin effect caused by supply disruptions in the industry. The total temporary vitamin effect was estimated at €415 million for the year, mainly in Animal Nutrition & Health. Sales in the underlying business were up 3% to €5,722 million. The organic sales growth in the underlying business was 7%, with strong volumes, up 4%, as well as price growth of 3%. Nutrition sales growth including temporary vitamin effect was 10%.

Nutrition continued to deliver on its aspired above-market growth ambition through further leveraging its unique global products and local solutions business model, supported by marketing and sales excellence and customer-led innovation.

Animal Nutrition & Health delivered a strong year, with 8% organic growth in the underlying business versus 2017. This good growth was achieved against a tough comparative year. Business conditions were favorable in almost all regions. Sales to Brazil were softer due to temporary shutdowns, mainly caused by strikes in the second quarter. Prices in the underlying business increased by 4%, driven by pricing initiatives to mitigate higher costs of sourced ingredients and the impact of negative exchange rates. Furthermore, prices were supported by the effects of the 'Blue Skies' policies in China.

Our Animal Nutrition & Health business continued to benefit from our ability to address a wide range of species, as well as from a diversified geographical presence. Markets in animal feed were favorable, with strong demand for poultry, pork, and salmon.

Human Nutrition & Health delivered a strong year, with 7% organic growth and 4% volume growth. All regions and segments continued to perform well with especially strong growth in dietary supplements, i-Health, and the pharma segment. Early life nutrition showed solid performance in all regions. Construction started on our second premix solutions facility in Poland, which will be exclusively dedicated to the maternal and infant nutrition market. Sales to food & beverages continued to develop well, driven by tailored multiple-ingredient premix solutions, and supported by marketing &

sales excellence and local application know-how. Prices were up by 3%, driven by a combination of a favorable mix due to strong growth in premix and i-Health, as well as benefits from higher prices for premix and advanced formulations, supported by the effects of the 'Blue Skies' policies in China.

In Food Specialties, sales were 9% lower compared to 2017, due to the deconsolidation of Yantai Andre Pectin and negative currency effects. Good sales growth rates in hydrocolloids, enzymes, and cultures were partly offset by soft sales in savory ingredients as a result of capacity limitations early in the year that prevented the business from fully capitalizing on the positive market conditions. This resulted in the overall organic growth of 1%.

After a successful initial market introduction in North America in mid-2018, we accelerated our large innovation project for fermentative Stevia by establishing a joint venture with Cargill, as announced last November. Stevia is a zero-calorie, cost-effective sweetener that can substitute sugar in food and beverages.

In Personal Care & Aroma Ingredients, sales were up 8%, with a very strong 11% organic growth, partly offset by 3% less favorable currencies. All personal care product lines, including sun, skin and hair care delivered good above-market growth, whereas aroma ingredients performed very strongly in 2018. Successful commercialization of the innovation pipeline further contributed to a very good year for the business.

For Nutrition, the Adjusted EBITDA growth in the underlying business was up 6% to €1,117 million compared to the previous year. This was driven by strong volume growth, pricing strength, and contributions from the savings and efficiency improvement programs, partly offset by significant negative foreign exchange effects. The Adjusted EBITDA margin in the underlying business was 19.5%, compared to 18.9% in 2017. The Adjusted EBITDA for total Nutrition was €1,407 million, up 34% from the previous year, including the estimated total temporary vitamin effect of €290 million, mainly in Animal Nutrition & Health. The Adjusted EBITDA margin for total Nutrition was 22.9% in 2018, compared to 18.9% in 2017. Over the strategic period, the Adjusted EBITDA was consistently over our aspired range of 18-20%.

Materials financial results

In 2018, our Materials business reported 5% organic sales growth, driven by an increase of 2% in volumes and 3% in prices, mainly reflecting commercial pricing initiatives aimed at offsetting higher raw material costs.

DSM Engineering Plastics and DSM Resins & Functional materials delivered 7% and 2% organic growth respectively. The good business conditions and strong end-market demand started to soften in the second half of the year, with some destocking in the value chain at year-end. DSM Dyneema had a very strong performance throughout 2018, with 6% organic growth, driven by continued high demand in personal protection. To fulfill the growing demand, the business started constructing additional production lines in the USA and the Netherlands.

Total Adjusted EBITDA was up 5% in 2018 to €512 million, driven by good volume growth and our continued shift toward a specialty portfolio, and despite a negative currency impact of 2%. The portfolio's silent transformation was also reflected in the 2018 Adjusted EBITDA margin of 17.6%, versus 17.3% in 2017.

Innovation results

The DSM Innovation Center has multiple functions within DSM, including accelerating the innovation power of our core

businesses and extracting value from our Emerging Business Areas (EBAs). At DSM, we want at least ~20% of our sales to come from innovation sales, which we define as sales from products and solutions introduced in the last five years. In 2018, innovation sales (underlying business) amounted to 19%. This is in line with our aspiration.

DSM Innovation Center sales were up 2%, with 5% organic sales growth largely offset by a weaker US dollar. DSM Biomedical volumes were up driven by strong sales in the drug delivery segment in the second half of the year. DSM Advanced Solar reported slightly lower volumes resulting from a slowdown in demand for solar panels following a policy change by the Chinese government to reduce the number of subsidized solar parks to be installed. DSM Advanced Solar introduced a new generation of solar backsheets which is being well received by the market. DSM Bio-based Products & Services made good progress in 2018, improving the robustness of the production technology for second-generation bio-ethanol and introducing a new generation of enzymes for first-generation bio-ethanol.

The Adjusted EBITDA was relatively stable compared to 2017. In the fourth quarter, we benefited from the collaboration and license agreement with Aerie Pharmaceuticals.

	2018	2017
Innovation sales underlying business ¹	19%	21%
High-growth economies underlying business ¹	43%	44%

¹ Excluding temporary vitamin effect

Balanced global footprint

Sales growth was strong among all regions, with favorable high double-digit growth in Western Europe and single-digit growth in North and Latin America. Sales were good in Latin America and China, despite some temporary shutdowns in Brazil. Solid growth was achieved in China, India and Eastern Europe. All high-growth economies together currently represent 43% of our sales, which is in line with 2017. The share of sales in these economies as a proportion of our total sales gives us a well-balanced global footprint.

Sustainability results

At DSM, sustainability is not only our core value and a key responsibility; it is also increasingly an important business driver that is fully ingrained in our strategy, business, and operations. Our approach for bringing about positive change is to reduce, enable and advocate.

We continued to further embed sustainability across all of our business activities, both in recognition of our responsibility to reduce our environmental footprint and to help our supply chain, customers and partners do the same. In particular, we focused on the areas of nutrition, climate and energy, and the circular and bio-based economy. In 2018, our Brighter Living

Solutions accounted for 62% of sales (from the underlying business). We are proud to be globally recognized for our leadership in this area. We are pleased to be named as the global leader in ESG (environmental, social and governance) within the chemicals industry by Sustainalytics for the second year in a row. We ranked number one among 135 companies. Our climate change strategy received an A-rating from CDP, the non-profit global environmental disclosure platform. We also maintained our high AA rating from MSCI. Besides, we topped the Dow Jones Sustainability World Index for the eighth time. This ranking means we will continue to have RobecoSAM Gold Class status in 2019.

Organization and culture

We adjusted our global organizational and operating model to support our growth. To achieve our strategy, we set targets around employee safety, engagement and diversity.

Our people feel even more inspired, engaged and committed: our annual Employee Engagement Index rating increased from 75% in 2017 to a highest-ever score of 76% in 2018. Almost all elements of our Employee Engagement showed improvement. The most notable increases were seen in career opportunities and opportunities for learning and development.

We continued to focus on improving our performance in inclusion and diversity. Although our work in this area is far from done, it is pleasing to see that the percentage of female executives increased from 17% to 19%, making progress toward 25% by 2020. The number of under-represented nationalities at executive level increased to 60%, achieving our long-term aim of 60%.

We worked on further improving our safety performance in 2018. We focused on keeping safety awareness high and we developed a new set of global leading performance indicators to help us to more proactively tackle safety observations and prevent incidents from occurring. The Frequency Index of all DSM Recordable Injuries improved from 0.36 to 0.33. However, in September 2018, a tragic accident took place at our Tortuga site in Pecém, Brazil, where one of our subcontractors lost his life when opening a container. This has deeply shocked us all. It demonstrates once again that Health and Safety must always remain our top priority, and that we must work to continuously improve our safety performance, day in, day out.

Extracting value from our partnerships

Acting on our commitment to monetize our remaining Pharma and Bulk Chemicals joint ventures, we divested our non-core participation in DSM Sinochem Pharmaceuticals and Fibrant in October 2018. Together with our cash generation, this all led to a net debt reduction in 2018 from €742 million to €113 million at year-end. We plan to divest our remaining minority shares in AOC Aliancys (18.9%) and AnQore (35%) in the coming period. Since 2015, we have monetized our non-core joint ventures in pharma (especially Patheon) and Fibre Intermediates for a total of about €3 billion.

The Strategy Review Process for the Period beyond 2018

In 2018, having achieved EBITDA growth rates and improvements in return on capital employed above the original targets and having made good progress with innovation, cost reduction and efficiency programs at the business level, as well as with monetizing our non-core assets, we brought forward our regular strategy review process. In June 2018, we launched Strategy 2021: *Growth & Value - Purpose led, Performance driven*, as outlined in the 'Strategy 2021' chapter.



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

Strategy 2021

Strategy 2021: Growth & Value - Purpose led, Performance driven

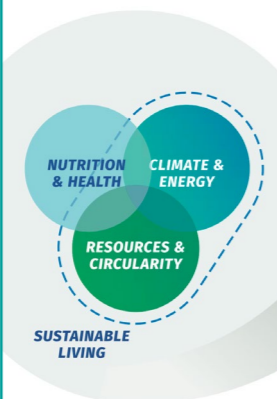
Our competences and purpose...

DSM's key competences + addressing megatrends and the UN SDGs:



provide growth opportunities in the focus domains...

A science-based company active in Nutrition, Health and Sustainable Living:



creating a growth company...



with targets that underpin our mission.

Our 2019-2021 targets:

High single-digit % annual increase in Adjusted EBITDA

~10% average annual increase in Adjusted net operating free cash flow

Value-creating M&A

Purpose Sets the Scope for Further Growth and Evolution

With Strategy 2021: *Growth & Value - Purpose led, Performance driven*, we will evolve further toward being a purpose-led, science-based company operating in the fields of Nutrition, Health, and Sustainable Living. Our strong growth platform, centered on developing innovative solutions addressing Nutrition & Health, Climate & Energy and Resources & Circularity, together with increased customer-centricity and our large innovation projects, will drive above-market growth. At the same time, we will remain focused on cost control and operational excellence, allowing us to accelerate profit growth and cash generation. Organic growth will be complemented by acquisitions, predominantly in Nutrition.

Our Nutrition business will focus on human nutrition (ingredients and solutions for food & beverages, as well as specialty nutrition, nutritional ingredients, consumer-branded products, and personalized nutrition), animal nutrition (with premix and specialty solutions), and personal care and aroma ingredients.

Our Materials business will further develop as a high-growth, higher-margin specialty business, and will focus on the categories Improved Health & Living, Green Products & Applications, and New Mobility & Connectivity.

By improving the impact of our operations, enabling sustainable solutions for our customers, and advocating sustainable business, we can grow faster and reduce our

cost and risk profile. We will further step up our ambitions regarding the reduction of greenhouse-gas emissions in line with the Paris Agreement, our energy efficiency and our use of renewable energy.

Performance to Deliver Growth and Value

We have set two ambitious targets for profit growth and cash generation to drive value creation for the period 2019-2021:

- A high single-digit annual percentage increase in Adjusted EBITDA
- An average annual increase of about 10% in Adjusted net operating free cash flow

We are committed to top-line growth ahead of the market, which will be supported by expanded solution offerings that place the customer even more firmly in the center of our activities, as well as by harnessing digital capabilities to increase customer intimacy, improve productivity and efficiency, and support new business models. Approximately 45% of sales will come from high-growth economies.

We will leverage our unique technical capabilities to develop innovative sustainable solutions in Nutrition & Health, Climate & Energy and Resources & Circularity and will invest approximately 5% of sales in R&D to develop differentiating science and technology. Our innovation projects, including Veramaris®, Project Clean Cow, fermentative Stevia and Niaga®, will result in about 20% of sales coming from innovation.

The following table describes the ambitions underpinning our financial targets:

2021 targets ¹	Ambitions underpinning our targets ¹
High single-digit percentage annual Adjusted EBITDA increase ~10% average annual Adjusted net operating free cash flow ² increase	1. Sales Above-market sales growth (~5%) for Total DSM, Nutrition, and Materials
	2. Adjusted EBITDA margin Nutrition: >20%; Materials: 18-20%
	3. Working capital Reduce by 50 bps annually to ~16%
	4. Capex ~6.5% of sales
	5. ROCE ~1%-point increase per annum
	6. Adjusted EPS Increase ahead of Adjusted EBITDA growth

¹ Based on 2018 underlying business, defined as Sales and Adjusted EBITDA corrected for DSM's best estimate of the temporary vitamin effect.

² Adjusted net operating free cash flow is the cash flow from operating activities, corrected for the cash flow of the APM adjustments, minus the cash flow of capital expenditures and drawing rights.

Greater efficiencies and a heightened focus on higher-margin specialty solutions will enable new Adjusted EBITDA margin ambitions by 2021 for Nutrition (over 20%) and Materials (18–20%). Organic top-line growth combined with these enhanced margins will drive high single-digit Adjusted EBITDA growth.

We aim to accelerate growth in Adjusted net operating free cash flow, generating an average annual increase of approximately 10%. This results from the ambition to:

- Reduce working capital levels by around 50 basis points annually
- Take a disciplined approach to capital expenditure, with an overall level of spending of approximately 6.5% of sales
- Drive improvements in organic Return on Capital Employed (ROCE) of around 1% annually

Our overall deployment of capital is expected to drive Adjusted Earnings Per Share (EPS) growth ahead of Adjusted EBITDA growth. Our cash allocation policy remains unchanged and has a clear order of priority for cash deployment:

- Disciplined capital expenditure for organic growth: about 6.5% of annual sales
- A stable, preferably rising dividend
- Disciplined M&A, predominantly in Nutrition
- In the absence of value-creating M&A, capital to be returned to shareholders

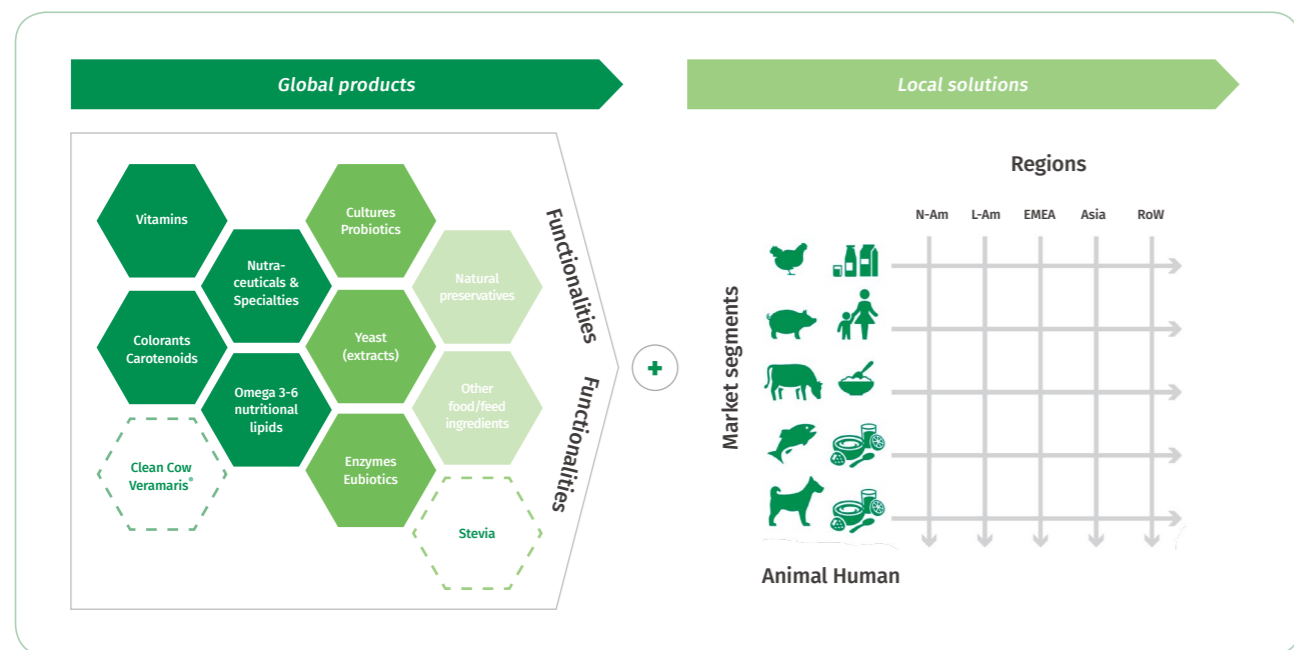
We remain committed to maintaining a strong, investment-grade credit rating.

While keeping our policy of a stable, and preferably rising, dividend unchanged, we propose a dividend increase of about 25% to €2.30 per ordinary share over 2018, as already reflected in the interim dividend over 2018 paid in August 2018. This step-up in dividend is linked to the earnings growth of the underlying business. In line with the targets set for the period 2019–2021, our performance is expected to result in further dividend growth, which could lead to an expected average payout of 40–50% of adjusted earnings.

We will target M&A predominantly in Nutrition, given its unique growth potential, resilience, strong leadership position and potential for value creation.

Nutrition

We have built a unique, highly integrated, global and broad portfolio in food & beverage, specialty food and feed, and nutritional ingredients and solutions, meeting local needs through our unparalleled network. We possess a diverse and significant premix footprint, with superior formulations and delivery systems, helping to drive sustainable nutritional solutions. This infrastructure is fueled by our complete portfolio of nutritional ingredients, which includes minerals, vitamins, nutritional lipids, eubiotics, enzymes, and yeasts, as well as texturants, flavors and cultures. This diversity and level of integration create a resilient portfolio with limited exposure to single products or customers while benefiting from the opportunities provided by global megatrends.



Focused on Nutrition & Health, we will continue to aim for above-market growth with targeted, high single-digit Adjusted EBITDA growth and an Adjusted EBITDA margin greater than 20% by 2021. We will complement organic growth with

inorganic growth. At the same time, we will further build on the successful initiatives of Strategy 2018, increasingly placing the customer at the center of everything we do, while delivering large, sustainability-driven, innovation projects.

Animal Nutrition & Health

We will continue to seek to deliver above-market sales growth through our acCElerate program, increased levels of innovation, and further investment in our business-to-farmer and go-to-market capabilities. The first phase of acCElerate began in 2018, as we sought to align our operating model and organization to deliver the strength of our global capability by meeting increasingly local demand trends, as well as by defining new metrics to assess regional performance.

Subsequent phases of this program will focus on:

- Marketing & Sales excellence (especially building specialist functions to address wider species opportunities and pursue new health solutions)
- Customer-centricity & agility, to place the customer at the heart of everything we do, by improving the end-to-end experience for the customer
- Further investing in our business-to-farmer (e.g. in China) and go-to-market capabilities

Besides, we will pursue radical innovation for core sustainability topics, all of which seek to deliver long-term solutions for the industry with the potential to create significant value for our company and our customers.

Human Nutrition & Health

Building on the success of the first two parts of the LiftOff! Program as part of Strategy 2018, we will step up further in Strategy 2021 with the third phase of LiftOff! to drive above-market organic growth through:

- Focusing on customer-centricity and agility, seeking to move closer to the customer by strengthening the value propositions of our products and services, creating end-to-end customer experiences, and enhanced innovation and application capabilities
- Continuing to invest in business-to-consumer to ensure the growth of i-Health beyond the United States, as well as business-to-me (the practice of marketing to the individual based on the desires of that individual) and personalized nutrition

Also, we will continue to pursue inorganic opportunities in food and beverages as well as dietary supplements, to enhance and complement our already strong market positions.

Our business is well-positioned to benefit from strong trends, as evidenced by the disruptive value chain shifts we are witnessing, which are leading to new opportunities in Human Nutrition & Health.

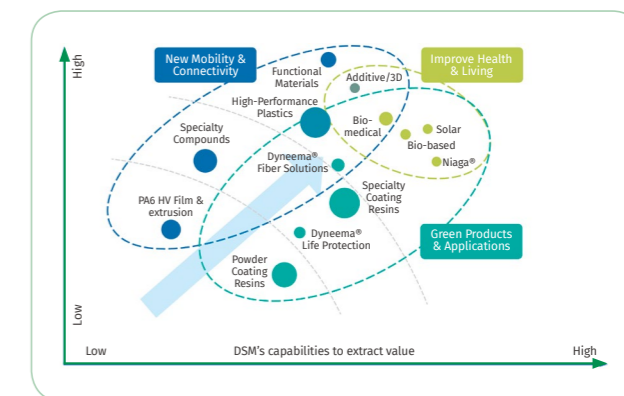
In food and beverages, we see an increasing number of local players entering the market in answer to the growing demand for local, healthy products of natural origin with reduced sugar, salt, and fat. These new players have generally limited development and production assets and market their products through social media. Global players are facing the challenge of reducing costs to remain competitive while innovating their products. This scenario represents a unique opportunity for us. We offer tailored nutritional solutions to local players through our global presence and our R&D competences. At the same time, we help global players reduce their manufacturing and R&D costs with our premix

capabilities, but also provide innovative solutions to replace sugar, salt, and fat. As an example, our joint venture with Cargill (Avansya) to bring zero-calorie, cost-effective, non-artificial sweeteners to market faster is well-positioned to help food and beverage producers deliver the products and brands consumers prefer, with significantly reduced calories.

In specialty nutrition (especially dietary supplements), more health-conscious and educated consumers are increasingly seeking more personalized products based on their lifestyle, diet and genetic make-up, leading to a demand for more individualized advice, delivery systems, and diagnostic tools. This requires a more integrated offering beyond the supply of nutritional ingredients alone – one that involves turning scientific know-how into expert advice for the consumer. To help us meet these needs, we are building on our existing business-to-business and business-to-consumer strengths in personalized nutrition and are also acquiring business-to-me learnings from leading startups such as Mixfit, Tespo, and Biomarker.

Materials

We are further future-proofing our Materials business by aligning it toward Sustainable Living, in line with our key focus domains of Climate & Energy and Resources & Circularity. This will further develop Materials into a high-growth, higher-margin specialty business, delivering above-market organic growth, focused on Improved Health & Living, Green Products & Applications and New Mobility & Connectivity.



In Improved Health & Living, we are focusing on the increasing demand for advanced healthcare applications. Also, we offer solutions that enhance end-user safety and health conditions.

In Green Products & Applications, we are providing solutions that enable customers to cut emissions by using materials that are lighter, stronger, more efficient and more sustainable. We are also increasingly focusing on bio-based, recycled, and fully recyclable solutions.

In New Mobility & Connectivity, we are targeting materials that support the transition from fossil fuel to electric automotive power. We are also addressing the growing need for increased connectivity between products, devices, and applications.

Across our businesses, we have intensified our focus on customer-centricity and have implemented several programs that focus on creating a positive experience for our customers.

Innovation

Innovation is what transforms our 'Bright Science' into 'Brighter Living'. We can leverage our unique technology capabilities for developing innovative sustainable solutions by possessing a profound understanding of:

- The science behind nutrition, and the capability to develop new nutritional ingredients with proven health benefits – supported by our state-of-the-art Biotechnology Center, providing sustainable alternatives for chemical synthesis, as well as plant/animal-derived ingredients
- Material synthesis and characterization, and the capability to convert this into Sustainable Living applications – supported by our state-of-the-art Materials Science Center

The ability to continually deliver innovative and improved products and solutions to meet our customers' needs drives sales growth. Our innovations reflect our commitment to healthier and more sustainable outcomes and so help drive the performance of our Brighter Living Solutions portfolio. Innovation sales have also improved our profitability, delivering higher margins than the average of our running business. Our innovation sales, defined as products and applications that have been introduced over the past five years, accounted for 19% of total sales from underlying business in 2018. We aspire to maintain a level of around 20% during the new strategy 2019–2021 period, which we consider to be a healthy proportion because of the overall balance of our product portfolio and product life cycles. We will continue to invest in differentiating science and technology, allocating approximately 5% of sales in R&D.

Our organic growth will be supported by several focused, large innovation projects – for example, Project Clean Cow, Veramaris®, fermentative Stevia, enzymes, and yeasts for 1.5th and 2nd generation bio-ethanol, Niaga®, Additive Manufacturing, plant-based proteins, bio-agriculture and biomedical adhesion barriers (Actamax™). These solutions are expected to be introduced to the market in the 2019–2025 time-frame. All these innovations seek to meet significant, global sustainability challenges in Nutrition & Health, Climate & Energy and Resources & Circularity. Altogether, we expect these to generate around €350 million of sales and €100 million of Adjusted EBITDA from 2021 to around €1 billion and €400 million, respectively, from 2025 onward.

As well as supporting innovation in our core businesses, the DSM Innovation Center also aims to develop its Emerging Business Areas (EBAs). These are promising growth platforms outside the scope of our business groups. They comprise DSM Biomedical, which focuses on innovative materials for medical devices; DSM Bio-based Products & Services, which focuses on clean energy from crop residues as well as bio-chemicals with enzymes and yeasts for biomass conversion; and DSM Advanced Solar, which offers yield-boosting solutions for solar energy.

Enabling Programs for Accelerated Growth

Our enabling programs will underpin and facilitate our ambitions by focusing on key areas such as performance-driven organization, leadership, and people, culture, digitalization and sustainability leadership across DSM.

Organization, leadership and people, and culture

We continue to develop our organization, leadership and people, and culture to enable continued performance. In terms of organization, we are maintaining cost discipline and further optimizing the support functions. Moreover, we are further developing a customer-centric organization aligned with market/customer segments.

Regarding leadership and people, we are accelerating leadership development for both people and teams, as well as for effectiveness in growing our businesses. We are also embedding a global mindset through further internationalization.

In terms of culture, we introduced The DSM Ways of Working, which describe a daily mindset that enables everyone in our company to make a difference.

Digitization and digitalization

Digitization and digitalization drive our growth and improve our efficiency on three levels:

- Customer intimacy: improving top-line results by, for example, customer data analytics, omnichannel apps providing 24/7 customer experiences, and digital collaboration tools
- Operational performance: reducing costs by automation and data analytics to increase productivity in support functions and manufacturing, optimize operational processes, and improve safety, quality and plant reliability
- New business models: supporting entrepreneurship and artificial intelligence. Examples are our partnerships for digital value propositions and our pilots in the areas of personalized nutrition and animal feed

Sustainability leadership

Sustainability is not only our core value and a key responsibility, but it is also increasingly an important business growth driver at DSM that is fully ingrained in our strategy. We are stepping up our sustainability aspirations. By improving the impact of our operations, enabling sustainable solutions for our customers and advocating sustainable business, we can grow faster and reduce our cost and risk profile.

Continued Step-up in Sustainability Leadership

Realization 2018	-8% ¹ GHG absolute reduction (vs. 2016)	1.4% ³ Energy efficiency improvement year-on-year	41% Purchased renewable electricity	76% Employee engagement favorable score	0.33 Safety Frequency Recordable Index	62% ⁴ Brighter Living Solutions
2021/2030 Ambitions	30% absolute reduction by 2030 (vs. 2016) ²	>1% average annually till 2030	75% by 2030	>75% by 2021	<0.25 by 2021	>65% ⁵ by 2021

¹We estimate the effect of the underlying structural improvements in absolute GHG emissions to be roughly 8% versus 2016, while the total absolute GHG emission reduction versus 2016 is approximately 18% (from 1.5 million tons to 1.23 million tons).
²An additional Scope 3 intensity reduction target of 28% by 2030 (versus 2016) has been agreed which, together with our Scope 1 + 2 target, meets the criteria for a Science-Based Target.
³Our energy efficiency improvement was 5.1% over the past strategic period.
⁴Excluding temporary vitamin effect.
⁵KPI will be updated as part of the Responsible Care Plan update in 2020.



The Executive Committee (from left to right): Rob van Leen (R&D and Innovation), Dimitri de Vreeze (Materials), Geraldine Matchett (CFO), Chris Goppelsroeder (Nutritional Products), Feike Sijbesma (CEO/Chairman), Judith Wiese (People & Organization) and Philip Eykerman (Food Specialties and Strategy and M&A)

DSM in China

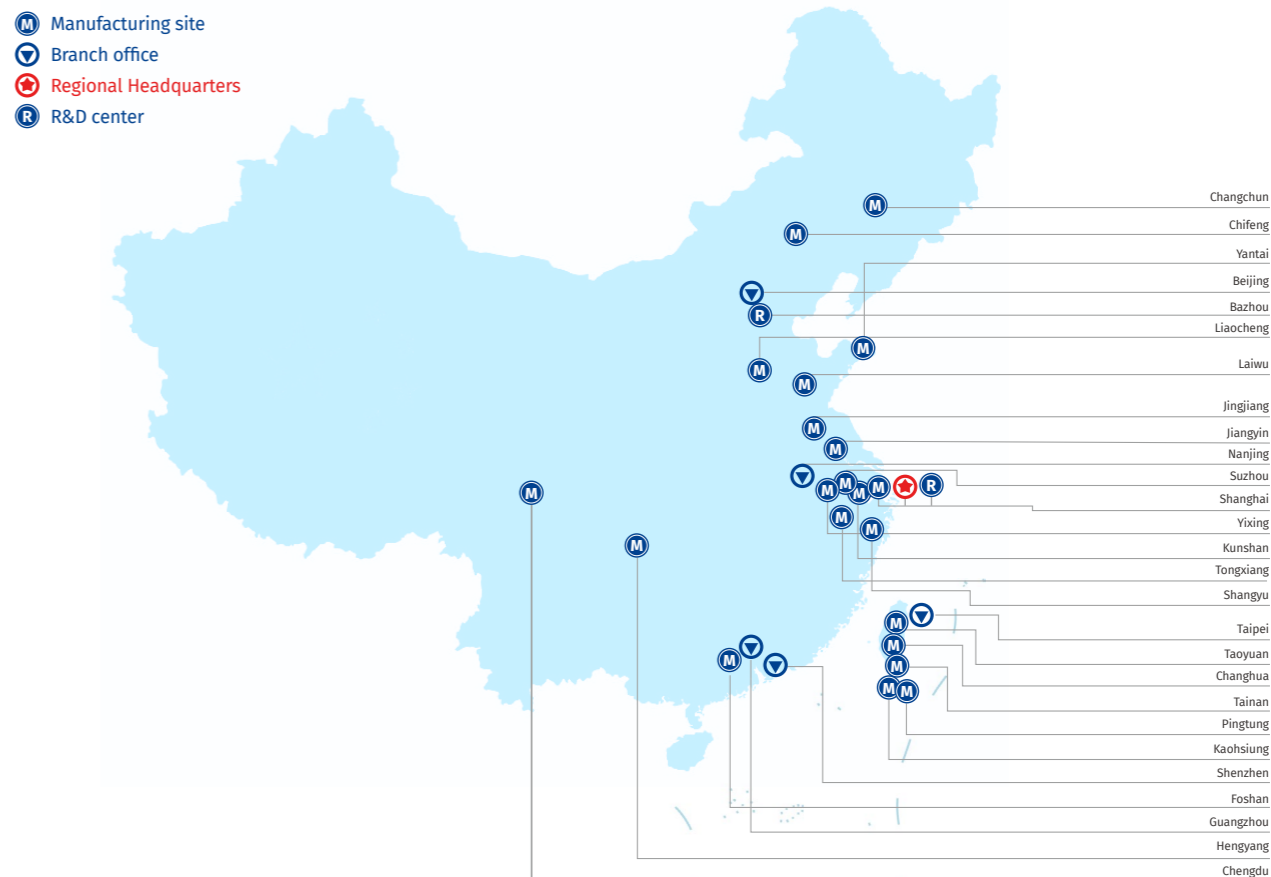


帝斯曼中国园区
 DSM China Campus
 帝斯曼中国总部
 DSM China Headquarters
 帝斯曼中国科技中心
 DSM China Science and Technology Center

DSM China Overview

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 the early 1990s. The company currently has 47 affiliates in China including 25 manufacturing sites and employs 4,283 people. DSM China regional headquarters and China Science and Technology Center is located in Shanghai. DSM's business is growing healthily and steadily in China with sales revenue reaching approximately RMB 9.4 billion in 2018.



Facts and Figures, DSM China (as of December 31, 2018)



History



2005-2008 Deepening Engagement

1963-2005

Starting Business in China

- **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 a 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.



2008-2018 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 (DSP) 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 the 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 the vitamin C market. DSM's Hydrocolloids Business Unit (DHC) breaks ground for its gellan gum site expansion at DSM Zhongken Biotechnology Co., Ltd. (DZK) 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 inaugurate the joint venture to produce high-performance PPS compounds. DSM opens its Asia Pacific Personal Care Technical & Application Center in Shanghai.
- **2017**
DSM expands solar product portfolio with "Sunshine" (Suzhou Sunshine New Materials Technology Co., Ltd.) technology acquisition. DSM Animal Nutrition and Health (ANH) opens its sixth state-of-the-art, premix plant in Shandong Province, China. DSM strengthens its Hydrocolloids business (DHC) with the acquisition of Inner Mongolia Rainbow Biotechnology Co., Ltd. (China).
- **2018**
DSM Hydrocolloids Innovation Center was officially put into use in Tongxiang. DSM presented its strategy update entitled "Strategy 2021: Growth & Value - Purpose led, Performance driven" for the next three years (2019-2021).



DSM China & SDGs

In 2016, the United Nations launched the Global Goals for Sustainable Development (SDGs), a roadmap to a more environmentally and socially conscious and responsible world by 2030. At DSM, we believe that companies have a

key role to play in achieving the SDGs. We believe that our combination of Health, Nutritional, and Sustainable Living contributes in a positive way toward achieving the SDGs.



Nutrition & Health

Our contribution

- Supporting nutritional requirements.
- Reducing salt, fat, and sugar in the daily diet.
- Improving the quality of life for surgical patients.
- Enhancing and accelerating the potential of SMEs that are working to improve the nutritional quality of the food system.
- Enabling improved health within planetary boundaries.

Our commitments

- Together with the United Nations World Food Program, we will raise awareness for improved nutrition while continuing to develop new food solutions.
- We will reach 50 million beneficiaries (pregnant and lactating women and children <2 years old) with nutritional fortification.
- We take responsibility to control and minimize all possible safety risks and adverse effects that could be caused by (the substances present in) our products throughout the value chain.

Climate & Energy



Our contribution

- Contributing to the uptake and efficiency of renewable energy sources.
- Improving energy efficiency in and lower emissions from the automotive, maritime and food sectors.
- Promoting resource efficiency and reducing greenhouse-gas emissions.
- Advocating for a shift to a low-carbon economy, including implementing a meaningful price on carbon.

Our commitments

- We will reduce our Scope 1 + 2 greenhouse-gas emissions by 30% by 2030 (vs. 2016).
- We will improve our energy efficiency by >1% on average annually till 2030.
- 75% of our purchased electricity will be from renewable sources by 2030.
- We apply an internal carbon price of €50/t CO₂eq on our key investments.

Resources & Circularity



Our contribution

- Enabling a circular economy.
- Reducing reliance on wild-caught fish in aquaculture.
- Lowering VOC emissions.
- Enabling fuel production from biomass from agricultural residues.
- Reducing food waste and promoting the role of renewable raw materials.

Our commitments

- 'Safe by design' is the leading principle in the development of new and better products and processes.
- 80-90% of our waste will be recycled by 2020.
- We will improve our air emissions efficiency by 50% by 2020 (vs. 2015).

While our focus areas link most closely to the above SDGs, we also engage with the other SDGs.

 <p>Through partnerships, we contribute to economic development and agricultural learning.</p>	 <p>Through our partnerships, we contribute to agricultural learning. We provide learning opportunities to our employees following the 70:20:10 principle.</p>	 <p>We aim to have better gender diversity in our executive population and talent pipeline. We also foster female participation through our partnerships.</p>	 <p>Water is a global issue that has local impacts. Our approach to water is local and risk-based. We mitigate water-related risks as required.</p>	 <p>We contribute to local development and economies through our global footprint.</p>	 <p>Innovation is central to DSM today, and for the future, and enables us to make a positive contribution to society. Our R&D footprint is global.</p>
 <p>We are an equal opportunity employer, as detailed in our Code of Business Conduct, and we expect the same from our value chain partners. At the local level, we work with local programs to address inclusive employment.</p>	 <p>We support philanthropic initiatives in local communities. Through our products, we contribute to safer and more sustainable buildings and transportation.</p>	 <p>We help reduce the reliance on the ocean ecosystem for food and support sustainable aquaculture. Through our partnership with The Ocean Cleanup, we support the removal of plastic waste from our oceans.</p>	 <p>We monitor areas of high biodiversity near our sites. We employ sustainable biomass as a raw material. Through our products, we support the reduction of land use for agricultural purposes.</p>	 <p>Our Code of Business Conduct details our approach to ethics, business and good corporate governance.</p>	 <p>We actively communicate and collaborate with local authorities, international and local organizations, and the public, and help our partners achieve sustainable growth.</p>

Bright Science, Brighter Living

We strive to understand the wider ecosystem our customers operate in and to anticipate the future needs of their consumers and society. It is through our customer-centric approach that we can become a more valued strategic partner to organizations around the world. From helping people live active lives for longer and maximizing human and animal nutrition, to rethinking materials to make them greener, kinder and smarter -- our technologies and talent are brightening lives the world over, while also demonstrating that being responsible can also be profitable.

“

We're proud to have a bold commitment from DSM to power their Apple production with 100% renewable energy.

Lisa Jackson, Vice President, Environment, Policy and Social Initiatives and Member of the Executive Committee, Apple

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“

DSM has figured out how to be profitable and, at the same time, improve society. This is the type of company we want to work with.

Chris Naegeli, Executive Director, Thermal Systems, Resins and Purchasing, General Motors

”

“

We're most appreciative of DSM's top management and its relentless pursuit to engage us in both short- and long-term issues.

Shank Hu, Innovation Assistant President, Yili Group

”

Nutrition & Health

In response to the growing macro trends in the world's population and the increasingly diverse health needs of smart consumers, DSM develops a variety of solutions for healthier and better living for people as well as a more sustainable planet, contributing to the UN Sustainable Development Goals of Zero hunger and Good health and well-being and creating sustainable value along the process for all stakeholders.

Addressing the Needs for Healthy Living

The United Nations forecasts a 9.7 billion population by 2050. To help society meet the diverse needs for healthy living of consumers, DSM is committed to providing a rich and diverse range of sustainable nutrition solutions that protect every stage of life.

Healthy ingredients for healthy living

DSM Human Nutrition and Health Division focuses on the progress of clinical nutrition research both in China and globally and has developed a variety of dietary supplements, ingredients for healthy food and beverages, and specialty medical formulas for people with particular medical or healthcare needs.

- **It's your eyes that we are protecting:** With the rapid growth of mobile internet, people are spending more and more time engaged with various screens and 66% of Chinese consumers are concerned about the health of their eyes. We developed the dietary supplements FloraGLO™ Lutein and OPTISHARP™ Natural Zeaxanthin accordingly to help our body better protect our eyes

from the damages caused by blue light. Life's DHA™, made from seaweed, is selected by many well-known manufacturers of baby formulas and nutritional supplements to help promote fetal growth and protect infant eye health. And OPTISHARP™ Natural Zeaxanthin also helps promote macular pigmentation, protects light-sensitive cells in the fundus, and builds a natural barrier for eye health for children.

- **Providing healthy coloring solutions:** As a global expert in carotenoid coloring solutions, DSM has been cultivating carotenoid application development and product supply for nearly half a century with various natural food coloring solutions for sports food and beverages.
- **Developing functional food formulas:** DSM leverages its product development expertise to develop specialty medical formulas for the elderly and patients with specific medical needs following the progress of clinical nutrition research to help them better meet their nutritional needs and improve their quality of life.



Making healthiness taste better

DSM Food Ingredients Technology takes a new step in meeting the demands for healthier food with low salt and low sugar and provides a variety of products that address the taste and nutritional requirements of food products.



- ModuMax® is the newest natural taste modifier developed by DSM. It helps mask the unpleasant tastes associated with sweeteners and nutrition supplements and improves the acceptance of healthier food products by consumers.
- Our star product, the lactase Maxilact®, is used in the production of lactose-free milk for lactose-intolerant consumers. Its lactose-decomposing process produces natural sweetness and is used to produce low-sugar yogurt products. Used in combination with other DSM products, it could reduce the sugar content by as much as 50%.
- DSM probiotics have been used in the global market for more than 40 years and our latest Delvo® Pro probiotics are cost-effective and have better shelf life stability and more reliable product performance compared to other available solutions.
- We introduced PreventASe® and PreventASe® XR asparaginase to block the formation of acrylamide in baked goods and snacks from the source without affecting the taste or shelf-life, providing healthier choices for consumers.
- DSM's enzyme formulation solutions can be applied to a wide range of plant-based food and beverage products to improve the flavor and improve the cost-effectiveness of the products.

Creating more delicious and convenient choices

Research shows that convenience and fun are the key trends in the global food and beverage market in 2019. DSM Hydrocolloids products play an important role in help food and beverage manufacturers produce convenient, healthy and delicious products that satisfy the diverse demand of global consumers.

DSM Hydrocolloids uses Gellaneer™ gellan gum in yogurt products that can be stored at room temperature. By stabilizing the protein and retaining moisture, it gives up to six months of shelf life at room temperature to products that previously needed cold transportation and cold storage, allowing more consumers to have access to and enjoy the delicious yogurts.

DSM Hydrocolloids can also enhance the suspending, thickening, stabilizing and texture of food, creating a variety of choices such as drinking yogurt, drinking jelly and specialty candies.

Climate & Energy

A brighter energy for global climate change mitigation

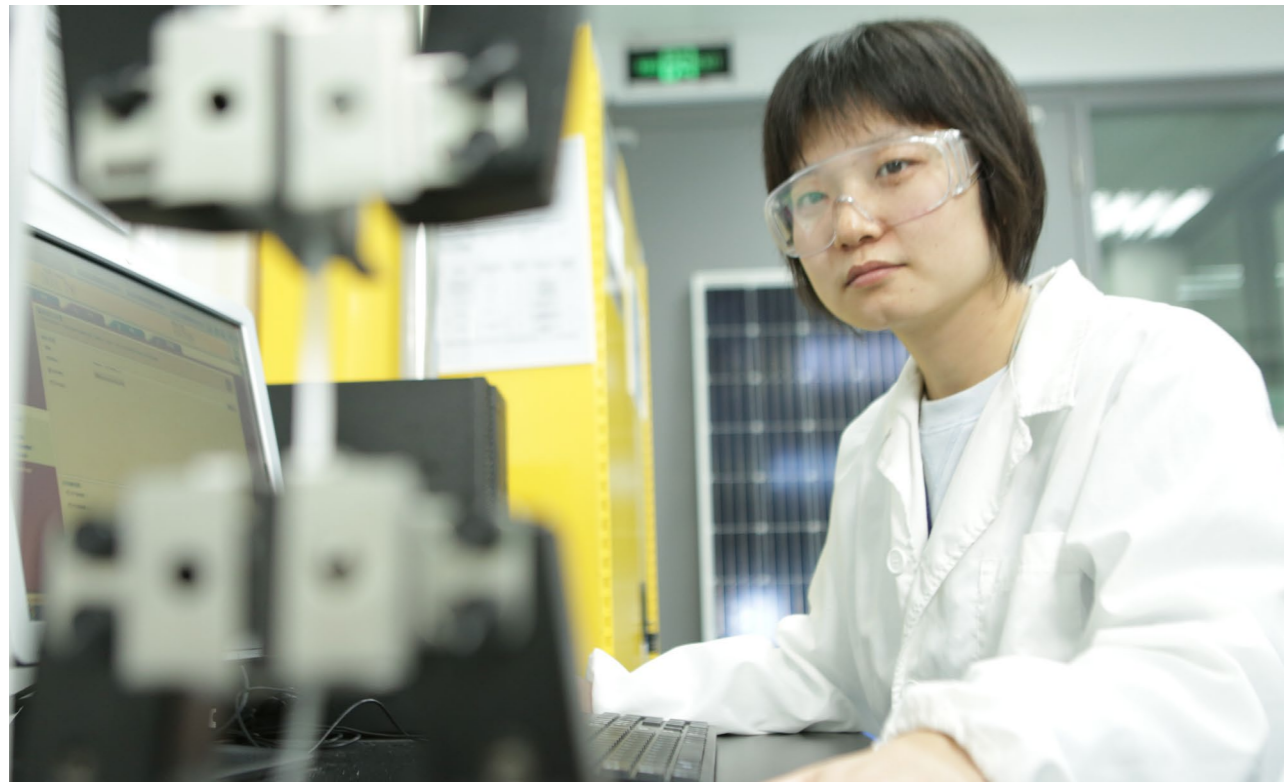
At DSM, we strive to create what we call Brighter Living Solutions: high-performing products and innovations that have a measurably better impact on our planet and its people than mainstream solutions. In solar, this means products that contain no toxic materials; preserve precious resources, and can be economically recycled with a low carbon footprint.

At DSM Advanced Solar, our materials technology is boosting solar performance worldwide through everything from Anti-Reflective and Anti-Soiling coatings for solar glass, to next-generation backsheets for solar modules. We develop technologies that amplify the power generated by Solar PV systems thereby reducing its Levelized Cost. Our mission: to improve the Levelized Cost of Energy – and make affordable, clean solar energy a reality for all. Same sun. More power.™

In 2011, DSM launched the first product in the PV industry, anti-reflective coating for PV solar glass, and has established the global market leadership in the past five years. DSM anti-reflective coating uses a unique technology to reduce the amount of sunlight reflected off solar panels - capturing more of the sun's energy and delivering higher output gains of 3% in flash tests compared to non-coated modules. Further, with the proven solar power-boosting technology, we expand our product portfolio in the coating to Anti-soiling coating for solar panels in dry, arid climates application; and Neutral AR coating for sheer black solar panels in a residential application.

By the end of 2018, over 250 million PV modules using DSM coating technologies, equivalent to more than 70GW PV have been installed, generating an additional 7,500GWh of power and avoiding the emission of approximately 3,700kt CO₂ equivalent.

DSM endurance backsheet is one of the excellent examples of Brighter Living Solutions. DSM has put 50-plus year heritage in polymer science into a backsheet technology that delivers long-term protection against moisture, mechanical stress, sand abrasion and Ultraviolet (UV). With the selected material, DSM uses a unique co-extrusion process to create a multi-layer film with a mono-layer coherency that minimizes the risk of delamination. On the one hand, DSM endurance backsheet is proven to deliver in the toughest environment, weather in harsh deserts., hot & humid tropical climates, rural areas with high loads of ammonia, or even floating PV application. Our backsheets extend module life and boost Return on Investment (ROI) for the latest high-performance solar installations. On the other hand, DSM backsheets are 100% recyclable and fluoride-free and have a 30% lower carbon footprint compared to conventional backsheets. In this way, we enable the solar industry to lower carbon footprint and the costs of end-of-life treatment for PV modules.



Resources & Circularity



Enabling the sustainable production of protein

Phosphorus is an essential mineral in the nutrition of all types of livestock. However, the phosphorus in natural substances is not absorbed by animals. As a result, the phosphorus contained in most grains and oilseed cakes based commercial feeds is wasted and becomes pollutant in runoffs. To ensure sufficient phosphorus intake in animals, it is common practice to add phosphate additives in animal feeds, which not only increases the cost but also further reduce the phosphorus runoff into the environment.

RONOZYME® NP is a high-performance feed phosphatase developed by DSM in cooperation with Novozymes, a global leader in industrial enzyme preparations and microbial preparations. Added to a variety of animal feeds, RONOZYME® NP can help the release of phosphorus contained in feeds such as grains, oilseeds, and their by-products, and increase the digestion, absorption, and utilization of phosphorus and other minerals, such as calcium, manganese, organic trace elements, and amino acids.

RONOZYME® NP is widely used in many markets worldwide as a feed additive for pigs, poultry and aquaculture production. It can increase the phosphorus digestibility of monogastric animals by 50% and reduces the amount of dicalcium phosphate additives needed in each ton of feed from 10-17 kilograms per ton to only 3-8 kilograms per ton.

As a sustainable solution in the livestock industry, RONOZYME® NP not only increases the efficiency of usage on feeding resources, in addition to the significant cost savings, it can also reduce phosphorus runoffs by as 30%. If this technology is widely used in the livestock and poultry industry in China, it could reduce the total phosphorus runoffs of the industry by approximately 180,000-225,000 tons per year, greatly reducing the environmental impact of the industry and making a great contribution to the sustainability of the planet.

People



Safety and Health

Occupational Safety and Process Safety

Employee health includes safety at work. We strive to be an incident- and injury-free company. At the end of the day, people should leave work exactly as they came, if not better.

Both occupational and process safety are extremely important to us. Occupational safety is the safety of people (employees and contractors). Process safety is the

safe operation of facilities. We set targets, define actions and monitor safety performance as described in the DSM Responsible Care Plan 2016–2020. We report our occupational and process safety performance with frequency indexes. For a full description of these indexes, see 'Explanation of Some Concepts and Ratios' on page 52.

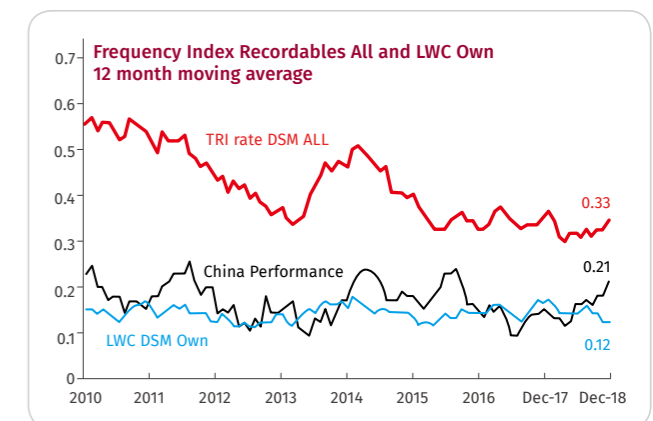
Safety performance (2018)	DSM China Realization	DSM Global Realization	Aspiration 2020
TRI-all (Total Recordable Industry)	0.21	0.33	TRI-all < 0.25

Occupational safety incidents 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 contractors and visitors.

DSM aims for a Frequency Index of Total Recordable Injuries (per 100 DSM employees and contractor employees) that is less than 0.25 by 2020. For DSM China, this target is also valid. In 2018, the Frequency Index of Total Recordable Injuries in China deteriorated to 0.21 from 0.15 in 2017. A factor in this trend is the inclusion of some recently acquired sites into the reporting. No fatalities occurred in 2018, which means that DSM China has been fatality-free for sixteen years in a row.

Lower safety standards at recently acquired sites was one of the main factors causing poorer safety performance in 2018. In 2014, DSM China developed and implemented a competency development & certification program. This ongoing program will remain vital to deliver effective competence development and speedy integration of newly acquired sites. Despite the TRI result, many sites of DSM China continued to maintain excellent safety performance. In 2018, both Pingtung site and Changchun site achieved 3000 OSHA Recordable Injury-free milestone. Shangyu site remained recordable injury-free since its acquisition in 2015 and achieved 1000 OSHA recordable injury-free milestone in 2018. We also see encouraging signs in contractor safety. The Blue Sky project at Jiangshan site was completed in 2018: it reported only one health incident (heat stroke) and no safety incidents. The project required approximately 2.2 million contractor man-hours and 2,000 employees on-site at peak times.

In 2018, DSM focused on keeping safety awareness high through its Living Safety Campaign 'I Care, We Care'. This campaign offered global guidance through quarterly themes and locally relevant programs at the site level. At DSM China, all sites rolled out its safety culture initiatives with the Living Safety Campaign integrated. These safety culture initiatives included "SHE Day" events, monthly SHE themes, leadership enhancement by Gemba walk, SHE knowledge contest, sports, training, and information sharing through social media, and many more.



SHE Day events at China sites

"SHE Day" events were often either the climax or grand opening of the SHE Culture Program at many DSM China sites. Typically, it is a one-day event organized, hosted and participated by all employees of the site. Various SHE topics were communicated and shared with all employees in both educational and fun activities. DSM China organized a Best SHE Event Organization Award to motivate wide engagement and more innovation for the SHE Days. The finalists were invited to showcase their SHE Day event activities in DSM China headquarters in Shanghai. Below are some examples to illustrate the outcomes.

Zhangbin site developed many interesting safety-related games (LOTOTO implementation, hazard chemical identification, transportation quiz, etc.). It helped in engaging first-line employees by adding a fun factor in knowledge learning.

Shunde site organized the "Zero-injury Journey" Day activity, in which DSM employees & long-term contractors, as well as representatives of suppliers, local communities and government agencies, were invited to participate.

Xinghuo site made good use of mobile phone apps such as KAHOOT to conduct an on-the-spot SHE knowledge quiz, and large-scale demonstrations to illustrate good and bad practices of scaffold building.

Jiangshan site embraced the competitive spirit in its SHE Day program, where various contests such as a knowledge quiz, ER drill contest, potential risk/near miss identification, etc. were organized.

Laiwu site conducted an “I Care, We Care” SHE Day event with the kick-off by the Business Group VP and SHE & Quality director on site.



SHE Day activity at Shunde Site.

Big Boss Program at Taoyuan site

ECR DY site developed the Big Boss Program following an eye injury incident that reset the hard-earned record of 3300 Recordable Injury Free days.

The program includes an exchange of roles between line management and first-line employees during a series of workshops. First-line employees are allowed to experience the responsibility in safety as a line manager and see the SHE rules and requirements from a fresh angle. Through the program, the level of ownership and commitment to safety in first-line employees was raised to a new level, which was evident in the increasing number of safety improvement opportunities identified by first-line employees.



Big Boss workshop at Taoyuan site.

BBS Annual Platform Meeting of ANH China sites

All DSM China sites implemented the behavior-based safety (BBS) program in one form or another. A BBS program aims at improving employee safety behavior through observation and open feedback. Ten years ago, when the ANH China sites first started the BBS program, a BBS platform was set up to facilitate continuous effectiveness and quality improvement of the BBS program. Many BBS good practices, such as safety observation boards posted at key field positions; printed mugs with “Do you finish your observation today?”, etc. were

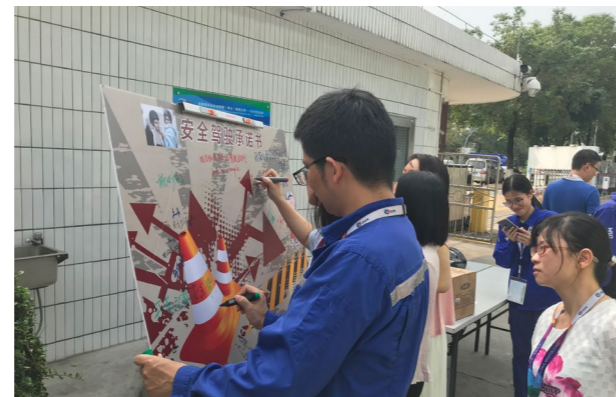
collected and shared through the platform. Participants of the platform included field operators, shift leaders, and SHE professionals, who acted as ambassadors to learn and transfer good practices at their respective sites.



BBS activity at ANH Xinghuo site.

Defensive Driving Training at Shunde site

The number of DSM China employees who drive to work is increasing rapidly. To reduce the potential driving incidents on the road and improve driving safety awareness, Shunde site invited an external trainer to conduct Defensive Driving trainings on-site. The training focused on defensive driving knowledge and skills, driving behaviors and key driving habits. Employees who ride a motorcycle to work are also exposed to risks on the road and included in the training. All employees expressed their commitment to drive and ride responsibly after the training.



Defensive Driving Training at Shunde site.

Train-of-Trainer Program at Laiwu site

The effectiveness of training is an important but often overlooked factor in safety management. A trainer who is competent and can connect well with their audience is an important success factor for effective training. Laiwu site developed the Train-of-Trainer (TOT) program to improve trainer quality. Candidate trainers were nominated from the production unit safety coordinators and line supervisors to ensure a connection with the training audience. Both classroom training and field coaching were included in the curriculum and followed by a final assessment of candidates' training competence in the respective topic. The pool of qualified trainers not only improved training effectiveness but also by itself fortified the general competence level of first-line organization.

Process safety

Process safety incidents are rare but can have a major impact on people and the environment. Process safety is measured via the Frequency Index of Process Safety Incidents (PSI), and we have a target for 2020 of 0.15. The Process Safety Incident rate deteriorated from 0.19 in 2017 to 0.22 in 2018. Most incidents were related to the unintentional release of substances from plants or storage facilities and were remediated without further consequence. The increase in the PSI rate is due to a better understanding of managing and reporting PSIs in one of our businesses. We are focusing our efforts on the incidents highlighted by this process to reverse the trend.

In China, DSM continuously manages process safety with the aim of sustainable performance. In 2018, newly acquired Chifeng site in China was shut down from the first day of full control to identify and mitigate potential high-risk issues. The newly acquired site was allowed to start production again only when high-risk issues were mitigated to the satisfaction of DSM's requirements.

Prevention of hazards from flammable liquids is a very important aspect of process safety for DSM China. The Blue Sky project at Jiangshan site was completed in 2018. The project of more than 40 million investment was both an environmental improvement project as well as a process safety upgrade project. The process safety upgrade focused on converting a flammable liquid handling process from an open system to a sealed system to exclude air and oxygen therefore greatly reducing the risk of fire and explosion.

People competence is a critical element for process safety, especially that of shop-floor employees. DSM China sites organized various types of training and workshops to enhance the knowledge and understanding of high-risk scenarios by shop-floor employees, emphasizing on the event sequence of important scenarios; connecting safety provision to respective scenarios, and explaining the acceptable and unacceptable status of safety provisions.

Employee Health Management

At DSM, we believe in a positive culture of health at work. This increases the intrinsic motivation of employees to make healthy, sustainable lifestyle choices. Our health management system is based on three pillars: prevention, primary care, and promotion. This is driven by our emphasis on a healthy and safe work environment, as all our employees deserve excellent working conditions.

For prevention, DSM has an extensive industrial hygiene program which addresses physical hazards, exposure to hazardous substances and ergonomics. Through the design of our processes and products, providing proper protective equipment, as well as training and workshop (discussion), we aim to prevent occupational illness.

Promotion of good health is continuously addressed through a wide range of health promotion activities. An example of promotion within our company is our Vitality@DSM program. Vitality@DSM is a voluntary program that helps employees track and assess their physical, social and mental well-being. We had 142 participants in 2018. 54.2% of the participants reported low lifestyle-related risks, 34.5% of the participants reported

moderate to high risks. Participants received customized advice to help improve their overall wellbeing, support early intervention before disease and maintain employability.

In 2018, we continued to promote the Global Corporate Challenge, a team-based approach to stimulate increased physical activities, improved nutrition, sleep and psychological well-being of our employees. Most of the participants in 2018 achieved the recommended daily levels for the physical effort of 10,000 steps per day. Through these efforts, DSM tries to reduce stress levels at home or work and an increase in productivity or concentration.

The sites in China also organized various activities in the Vitality Program to change lifestyle habits and improve the health performance for the employees.

Occupational Health Week at Jiangyin site

In April 2018, Jiangyin site organized occupational health week. Jiangyin site invited an external trainer to provide training on how to use and maintain the PPE including earplugs and respirators. Interactive and educational booths showing videos, posters, PPE, and tools helped to raise awareness of occupational health risks.



Occupational Health Week activity at Jiangyin site.

Vitality Program at China ANH sites

ANH sites organized various sports activities as part of the Vitality Program including a table tennis competition, badminton games, basketball match, and cycling tours.



Employees participating in the Vitality Program.

Engineering control at Jiangyin site

Significant ergonomics risks were identified through a Health Risk Assessment (HRA) for manual pallet trolley operator. In addition to providing ergonomics training and instruction in the proper way of handling a trolley in the SOP, the site replaced 8 manual pallet trolleys with electric trolleys to reduce inherent ergonomic risks.

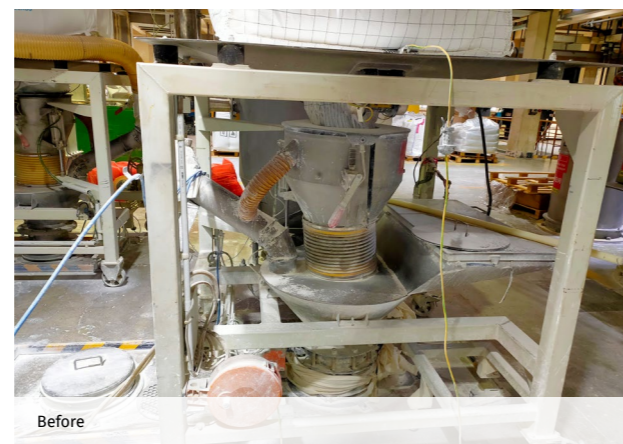


Before



After

Dust exposure is one of the major industrial hygiene concerns for manual dosing operations. Jiangyin site continuously identifies improvement opportunities to reduce dust exposure risks during manual dosing operations. In 2018, one mobile dosing station was upgraded to a fixed dosing station with an integrated dust extraction system. The new design decreased the dust cloud generated during dosing. This not only reduces employee dust exposure but also decreases the loss of raw material due to dust cloud generation during dosing.



Before



After

Employees

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.

Since 2015, we alternate every other year between the comprehensive version and what we call a “pulse” survey – a shorter version that still collects essential information about safety, engagement, inclusion and other key themes. The two-year cycle gives teams more time to make meaningful change.

The 2018 survey, which was a “full” survey, was sent to all DSM employees, and a total of 3,574 employees completed the questionnaire in China. The high participation rate (95%) contributes to revealing a comprehensive picture of what is working well and where we need to improve further.

In 2018, the Employee Engagement Index in China was at 74%, the same score as the year of 2017. Eighty-one percent of employees responded positively to the question “I am proud to work for DSM”.

Also, the Engagement Survey provides further essential information about our peoples’ view of how DSM is doing. This regards various aspects such as our strategy, working conditions, open communication, career development, sustainability, and inclusion & diversity.

Identifying and Developing Future Talent

China Young Talent Program

DSM’s China Young Talent Program aims to find, recruit and nurture young talents across China. The goal is to hire the best-fit Chinese graduates, and then support them to accelerate the growth of their professional skills and enrich their business knowledge. This way we are creating a healthy inflow of young talents into the DSM China talent pipeline. Recruits proceed through an 18-month learning & development journey, aiming to develop them to be skilled professionals when graduating from the program.

2018 has been the fifth year of the China Young Talent Program, during which 13 graduates joined us on various positions in several business groups, starting their professional life in DSM.

Talent mobility in the China operations community

China is one of the most important regions in the world for DSM, and it is unique in that all the company’s business groups have at least one manufacturing site. Therefore, DSM China as a whole provides a good platform for talent development. By nourishing a healthy and sustainable talent pipeline across business units we will continually improve our operational excellence in operations (OPS) across DSM China- Our talent pipeline consists of young recruits with the right mindset, knowledge, and skills to deliver the results required today and in the future.

To encourage talent mobility across business units, we formed the China Operations Board, led by Zhu Linyin, Head of China Operations & Responsible Care, joined by the Operations heads of each business group in China. The Regional Integrated Talent Development Lead for Asia also facilitates and provides consultancy from talent and organization perspective. They meet face-to-face quarterly to discuss potential talent exchange and development opportunities. Participants identify existing and potential job opportunities to be matched with talents inside and outside DSM; they explore challenging assignments for talents who need acceleration; they invite talents to share their personal story, discuss how to best enhance certain functional expertise collectively, and they explore “green chair” opportunities to acquire talents from external and accelerate their development until they take key positions. In general, the China Operations board is committed to hiring and developing young talents. It also invests in sponsorship for female talents.

Inclusion & Diversity

DSM’s Inclusion & Diversity activities focus on two main topics:

- Increasing representation of women and under-represented nationalities at the executive level and throughout our management pipeline to fuel innovation and growth in every country where we operate.
- Creating an inclusive work environment where each employee can contribute 100%.

In 2018, DSM China Women Inspired Network (WIN) continued to encourage women to pursue their career development, and to build up the culture of diversity and inclusion in the organization via internal and external networks.

Encouraged by WIN China, more than 500 DSM employees joined the “Impact in Workplace” survey initiated by Lean-in China and Deloitte China, aiming at understanding the leadership behaviors of Chinese professionals and their resulting impact across China.

Based on the result of the survey, WIN China organized a forum titled “Career Women, Embrace our choices” in the Shanghai Campus. External speakers were invited to share market trends for women’s career development based on data from the survey, and their thoughts and practices of being career women. In the panel discussion, female employees from different life stages had the chance to have a dialogue with top management to share their understanding of “Unconscious bias”, and how the company can help people grow further. Family members and friends of the employees were also invited to the forum, created an open and inclusive environment supporting employees.



Based on all the practices and achievements, DSM China won the “Women Leadership Innovation Award” held by Shanghai Daily.

Planet

We take our global environmental and social responsibilities very seriously. This extends beyond our operations to include those of our suppliers, customers, and end-users. We address our environmental responsibilities through our portfolio of Brighter Living Solutions, our Safety, Health & Environment (SHE) policy, and our position on issues such as product stewardship, industrial biotechnology, and biodiversity. We focus on improving our environmental footprint, enabling our customers to do the same, and advocating on our key environmental topics. Our Brighter Living Solutions – solutions that are better than the mainstream reference solution for people and/or the planet – account for 62% of our net sales.

Climate Change & Renewable Energy

In 2015, the Paris Agreement first established the urgent need to take action on greenhouse-gas (GHG) emissions to limit temperature increases to well below 2°C. In Strategy 2021, we revised our GHG emissions target to bring it in line with the Paris Agreement. Our new target, announced in 2018, is a 30% absolute reduction of our scope 1 + 2 emissions by 2030 versus our 2016 baseline. This is below a 2°C pathway.

We will achieve this target through a wide-ranging number of actions across all our operations, including:

1. renewable electricity: 50% of purchased electricity to be sourced from renewables by 2025, increasing to 75% by 2030; and
2. energy efficiency improvement: an average year-on-year improvement of at least 1% until 2030.

	Aspiration	Realization of DSM China 2018	Realization of DSM Global 2018
Greenhouse-Gas (GHG)			
GHG emissions scope 1 + 2 market-based (million tons)		0.4	1.2
GHG efficiency improvement (Baseline 2008)	40-45% (2008-2025)	36%	33%
Energy			
Primary energy use (PJ)		4.8	20.8
Energy efficiency improvement (Baseline 2015)	>1% annually (>10% in 2025)	-19.5%	5.1%
Electricity purchased from renewable sources	50% in 2025	0%	41%

In 2018, DSM China emitted a total of 0.4 million tons of CO₂ equivalent which was higher than the 0.19 million tons emitted in 2017. This is mainly due to the inclusion of newly acquired sites in China's environment reporting. DSM China's GHG efficiency improvement was 36% versus our 2008 baseline, 4% lower than 2017 (40%) mainly due to the integration of new sites and the change of product portfolio in DSM China. To move forward with the new GHG targets set in 2018, China sites such as Xinghuo site, Jiangshan site, Jiangyin site, Tongxiang site, and Chifeng site are defining their GHG reduction roadmap for 2030 to continuously reduce their GHG footprint.

DSM is a member of the Climate Group's RE100 – leading companies that have committed to sourcing 100% of their electricity from renewable sources at the earliest possible opportunity. Our commitment is to source 75% of our electricity from renewable sources by 2030, and 100% at the earliest possible time.

In 2018, DSM China sites had limited contribution to the renewable purchased electricity target. DSM is constructing a solar panel project which is scheduled for completion in November 2019 in Jiangyin site. Several other potential initiatives at other DSM's China sites are also under

investigation. Xinghuo site and Laiwu site are also looking at the opportunities of on-site solar and wind power generation projects. These initiatives will be integrated into site GHG reduction roadmap to further investigate the detailed feasibility in coming years.

Energy consumption

In 2018, we continued our energy efficiency improvement journey which is the most cost-effective way to reduce GHG emissions in our operations. DSM's energy efficiency program has a dedicated annual investment budget to support those projects that have a longer payback period than typical business projects. In 2018, DSM Global approved 8 energy-saving projects which are located in China.

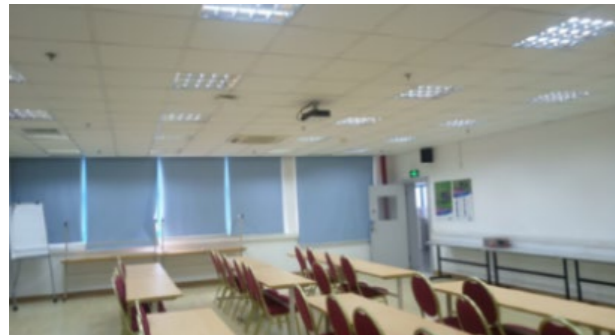
Due to product portfolio shifts towards more energy-intensive products at the DSM Nutritional Products sites in China and the integration of newly acquired sites in our environment reporting data, DSM's total annual energy consumption in China increased from 2.48 to 4.8 petajoules in 2018, while DSM China's energy efficiency was 19.5% lower compared to the baseline year 2015. To further improve the energy performance in DSM China sites,

energy-saving diagnosis had been implemented in several sites in 2018. During the diagnosis, potential opportunities were identified, and improvement plans were defined for the coming years.

In 2018, DSM China implemented several projects to reduce energy consumption or to increase energy efficiency.

LED replacement at DSM China sites

By replacing lighting bulbs to LED type in 18 sites in China in 2018, the expected saving in electricity consumption is 1GWH/year and correspondingly, GHG emission reduction of 700 tons/year.

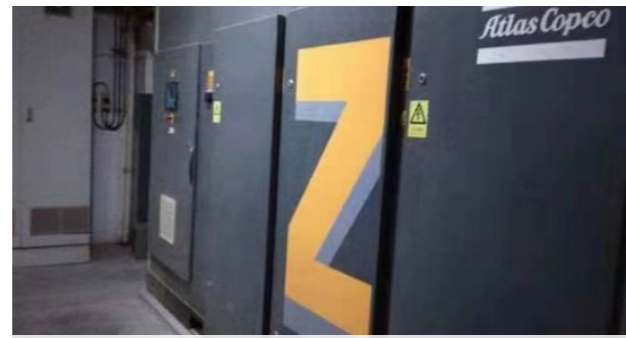


LED light bulbs installed in the training classroom at Xinghuo site.

Energy-saving projects at Tongxiang site

Tongxiang site installed a Variable Speed Driver (VSD) on the low-pressure air compressor and meanwhile optimized air distribution lines in the fermentation workshop. A 10.5%

reduction in electricity consumption after project completion is expected. External experts were invited to verify conditions of all the steam traps to identify further opportunities for reducing steam consumption.



Energy saving on the air compressor in Tongxiang site.

Energy-saving project at Pingtung site

A new thermal oil boiler was installed to replace the existing one in 2018 at Pingtung Site. After the replacement, the fuel consumption is expected to be reduced by 12.5% and total energy consumption to be reduced by 18.9%.



Before the replacement



After the replacement

	Aspiration	Realization of DSM China 2018	Realization of DSM Global 2018
Air emission efficiency improvement (Baseline 2015)	40% by 2020	94%	45%
Air emissions (kt)			
- VOC		2.9	4.9
- NO _x		0.09	0.5
- SO ₂		0.08	0.09

Other emissions to air include Volatile Organic Compounds (VOC), NO_x and SO₂. In 2018, DSM China emitted a total of 2.9kt of VOC, NO_x and SO₂. The amount increased from 980 tons in 2017 to 2.9kt because of the integration of newly acquired sites this year. Measured per unit of product, DSM China has managed to reduce its emissions to air by 94% in 2018 through our efforts to improve the efficiency of air emission abatement facilities. For example, a large project to reduce VOC emissions at our Jiangshan site was implemented during the second half of the year. This VOC treatment system targets an around 90% reduction in VOC emissions at this site.



Blue Sky project at Jiangshan site to reduce VOC emissions.

The sites in China contributed around 90% of total SO₂ emission of DSM global and it is mainly because of the use of coal-based boilers and heavy oil-based boilers to produce heat at these sites. We are always looking at alternatives to replace or reduce the use of coal-based and heavy oil-based boilers to reduce SO₂ emissions. In 2017 and 2018, two coal-based boilers were closed in succession at two DSM China sites which also reduced SO₂ and NO_x emission in 2018.

Resource Scarcity/Circular Economy

While valuable materials are leaking away from our economy, the Earth's resources are finite and there is a growing pressure on the availability of those resources. Meeting the needs of current and future generations in a

way that is sustainable for people and the planet requires moving away from a linear to a circular use of resources. That is why we are committed to securing the future availability of natural resources and unlocking more value from the limited resources available.

We are enabling the transition toward a circular & bio-based economy by:

- Reducing the use of critical resources over the value chain
- Replacing scarce, hazardous, and potentially harmful resources with safe and renewable alternatives
- Extending the lifetime of products with improved durability or shelf-life
- Designing for recyclability
- Recovering waste streams by viewing waste as a resource

	Aspiration	Realization of DSM China 2018	Realization of DSM Global 2018
Waste recycled	80-90% in 2020	91%	83%
Non-hazardous waste (kt)			
- Recovered		16	82
- Incineration (with and without heat recovery)		1.4	11
- Landfill		1.8	18
Hazardous waste (kt)			
- Recovered		0.7	45
- Incineration (with and without heat recovery)		6.8	34
- Landfill		0.02	3

At DSM, we aim to reduce the amount of waste produced at DSM and have set waste recycling targets. Our target is measured as the percentage of total waste recycled from the total waste created by normal operations or, if that is not possible, incinerated off-site with heat recovery. In 2018, 91% of DSM China's waste was either recycled or incinerated in this way.

Clean Plate Campaign and Waste Classification & Recycling Campaign

In 2018, "Clean Plate Campaign" and "Waste Classification & Recycling" were launched at DSM China sites to raise the awareness of waste recycling and classification and reduce the waste from daily operation. Through these 2 programs, we achieved 30% food waste reduction which translated roughly to a saving of 78 tons of food per year. The waste recycling rate has been increased by around 20% in 2018.



Garbage Bins made by recycled materials in DSM sites.



Sorting bins set up in DSM sites.

Water Security

Water is essential to life. It is also essential to the viability of our business, and we recognize that this precious resource will come under increasing pressure in the face of climate change and growing global demand. We are committed to measuring, tracking and continually improving our water stewardship as well as our position as

a global sustainability leader within the chemical sector. As part of this commitment, DSM is a signatory to the CEO Water Mandate, a UN Global Compact initiative that mobilizes business leaders to advance water stewardship, sanitation, and the SDGs, in partnership with governments, peer institutions, civil society, and others.

	Aspiration	Realization of DSM China 2018	Realization of DSM Global 2018
Sustainable Water Management			
Water risk assessments	90% in 2020	100%	100%
Water consumption (million m ³)		3.9	22
Water use (million m ³)		3.9	114
Emissions to water			
COD (kt)		0.15	2.2

We recognize water management as integral to our risk mitigation and environmental impact reduction strategies. We believe that water risks are local by nature and therefore focus on local water risk assessments and thorough follow-up of these. At the end of 2018, 100% of DSM China's material water sites had a valid water risk assessment in place. The main water risks identified were related to water quality, changing local regulations and limitations in local infrastructure. The mitigation plans and actions were defined in 2018. In total, 4 actions were defined by the end of 2018, of which 2 were closed during 2018 and the remaining actions will continue in 2019 and 2020.

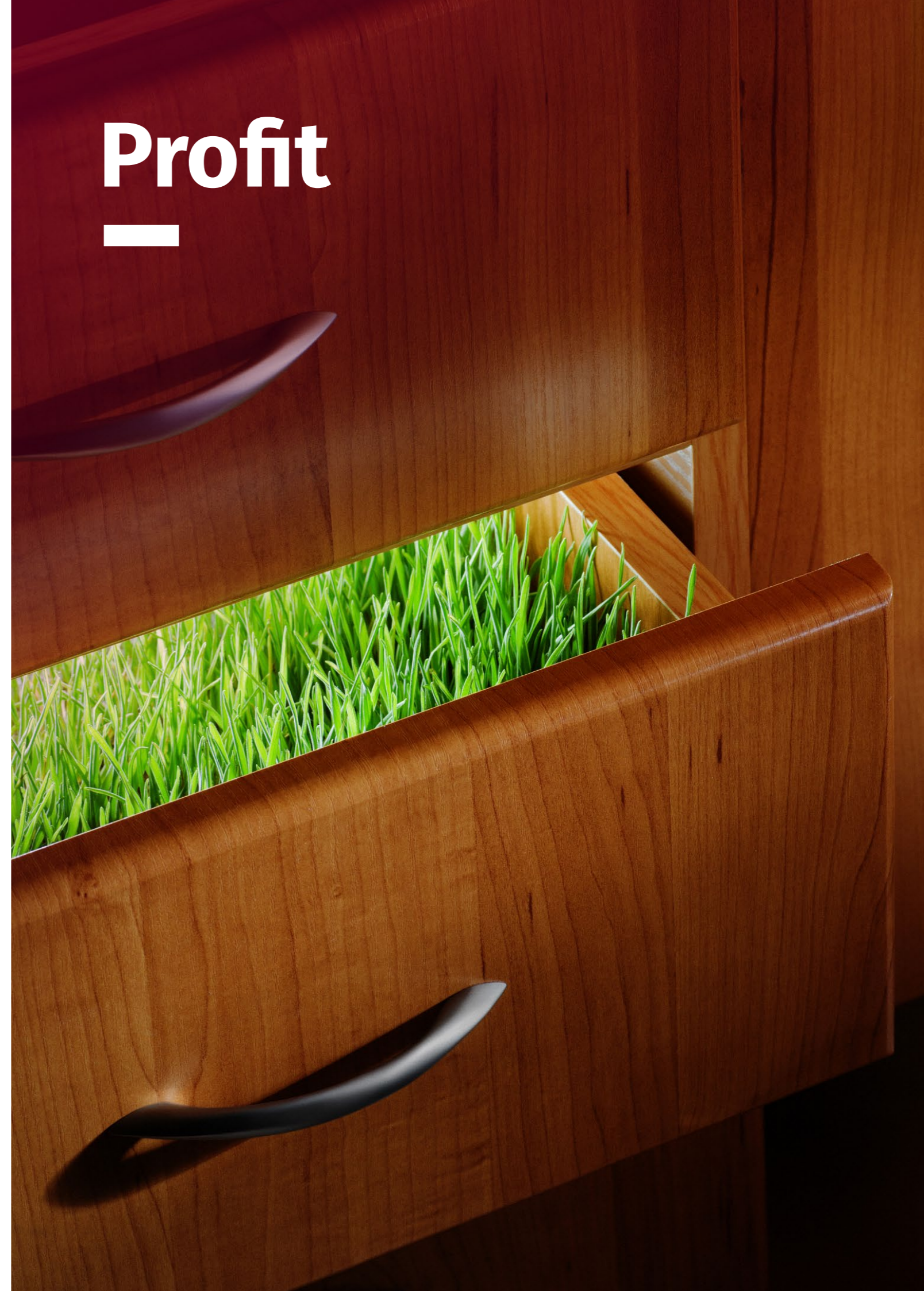
To further strengthen our water management in the coming years, a new corporate water management standard was

defined in line with the Alliance for the Water Stewardship Stand and the UN Global Compact CEO Water Mandate. This standard was launched in 2018 and will be implemented at sites in water-stressed areas as well as at material water sites.

Total water consumption by DSM China increased from 1.3 million m³ in 2017 to 3.9 million m³ in 2018, mainly due to the integration of newly acquired sites in our environmental reporting.

Total Chemical Oxygen Demand (COD) emissions from DSM China sites increased from 0.03kt in 2017 to 0.15kt in 2018, mainly because of the inclusion of the data from newly acquired sites. A COD reduction Capex project was completed by the end of 2018 at Jiangshan site, anticipating a reduction of 20-30% in overall COD discharge at this site in 2019.

Profit



In 2018, DSM achieved a slight growth in China. For its continuing operations, DSM's sales revenue in China reached RMB 9,398 million in 2017, up 3.5% from RMB 9,068 million in 2017.

In 2018, the nutrition business including both the Animal and Human Nutrition performed strongly, mainly benefiting from a temporary exceptional vitamin effect caused by supply disruptions in the industry and the increased prices that was supported by the effects of the 'Blue Skies' policies in China. In Food Specialties, general sales were lower compared to 2017 due to the deconsolidation of Yantai Andre Pectin, while good sales growth rates are kept in hydrocolloids, enzymes, and cultures. In Personal Care & Aroma Ingredients, all personal care product lines delivered good above-market growth.

In 2018, our Materials business reported 5% organic sales growth globally, driven by an increase of 2% in volumes and 3% in prices. In China, both DSM Engineering Plastics and DSM Resins & Functional materials delivered organic growth respectively.

DSM Innovation Center has multiple functions within DSM, including accelerating the innovation power of our core businesses and extracting value from our Emerging Business Areas (EBAs). In 2018, DSM Hydrocolloids Innovation Center was officially put into use in Tongxiang. DSM Advanced Solar reported slightly lower volumes resulting from a slowdown in demand for solar panels following a policy change by the Chinese government to reduce the number of subsidized solar parks to be installed. DSM Advanced Solar introduced a new generation of solar backsheets which is being well received by the market.

In 2018, DSM China continued to deliver on its aspired above-market growth ambition through further leveraging its unique global products and local solutions business model, supported by marketing and sales excellence and customer-led innovation. In December 2018, DSM signed a strategic Cooperation Framework Agreement with the New Hope Liuhe Group, a pastoral food company in China. By extending collaboration to corporate governance and common innovation, New Hope Liuhe and DSM will develop more industrial solutions while continuing to provide sustainable products for the Chinese market and eventually, to promote the development of the animal husbandry industry in China.

Stakeholder Engagement



DSM works with stakeholders that operate within our value chain, such as customers, employees and suppliers, as well as stakeholders outside our value chain including investors, governments and civil society. We have regular open discussions about topics that are relevant to our operations and our impact on society. These conversations shape how we execute our strategy, including risk management, materiality and new business opportunities. The needs and values of our stakeholders must be balanced with our own objectives.

Engagement with International Society

Participating in The World Economic Forum

The World Economic Forum's Annual Meeting took place in Davos, Switzerland on 23-26 January 2018. With a theme of "Creating a Shared Future in a Fractured World", the meeting aimed to reiterate the meaning of international collaboration while intensifying competition in geostrategies among countries, and resolve the mutual challenges we are facing such as international safety, environmental protection, and global economy, in the era of intensifying social relations and international competition.

In the exclusive interview by China Central Television (CCTV) and China Daily, Mr. Feike Sijbesma, CEO and Chairman of Royal DSM stated that China has formed a unique development track of its economy and society, and has become the second biggest economic entity in the world after 40 years of reform and development. China has been undertaking more and more responsibility for the world in the past few years.

Mr. Sijbesma mentioned that DSM is enhancing the collaboration with China and participating in the Belt and Road Initiative by developing DSM's innovation and globalization strategy. Based on connecting multiple competitiveness, DSM will create a vital link for all. China is determined to maintain its economic growth and the mode of China's economic development has changed from a manufacturing economy to the innovation and service industry, which leads its people to mutual prosperity and development.

"Through these measures, being a world leader, China will contribute more to a better world." Mr. Sijbesma said, "the significance of China in global politics, economic and cultural development has been increasing rapidly in the past year."



DSM CEO's interview by China Central Television during the World Economic Forum.

Engagement with Universities

DSM CEO visited China to share his views on sustainable development

DSM CEO Feike Sijbesma visited China in Beijing on September 4-5. In these two days, he had meetings with China special representative for climate change affairs, the officials of the Ministry of Ecology and Environment, Environment and Energy Exchange to share his views on climate change, carbon trading and carbon pricing. He also visited Center for China and Globalization, Tsinghua University and China Enterprise Confederation with topics on the impact of trade friction and tariff, talent cultivation, promote green and low carbon development with enterprises alignment.

Mr. Sijbesma also had meetings with Sinochem and ChemChina to discuss further opportunities to collaborate. He participated in an interview by CGTN and joined the town hall meeting with employees from Beijing, Shanghai, and Bazhou to have a direct dialogue with employees and answer questions regarding DSM new Strategy 2021.



DSM CEO visiting Tsinghua University.

Engagement with Academies

DSM Youth Scholarship Awards

In recognition of the outstanding contributions to the field of pig nutrition during his doctoral research on studying the high-efficiency application of sorghum as a raw material for pig energy, DSM presented Dr. Pan Long the "Young Scholars Award of 2018 for Animal Nutrition Science" on October 19, 2018. The award is set up by DSM and Animal Nutrition Branch of Chinese Association of Animal Science and Veterinary Medicine to motivate doctoral candidates in the field of animal nutrition.



Thanks to DSM for providing this platform. It not only enables communication among elitist in animal nutrition but also offers me an opportunity to grow further in this field.

Dr. Pan Long from China Agriculture University

This award aligns scientific achievements and market needs. It is very exciting to see corporates like DSM who strive to develop young talents in fields significantly important to the world's sustainable development and contribute to the development of society.

Zhu Weiyun, Vice Chairman of Animal Nutrition Branch of Chinese Association of Animal Science and Veterinary Medicine



Awarding Ceremony of the DSM Youth Scholarship Awards.

Engagement with Consumers

Conducting consumer education activities

DSM strives to provide solutions on skin protection and reduce the incidents of skin damage/disease from a high level of UV radiation by maximizing the life-saving potential of sun protection products. We launched our global project "Safer Under the Sun" in 2018 and organized a consumer education event in July on a beach in Sanya, China. While distributing cartoon books about UV lights protection and sun protection to children and consumers there, we also acquired a better understanding of consumers' preferences on sunscreen product selection and perspectives in sun protection. The event won the Corporate Responsibility Award set up by the China Association of Fragrance Flavor and Cosmetic Industries (CAFFCI).

Engagement with Local Communities

Carrying out sustainable community activities

The DSM Xinghuo site, in Shanghai, made big efforts in the past two years to intensify the communication with residents living close to the site. With increasing awareness and concerns about air quality and the health implications, residents have become more vocal in their concerns about the chemical industry. Via an open day (June 2018) and continuous talks with

local leaders and resident committees, the DSM Xinghuo site shares information and addresses worries from its neighbors. This has increased the understanding significantly and reduced complaints in the area.

Besides open communication, the Xinghuo site has a long history of corporate social responsibility activities. The site sponsors activities of the local community center and participates in the Fengxian Dream Activities. Site representatives have also engaged in waste collection and cleaning up green areas in the nearby village.

Engagement with Young Talents

One Young World Program

DSM had become an active partner of "One Young World Program (OYWP)" by developed a "Young Leadership Program (YLP)" internally since 2010. The YLP mainly engages and supports the young professionals who have the passion and insights in sustainability for their participation in the OYWP. These young professionals have been acting as the "drops" to ripple the pond and "Sustainability Ambassadors" to support the sustainability relevant activities/projects in the daily work. Until 2018 there are over 10 "Sustainability Ambassadors" from DSM various departments in China.

Engagement with Social Parties on Education

Operation "Rainbow"

On 2018 International Children's Day, ten DSM volunteers (also called "Rainbow Ambassadors") visited DSM hope schools in Gansu and Sichuan province separately. They visited 12 students in poverty and provided them with school bags, stationery, books, and shoes. A total number of 600 summer school uniforms were donated to the students so they could wear new clothing on their holidays. A total number of 15 water dispensers to address drinking-water hygiene were also donated to the students. These volunteers also prepared lectures on sports, English, science lab lessons, fun games, and a presentation to introduce the Netherlands to the students.

The "Rainbow Ambassadors" have been deeply engaged in DSM's charity program and were deeply touched themselves by how the charity can help the beneficiaries. They believe such events are extremely meaningful and encourage more people to join them.



Local residents participating in Operation "Rainbow".

Engagement with Social Parties on Poverty Alleviation

DSM received the Love Donation Award from the China Poverty Alleviation Foundation

On November 15, 2018, DSM received the award for outstanding contribution to China Foundation for Poverty Alleviation (CFPA)'s "Student Nutrition Meal Project" in the previous year. DSM's annual charity event attracts more than 2,000 employees to raise donations to address malnutrition and hunger issue every year. Ten years accumulatively from 2008, the "Student Nutrition Meal Project" received 310 million RMB, the project has provided nearly 51 million nutritious meals for students in 46 cities (prefectures) and 96 remote counties (districts) in 14 provinces, including Yunnan, Guizhou, Sichuan and Xinjiang, equipped with 1,748 standardized loving kitchens.



The annual party of CFPA's "Student Nutrition Meal Project".

Engagement with Multi-stakeholders

Addressing "hidden hunger"

DSM is actively working with government agencies, NGOs, and the private sector to provide sustainable nutrition supplies for undernourished people. We participated in a series of nutrition packages intervention programs such as the "Infant and Early Childhood Anemia Elimination" program jointly launched by the All-China Women's Federation, the Ministry of Health, and the China Children and Teenagers Fund. The program donates "nutrition packages" that contain necessary nutritional supplements for early childhood growth to improve the health status of infants and young children in key rural poverty-stricken areas. The program was launched in the key poverty-stricken counties in the 11 provinces and would eventually cover about 7.86 million infants and young children in 592 counties.



The start-up of DSM's "Bright Experience -- The Power of Walking".

DSM also launched the flour-enhancement program and participated in the pilot program of flour-enhancement for reforestation areas in West China and the rice-enhancement program for schools for the children of migrant workers.



The event of DSM's "Bright Experience -- The Power of Walking".

DSM has been working closely with the World Food Program (WFP) to launch a global charity program named "Bright Experience" since 2007. In China, donations from this campaign will go to WFP's pre-school children nutrition program and CFPA's student nutrition meal project. "Bright Experience" 2018 event was held across 17 cities in China with more than 2,000 DSM employees and their family's participation.

Recognition and Awards



Listed in Fortune Magazine's annual Change the World list for the third consecutive year.



Assessed as an ESG (Environmental, Social and Governance) leader within the chemicals industry, ranking number 1 out of 135 companies.



Maintained an AA rating from MSCI. MSCI highlighted DSM's Corporate Governance as a strength in the company's performance.



Confirmed as a constituent of the FTSE4Good Index. We have held a position on this list since 2004.



Named among the world leaders in the Materials industry group in the Dow Jones Sustainability World Index in recognition of the company's consistent and longstanding commitment to sustainability. DSM has been among the global leaders for the past 15 years and number one in the sector eight times.



2017-2018 Most Respected Companies in China



2018 Best Female Leadership Companies in China

Women Leadership Innovation Award



The Love Donation Award

What Still Went Wrong in 2018

Through our dedicated efforts over the past year, DSM has made great strides in our operation. Nevertheless, it is inevitable that sometimes things still go wrong.

Preventing repeat problems means understanding each incident to the best of our ability. When a problem occurs, DSM first tries to repair any damage, to take care of injuries and to act with compassion.

In line with our reporting policy, this chapter includes incidents and some serious near-misses of 2018 across all three dimensions of People, Planet and Profit. Near-misses are cases that did not result in any injury, illness or damage but could have done so. Even when a crisis is averted, it is our responsibility to learn and do better.

DSM does not disclose any personal details in cases involving individuals.

People

The following incidents occurred at various sites in China in 2018.

Incident involving falls

- An operator slipped and fell on the conveying belt, then to the ground. His head hit the sharp edge of the steel cover next to the conveying belt causing a cut wound near the edge of the helmet above the ear. He also suffered several fracture injuries to the ribs and vertebrae.

Incidents involving machine and hand safety

- All five fingers of an operator's left hand were severed by a rotating part when he opened the cover of a rotating valve and tried to remove a blockage by hand.
- An operator's right arm was caught by a moving roller and broken while trying to remove an insect from a product which was moving on the roller.
- Three fingers of one operator were pinched by a roller when the operator was trying to remove debris on a running roller by hand. Two of the three fingers suffered from bone fractures.

Other safety incidents

- The right eye of an operator was splashed with chemicals when he was performing a sampling operation without wearing safety goggles. He was sent to a hospital for further checking after emergency shower on site. He returned to work after treatment by a doctor.

Health incidents

- 15 employees at a site DSM China newly acquired indicated that they were suffering from hearing loss. These cases have been thoroughly investigated and improvement actions were defined to reduce noise level and to improve the working condition of these employees.
- One case that was reported at one DSM China site in 2018 was related to heat stroke at the workplace in a construction project. This employee was sent immediately to the hospital and was given proper medical treatment timely and fortunately, he recovered quickly and was able to return to work the following day. After this incident, several improvement actions were executed, and preventive measures were defined in SOP to avoid this kind of case happen again.

Planet

- At one DSM China site, untreated wastewater leaked from wastewater piping. Once discovered, the site immediately stopped the process of wastewater's drainage to this collection piping and the piping was repaired. The contaminated soil was analyzed and collected and cleared off.
- Due to forgetting to close a valve in time during a clean task of a workshop, around 19 tons of 65% ethanol leaked into a site's internal wastewater treatment plant (WWTP) which led to a shock load to WWTP and the performance deteriorated. Production was reduced for several days to let the WWTP handle this emergency case.
- One site was disciplined as "Fail to Mark Hazardous Waste" by the local authority for using nonstandard sign on the hazardous waste. After receiving the notice, the site has taken immediate corrective actions and quickly replaced the signs as required.

Explanations of Some Concepts and Ratios

People

Frequency Index (FI)

Frequency Index is a way to measure 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: $LWC\text{-rate} = 100 * (\text{number of LWCs (past 12 months)} / \text{average effective manpower (past 12 months)})$.

PSI rate

The PSI rate is the number of Process Safety Incidents per 100 DSM employees and contractor employees in the past 12 months: $PSI\text{ rate} = 100 * (\text{number of PSIs (past 12 months)} / \text{average effective manpower including contractor employees (past 12 months)})$.

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: $REC\text{-rate} = 100 * (\text{number of RECs (past 12 months)} / \text{average effective manpower including contractor employees (past 12 months)})$.

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.

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.

Brighter Living Solutions

Brighter Living Solutions (BLS) are products and services that, when considered over the product life cycle, offer an environmental benefit (ECO+) and/or a social benefit (People+) compared to mainstream reference solutions.

ECO+ qualifications are made based on comparative Eco Life Cycle Assessment (LCA). DSM is using the standard approach to evaluate environmental footprint as published by the WBCSD Chemical sector in 2014. Qualifications are also made based on documented expert opinion by business managers or relevant internal experts based on identified mainstream reference solutions and identified environmental differentiators.

The People+ qualifications are made based on DSM People LCA method or expert opinions, similar as for ECO+. The People LCA method helps to identify the social impacts of products on the dimensions of health, comfort and well-being, working conditions, and community development. It is a methodology developed by DSM based on internal standards and external stakeholder dialogues.

More information and definitions can be found on the company website.

Carbon footprint

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

Circular economy

Circular economy refers to a restorative economy 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.

Chemical Oxygen Demand (COD)

COD is an indicator of the degree of pollution of wastewater by organic substances.

Eco-efficiency

Eco-efficiency is a concept (created in 1992 by WBCSD) that refers to the creation of more goods and services while using fewer 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)

Greenhouse Scope 1: Direct GHG emissions: Direct GHG emissions occur from sources that are owned or controlled by the company (i.e. emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.).

Scope 2: Indirect GHG emissions: Indirect GHG emissions related to the generation of purchased energy (i.e. electricity, heat or cooling) consumed by the company. Purchased energy is defined as energy that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where the energy is generated. e-gas emissions (GHGE)

Scope 3: Value chain emissions: Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

Location-based emissions: Reflects the average GHG emissions intensity of grids on which electricity consumption occurs (using mostly national grid-average emission factor data). Corresponding emission factor: in most cases, the country emission factor.

Market-based emissions: Reflects GHG emissions from electricity supplies that companies have purposely chosen (or their lack of choice) and contracted. Corresponding emission factors: 1) supplier-specific emission factor (provided by the supplier); 2) residual emission factor (country-based grid factor, corrected for allocated purchased electricity from renewable resources).

Greenhouse-gas emissions (GHGE) efficiency improvement

The GHGE efficiency improvement is the amount of GHG emissions per unit of output (specific emissions) in a given year compared to the specific emissions in the prior year. GHGE efficiency improvements are one of the ratios in the Long-Term Incentive part of the Managing Board remuneration and relate to three years.

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LCA

Life Cycle Assessment (LCA) identifies the material, energy and waste flow 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. Many different environmental impact categories 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 Program. 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.

Levelized Cost of Energy (LCOE)

LCOE is a figure used to compare the average cost of energy coming from different sources. It measures the cost of energy production over the lifetime of an asset like a photovoltaic panel.

N

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

N₂O

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

NO_x

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

Renewable resources

A natural resource which is replenished by natural processes at a 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 hydroelectricity as well as fuels derived from organic matter (bio-based fuels).

SO₂

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

Adjusted net operating free cash flow

The cash flow from operating activities, corrected for the cash flow of the APM adjustments, minus the cash flow of Capital expenditures and drawing rights.

Capital employed

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

Capital expenditure

This includes all investments in intangible assets and property, plant and equipment.

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

EBITDA is the 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.

High-growth economies

High-growth economies relate to the following regions: Latin America, Middle East, Asia (excluding Japan) and Eastern Europe.

Innovation sales

Innovation sales are defined as sales from products and applications that have been introduced in the last five years.

Organic sales growth

Organic sales growth is the total impact of volume and price/mix. Impact of acquisitions and divestments, as well as currency impact, are excluded.

Return on capital employed (ROCE)

Operating profit as a percentage of weighted average capital employed.

Temporary vitamin effect

DSM's best estimate of the effect on sales and Adjusted EBITDA of the exceptional supply disruptions in the industry that started toward the end of 2017 and ended in the third quarter of 2018, including derived measurements.

Underlying business

Sales and Adjusted EBITDA (including derived measurements), corrected for DSM's best estimate of the temporary vitamin effect.

Working capital

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



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