Editorial Policy

The Denka Report 2018 printed brochure is the first integrated report issued by Denka Company Limited. The issuance of this report is intended to provide our stakeholders, including shareholders and investors, with a robust communication tool that focuses on conveying what we have been doing to create new value over the medium to long term from the viewpoint of addressing environmental, social and governance (ESG) issues.

Along with the aforementioned printed brochure, we have also compiled the Denka Report 2018 PDF edition, an expanded version encompassing various updates on typical CSR-related topics and Denka’s environmental performance. We have also decided to update the status of CSR activities undertaken by individual business sites by creating dedicated pages on our corporate website (http://www.denka.co.jp/eng/sustainability/) in place of the former Site Reports. This move is aimed at enhancing the quantity and quality of relevant information being communicated to our stakeholders.

Coverage

Fiscal 2017 (April 1 2017 through March 31, 2018) in principle; this report includes additional information on some initiatives undertaken subsequent to the fiscal 2017 year-end while presenting data on numerical targets for and performance statistics from the past several fiscal years.

Date of publication: November 8, 2018

Scope

In general, this report encompasses topics on the Denka Group’s business sites within the scope of consolidation. However, some articles are based on data gleaned outside the scope of consolidation. These articles individually specify the organizations subject to reporting.

Guidelines

• The GRI Standards of the Global Reporting Initiative (GRI)
• The Environmental Reporting Guidelines 2012 of Japan’s Ministry of the Environment
• The International Integrated Reporting Framework of the International Integrated Reporting Council (IIRC)

Note: The GRI Content Index is posted on the CSR Section of Denka’s corporate website.

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Overview of the Denka Report 2018 and Other Supplementary Reporting Tools

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<th>Financial information</th>
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<tr>
<td>Targeting a broad range of stakeholders, this edition comprehensively features updates on typical CSR-related topics and the performance data of Denka’s ESG-related initiatives to supplement the Denka Report 2018 printed brochure (integrated report).</td>
<td>We update reporting on relevant activities and detailed data that has not been included in the aforementioned editions.</td>
</tr>
<tr>
<td>Denka Report 2018 PDF edition (expanded version)</td>
<td>Information on CSR activities (website)</td>
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The printed brochure is aimed at providing our stakeholders, including shareholders and investors, with a robust communication tool that focuses on conveying what we have been doing to create new value over the medium to long term from the viewpoint of addressing ESG issues.

Website: http://www.denka.co.jp/eng/
The Denka Value, a Corporate Philosophy Reflected in Denka’s Future-Thinking Business Approach

Marking the celebration of its centennial in 2015, Denka established The Denka Value, a new corporate philosophy that serves as the foundation for all of its business activities. I have always believed that the ultimate goal of a corporation must be something nobler than the pursuit of numerical targets and performance. No corporate citizen is exempt from its social responsibilities, responsibilities related to environmental preservation and the well-being of the communities in which it operates. Fulfilling these responsibilities is as essential as accomplishing robust corporate performance. A corporation’s business and social missions are equally important and are inextricably linked. The Denka Value, our new corporate philosophy, is designed to encapsulate the thoughts described above.

Guided by this philosophy, we are striving to always be sincere in our dealings while decisively taking on the challenges that come our way in the course of business activities. At the same time, we constantly strive to understand the stakeholder perspective in order to secure the soundness and transparency of our corporate management.

The Denka Mission

*Taking on the challenge of expanding the possibilities of chemistry to create new value and contribute to sound social development."

For 100 years, the Denka Group has been in the vanguard of the chemical industry’s development while simultaneously expanding its network into regions around the world. Throughout the course of its history, Denka has maintained a corporate culture that encourages the pursuit of challenging goals. Such pursuit is our raison d’être. Denka believes that its corporate activities centered on manufacturing must help facilitate the sound development of society. The Denka Mission has thus been identified to summarize these long-cherished concepts that underlie our manufacturing operations, which can be traced back to Dr. Tsuneichi Fujiyama, one of Denka’s founders (see also page 5) and have been passed down by successive predecessors to the present generation. Over the passage of time, we may shift the area of our focus or grow into a significantly larger company. However, our commitment to creating new value via manufacturing will remain unchanged. That is why we recognize a future-thinking business approach as Denka’s core value. We will thus remain courageous as we seek to tap into new business fields while steadfastly focusing on enhancing our strengths in our area of specialty.

We:

- Boldly confront challenges with determination and sincerity.
- Think and take action today with the future in mind.
- Deliver new values, and inspire customers through innovative monozukuri.*
- Respect the environment and create a cheerful workplace that prioritizes safety.
- Contribute to a better society, while taking pride in being a trusted corporate citizen.

* Japanese-style craftsmanship
Trajectory of Denka’s Growth

—Taking on the Challenge of Expanding the Possibilities of Chemistry for More than a Century

Ever since its founding, Denka has created a wealth of products via the application of calcium carbide production technologies and pursued the ultimate in Monozukuri (Japanese-style craftsmanship) while changing its output in response to the needs of the times.

Made an entry into the pharmaceutical field

Dr. Tsunehi Fujiyama became the first in Japan to successfully manufacture calcium carbide, at a plant in Sanyosawa, outside the city of Sendai. This was only about ten years after the world’s first trial production of calcium carbide by a Canadian chemist. He was also the first to introduce technology for the manufacture of calcium cyanide (nitrogenous limstone) from calcium carbide into Japan. He developed a steady stream of creating new technologies, and opened the Hokkaido Carbid Plant in the city of Tomakomai, Hokkaido, in 1912. His achievements had a tremendous influence on the subsequent growth of Japan’s chemical industry.

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1915

Made an entry into the fine ceramics field

The company initiated the production and sale of boron nitride (BN) by applying the spinning technology it had accumulated through calcium carbide and calcium cyanamide manufacturing. The company also developed various fine ceramics materials thereafter.

1969

Launched the Living & Environment Products business

Having absorbed TOYO KAGAKU Co., Ltd., which was established in 1949, the company has introduced a line of unique products designed to help enhance people’s well-being and preserve the global environment.

1979

Launched the production of high-performance adhesives

Application of high-temperature control technologies as well as findings from nitride research

1983

Launched BOPS sheet production

Application of findings from organic fine material research in the biotechnology field

1989

Launched spherical fused silica filter production

Technologies to combine multiple different materials

1996

Launched the production of macromolecular sodium halogenate preparation

2003

Launched polymer and processing technologies

2009

Entered the phosphor business

2017

Launched the Living & Environment Products business

2015

Centennial of Denka’s founding

Rebranded to “Denka Company Limited”

Life Innovation Products

Building on our strength in disease prevention and early diagnosis, we are striving to tap into new fields, such as cancer drugs and addiction-related information services.

Electronics & Innovative Products

We are supporting the advancement of electronics by bringing together our fine ceramics technologies and organic fine material technologies.

Infrastructure & Social Solutions

We are pursuing technological breakthroughs in such fields as infrastructural technology to deliver solutions that help improve urban infrastructure and enhance people’s living conditions.

Healthcare

We have been active in the biotechnology field for nearly 70 years, leveraging Denka Seiken’s forward-looking R&D approach and unique technologies, including those associated with antigen and antibody reaction. These strengths, in turn, have helped us create epoch-making pharmaceutical products, such as vaccines and diagnostic reagents.

Elastomers & Performance Plastics

We are leveraging highly sophisticated resin processing technologies to provide a variety of products that help support increasingly diverse lifestyles and help people enjoy affluent living.

High-value-added infrastructure

Our special cement additive business began with the release of DENKA CSA in 1967. Since then, we have been serving customers at home and abroad to meet needs for expansive additives, quick-setting agents, high-strength materials and other cutting-edge solutions in construction and civil engineering fields.

Three Specialty Businesses

The environment and energy

Our research into high-temperature control and nitride technologies led to the creation of fine ceramics that, in turn, helped us develop an array of unique solutions in the field of electronic materials, including insulation as well as thermally and electrically conductive and heat-resistant materials.

Looking ahead, we will strive to help enhance people’s quality of life and, to this end, deliver solutions to counter infectious diseases and lifestyle diseases while providing cancer drugs and cancer remedy information services.

Today, our products are used for a broad range of applications, such as automobiles, cameras, devices and mobile devices, to help achieve innovation in terms of energy-saving, miniaturization, weight reduction and functional upgrading.

In addition to helping reduce environmental burdens, we are taking on a number of projects, such as the development of infrastructure, the repair of aged concrete structures, and the strengthening of building durability, in Asia and members in the world.

Denka 100

Developed original foundation for the future, providing management insights on growth basis.

Denka Value-Up

To become a specialty-fusion company.

Elastomers & Performance Plastics

Chloroprene rubber

Styrene-monomer

Polybutadiene resin

AB resin

Heat-resistant and transparent resin SBR resin

Rain gutters

Vinyl listas

Polystyrene

Packaging tapes

DENKA DiFilm

Food packaging materials

Camont Special cement admixtures

Carboni在未来，我们将致力于提高生活品质，为人们的生活质量提供持续的支持。我们的产品广泛应用于汽车、相机、电子设备等领域，帮助在能源节省、微型化、重量减轻和功能升级等方面实现创新。

在帮助减少环境负担的同时，我们正在开展一系列项目，例如基础设施的维护、老化混凝土结构的修复和建筑耐久性的加强，以提高建筑的使用寿命。

Denka 100

为未来奠定基础，提供管理洞察，助力成长。

Denka Value-Up

成为融合特色的企业。
Denka's Latest Products and Solutions

Our products are used in various ways to support day-to-day living while contributing to the sound development of society.

### Healthcare (Life Innovation Products)

- **Medical inspection and healthcare institutions**
  - Virological diagnostic reagents
  - Lifestyle disease diagnostic reagents
  - Reagents for measuring LDL-C to determine heart disease risk

- **Hospitals and clinics**
  - Influenza HA vaccines
  - Joint function improvers (Macromolecular sodium hyaluronate preparation)

### The Environment and Energy (Electronics & Innovative Products, etc.)

- **Lithium ion secondary batteries**
  - Ultra-pure acetylene black
  - Rubber hoses, belts and air suspension systems

- **LED lights and televisions**
  - DENKA HITTPLATE thermally conductive insulated metal substrates
  - Thermally conductive sheets
  - Phosphors

- **PCs and smartphones**
  - Semiconductor encapsulant fillers
  - Thermally conductive sheets and spacers
  - Dicing tapes and electronic packaging materials

### High-Value-Added Infrastructure (Infrastructure & Social Solutions)

- **Concrete and other structures**
  - DENKA PRETASCON nonshrink grouting materials
  - The Denka Rising Method used for the repair of steel-reinforced concrete
  - TEFKA fluorine-based films for membrane structure construction

- **Buildings and condominiums**
  - CO2-SUICOM eco-friendly concrete
  - EIEN prolonging the lives of concrete buildings

- **Tunnels**
  - DENKA NATMIC quick-setting agent for shotcrete
  - HARDLOC II adhesive used for the repair of concrete cracking

- **Hydroelectric power plant conduits**
  - DENKA Σ80N ultrahigh-strength concrete

### Other Key Operations

- **Elastomers**
- **Styrene monomer**
- **Polymer processing products (rain gutters and industrial tapes)**
- **Cement**
- **Calcium carbide-related products**
- **Fertilizers**

The above featured exemplars of Denka’s lineup provide a glimpse of the variety of its products and their breadth of application.
A Message from the President

Pursuing "Denka Value-Up," a Management Plan Aimed at Creating a Specialty-Fusion Company

Manabu Yamamoto
Representative Director, President & CEO
Denka Company Limited

In April 2018, Denka launched "Denka Value-Up," a new management plan spanning a five-year period. This plan is intended to help us acquire outstanding competitiveness in the global market and enhance our resilience to changes in the operating environment. Through the implementation of this plan, we also aim to become an even stronger company backed by a robust portfolio of specialty businesses and products along with technological strengths and human resource capabilities. In these ways, we will realize The Denka Value, our corporate philosophy. Here, I will review the outcomes of Denka100, our previous management plan, while also providing an outline of the new management plan.

1. Review of the Outcomes of Denka100

1.1 Major accomplishments
We have assiduously engaged in initiatives centered on three growth strategies designed to "Create the most optimal production system," "Scrutinize every cost element," and "Focus management resources on new growth drivers and develop next-generation products." To create the most optimal production system, we have expanded our network of overseas production and R&D bases while increasing the number of overseas production items. This move was also intended to aid us in securing greater market share outside Japan. Thanks to these efforts, we were able to raise the ratio of overseas sales to net sales. We also strove to scrutinize every cost element, an effort that allowed us to achieve our fiscal 2017 cost reduction target of ¥100 billion well ahead of schedule in 2016. Having focused our management resources on new growth drivers and the development of next-generation products, we have succeeded in increasing operating income from our operations in growth fields, namely, healthcare, the environment and energy, and infrastructure, from ¥12.9 billion in fiscal 2013 to ¥16.7 billion in fiscal 2017. Today, operating income from these operations accounts for around half of Denka's consolidated operating income. As a result, the Company's EBITDA over the course of five years from fiscal 2013 to 2017 topped ¥250 billion. This represents an increase of approximately ¥50 billion compared with EBITDA in the preceding five years, attesting to the success of our efforts to improve cash-generating capabilities.

1.2 Challenges that must be addressed going forward
Although Denka has been steadily expanding its operations in growth fields, the pace of expansion is still lagging behind expectations. Moreover, the profitability of our key operations is vulnerable to external conditions. Accordingly, we need to enhance the value of these operations via specialization and the provision of more sophisticated solutions. In addition, Denka has much to do to enhance its resilience to changes in the operating environment. We are therefore aware of the importance of process reforms. Moreover, we must push ahead with work style reforms to improve the well-being of employees, our most important stakeholder group. To this end, we will endeavor to help each strike an optimal work-life balance while promoting diversity.

2. Outline of Denka Value-Up

To address these issues, in April 2018 we launched "Denka Value-Up," a new management plan that aims to help us become a "Specialty-Fusion Company" backed by a robust portfolio of businesses and products along with technological strengths and human resource capabilities. In these ways, we will realize The Denka Value, our corporate philosophy.

2.1 Our Threefold Growth Vision
We have established a new growth vision that takes over our previous strategies under the Denka100 management plan. First, this vision specifies a "Specialty-Fusion Company" as our foremost ideal, reflecting our belief that the pursuit of specialization is an essential condition for the survival.

2.2 Our Growth Strategies
In line with the Denka Value-Up management plan, we are pursuing two growth strategies.

- Innovation and M&A while incorporating cutting-edge facilities. Above all, we are acutely aware of the importance of human resource development. We will pursue the specialization of businesses, products, technologies and human resources. Under the Denka Value-Up management plan, we aim to raise the ratio of specialty businesses to 90% of our entire business portfolio by the end of fiscal 2022 (based on the operating income ratio).

- Of course, we also know that needs reflect the times and are always evolving. Accordingly, we must stay ahead of trends and deliver a constant stream of new specialty products, rather than rely on a fixed portfolio of products that only temporarily meet needs. To this end, we are determined to engage in ongoing efforts to create new technologies via open innovation and M&A while incorporating cutting-edge facilities. Above all, we are acutely aware of the importance of human resource development. We will pursue the specialization of businesses, products, technologies and human resources. Under the Denka Value-Up management plan, we aim to raise the ratio of specialty businesses to 90% of our entire business portfolio by the end of fiscal 2022 (based on the operating income ratio).

- Second, we will strive to enhance our capabilities to achieve "Sustained Growth." This requires the enhancement of productivity via the introduction of innovative processes. Therefore, we will carry out process reforms in every aspect of our operations ranging from R&D, production to sales and administrative operations.

- Third, we will endeavor to realize "Sound Growth." We will focus on securing corporate growth in harmony with stakeholder interests, believing that the pursuit of stakeholder happiness is a prerequisite for the survival of the Company.

- Our fiscal 2022 target for the ratio of specialty businesses (based on the operating income ratio)
We are restructuring commodity businesses that are intrinsically unsuitable for specialization among key operations.

In line with the Denka Value-Up management plan, we are exploring the potential for increasing the share of highly functional products, thereby specializing in our operations. We are also going further in terms of time and cost reduction, with the aim of significantly improving productivity. The utilization of synthetic resins, which are typically positioned as commodity businesses, has also been integrated into our core strategies. One of the primary goals of these measures is to enhance the profitability of our business. Our goal is to become a specialty-fusion company capable of achieving sound and sustained growth.

We are also focused on improving the efficiency of our operations. By utilizing advanced technologies and innovations, we aim to increase the productivity of our production facilities. We are also focusing on reducing costs and improving quality through the implementation of new processes and technologies. This will enable us to remain competitive in the global market.

In addition to our operational efforts, we are also committed to sustainable development. We are working to reduce our environmental impact and improve the safety of our operations. Our goal is to become a leader in sustainable business practices, and we believe that this will help us to achieve long-term success.

We are committed to maintaining strong relationships with our customers and stakeholders. We value their support and feedback, and we strive to provide them with the highest level of service. We are also committed to the health and well-being of our employees, and we work to create a positive and productive work environment.

On the whole, we believe that through our strategic planning and implementation, we will be able to achieve our long-term growth and success goals.
Although the Denka100 management plan yielded robust outcomes, from this point forward we need to exert more control. (Yamamoto)

Yamamoto: In fiscal 2017, we could see that the Denka100 growth strategies launched in 2013 had gradually picked up momentum and were yielding positive outcomes. Moreover, we began implementing some Denka Value-Up initiatives aimed at promoting specialization ahead of their scheduled fiscal 2018 launch. This also affected our business results positively. However, we must note that the favorable market environment served as a tailwind. Taking this factor into account, we really need to exert a bit more control and be vigilant as we implement initiatives through the course of fiscal 2018 and later.

Ikeda: Denka has certainly succeeded in securing greater market presence by maximizing the positive effect of its 2015 acquisition of DuPont's chloroprene fiber business. The Company was also successful in its acquisition of Icon Genetics GmbH, which is a pivotal M&A deal that, in turn, helped it develop a robust foundation for the future.

Yamamoto: Although we clearly distinguish "specialty businesses" from "key operations," we also aim to specialize some "key operations," especially those associated with chloroprene rubber and highly functional styrene-based resin. Simultaneously, we intend to promote the downsizing and streamlining of "commodity businesses" that are intrinsically unsuitable for specialization.

Ikeda: Taking a look at Denka's specialty businesses, the Company boasts technological strength in the healthcare field backed by a track record spanning nearly 70 years. This track record is a testament to the high reliability of Denka products in this field. In the last two years, Denka also achieved solid growth in sales of electronic materials, a field in which the Company already commands significant market share. With regard to key operations, Denka has seized a 40% share of the chloroprene rubber market. This has fed the expectations of a growing number of buyers that Denka will become the chloroprene rubber specialist. It is essential for Denka to maintain its current position and to continue improving its market share.

There are few corporations capable of placing the utmost priority on the pursuit of vision. (Ikeda)

Yamamoto: Our threefold growth vision serves as a cornerstone for the Denka Value-Up management plan and is intended as a shared vision for all employees. We encourage employees to inspire each other to act to realize the ideals defined by this vision. By doing so, we ultimately aim to garner worldwide recognition, creating a company that all workers can be proud of.

Ikeda: Denka's management places significant emphasis on sharing its vision with employees in the course of the implementation of its management plan. I find this approach to be highly compelling as it indicates the Company has well-thought-out policies with regard to recruiting and nurturing competent and spirited human resources. While the majority of companies attempt to prioritize quantitative targets, Denka places its utmost priority on the pursuit of its vision. I don't think many corporations can say the same. The other day, I toured Denka's plant in Singapore and was able to closely look at its production facilities. Having seen a number of operators working enthusiastically, I was convinced that the Company's vision is shared by all.

Yamamoto: It is essential to ensure that management and employees share a common understanding about the future direction of initiatives while they are under way. Accordingly, I try to visit business sites and production frontlines as often as possible to directly interact with employees. Not only do I visit Denka's business sites, I also tour affiliates and overseas subsidiaries and endeavor to foster a sense of unity among their frontline employees. Through these efforts, I intend to provide employees with the direct and accurate explanation of the Denka Value-Up management plan. Furthermore, I also aim to ensure that the production of video messages aimed at ensuring that the goals of this management plan are known by all employees.

Ikeda: It is essential for us to exert control and to understand where the Company is heading, its strengths and how it is going to enhance these strengths. Moreover, we need to understand how their tasks relate to the Company's overall strategy. Once we are all aware of what actually can and should do to help the Company achieve its goals, their mindset will change and no longer be hindered by the barriers defining sections. I expect that this will, in turn, foster willingness to lend generous assistance to initiatives undertaken by other business units within the Group.

Securing staff equipped with specialized skills is the key to the success of the Denka Value-Up management plan. (Ikeda & Yamamoto)

Yamamoto: This is one of the areas in which our businesses must be supported by employees with a strong sense of ownership about specialization. When the organization is lacking such employees, its business can quickly become obsolete, no matter how special it might have been. Conversely, a group of employees who have high awareness of specialization is capable of developing specialty businesses even from "commodity businesses."

Ikeda: Preventing a brain drain and protecting proprietary technologies are also important to specialization. Therefore, it is particularly essential to ensure that these employees are engaged in engineering and R&D to enhance their motivation. In addition, the accuracy of market intelligence is even more crucial when specialized businesses have come to account for a significant portion of a corporation's business portfolio. Such a corporation must remain on-trend with sector-specific business conditions while staying vigilant against changes under way in the industry. Also, a new technology emerging from a totally different business sector may grow into the game changer. I therefore believe that Denka should be able to attract investment by letting investors know these factors.

In addition, Denka boasts such unique products as Ebola virus rapid diagnostic test kits while providing vaccines for influenza and other products. No other chemical company can claim a product lineup of this kind. Because of this, I believe that Denka has an advantage over competitors in terms of providing solutions for social issues.

Yamamoto: With regard to governance, three outside directors attend Denka's Board of Directors meetings, proactively contributing their insight to management and helping all other board members engage in active discussions.

We remain committed to a targeted total shareholder return ratio of 50% as well as a targeted dividend payout ratio of 40%. The value of full-year dividends for fiscal 2017 has been set in line with this dividend payout ratio. For fiscal 2018, our plans call for maintaining the same dividend payout. (Ikeda)

Ikeda: I think that Denka's approach to shareholder returns is well-balanced. Aiming for a total shareholder return ratio of 50% is plausible in light of the composition of the Company's free cash flows and its investment fields. Furthermore, Denka's commitment to a dividend payout ratio of 40% would help the Company win the confidence of investors, especially those overseas. I therefore suppose that Denka's commitment to this target will help it win investor confidence.

Yamamoto: In terms of garnering global recognition, Denka has a long way to go. Over the long term, we will strive to become a specialty chemical company known for its unparalleled strength in markets around the world. (Held in June 2018 at Denka's Head Office)
Denka’s Approach to ESG-Oriented Management

**CSR Management**

We will remain committed to fulfilling our social responsibilities with the aim of living up to The Denka Value, our corporate philosophy, as well as society’s expectations and trust.

**Denka Group CSR Basic Policies**

Denka hereby establishes the Denka Group CSR Basic Policies, which are designed to provide underlying principles with regard to the practice of The Denka Value, a corporate philosophy, from the perspective of addressing environmental, social and governance (ESG) issues.

As the cornerstone of all business activities, The Denka Value consists of the Denka Mission and the Denka Principles, both of which highlight our aspiration to contribute to the sound development and betterment of society. We are thus striving to embody these precepts, believing that contributing to a sustainable society is an integral part of our corporate activities and is essential to fulfilling our corporate social responsibilities.

With this in mind, we have identified CSR materiality issues through stakeholder dialogue, specifying the areas in which all Group members must focus their efforts in terms of CSR activities. Taking a future-thinking approach, we are also working in tandem with our business partners to contribute to the United Nations Sustainable Development Goals (SDGs) and other initiatives aimed at addressing issues the whole of humanity is now confronting.

Furthermore, we recognize that strict compliance is a prerequisite for continued business operations. Accordingly, we will strive to develop an effective governance system, strictly complying with laws, regulations and international rules in the course of operations while maintaining a strong moral compass.

Taking the aforementioned factors into account, we will practice the ten principles described on page 16 in furtherance of our efforts to fulfill our responsibilities as a corporate citizen.

**Addressing CSR Materiality Issues**

Denka has carefully selected its materiality issues based on pressing challenges society is now facing and in reference to external inputs, including United Nations SDGs; guidelines compiled by the GRI; the ISO 26000 and other international standards; as well as prevailing ESG investment criteria and insights the Company has gained through its involvement in the CDP and CSR procurement. Moreover, these items were examined and evaluated with due consideration given to stakeholders’ expectations and their impact on our operations.

The status of and action plans involving the Company’s initiatives to address CSR materiality issues are reported to the Management Committee biannually. Looking ahead, we will also review these materiality issues as necessary.

**SDGs Relevant to Our Materiality Issues**

While Denka classifies its CSR materiality issues into six categories and 13 items that are critical in its role as a chemical manufacturer committed to fulfilling its social responsibilities, the United Nations SDGs also have relevance when considering these issues. The relationship between Denka’s CSR materiality issues and the SDGs is presented in the chart on page 16. Denka is thus determined to contribute to SDGs in the course of addressing its materiality issues.

**Relationship between Denka’s Materiality Issues and SDGs**

<table>
<thead>
<tr>
<th>Category</th>
<th>Denka’s Materiality Issues (13 Items)</th>
<th>Relevant SDGs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritization of safety</td>
<td>Reinforce security and disaster prevention measures</td>
<td>SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable</td>
</tr>
<tr>
<td>Products and technologies</td>
<td>Maintain occupational safety and health while creating a vibrant and comfortable workplace environment</td>
<td>SDG 8: Decent work and economic growth</td>
</tr>
<tr>
<td>Corporate governance</td>
<td>Ensure product safety</td>
<td>SDG 9: Industry, innovation and infrastructure</td>
</tr>
<tr>
<td>Corporate conduct</td>
<td>Ensure that our corporate philosophy is embraced by every employee and transform our corporate culture</td>
<td>SDG 10: Reduce inequalities</td>
</tr>
<tr>
<td>Employee happiness</td>
<td>Improve corporate governance</td>
<td>SDG 16: Peace and justice and strong institutions</td>
</tr>
<tr>
<td>Environmental preservation</td>
<td>Maintain strict compliance with laws, regulations and corporate ethics</td>
<td>SDG 12: Responsible consumption and production</td>
</tr>
<tr>
<td>Dialogue with society</td>
<td>Nurture human resources</td>
<td>SDG 13: Climate action</td>
</tr>
<tr>
<td>Partnership</td>
<td>Embrace diversity and offer equal opportunities</td>
<td>SDG 15: Life on land</td>
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<td></td>
<td>Help strike a work-life balance and promote employee health</td>
<td>SDG 16: Peace and justice and strong institutions</td>
</tr>
<tr>
<td></td>
<td>Prevent air, water, soil and other environmental pollution</td>
<td>SDG 17: Partnership for the goals</td>
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**Environmental preservation**

Promote climate change countermeasures (mitigate global warming, reduce GHG emissions and adapt to climate changes)

**Dialogue with society Partnership**

Maintain appropriate and timely disclosure of corporate information and establish bidirectional communications

**Denka’s Approach to ESG-Oriented Management**

We will remain committed to fulfilling our social responsibilities with the aim of living up to The Denka Value, our corporate philosophy, as well as society’s expectations and trust.
Taking a proactive stance toward the prevention of global warming and the preservation of the global environment, we strive to promote the use of clean energy as well as the development of eco-friendly products, thereby contributing to the sustainable development of society.

Promoting the Use of Clean Energy

Since its founding, Denka has promoted the greater use of clean energy and to this end has continually expanded its network of hydroelectric power plants. Today, the Company owns hydroelectric power plants at 10 locations near its Omi Plant in Nigata Prefecture. In addition, Kurobegawa Electric Power Company, a joint venture owned by Denka and Hokuriku Electric Power Company, maintains hydroelectric facilities in five locations in the region. Together, the maximum output of these 15 plants totals approximately 120,000kW, enough to power approximately 200,000 regular households on an annual basis. The extent of its power generation capacity sets Denka apart from other domestic private chemical companies.

Meanwhile, at its thermal power plants, which are being converted to run on natural gas instead of heavy oil, we are working to introduce high-efficiency gas turbine generators. We also utilize heat from cement production for power generation while employing biomass boilers fed by scrap wood for the same purpose. These efforts have helped us reduce CO₂ emissions attributable to energy use. Also, the Shibukawa and Isesaki plants (both in Gunma Prefecture) have been selling electricity generated by their mega solar power generation facilities to an electric power company.

Hydroelectric Power Plant Construction Ongoing in Two Locations

We are presently in the midst of constructing two new hydroelectric power plants. One, the New Omigawa Power Plant (maximum output: approximately 8,000 kW), is under construction upstream of the Omigawa Power Plant. Thus far, conduit tunnels have been installed and work is ongoing on such facilities as water intake facilities and power plant buildings. The second project, the New Himekawa Power Plant No. 6 (maximum output: approximately 27,500kW), is being constructed by Kurobegawa Electric Power Company. We expect that the completion of these power plants and the impact of our initiatives to improve power generation efficiency will yield a 40,000-ton reduction in our annual CO₂ emissions.

Denka intends to step up the use of clean energy, aiming to raise the ratio of renewable energy to overall inhouse energy consumption (including electricity sold externally) to 50% by the end of fiscal 2030.

Long-Term Outlook for Our Renewable Energy Generation Capacities

Hydroelectric Power Plants around the Omi Plant and Their Maximum Output

Note: The calculation of the figures presented above incorporated 50% of annual output from power plants run by Kurobegawa Electric Power Company (jointly owned by Denka and Hokuriku Electric Power Company).

2 Developing Eco-Friendly Products

In line with the Denka Value-Up management plan, our initiatives aimed at specializing our operations include the development of products and technologies that help promote energy saving and the use of renewable energy. To this end, we employ our expertise in chemistry and manufacturing, with the aim of addressing global warming, a universal issue society is now confronting.

For example, our thermal control technologies are used in such electric vehicle (EV) components as driving parts, while our electro-conductive materials are used in the batteries of such vehicles. As such, we are providing essential technologies supporting EVs, a type of vehicle that is expected to become increasingly popular in countries around the globe.

Other Denka offerings serving the automotive industry include ceramics-based electronic circuit substrates (DENKA SNP and ANP) for power control units and electro-conductive materials for lithium ion secondary batteries (acetylene black). Both of these products are supporting innovation in terms of creating eco-friendly automotive technologies.

Curbing Greenhouse GHG Emissions

Having set reduction targets for total GHG emissions as well as the CO₂ emissions intensity index attributable to energy sources, we are systematically implementing global warming countermeasures by engaging in energy-saving initiatives and promoting the use of renewable energy.

Thanks to these efforts, the Denka Group (excluding international joint ventures) received a green score from the non-profit organization CDP granted Denka an “A-” rating in its Climate Change Report 2017, the highest such rating given to Japanese chemical companies. Looking forward, the Company has begun discussing the formulation of medium- to long-term targets (for 2030 and 2050) in light of the “2°C target” proposed in the Paris Agreement.

Our fiscal 2017 GHG emissions, which encompass Scope 1, 2 and 3 emissions, totaled 3,330 thousand t-CO₂ (graph 1). Our efforts to reduce our GHG emissions, especially Scope 2 emissions through the steady promotion of hydroelectric power generation and stepped up energy-saving measures will continue.

Rational Use of Energy.

Growing need for Denka to reduce energy costs due to the introduction of tightened CO₂ emission regulations based on the Paris Agreement.

In addition, we intend to strategically reduce our Scope 1 emissions, which consist of direct emissions and account for 52% of total GHG emissions, still further. To this end, we will promote the specialization of products associated with cement and calcium carbide as GHG emissions attributable to these products account for more than 60% of Scope 1 emissions.

Graph 1: Our Fiscal 2017 GHG Emissions

Reduction Targets

• Total GHG emissions: Reduce 12% by 2030 compared with the 2013 level
• CO₂ emissions (intensity index attributable to energy sources per unit of production): Reduce 10% by 2020 compared with the 2013 level

Our Initiatives to Promote Energy Saving

As part of our process reform efforts, the Omi Plant is renewing its electrolytic bath facilities with the aim of reducing energy consumption while pushing ahead with energysaving efforts focused on reducing calcium carbide raw materials production. Efforts are also under way to introduce high-efficiency gas turbines to the plant’s thermal power generation facilities with the aim of reducing energy consumption and CO₂ emissions.

Meanwhile, the Chiba Plant suspended the operation of one boiler and its attendant power generation system and has since then been receiving steam from adjoining facilities run by Maruzen Petrochemical. This move was one example of the plant’s initiatives to optimize its utility structure through the strengthening of collaboration between corporations operating in the same industrial complex.

Looking ahead, Denka will promote energy-saving measures to maintain its “3%” grading, which indicates the Company’s standing as an energy efficient manufacturer, in accordance with a government-sponsored system for classifying business operators under the Law Concerning the Rational Use of Energy.

In our report on the Denka Group’s fiscal 2017 GHG emissions, we set forth future outlook for reduction in Scope 1 and 2 emissions. Identifying the Denka Group’s carbon footprint takes into account 2030 and 2050 targets defined by the Paris Agreement, an international framework for countering global warming.

Graph 2: Future Outlook for GHG Reduction (Scope 1 and 2 emissions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Scope 1 Emissions (t-CO₂)</th>
<th>Scope 2 Emissions (t-CO₂)</th>
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<tr>
<td>2020</td>
<td>Reduce 12% compared with 2013 level</td>
<td>Reduce 10% by 2020 compared with 2013 level</td>
</tr>
</tbody>
</table>

Our Initiatives for ESG-Oriented Management

Denka's Approach to ESG-Oriented Management

In our report on the Denka Group’s fiscal 2017 GHG emissions, we set forth future outlook for reduction in Scope 1 and 2 emissions. Identifying the Denka Group's carbon footprint takes into account 2030 and 2050 targets defined by the Paris Agreement, an international framework for countering global warming.
Denka utilizes a network of 15 natural inflow type hydroelectric power plants. For more than a century, we have maintained this unique power source that harmoniously coexists with the natural environment and generates electricity in a sustainable manner.

A stable power supply and efficient energy usage are essential to the manufacture of industrial chemical products. Over the years, the Omi Plant has utilized a robust network of power generation, transmission, and distribution facilities while accumulating technological expertise with regard to the construction and operation of power plants. These facilities and expertise have been important management resources for more than a century since the Company’s founding.

There are 15 natural inflow type hydroelectric power plants, including co-owned facilities, in areas around the Omi Plant. This type of hydroelectric power plant places a relatively smaller burden on the natural environment due to the use of natural inflow of river water for power generation. There is no need to create a reservoir, and water used for power generation is returned to the river as soon as it leaves the generator. Moreover, hydroelectric power plants generate virtually no greenhouse gases as it leaves the generator. Moreover, hydroelectric power plants generate virtually no greenhouse gases, and water used for power generation is returned to the river as soon as it leaves the generator.

A long conduit guides upstream water separated from the river by the dam to a cistern and a grit chamber. Water is diverted from the main body of the river by the water intake dam and guided to a grit chamber where soil and sand are settled out. At this point, smaller floating objects like driftwood are removed using a screen as well as manually. This can be a dangerous job so staff are extremely vigilant. The water then flows through a conduit to a cistern and finally to the generator via hydraulic steel pipe.

To minimize the impact of power plant operations on the natural environment, we have installed a fishway alongside the dam, thereby demonstrating our commitment to pursuing a harmonious coexistence with nature.

1. Water Intake from Rivers and Harmonious Coexistence with Nature

Water Intake Dam for the Oami Power Plant

The Oami Power Plant, located on the Himekawa river system, is equipped with automated dam gates that operate based on data on weather and river conditions gleaned by its observation system. Automatically keeping the volume of water intake within the upper limit granted by local authorities, the plant operates in a way that has little impact on flow volume or water level.

Although the steepness of the terrain that is home to the Himekawa river system offers inherent advantages to hydroelectric power generation, rivers in these areas are prone to becoming choked with soil, sand and logs jams after rainfall because of fragile ground conditions. Sediment and floating debris can drift into dam intakes, hindering power plant operations. Accordingly, whenever the region is hit by heavy rainfalls, typhoons or other stormy weather, administrators have staff on standby at stations near the dams to address any problems.

2. Pursuing Ever Higher Power Generation Efficiency

Umikawa and Kotakigawa Power Plants

Like the facilities discussed above, the four power plants located on the Umikawa river system boast a long history, with the Umikawa Power Plant No. 3 having initiated operations in 1925. The No. 1, 2 and 4 plants were launched in 1930.

Among these, the Umikawa Power Plant No. 2 is situated in a steep mountain range. Accordingly, the development of mountain forests and trails has been key to operating the plant. Moreover, because winter snowfalls often render the mountain trails around the plant impassable, we constructed dedicated tunnels for operators.

The Kotakigawa Power Plant initiated operations in 1921 and is the oldest among Denka’s hydroelectric power plants. For nearly a century since its completion to the present day, the plant’s building has been in continuous use. Made of wood, this historical building boasts superior durability thanks to a unique structure comprising two separate frames, with one frame supporting a built-in crane installed to carry heavy objects and the other frame supporting the building’s roof. A Francis turbine runner manufactured by Switzerland-based Escher Wyss and installed at the time of its completion, is still preserved at the site and is labeled the “No. 1 turbine runner.” In 2017, we launched the No. 3 turbine runner, a cutting-edge Francis turbine runner and generator.

3. The Hydroelectric Power Museum

In May 2018, we opened the Hydroelectric Power Museum. Along with a century of historical records, the museum exhibits a cross-sectional sample from the hydraulic steel pipe that was used at the Kotakigawa Power Plant in its earliest days as well as a precise miniature duplicate of the plant and surrounding land created by a staff member at the Electric Power Department. Our historical power plants are a proud legacy and remain one of our key management assets. Moreover, since these facilities produce renewable energy, they have become ever more important given growing expectations regarding clean energy due to the looming threat of global warming. The museum is serving as a venue for communication with visitors, helping them learn about the passions driving Denka staff, who have maintained hydroelectric power plant operations since the Company’s founding to the present. At the same time, the facility helps us pass along our long-cherished commitment to these operations to future generations.

A view of the Oami Power Plant’s facilities near the water intake

How a natural inflow type hydroelectric power plant works

Water intake dam for the Oami Power Plant

A fishway installed alongside the dam

One of the entrances to the tunnel leading to the power plant

A closer look at the hydraulic steel pipes

The Oami Power Plant

The Kotakigawa Power Plant

The Umikawa Power Plant No. 2’s turbine runner, a cutting-edge Francis turbine runner

The Kotakigawa Power Plant’s Plant main building

The Kotakigawa Power Plant’s Francis turbine runner

The Hydroelectric Power Museum

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5 Human Resource Development

Strategically focusing on nurturing human resources with specialized skills, we will promote diversity, push ahead with work style reforms and thereby create an even more attractive company.

Nurturing Human Resources and Passing Down Our Technologies to Future Generations

Denka’s Strategies Aimed at Nurturing Human Resources with Specialized Skills

Denka sees its employees as invaluable assets supporting its foundation. The Company also believes that truly successful corporate growth hinges on employees’ efforts to achieve personal growth and enhance their skills. With this in mind, we are taking a strategic approach toward human resource development.

Our aim is to promote the specialization of our businesses, products, technologies and all other aspects of operations. In line with this, we also intend to equip our human resources with specialized skills. Accordingly, we are working to help each employee build robust capabilities in their intrinsic strengths (i.e., mindset, competency and personality) while assisting them in their efforts to enhance their skills in the area of their specialty. In these ways, we are endeavoring to help each employee realize their full potential and become a professional with unparalleled presence in their business field.

In April 2018, we launched the Career Value-Up Center, a dedicated body charged with equipping human resources with the features described above, while upgrading the content of the existing Specialty Human Resource Development Program. These moves are expected to better position the Company to provide assistance to employees who are willing to autonomously pursue personal growth and proactively build robust careers. By doing so, we are stepping up our across-the-board efforts aimed at achieving targets under Denka Value-up, our medium-term management plan.

The Specialty Human Resource Development Program

Having thoroughly upgraded the content of this human resource development program, we have prepared safety training sessions that simulate dangerous situations and are designed specifically for those working at production sites and R&D bases. We have also enhanced the curriculum associated with production processes for engineers. The upgraded program consists of 200 types of training sessions, including job-level based training tailored for a broad range of employees encompassing not only managers but younger employees who will someday become the Company’s leaders.

The program also includes a number of specialist courses. In fiscal 2017, we also introduced manager training as well as management training for selected candidates with the aim of enhancing their management and leadership skills as part of job-level based training. Furthermore, specialists courses now include a number designed to instill specialized skills in such fields as marketing, M&A and business strategies, with stronger focus placed on nurturing business innovators.

Also, in response to the rapid globalization of Denka’s business operations, the Company focuses on recruiting and nurturing human resources capable of succeeding on the global stage from the earliest stages of their careers. In particular, we are proactively hiring new graduates who have studied overseas. Moreover, we dispatch administrative specialists in their second year and technological specialists in their fifth year to the Group’s business base in Singapore to participate in a two-week overseas missions as part of training aimed at helping them acquire a global perspective. In these ways, we are working to secure personnel capable of leading Denka’s global operations in the future.

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## Prioritization of Safety

We will steadfastly abide by the policy of placing the utmost priority on safety in all of our business activities and decisively promote initiatives aimed at the creation of a lively and sound workplace.

### Fiscal 2017 Safety Record

**Major accidents:**

One occupational safety accident

On March 3, 2018, an accident resulting in the death of an employee occurred at the Omuta Plant. The accident involved the collapse of a bulk bag pile. In response, we have thoroughly investigated the causes of the accident and implemented measures to prevent recurrences in addition to inspecting all business sites in an effort to spot points of potential danger. We have thus improved our methods for piling and storing our products at warehouses while installing more robust measures to secure operator safety even if the storage method fails. Looking ahead, we will strive to mitigate intrinsic danger associated with the loading and unloading of cargo via process reform initiatives.

We remain committed to providing our stakeholders with updates on these initiatives in such disclosure materials as subsequent editions of the Denka Report.

### Facility-related incidents:

**Four incidents (one leak, one fire and two breakages)**

- There was a leak attributable to a mistake in the selection of raw materials for components of a facility handling corrosive gas. There was a fire attributable to a failure to execute the required thoroughgoing inspection of flammable materials at a construction site where fire is used. There were two breakages, the first involving the bursting of a resin container due to excessive pressure attributable to an abnormal chemical reaction and the second involving the breakage of a blower. The first incident was the result of operational error and the second was the result of flaws in our in-house rules for managing changes in operational processes. Although none of these incidents involved human injury or environmental damage, we will implement stringent process risk assessments to ensure that no critical risk is left unaddressed.

**Other occupational accidents:**

Five accidents involving absence from work; 14 accidents in total

In fiscal 2016, we recorded six incidents, including accidents in which a worker’s hand was caught or a worker’s body part was pinched by machinery in operation. Drawing lessons from these accidents, we rallied the Company’s overall strengths to mitigate risks associated with machinery and equipment as well as to ensure that our basic rules on safety are observed by all workers.

As a result, the number of similar accidents decreased in fiscal 2017 to two. Going forward, we will update our facilities to mitigate the intrinsic danger of machine operations. In addition to reducing facility risks, we will undertake functional upgrading aimed at better safeguarding our operators. Furthermore, we will implement appropriate measures to thoroughly control residual risks.

### Points of Attention for Frontline Operators at All Denka Group Business Sites

1. **Nurture a sense of unity by proactively exchanging courtesies, telling one another “goanzen ni!” (keep safe) and wishing colleagues a safe day.**
2. **Practice the 3Ss—Seiri (sort), Seiton (set in order) and Seiso (shine)—as these are the basics of safety.**
3. **Pursue the PDCA cycle to promote priority initiatives and share the outcome of such pursuits in an easily visible manner.**

### Production Process Reforms That Improved Our Safety Assurance Measures (best practices at the Chiba and Iesaki plants)

- The Chiba Plant has installed fences around certain machinery to prevent accidents in which workers are pinned down by or caught in it. These fences are equipped with a mechanism that prevents access to machinery while it is running. The plant formed a dedicated project team aimed at reclaiming productivity without compromising this new safety measure. The team has succeeded in reclaiming and achieving further improvements in productivity.
- Having identified a variety of major risks in loading and unloading operations employing forklifts, the Iesaki Plant has been promoting the automation of on-premises logistics and the installation of automated storage systems. Ultimately, the plant aims to ensure that forklifts never cross pathways used by plant staff who are on foot. Conducted as a part of production process reforms aimed at achieving drastic improvement.

### Fiscal 2018 Priority Initiatives

#### Prevent major accidents by performing thoroughgoing risk identification and by mitigating intrinsic danger

- Fully leverage findings from near-miss reporting
- Conduct robust hazard prediction activities at production sites

#### Eliminate accidents attributable to operator action and ensure the ongoing reduction of occupational accidents

- Create a lively and sound workplace
  - Promote robust workplace communications about points of potential danger

#### Points of Attention for Frontline Operators at All Denka Group Business Sites

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- **Pursue the PDCA cycle to promote priority initiatives and share the outcome of such pursuits in an easily visible manner.**

### Breakdown of Number of Occupational Accidents

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Total</th>
<th>Major</th>
<th>Minor</th>
<th>Health</th>
<th>Death</th>
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#### Total Number of Occupational Accidents

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<tr>
<td>2018</td>
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Denka Group Social Contribution Policies

Denka aims to proactively play a positive role in society as a good corporate citizen. With this in mind, the Company hereby establishes its basic policies with regard to social contribution, clarifying the roles and responsibilities all Denka Group members must fulfill in terms of efforts to facilitate the sound and sustainable development of society.

Since its founding in 1915, the Denka Group has been pursuing the possibilities of chemical technologies. Through this pursuit, the Group has endeavored to fulfill its unchanging mission as a manufacturer in an effort to contribute to the advancement of human civilization and the development of society.

For more than a century, the Group has accumulated strengths in such fields as the generation of clean energy and the development of energy-saving technologies. The Group also boasts an array of products, services and solutions capable of contributing to social development and environmental protection. The Group hereby establishes its basic policies with regard to social contribution, clarifying the roles and responsibilities of its management.

Social Contribution Activities

Examples of Fiscal 2017 Initiatives

For more than a century, the Group has accumulated strengths in such fields as the generation of clean energy and the development of energy-saving technologies. The Group also boasts an array of products, services and solutions capable of contributing to social development and environmental protection. The Group hereby establishes its basic policies with regard to social contribution, clarifying the roles and responsibilities of its management.

1. Educational, academic and cultural development
   - The Group will nurture young people, among whom the manufacturing industry’s future leaders may be found, while proactively providing assistance to forward-looking academic pursuits and research activities. Simultaneously, the Group will contribute to cultural development.
   - Paying respect to diverse cultures and customs in countries around the world, the Group will take a community-rooted approach in its efforts to promote the sound development of local societies in which it operates. Moreover, the Group will voluntarily implement initiatives aimed at preserving the global environment while sparing no effort to enhance the efficiency of its use of limited resources, with the aim of contributing to the realization of a sustainable society.
   - Assistance to health promotion, contribution to people’s well-being and facilitation of sports activities
     - The Group will facilitate sports activities, provide assistance to people’s health promotion efforts and contribute to their well-being. By doing so, the Group will help improve people’s quality of life in a way that leverages its core business functions associated with healthcare and the living environment.

Denka Seiken’s Ebola Virus Rapid Diagnostic Test Kits Donated to the Democratic Republic of Congo

In May 2018, Denka Seiken received a similar request from the ministry and donated these products again. Looking ahead, we will strive to prevent the epidemic of infectious diseases and contribute to the health and well-being of people worldwide.

Providing a Venue for RELAY FOR LIFE Japan 2017 Niigata, a Charity Event Aimed at Promoting a Remedy to Cancer and Encouraging Patients

On August 26 and 27, 2017, RELAY FOR LIFE Japan 2017 Niigata was held at DENKA BIG SWAN STADIUM in Niigata City. As part of the nationwide RELAY FOR LIFE Japan campaign, this event was aimed at promoting a remedy to cancer and encouraging cancer patients through a 24-hour walking relay race undertaken by teams consisting of patients themselves, their families and supporters.

Supporting CSR Activities Undertaken by ALBIREX NIIGATA Singapore

In 2015, Denka Chemicals Holdings Asia Pacific Pte. Ltd. signed a CSR partnership agreement with ALBIREX NIIGATA Singapore (Female), a local professional football team, and since then has provided assistance to the team’s CSR activities.

Supporting the Restoration of Areas Affected by Major Disasters

On December 22, 2017, a symposium was held at the Itoigawa Civic Hall to discuss the reconstruction of blocks affected by a massive fire that engulfed a block north of Itoigawa City’s main station. Attending the event, a representative from Denka was honored to receive a commendation certificate from the mayor of Itoigawa City in recognition of the Company’s contribution to reconstruction efforts.

After the massive fire devastated the block on December 21, 2017, local corporations that immediately took action to assist in reconstruction efforts, dispatching a total of 70 volunteer employees from its Omi Plant in addition to providing aid supplies and donations. The Company also raised funds for further donations via a charity concert while accepting debris from affected sites as part of its resource recycling operations.

Going forward, we will help the local government promote town development planning aimed at restoring and revitalizing affected streets as we aim to remain a contributor to the reconstruction of the community.

“Denka Farm” Initiative in Minami Sanriku-cho, Miyagi Prefecture

On October 21, 2017, we hosted a harvest celebration at “Denka Farm,” inviting representatives from a local farmers’ association in Minami Sanriku-cho, Miyagi Prefecture.

Denka Farm consists of testing farmland and was established based on suggestions incidentally proposed by staff at Denka in Itoigawa Branch in the course of ongoing discussion aimed at soliciting ideas for initiatives to support the reconstruction of areas affected by the Great East Japan Earthquake. Having assisted in the restoration of farmland that suffered salt damage due to tsunami via the donation of Denka’s underground drainpipes and fertilizers, the branch has cultivated close ties with members of the farmers’ association. Borrowing a portion of farmland owned by the association, we opened Denka Farm. In June 2017, we planted sweet potato seedlings at the farm. Since then, we have weeded, sprayed herbicides and done other farm work in collaboration with the association members.

After celebrating the harvest with us, some local farmers remarked “We’ll be looking forward to meeting you again next year!” Having formed the bond, we plan to continue to operate Denka Farm while remaining committed to giving back to the people in the Tohoku area by providing assistance in the restoration of once-devastated farmland and local farmers’ efforts to reinstate their operations.
To maintain the trust of society, we will seek greater transparency and ensure integrity in all our endeavors.

Corporate Governance

A Message from an Outside Director

Outside Directors’ Roles Are Ever More Important in the Face of Rising Calls for Robust Growth Strategies and Sophisticated Governance

Currently, Denka’s Board of Directors includes three outside directors, each of whom boasts extensive business experience in various fields. I have long served at a French-capital chemical company myself in addition to holding the office of outside member of the Audit & Supervisory Board at a pharmaceutical company. In the latter position, I have engaged in the due diligence auditing of subsidiaries in Europe, the United States and Asia. This exposure made me acutely aware of the importance of winning the understanding of increasingly diverse stakeholder groups, including shareholders, via the establishment of a corporate governance system that is transparent and rational based on a global perspective.

Advances in Denka’s Efforts to Ensure More Robust Governance

Over the last several years, Denka has seen significant advances in its efforts to upgrade corporate governance functions. Also, the Company’s Board of Directors meetings boast an average attendance of more than 70 percent. Outside directors are given sufficient explanations about agenda items to be submitted to the board prior to the meetings, while all directors, including outside directors, attend the monthly “D&A Round Table” meetings to discuss management issues of particular importance. Moreover, the Company recently established the Management Advisory Committee. These are but few examples of Denka’s efforts to provide outside directors with greater opportunities to engage in constructive discussion and contribute their insights, which the Company values and proactively incorporates into its operations. To these noteworthy developments, Denka began holding separate meetings exclusively for outside directors and outside members of the Audit & Supervisory Board on a quarterly basis. This move helps facilitate the exchange of opinions among these directors while ensuring that their feedback is accurately relayed to top management.

I also expect that, going forward, Denka will move on to develop even more sophisticated governance functions. The Denka Group boasts a variety of operations that range from the production of traditional fertilizers to the manufacture of vaccines, which support the Company’s Life Innovation Division, while expanding into such regions as Asia, the United States and Europe as well as Africa. Accordingly, Denka is focused on pushing ahead with the development of a management system capable of exercising robust governance over its business units in regions around the globe. I believe that as part of these efforts, Denka should welcome diverse human resources as management members to boost corporate growth. Looking ahead, the Company also needs to take on the challenge of incorporating an even broader range of opinions voiced by people of different thinking and cultural backgrounds regardless of their gender, race and nationality. I expect that, of course, Denka will steadily work to introduce various measures to this end.

Helping Achieve Growth in Both Corporate Value and Profitability

In April 2018, Denka launched a new management plan. I anticipate that this ambitious plan will help Denka achieve growth and enhance its corporate value over the medium to long term. I also believe that in order for Denka to accomplish the plan’s objectives in a rational manner, the Company must proactively reform in terms of its corporate culture and employee awareness. I think that outside directors can provide Denka with useful input in this regard because they have a variety of experience outside the Company. Along with developing sophisticated governance systems, properly addressing environmental and social issues is essential. This will also lend support to Denka’s drive toward long-term corporate growth. I am therefore determined to fulfill my role as an outside director in terms of helping the Company pursue an ESG-oriented management approach that contributes to the creation of a sustainable society. To this end, I will engage in the robust supervision of management rather than staying quiet to preserve the status quo, as I ask all stakeholders, including shareholders, for their continued support of our endeavors.

Strengthening Corporate Governance

Basic Approach to Corporate Governance

In order to fulfill the expectations and trust of its many stakeholders, including shareholders, customers, local society, and employees, based on the “Denka Value” (corporate philosophy), which serves as the cornerstone for all the corporate activities undertaken by the Denka Group, the Company strives to strengthen its business foundation by improving its earnings power and expanding the scope of operations while also working to improve corporate value by making every effort to continue being a company that can win the trust and support of society.

The Company considers corporate governance to be the bedrock on which the above rests, and so we have striven to strengthen governance, in order to fulfill the responsibilities we owe to all our stakeholders and ensure the transparency and soundness of our management.

Board of Directors

(met on 13 occasions in fiscal 2017)

To realize the Company’s corporate philosophy, “The Denka Value,” the Board of Directors monitors and supervises major operational decision making and the execution of business duties by executive officers, based on strategic and management planning. The Board of Directors is a whole appointments committee for director in line with the standards for the appointment of both internal and outside directors, based on the belief that it is important to maintain a balanced collaboration via the incorporation of people with a variety of expertise, experiences, and skills.

In October 2015, we began holding exchange meetings for all directors and Audit & Supervisory Board members. This move was aimed at facilitating open, lively and constructive discussion, the exchange of opinions, robust information sharing and close collaboration between directors, outside directors and Audit & Supervisory Board members. In October 2017, moreover, we rebranded these meetings as the “D&A Round Table” in line with initiatives to facilitate open and constructive discussion while placing stronger focus on making ongoing progress over the long term.

We have also established the Management Advisory Committee, with all outside directors and all outside members of the Audit & Supervisory Board as well as Chairman and President serving as committee members. Having good corporate governance over the nomination of and remuneration for key personnel as an essential component of Denka’s governance function, the establishment of this body is intended to provide a place for discussing such matters as important management challenges and incorporating diverse opinions and advice from outside directors and outside members of the Audit & Supervisory Board, with the aim of ensuring the transparency and objectivity of management decision-making.

In addition, we have abolished the positions of senior managing and managing director so that all directors who supervise and monitor business execution engage with their peers on equal footing at Board of Directors meetings. By limiting the term of office for directors to one year, we also intend to ensure the flexibility to assess the adequacy of each director at every General Meeting of Shareholders.

Concepts on the Appointment of Directors

To promote Denka Value-Up, a management plan aimed at practicing The Denka Value, our corporate philosophy, we are strengthening our management structure supported by directors and executive officers in addition to upgrading our governance systems and supervisory functions. Director candidates are nominated from those who have abundant experience and a strong track record in Denka’s business divisions and are equipped with sufficient knowledge and specialist expertise for the director position. Outside director candidates are nominated from those who boast extensive knowledge backed by abundant business experience as well as distinctive strengths in their area of specialty so that they can bring their insights to achieve sustainable growth and enhance corporate value. With regard to the overall composition of board members, we believe that maintaining the balanced composition via the incorporation of people with diverse knowledge, experience and competencies is important.

We also aim to maintain the sufficient number of independent outside directors to ensure that they account for at least one third of director membership. Currently, the Company’s Board of Directors achieves this targeted composition.
Audit & Supervisory Board (met on 15 occasions in fiscal 2017)

The Audit & Supervisory Board aims to act in accordance with their fiduciary responsibilities to shareholders. The Audit & Supervisory Board members work with the support of the full-time staff at the Audit & Supervisory Board Member's Department, and all directors, executive directors, deputy executive directors from management, are trained to conduct audits of the execution of the directors’ duties, internal control, business operations and accounting, based on statutory rights that include reviewing reports on the Company’s business, investigating the status of business operations and accounting, and proposing the appointment and dismissal of officers in remuneration under an external auditing firm.

Outside Directors and Outside Members of the Audit & Supervisory Board

Regarding outside directors and outside members of the Audit & Supervisory Board, the Company selects candidates based mainly on practical considerations, such as whether we can expect the candidate to contribute to an increase in the corporate value of the Company as an independent director or outside member of the Audit & Supervisory Board. With this in mind, the Company has also defined its own standards of independence, in accordance with the requirements for independence stipulated in the Companies Act, in addition to the standards for independence defined by the Tokyo Stock Exchange. As a result, in the last fiscal year, we had 15 outside directors and outside members of the Audit & Supervisory Board. To ensure this, we strive to have an effective environment for outside directors and outside members of the Audit & Supervisory Board so that they can help them enhance their understanding of the Company’s operations and better fulfill their roles in the Company’s pursuit of sustainable growth and greater corporate value. Specifically, we invite them to join facility and plant tours while holding presentation meetings twice a year for them to help them understand the medium- and long-term policies on its business operations and R&D activities.

Management Advisory Committee (met on three occasions in fiscal 2017)

We aim to secure the transparency and objectivity of management and decision-making processes that the Board of Directors is expected to diversify opinions and advice from outside directors and outside members of the Audit & Supervisory Board with regard to such important management matters as governance issues, including nomination and remuneration. To that end, in October 2017 we established the Management Advisory Committee to help them enhance their understanding of Denka’s operations and better fulfill their roles in the Company’s pursuit of sustainable growth and greater corporate value. Specifically, we invite them to join facility and plant tours while holding presentation meetings twice a year for them to help them understand the medium- and long-term policies on its business operations and R&D activities.

D&A Round Table (met on 12 occasions in fiscal 2017)

In order to facilitate in-depth discussions regarding management matters that are of particular importance, the D&A Round Table is organized every month as a forum for bringing together all outside directors and outside Audit & Supervisory Board members, and all internal directors of Audit & Supervisory Board members, to encourage engagement in free, open-minded, constructive discussions, exchange of opinions and information, and strengthening of cooperation.

Outside Director Liaison Meetings (met on three occasions in fiscal 2017)

Attended only by outside directors and outside members of the Audit & Supervisory Board, these liaison meetings are aimed at ensuring that these individuals engage in the active exchange of opinions on and share understanding of the status of the Company’s corporate governance and management operations.

Director Remuneration

We have set remuneration for each director based on their roles and responsibilities within the limit of the total amount approved by the General Meeting of Shareholders. In particular, directors do not undertake the remuneration plan and the Board of Directors decides on the content of remuneration after receiving advice and recommendations from the Management Advisory Committee.

Remuneration for directors consists of a monthly fixed portion (paid to all directors) as well as a performance-based portion and a share-based portion (both of which are not paid to outside directors).

The value of the performance-based portion is determined in step with consolidated operating results, and is expected to reach a certain amount or the Company was found to be involved in compliance violations and other significant misconduct.

A share-based portion was newly introduced in June 2017. This move is intended to ensure that directors share the risks associated with stock price fluctuations with the Company’s shareholders. By doing so, we aim to help directors have a strong sense of purpose, conferring long-term benefits to the Company.

Compliance Hotline System

Previously, the Company had in place a compliance hotline system on the Denka Group Ethics Policy. However, this system was found to be insufficient in terms of its capacity for accepting tips from non-Japanese speakers and handling workplace harassment incidents, which often take place outside the Japanese operating area as well. Because of this, the number of reports registered with the system has been low. Aiming to create a more robust system capable of accepting and properly handling a broad range of compliance-related reports within the Group, the Ethics Committee adopted the following new requirements for whistleblowing:

1. An action which may constitute company's violation of laws and bring Denka group's credibility or name brand damage
2. An action which may cause company's serious problem or operation problem
3. An action which may bring serious burden on employees, business partners, shareholders or any other party
4. An action which may cause serious criticism or problem from law enforcement agencies, local authorities, or other relevant authorities
5. An action which may cause company public announcement in terms of compliance: intentional deviation from internal rules and regulations of the Company
6. An action which may cause company public announcement in terms of compliance: legal, business operation, corporate social responsibility, or other related matters

An essential part of corporate governance is understanding the diverse and numerous risks inherent in corporate activities and exercising proper risk control. In general, each business unit is responsible for identifying and managing specific risks. For environmental, safety, product liability and export control issues that affect the entire Company, we have in place special sections and permanent committees to handle matters.

Denka’s Approach to ESG-Oriented Management

Corporate Governance

An informative poster and handbook telling employees about the helpline and how to use it.

<table>
<thead>
<tr>
<th>Name of Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethics Committee</td>
<td>An organization catering to handling employee complaints</td>
</tr>
<tr>
<td>Compliance Department</td>
<td>A department responsible for compliance issues</td>
</tr>
<tr>
<td>Legal Department</td>
<td>A department responsible for legal matters</td>
</tr>
<tr>
<td>Audit &amp; Supervisory Board</td>
<td>A board overseeing the Company's financial and operational activities</td>
</tr>
</tbody>
</table>

Denka Group Officers and employees (excluding temporary workers and cohabiting families)

- Feedback
- Whistleblowing
A Message to Shareholders

Viewing the Company’s businesses from a historical perspective of our industry and a global perspective, I am committed to maintaining the foundations of fair and contributing to corporate operations and increasing corporate value.

Reasons for Appointment

Having gained rich experience and great insight as a manager in Japan and overseas through his involvement in corporate management, Mr. Fujihara has rich experiences and a global perspective. Accordingly, he possesses advanced insights regarding corporate finance. Expecting that Mr. Fujihara will employ his expertise and contribute valuable insights into a broad range of management issues, including Denka’s global expansion strategies, the Company has thus selected him as an outside director candidate and obtained approval on his appointment at the 159th Ordinary General Meeting of Shareholders.

Reasons for Appointment

A Message to Shareholders

In order to obtain the trust of all stakeholders, I am to monitor the legality and validity of the day-to-day execution of business duties based on the Companies Act and the precepts of the corporate governance code.

Message to Shareholders

A Message to Shareholders

Having gained rich experience and great insight as a manager in Japan and overseas through his involvement in corporate management, Mr. Fujihara has rich experiences and a global perspective. Accordingly, he possesses advanced insights regarding corporate finance. Expecting that Mr. Fujihara will employ his expertise and contribute valuable insights into a broad range of management issues, including Denka’s global expansion strategies, the Company has thus selected him as an outside director candidate and obtained approval on his appointment at the 159th Ordinary General Meeting of Shareholders.

Message to Shareholders

A Message to Shareholders

I realize that achieving the three visions in “Denka Value-Up” will lead to corporate growth and development, and, as I work toward this goal, I will divide and implement, and those where we must lay the foundations for future implementation.

Message to Shareholders

A Message to Shareholders

Through work experience at plants and subsidiaries, and many years of responsibility for management activities such as general affairs, legal, and HR divisions, and as the Representative in China, Mr. Kenji Nakano has amassed an abundance of operational experience. Currently, Mr. Nakano is continuing to promote strengthening risk management and compliance systems as the executive responsible for compliance, as well as overseeing general affairs, legal matters, personal affairs, internal auditing and other areas, in addition to being in charge of the Infrastructure Social Solutions Division. Because he was thus judged as capable of handling decision-making on important business issues and supervising the business execution of directors and executive officers, the Company selected him as a director candidate and obtained approval for his appointment at the 159th Ordinary General Meeting of Shareholders.

Message to Shareholders

A Message to Shareholders

I aim for the Company to achieve expectations and trust of all stakeholders, and transparent, taking into account the perspective of shareholders and investors.

Message to Shareholders

With good faith and determination, as laid out in the Company’s corporate philosophy, “The Denka Value,” in order to meet the expectations and trust of all stakeholders, I aim for the Company to achieve sustainable growth through the further specialization of its business structure and productivity innovations in addition to being a sound company that fulfills its social responsibilities.

Message to Shareholders

A Message to Shareholders

Under the corporate philosophy, “The Denka Value,” I will create a more trusted company by ensuring thorough awareness of social contribution and compliance as well as by working toward our targets.

Message to Shareholders

A Message to Shareholders

In addition to boasting a wealth of experience and deep knowledge and understanding of the Denka Group as an executive responsible for management strategy as well as the Accounting & Finance, Investor Relations and CSR & Corporate Communications departments, Mr. Ayabe also has international experience, including serving as a vice president at global enterprises. Expecting that Mr. Ayabe will employ his expertise and contribute valuable insights into a broad range of management issues, including Denka’s global expansion strategies, the Company has thus selected him as an outside director candidate and obtained approval on his appointment at the 159th Ordinary General Meeting of Shareholders.

Message to Shareholders

A Message to Shareholders

In order to gain the trust of all stakeholders, I am to monitor the legality and validity of the day-to-day execution of business duties based on the Companies Act and the precepts of the corporate governance code.

Message to Shareholders

A Message to Shareholders

The message to shareholders

Through continuous innovation leveraging the capabilities of the Group and by implementing a business-oriented management for our business in a way that strikes a balance between profitability and sustainability, I am committed to ensuring sustainable growth and improving corporate value.

Message to Shareholders

A Message to Shareholders

As one of the outside Audit & Supervisory Board members, I will press for the establishment of a corporate governance system that is sound and transparent, taking into account the perspective of shareholders and investors.

Message to Shareholders

In addition, as Chairman of the Board of Directors, I will endeavor to lead the Company as a director candidate and obtained approval for his appointment at the 159th Ordinary General Meeting of Shareholders.

Message to Shareholders

A Message to Shareholders

Viewing the Company’s businesses from a historical perspective and global viewpoint, I am committed to maintaining the foundations for future implementation.

Message to Shareholders

A Message to Shareholders

I aim for the Company to achieve expectations and trust of all stakeholders, and transparent, taking into account the perspective of shareholders and investors.
Disseminating Concepts behind Denka Value-Up to Unify All Denka Group Members toward the Plan’s Goal

The Denka Value-Up Promotion Department is striving to ensure that the growth vision and strategies under the “Denka Value-Up” management plan are well understood by all employees, who range from back office workers to operators at production frontlines. To this end, the department is engaged in the following initiatives.

- Preparing videos
  - In January 2018, we prepared and released a video announcing the launch of Denka Value-Up in an attempt to enhance corporate communications targeting both in-house and external audiences. A first for us, the video is crafted to best disseminate the underlying concepts of the management plan and features President Yamamoto delivering a message of strong determination regarding achieving the plan’s goals.
  - Looking ahead, plans call for preparing another video for an exclusively in-house audience twice a year over the course of the plan’s five-year period.
- Value-Up Sessions (roundtable dialogue)
  - We host roundtable dialogue sessions, inviting managers from production bases and various departments to voice their opinions on present issues that must be addressed if we are to realize the growth vision. We then aim to expand their vision of the ideal Denka as goals have been met.
  - In addition to featuring a summary of each dialogue session in an in-house wall-mounted newspaper, we compile the content of these sessions into a special booklet to be distributed to all business units so we aim to help employees better understand Denka Value-Up and foster a sense of ownership toward the realization of the plan.
- Posters featuring departmental targets
  - As part of our efforts aimed at ensuring that the growth vision is embraced by all business units, we have prepared posters for each department. These posters feature both the Company’s growth vision and department-specific targets being set of accomplishing said vision.
- Process reform initiatives and Denka Value-Up presentation meetings
  - Aiming to facilitate the introduction of innovative processes, one of our two growth strategies, we hold presentation meetings to draw attention to business units that earned success in this endeavor. Horizontally rolling out best practices to each business site, we are driving to ultimately realize overarching innovation in the Company’s operational processes.
- In-house intranet portal
  - We disseminate information about the status of process reforms by updating topics on relevant initiatives on our in-house intranet portal.

Outline of the “Denka Value-Up” Management Plan (fiscal 2018 – 2022)

Growth Vision

1. Become a Specialty-Fusion Company with a Strong Global Presence

Become a company that boasts outstanding global competitiveness backed by a robust portfolio of specialty businesses and products, along with its technological strengths and human resource capabilities.

2. Maintain Sustained Growth by Significantly Enhancing Productivity through Innovative Processes

Strive to achieve a drastic improvement in productivity and, to this end, focus on truly essential operations and introduce innovative processes through the utilization of IoT, AI and other cutting-edge digital technologies, thereby securing the ability to secure sustained growth regardless of external conditions.

3. Secure Sound Growth through Work Style Reforms

Develop a working environment that is inclusive of diverse working styles, with the aim of better collaborating with employees to pursue stakeholder happiness and to ensure sound corporate growth.

Growth Strategies

1. Business Portfolio Shift

- Accelerate growth of specialty businesses
  - We will focus our management resources on the following three priority fields, with the aim of achieving numerical targets through proactive strategic investments (e.g., execution of M&A and business alliances, reinforcement of our R&D structure and realization of human resources).

2. Introduction of Innovative Processes

Rather than adhering to precedent, we proactively work to introduce cutting-edge ICT technologies to focus on truly essential operations and the standardization of our processes to achieve drastic improvements in productivity; create new businesses; execute work style reforms; and promote workforce diversity.

- Secure Sound Growth through Work Style Reforms
  - Policy
    - We employ such core technologies as cutting-edge inorganic materials in product development, with the aim of better satisfying the latest needs for solutions that help achieve zero emissions, support autonomous driving systems and assist in other technological pursuits aimed at creating a clean and safe future society.
  - Primary themes
    - Value-Up Sessions (roundtable dialogue)
    - Posters featuring departmental targets
    - Process reform initiatives and Denka Value-Up presentation meetings
    - In-house intranet portal

3. Specialize our key operations

To secure resilience to changes in external conditions, we will work to increase the “specialty grade” ratio in the product lineup while shifting our focus to the solution business.

4. Redefine the positioning of the commodity businesses

We are redefining the positioning of our commodity businesses that are intrinsically unsuitable for specialization, to this end restructuring strategies for these businesses.

Healthcare (EBITDA ratio: 30%)

- Policy
  - We aim to help enhance patient’s quality of life.
  - Primary themes
    - Diagnostic reagents to manage metabolic diseases, services aimed at facilitating genome-based cancer treatment (particularly the selection of candidate drugs for molecular-targeted therapy), methods for mass-producing oncolytic viruses, and technologies to manufacture proteins using the tobacco plant.

The environment and energy (EBITDA ratio: 20%)

- Policy
  - We strive to meet high-profile infrastructure development needs in countries around the world through the provision of cutting-edge materials and solutions.
  - Primary themes
    - Promote global expansion via M&A, the marketing of products tailored to meet region-specific needs and cutting-edge infrastructure diagnosis services employing ICT technologies.

High-value-added infrastructure (EBITDA ratio: 10%)

- Policy
  - We aim to help employees cope with all-day work and healthcare and enable them to support our employees better.
  - Primary themes
    - Policy: Assistance systems employing ICT
    - Policy: Support for living a more fulfilling life

High-Value-added infrastructure (EBITDA ratio: 10%)

- Policy
  - We strive to meet high-profile infrastructure development needs in countries around the world through the provision of cutting-edge materials and solutions.
  - Primary themes
    - Promote global expansion via M&A, the marketing of products tailored to meet region-specific needs and cutting-edge infrastructure diagnosis services employing ICT technologies.

Operational process reforms

- Facilitate active in-house collaboration through the introduction of futuristic office functions
- Enhance operational productivity (streamline routine work, improve the efficiency of meetings, etc.)
- Develop a location-free working environment

Work style reforms/Diversity promotion

- Shift our focus from “quantity” to “quality” in terms of working hours
- Help employees enhance their quality of life
- Create an innovation-oriented organization by welcoming diverse human resources and helping them achieve success

Note: EBITDA ratio = (operating income + depreciation and amortization) / net sales
Business Portfolio Shift

In line with our growth vision, we are striving to become a “Specialty-Fusion Company” and, to this end, accelerating the growth of our specialty businesses while promoting the specialization of our key operations.

Accelerate the Growth of Specialty Businesses

<table>
<thead>
<tr>
<th>Healthcare</th>
<th>Policies:</th>
</tr>
</thead>
<tbody>
<tr>
<td>In addition to illness prevention and early diagnosis, we are expanding into cancer remedy and gene alteration analysis to help enhance people’s quality of life.</td>
<td>△ High-value-added infrastructure</td>
</tr>
<tr>
<td>The environment and energy</td>
<td>△ Work to increase “specialty grade” ratio in product lineup to secure resilience to changes in external conditions</td>
</tr>
<tr>
<td>We employ such core technologies as cutting-edge inorganic materials in product development, with the aim of better satisfying the latest needs for solutions that help achieve zero emissions, support autonomous driving systems and assist in other technological pursuits aimed at creating a clean and safe future society.</td>
<td>△ Place greater emphasis on product functionalities to promote the specialization of our chloroprene rubber (CR) business</td>
</tr>
<tr>
<td>In the healthcare field, we aim to step up our development needs in countries around the world through the provision of cutting-edge materials and solutions.</td>
<td>△ Shift our focus to the solution business</td>
</tr>
<tr>
<td>We strive to offer high-performance infrastructure development needs in countries around the world through the provision of cutting-edge materials and solutions.</td>
<td>△ Apply our special cement additive technologies to develop such products as weed-preventing soil solidifiers, thereby stepping up the provision of comprehensive solutions in our agri-products business.</td>
</tr>
</tbody>
</table>

High-value-added Infrastructure

We strive to offer high-performance infrastructure development needs in countries around the world through the provision of cutting-edge materials and solutions.

Healthcare

In the healthcare field, we aim to step up our existing operations related to vaccines and diagnostic reagents while expanding into new business fields, including cancer treatment.

To enhance our capabilities in the vaccine business, we made Icon Genetics GmbH, a Germany-based company specializing in biopharmaceutical R&D, our third subsidiary in April 2020.

In addition to illness prevention and early diagnosis, we are expanding into cancer remedy and gene alteration analysis to help enhance people’s quality of life. The environment and energy

We employ such core technologies as cutting-edge inorganic materials in product development, with the aim of better satisfying the latest needs for solutions that help achieve zero emissions, support autonomous driving systems and assist in other technological pursuits aimed at creating a clean and safe future society.

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In addition to illness prevention and early diagnosis, we are expanding into cancer remedy and gene alteration analysis to help enhance people’s quality of life.

The Environment and Energy

In the field of the environment and energy, Denka’s ultra-high purity acetylene black is widely used as a cathode conductive agent for lithium-ion secondary batteries (LIBs). Currently, we are striving to create carbon black with even higher purity while enhancing our technologies to control particle diameters, with the aim of helping enhance LIB performance. Having long been engaged in the development of sophisticated nitriding technologies, we are presently manufacturing silicon nitride ceramic powder and are finding applications for our superior molding and carbonizing technologies. Thanks to our strong presence in the field, our silicon nitride-based products have become increasingly sought after as a material for thermally conductive substrates for power modules used in automobiles and railcars. We are currently striving to enhance their thermal conductivity and strength to differentiate them from competitors in terms of performance.

High-Value-Added Infrastructure

In the field of high-value-added infrastructure, we are endeavoring to expand our operations related to special cement additives that help enhance the quality of concrete and mortar. To this end, we are strengthening our production and sales structure in China and Southeast Asia. Taking advantage of burgeoning economic expansion and population growth in these regions, we will proactively seize growing infrastructure demand associated with the development of traffic and power networks.

Specialize Our Key Operations

Policies

- Work to increase “specialty grade” ratio in product lineup to secure resilience to changes in external conditions
- Place greater emphasis on product functionalities to promote the specialization of our chloroprene rubber (CR) business
- Shift our focus to the solution business
- Apply our special cement additive technologies to develop such products as weed-preventing soil solidifiers, thereby stepping up the provision of comprehensive solutions in our agri-products business

We have acquired chloroprene rubber-related operations from the U.S.-based DuPont, thereby establishing Denka Performance Elastomer LLC (DPE) in the United States. While the chloroprene rubber production facility formally run by DuPont employs the butadiene-based manufacturing method, Denka’s Omi Plant in Japan manufactures this material by using the acrylonitrile-based method. Employing production facilities that use different manufacturing methods for the same purpose has allowed us to make major progress toward creating a truly optimal production system while capturing greater market share. In turn, this structure has helped Denka significantly increase its global presence as a chloroprene rubber supplier.

We have also made CRK Corporation, which handles the manufacture, processing and sale of industrial rubber products, a wholly owned subsidiary as part of our ongoing efforts to accelerate the specialization of our businesses. This move is specifically intended to enhance synergies between Group companies charged with material development and product development.

Furthermore, we have developed Evolmer, a novel elastomer-based material in superior oil and heat resistance as well as high amenability via a combination of elastomer technologies that have been developed over many years, and precision polymerization technologies that reflect a long track record in polymer development. Going forward, we will strive to expand the lineup of high-value-added products, thereby promoting the specialization of the elastomer business as a whole.

The Denka Value-Up Promotion Department, a body charged with spearheading Groupwide initiatives under the Denka Value-Up management plan, is pushing ahead with the transformation of our portfolio. Looking ahead, the department will also take the lead in redefining the positioning of commodity businesses that are intrinsically unsuitable for specialization.

Optimization of value chains for calcium carbide and styrene-based products

- Decided to terminate the production of calcium carbide at the Omura Plant, decisively overhauled operations boasting a century-long track record since Denka’s founding
- Entered an alliance with Sumitomo Osaka Cement Co., Ltd. to launch a joint logistics scheme
- Stepped up collaboration with external companies to form an industrial complex in Chiba to streamline utilities

Initiatives to Develop New Businesses to Help Create Next-Generation Automobiles

Automotive Materials & Solutions (AMS) Dept.

To date, the automotive industry is undergoing significant change worldwide in the face of looming issues associated with global climate change and the depletion of natural resources, as well as the emergence of autonomous driving systems and other new technologies now being commercialized. Since its establishment in April 2019, the Automotive Materials & Solutions (AMS) Department has been engaged in proposing solutions that aim to address issues the industry is now confronting, employing resources across the Denka Group.

Specifically, the department is focused on responding to two major trends, namely, the growing popularity of electric vehicles (EV) and the acceptance of autonomous driving systems. Looking at the spread of automobiles from the four aspects of the “environment and energy,” “safety,” “convenience” and “comfortableness,” we are thus engaged in research aimed at commercializing new business seeds that utilize our core technologies.

Based on a solid track record in the automotive field, the Denka Group has been supplying an array of products, including elastomers for use in hoses and air suspension systems, raw materials for heat-resistant ABS resin used in car interior and exterior components, electronic circuit substrates for car electronics, black for ABS/PS compounding agents for wire harnesses and structural adhesives. In addition to endeavoring to expand the sales of these offerings, we will strive to nurture new businesses in this field.
Introduction of Innovative Processes

Focusing on truly essential operations, we will promote the introduction of cutting-edge ICT technologies and the standardization of our processes in an effort to achieve drastic improvements in productivity, create new businesses and execute work style reforms.

Production Process Reforms

<table>
<thead>
<tr>
<th>Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Restructure our production facilities into ICT-based next-generation smart factories</td>
</tr>
<tr>
<td>• Build a robust, overarching information platform capable of managing all data on a real-time basis</td>
</tr>
<tr>
<td>• Realize manufacturing operations with greater productivity and superior stability</td>
</tr>
</tbody>
</table>

Our Accomplishments as of the Fiscal 2017 Year-End

The AI & IoT Promotion Section, which was established in October 2017 to promote the utilization of IoT, AI and other cutting-edge technologies, is currently working in collaboration with manufacturing sites at home and abroad and other relevant departments to promote production process reforms and operational process reforms with the goal of doubling labor productivity. In addition, projects now under way at the Group’s four plants in Singapore to create a “smart factory” have been qualified by the Singaporean government as eligible for the country’s innovation-driven growth strategies. Thus, under the auspices of Singapore’s Economic Development Board, these plants have been engaged in five-year initiatives since November 2017 (examples outlined below).

Meanwhile, our domestic production bases have continued to introduce AI-based automated inspection systems, transportation systems using automatic guided vehicles (AGVs) and other automation and robotics solutions. We are also engaged in the trial operation of a “smarter” production process that utilizes advanced sensing technologies and employs big data analysis. The process is expected to better position us to detect signs of facility failure and achieve more stable operations.

R&D Process Reforms

<table>
<thead>
<tr>
<th>Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify R&amp;D themes oriented toward specialization</td>
</tr>
<tr>
<td>• Develop R&amp;D assistance systems employing ICT</td>
</tr>
<tr>
<td>• Nurture diverse human resources by providing them with strategically designed career paths</td>
</tr>
</tbody>
</table>

Our Accomplishments as of the Fiscal 2017 Year-End

In fiscal 2017, we promoted collaborative R&D with external corporations, with our younger researchers who have not been at Denka more than 10 years taking leading roles. The purpose of this exercise was to incorporate unconventional ideas and trigger flexible thinking. Simultaneously, we solicited employee proposals on R&D themes that are expected to help create new businesses. By doing so, we strove to engender R&D activities that transcend the scope of material development.

In the face of a growing trend toward technological development aimed at realizing “Industry 4.0,” we also set up and began utilizing a “data lake” on a server that can be accessed from all business units, with the aim of upgrading and reorganizing R&D assistance structure. Employing the Open Innovation Management System (OIMS) as a flagship tool for promoting R&D process reforms, we are engaged in the real-time management of progress in R&D activities on each research theme.

Also, we have positioned our human resources as a key driving force promoting the Denka Value-Up management plan. With this in mind, we initiated discussion on how help them achieve a “Value-Shift” and determined the outline of our strategies for nurturing and allocating researchers. Moreover, in fiscal 2017 we dispatched a growing number of researchers to study abroad and encouraged them to acquire diplomas at leading academic institutions, with the aim of nurturing them into Denka’s next-generation leaders in terms of R&D.

Operational Process Reforms

<table>
<thead>
<tr>
<th>Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Facilitate active in-house collaboration through the introduction of futuristic office functions</td>
</tr>
<tr>
<td>• Enhance operational productivity</td>
</tr>
<tr>
<td>• Develop a location-free working environment</td>
</tr>
</tbody>
</table>

Our Initiatives in Fiscal 2017 through the First Half of Fiscal 2018

We renovated our Head Office in the aforementioned period. This project was intended to realize a “futuristic office” that fully employs ICT solutions. More specifically, we entirely revamped the facility’s working spaces while massively replacing ICT equipment, so that employees are able to embrace more flexible working styles supported by a paperless platform and a location-free office environment.

Having intensively discussed how to facilitate in-house collaboration and enhance operational productivity, we have revised our Head Office floor plans and realigned working spaces, with emphasis being placed on the following three points.

- Facilitate collaboration between sales and administrative departments
- Utilize synergies between all Denka business units
- Strengthen the Denka Group’s communication capabilities targeting external audiences

We have thus consolidated four out of five sales departments on the eighth floor and all administrative departments on the 10th floor. Furthermore, we relocated reception and meeting rooms to the ninth floor while newly establishing a manned reception desk on the same floor as part of our efforts to ensure that visitors to the Head Office feel welcome.

Developing an IT-Driven Office Environment Supporting Operational Process Reforms

1. Creating a “Paperless Office”

In December 2016, we stopped distributing paper-based handout materials at our Board of Directors meetings. This was thanks to the introduction of a paperless meeting platform, with tablet terminals being furnished to each meeting attendee. We are also rolling out the use of this platform to other key meetings.

In February 2018, we introduced an electronic approval system designed to take over from the former conventional application and approval procedures requiring the use of personal seals of relevant individuals on documents. We are thus striving to create swifter operational procedures by going paperless.

2. Upgrading our ICT Environment

- As part of the aforementioned renovation of Head Office facilities in July 2018, we have made secured wireless LAN connection available from anywhere in the building. Thanks to this move, all Head Office employees are now able to access the Company’s intranet system via laptop and engage in tasks whether at a desk or in a meeting room.

- We have installed projectors and monitors in all meeting rooms and spaces, with the aim of eliminating the need for paper-based handout materials. This move is expected to improve the efficiency of meeting preparations by freeing up resources that had been used for printing, copying and distributing presentation materials.

3. Future Initiatives

- We will introduce a document management system to expand the scope of paperless in-house operational procedures. We will also make it a rule to store important meeting materials in the form of electronic data rather than paper document. This will be not only labor saving but space saving as the need for massive storage space is eliminated.

- With the aim of facilitating in-house communication, we will engage in such initiatives as the additional installation of teleconferencing systems, the introduction of a next-generation groupware and the expansion of intranet portal content.

“Smart Factory” Initiatives Being Undertaken in Singapore

(1) Upgrading of network and other infrastructure to boost the plant’s big data collection and consolidation capabilities and to perform the advanced analysis of such data
(2) Installation of an automated system for constantly monitoring and analyzing vibrations produced by rotating machinery as well as electric waveform and other information to detect signs of possible facility failure and stabilize operations
(3) Realization of a quicker product quality inspection process by predicting quality based on process data and performing in-line quality analysis
(4) Optimization of production plans to maximize profitability (using simulations and applying the results)

Note: Discussions about the installation of a system to determine the whereabouts and safety of operators are now under way.

A renovated Head Office working space designed to facilitate in-house collaboration
Business Strategies | Life Innovation

Looking to improve the quality of life for people worldwide, the Denka Group is steadily implementing a variety of initiatives in the healthcare field, which boasts significant growth potential. These initiatives include promoting illness prevention and early diagnosis in addition to expanding into cancer remedy and gene alteration analysis.

Looking ahead, by focusing our management resources on the priority healthcare field and speeding up the development of next-generation products, we will contribute to the entire Denka Group’s efforts to accelerate the growth of its specialty businesses.

Review of the Denka100 Management Plan

**Denka100 Initiatives**

- **2015**: Developed prototype Ebola virus rapid diagnostic test kits
- **2016**: Completed a new manufacturing facility at Denka Seiken’s Nagahama Plant
- **2016**: Established an R&D base in Singapore
- **2016**: Entered a business alliance with the Taiwan-based PediBio Co., Ltd.
- **2017**: Established Denka-KEW Genomics LLC
- **2017**: Acquired U.S. FDA 510k clearance for the reagent for measuring sd LDL-C
- **2017**: Released QuickNAV™Flu 2 rapid diagnostic test kit
- **2017**: Hana Icon Genetics a wholly owned subsidiary
- **2017**: Completed a facility for manufacturing sG47A oncolytic virus

**Business Strategies under Denka Value-Up**

1. **The Market Environment**
   - Growth in healthcare expenses due to the progressively aging society and the sophistication of medical technologies
   - Increasing risk of infectious disease pandemics, reflecting the formation of a global traffic network on the back of economic growth in developing countries
   - Solutions for illness prevention and early diagnosis have become ever more important

2. **Strategies**
   - Step up key operations (influenza vaccines, diagnostic reagents, macromolecular sodium hyaluronate preparation, etc.)
   - Get new businesses smoothly on track (anticancer virus and Denka-KEW Genomics, etc.)
   - Promote open innovation to create products and technologies for future generations (Denka Innovation Center, Icon, Denka Life Innovation Research, etc.)

Main Achievements in Fiscal 2017

- Denka Seiken Co., Ltd. acquired 510k clearance* for a reagent that measures small, dense LDL cholesterol (sd LDL-C) from the U.S. Food and Drug Administration (FDA). Also, the company expanded its lineup of QuickNAV™ series rapid diagnostic test kits for detecting infectious diseases with the release of a new test kit for detecting mycoplasma antigen and introduction of an improved influenza virus antigen test kit.
- We entered a basic agreement with PlexBio, a strategic partner headquartered in Taiwan, with regard to the joint development of an infectious disease diagnostic testing system comprising a new set of equipment and reagents, with the aim of reducing the time required to detect pathogenic microorganisms and drug resistant bacteria. In this way, we aim to address a major issue medical practitioners are now confronting in the field of infectious diseases.

* 510k clearance: Approval granted by U.S. FDA for the sale of Class I, II and III medical equipment and in-vitro diagnostic reagents. The U.S. FDA applies a three-tiered risk-based classification system that designates such items as Class I, II or III.

**Technologies**

Bacterial and virological cultivation and refinement technologies, antigen and antibody reaction control technologies, monoclonal antibody production technologies, etc.

**Products**

Vaccines, diagnostic reagents, joint-function improvers, etc.

**Business fields**

Healthcare (diagnosis, treatment and prevention)

Denka Seiken Co., Ltd., a core subsidiary supporting the Life Innovation Division, is striving to enrich the Group’s lineup of products associated with disease prevention, health checkups and diagnosis and has established a manufacturing facility for cancer drugs in October 2017. This new facility supports the cancer remedy business, which Denka Seiken is working to establish as its third business pillar next to vaccines and diagnostic reagents in a bid toward achieving significant growth.

Also, Germany-based Icon Genetics GmbH became a wholly owned subsidiary with the completion of an additional acquisition of shares in August 2017. Employing magnICON, a technological platform created by Icon, we are developing norovirus vaccines, creating new technologies that will replace conventional technologies for producing seasonal influenza vaccines, and manufacturing antigens for use in diagnostic reagents.

**Challenge**

- Expand the scope of operations by accurately assessing the latest market trends

**Product source**

Reagent for measuring sd LDL-C

Good Health and Wellness

**Source of value**

- High mortality rate of heart disease patients
- Applied technologies deriving from lipoprotein subclass separation technologies that have been cultivated through the involvement in the diagnostic reagent business

*This reagent is used to measure the density of sd LDL in the overall cholesterol count. To date, the measurement of LDL cholesterol has proved insufficient as a risk indicator for heart disease and coronary heart disease; however, the measurement of sd LDL-C promises to serve as an accurate risk indicator. A special method had to be devised so that sd LDL-C, one of a number of the lipoprotein subclasses that comprise LDL cholesterol, could be measured. Moreover, Denka Seiken had to apply its highly sophisticated diagnostic reagent technologies to develop the reagent so that it could be employed in commonly used automated clinical chemistry analyzers. We are convinced that the creation of a simple, quick and low-cost diagnostic solution for assessing heart disease risk will promote the maintenance of good health, help prevent disease and reduce medical expenses.

Having acquired U.S. FDA 510k clearance for this reagent in August 2017, we have thus initiated full-scale marketing in that country in July 2018.
We are aware of the ever-more stringent customer requirements regarding product miniaturization, performance, safety and reliability that are being required of electronics device makers on the back of advances in ICT and the emergence of such technologies as autonomous driving systems. With this in mind, we will deliver optimal materials to our customers by fully leveraging a variety of key in-house technologies that enable us to meet constantly evolving needs. In these ways, we will contribute to the betterment of society.

Main Achievements in Fiscal 2017

- Enhanced the color reproduction property of the β-SiAlON Phosphor
- Released silicon nitride ceramics plate (SNP) backed by a thick copper substrate for use in large-current power modules
- Expanded the sales of metal circuit substrates for use in LED-based automobile headlamps
- Expanded sales of thermally conductive spacers and particle-grade acetylene black for use in automotive-use LIBs
- Expanded sales of spherical alumina for use as thermal solutions used in communication and vehicle-mounted devices

Challenges

- Employ our production and development technologies in a lasting and strategic manner
- Execute production and operational process reforms while taking a flexible stance in human resource management
- Step up initiatives to secure product quality, pursue environment friendliness and mitigate risk in the face of business expansion

Business Strategies under Denka Value-Up

1. The Market Environment
   - Formation of new markets due to the popularization of EVs, HEVs and other eco-friendly vehicles
   - Changes in market needs in the face of growing needs for the combination of automotive technologies and ICT
   - Growing presence of new technologies, reflecting breakthroughs in IT and displays

2. Strategies
   1. Accelerate specialization
      - Promote the specialization of our businesses targeting the semiconductor, electronic component and vehicle-mounted device markets
   2. Boost our production capabilities to better serve growth markets
      - Conduct timely capital investment to secure responsiveness to a rapid surge in demand
   3. Expand new businesses
      - Push ahead with development projects to realize earlier commercialization

Review of the Denka100 Management Plan

**Denka100 Initiatives**

- 2013: Stepped up our capital alliance with TEL Corporation and accelerated technological development aimed at increasing the conductivity of LIB electrode materials
- 2013: Initiated the construction of an ultra-high purity acetylene black production facility
- 2013: Established the NIMS-DENKA Center of Excellence for Next-Generation Materials
- 2013: TEMPLUC temporary coupling agent was chosen to receive an Award from the Society of Polymer Science, Japan
- 2014: Completed the construction of a new facility in Vietnam to produce Denka Thermo Film for use as an embossed carrier tape for electronic components
- 2015: Established the Automotive Materials & Solutions Dept.
- 2016: Completed a new production base in Dalian, China, for the manufacture of ALINK, a highly-reliable thermal conductive plate

Five-Year Divisional Performance Summary

- FY2011: R&D expenses = 9%, Operating income = 9.5, Operating income ratio = 5%
- FY2014: R&D expenses = 9%, Operating income = 9.5, Operating income ratio = 5%
- FY2016: R&D expenses = 9%, Operating income = 9.5, Operating income ratio = 5%
**Business Strategies under Denka Value-Up**

1. **The Market Environment**
   - Growing demand for solutions supporting infrastructure development, maintenance and upgrading (related to post-disaster reconstruction, publicly funded investment in new facilities and countermeasures to the aging of facilities)
   - Burgeoning infrastructure development needs in China and Southeast Asia and growing demand for high-performance specialty products in Europe and the United States
   - In farming, trends are toward labor saving and large-scale operations to shore up Japan's agricultural sector
   - Growing need for ecological solutions

2. **Strategies**
   - Develop products that support infrastructure maintenance and cultivate relevant markets
   - Facilitate the utilization of recycled waste and thereby help develop a recycling-oriented society
   - Step up overseas expansion by augmenting our local network for special cement additives in Asia
   - Maximize profitability by optimizing our production system
   - Promote the development of novel farming materials, thereby reinforcing our solution business targeting the agricultural sector
   - Propose and implement solutions to help create energy-saving, environment-friendly steel and industrial furnaces

**Denka100 Initiatives**

- **2013**
  - Launched a full-scale expansion into markets overseas with special cement additives, announcing marketing strategies for China and Southeast Asia
- **2014**
  - CO₂-SUICOM, environment-friendly concrete, was chosen to receive the Chairperson's Award under the Eco-Products Awards Steering Committee program sponsored by Eco-Products Awards
- **2015**
  - CO₂-SUICOM was chosen to receive the Chairperson's Award under the Eco-Products Awards Steering Committee program sponsored by Eco-Products Awards
  - Made PT ESTOP Indonesia, an Indonesia-based construction materials maker, a Group subsidiary
  - Established a subsidiary aimed at streamlining cement-related logistics operations

**Review of the Denka100 Management Plan**

**Business Fields**
- Civil engineering, construction, iron-making, ceramics, energy, agriculture, automobiles, etc.

**Technologies**
- In-house power generation, mining, concrete hardening, expansion and contraction, material design, construction and repair technologies and soil improvement and fertilization technologies as well as high-temperature calcining technologies for inorganic materials and polymer processing technologies

**Products**
- Cement, cement additives, fertilizers, inorganic chemicals and plastics

**Main Achievements in Fiscal 2017**

- **Cement**
  - Proactively accepted waste and byproducts for resource recycling
  - Special cement additives
  - Initiated the supply of quick-setting agent for use in tunnel construction for the Liner Chuo Shinkansen (bullet train line)
  - Commercialized DENKA POWER CSA expansive additive for flooring materials used in factories and logistics facilities
  - Agri-products
  - Promoted the production of fertilizers employing combustion ash from chicken droppings used to feed biomass power generation facilities
  - Inorganic products
  - Developed high-value-added products boasting superior heat insulation
  - Environmental materials
  - Supplied materials for underground drainage being installed as part of the reconstruction of disaster-stricken rice paddies in Miyagi Prefecture
  - Promoted the use of underground irrigation systems designed to facilitate multi-functional rice paddies

**Challenges**

- **Cement**
  - Develop new recycling technologies
  - Special cement additives
  - Propose even better solutions for large projects to secure greater market presence
  - Proactively expand overseas operations to secure sustainable growth
  - Agri-products
  - Develop fire-resistant materials and thermal insulation products to meet individual customer needs
  - Environmental materials
  - Promote the adoption of a farmland development model that fully leverages Denka's unique strengths.
Business Strategies | Living & Environment Products

We will take on the pursuit of new value without insisting on limiting the search to a particular material or field and, to this end, fully take advantage of our strengths in the areas of technology and quality, with the aim of supporting the entire Group in our role as a chemical engineering division. In these ways, we will create and deliver products that satisfy market needs to in-house and external partners.

Review of the Denka100 Management Plan

**Denka100 Initiatives**

2013
- Completed the new VINI-TAPE production facility in China
- Established a new subsidiary in Vietnam and decided to construct a new VINI-TAPE production facility
- Established a local subsidiary in Dubai
- Completed the new TOYOKALON production base in China
- Commenced the construction of a new food packaging sheet manufacturing facility in China
- Developed Mighty Guard, a heat- and oil-resistant sheet

**Business Strategies under Denka Value-Up**

1. **The Market Environment**
   - The maturation of the domestic market and intensifying competition
   - Growth in market potential reflecting the burgeoning environmental load reduction
   - Growing public awareness of the need for environmental load reduction
   - Growing interest in food safety

2. **Strategies**
   - Enhance facility utilization at home and abroad and establish an optimally-balanced production structure
   - Scrutinize every cost element to secure an even stronger business structure
   - Strategically allocate resources to growth drivers

**Characteristics of the Business Division**

- **Technologies**: Sheet film manufacturing technologies, adhesive manufacturing and adhesion coating technologies, resin compounding technologies, plastic ejection processing technologies, etc.
- **Products**: Resins, elastomers, molded metal products, films, sheets synthetic fibers, etc.
- **Business fields**: Architectural materials, wigs and hairpieces, and food packaging

**Main Achievements in Fiscal 2017**

- Better serving overseas markets
  - Launched full-scale production and marketing of harness tapes at Denka Advanced Materials Vietnam
  - Launched full-scale production of TOYOKALON at the Tsuas South Plant of Denka AdvanceTech Pte., Ltd. in Singapore
  - Studied the feasibility of new businesses
  - Developing new products
    - Developed the industry’s thinnest and lightest PVC adhesive tape for use in automotive bundling tapes for wire harness

**Challenges**

- Promote the optimization of our production system while reorganizing the current business structure
- Create next-generation businesses and cultivate markets for new offerings
- Allocate greater resources to and step up the development of products aimed at helping reduce environmental burdens

**Examples of finished products made using DENKA THERMOSHEET**

- TOYOKALON (synthetic fiber for wigs and hairpieces)
- Examples of finished products made using DENKA THERMOSHEET (packaging materials for food containers)

**Product example**: Cold-resistant thin harness tape

- Make cities and human settlements inclusive, safe, resilient and sustainable

**Social issue**
- Popularity of eco-friendly vehicles
-Needs for solutions enhancing driving safety

**Source of value**

**Technologies to realize the smallest thickness and weight while retaining cold resistance**

This product is used as an adhesive tape for bundling automobile wire harnesses.* The thinnest and lightest tape in the industry, the product contributes to the creation of lightweight automotive components while also contributing to the maintenance of driving safety in cold regions as it can be used at temperatures as low as minus 30°C. In addition, we employed environment-friendly ingredients to produce the adhesive used in this product.

In the face of EV popularization and the emergence of autonomous driving systems, car electronics makers are expected to face even stricter customer requirements in terms of product reliability. We will help satisfy such requirements by employing proprietary Denka technologies.

*Wire harness: An electrical wiring assembly for use in equipment like automobiles and home appliances to transmit electronic signals and power.
Business Strategies | Elastomers & Performance Plastics

Leveraging a broad range of techniques and experience in synthesizing, compounding and molding polymers, we are bolstering technological innovation in such manufacturing fields as automobiles, home appliances and food packaging. By doing so, we are contributing to the sound development of society. Currently, the division’s overseas sales ratio is holding stable at over 60%. In addition to our production bases in Japan, we operate overseas plants in the United States and Singapore. We will fully employ these facilities to meet the ever-growing needs of the global market while developing specialty businesses with outstanding competitiveness and presence.

Review of the Denka100 Management Plan

1. Denka100 Initiatives
   - 2014 Withdraw from the vinyl acetate monomer business
   - 2014 Overhauled ABS resin and special functional resin production processes to enhance manufacturing competitiveness
   - 2014 Signed an agreement with the U.S.-based DuPont with regard to the transfer of its operations related to Neoprene™
   - 2015 Completed the transfer of the Neoprene™ business from DuPont
   - 2015 Co-developed rubber bearings for bridges based on a new material boasting significantly improved ozone resistance
   - 2016 Optimized utilities for the Chiba Plant to enhance manufacturing competitiveness

Five-Year Divisional Performance Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>Net sales (Billions of yen)</th>
<th>Operating income (Billions of yen)</th>
<th>Operating income ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>200</td>
<td>180</td>
<td>9</td>
</tr>
<tr>
<td>2013</td>
<td>120</td>
<td>160</td>
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<td>2015</td>
<td>150</td>
<td>180</td>
<td>9</td>
</tr>
<tr>
<td>2016</td>
<td>160</td>
<td>180</td>
<td>8</td>
</tr>
</tbody>
</table>

Business Strategies under Denka Value-Up

1. The Market Environment
   - Burgeoning demand for ecological solutions and growing public awareness of safety and healthcare
   - Increasing market presence of commodity manufacturers based in emerging economies
   - A shift to overseas production in electronics, automotive and other related markets on the back of demand growth in emerging economies
   - Growing trend toward protectionism in some regions

2. Strategies
   - Develop high-value added businesses to secure resilience against changes in the trading environment, thereby achieving sustainable growth
   - Focus resources to growth fields and promote collaboration with external companies with the aim of developing new businesses
   - Optimize all processes from production to sales while developing a more robust structure capable of better serving the global market
   - Upgrade the functions of the Product Safety Management Section to ensure the stricter management of chemical content and more robust quality assurance

Main Achievements in Fiscal 2017

- Denka Performance Elastomer LLC achieved profitability in its second year of operations, which date back to the 2015 acquisition of DuPont’s CR-related operations
- Made CRK Corporation, a company engaged in the production, processing and marketing of synthetic rubber products, a wholly owned subsidiary
- Augmented the structure for chemical content management and quality assurance via the allocation of additional staff to the Product Safety Management Section
- Reduced the workload for routine tasks by approximately 20% thanks to the success of streamlining via operational process reforms

Characteristics of the Business Division

Technologies:
- Polymer structure design and polymer composite technologies
- Material composite and compounding technologies
- Emulsion control technologies, etc.

Business fields:
- Automobiles, electric and electronic devices, food packaging, household goods for daily use, etc.

Elastomers & Performance Plastic Division is in charge of three business categories: the elastomer business, which includes our flagship global market leading chloroprene rubber (CR) operations; the performance plastics business, which boasts highly functional styrene-based products in an array of grades; and the styrene and chemicals business, which centers on styrene monomer and acetyl chemicals.

Challenges

- Increase profits from the elastomer business by expanding the production volume of CR and DENKA ER, enhancing CR functions and maximizing synergies between two CR production bases in Japan and the United States in addition to the introduction of Evolmer, a novel elastomer
- Step up strategic involvement in technical services which will, in turn, enable us to quickly acquire tips from users with regard to their latest needs and develop new products and grades to meet such needs
- Capture burgeoning demand in the optical field to expand sales of resin products
- Promote the overall specialization of our businesses in the fields of resins and chemicals via the development of highly functional products
- Utilize AI and IoT to renovate our production and supply chain processes and enhance our competitiveness
- Introduce customer management and business assistance tools to achieve further improvement in operational productivity

Examples of CR-based automobile parts

Examples of products made using DENKA TRANSPARENT POLYMER (polymer-based functional resin)

A slope that has been sprayed with DENKA COAT soil erosion prevention agent

Elastomer Business

- Elastomer business, which includes our flagship global market leading chloroprene rubber (CR) operations
- Performance plastics business, which boasts highly functional styrene-based products in an array of grades
- Styrene and chemicals business, which centers on styrene monomer and acetyl chemicals

Technologies:
- Polymer structure design and polymer composite technologies
- Material composite and compounding technologies
- Emulsion control technologies, etc.

Business fields:
- Automobiles, electric and electronic devices, food packaging, household goods for daily use, etc.

Examples of products made using (styrene-based functional resin)

- DENKA ER, consisting of ethylene, vinyl acetate and acrylic acid ester, boasts superior heat resistance that allows it to withstand a temperature as high as 175°C as well as durability against corrosion attributable to simultaneous exposure to heat and oil. This special acryl-based rubber is used in the peripheral hoses of automobile turbo chargers. In this way, DENKA ER is contributing to automobile fuel efficiency and thereby helping to counter global warming.
Product Safety

Initiatives to Ensure Product Safety

In fiscal 2017, we strove to maintain strict compliance with laws, regulations and corporate ethics with regard to product safety and, to this end, engaged in the acquisition of information, surveys and communication in line with guidelines we established in 2016 for the management of chemical substances used in our products, while reviewing the status of such activities.

As part of our initiatives to strengthen our corporate governance, we also worked to upgrade quality and environmental management systems in place at each business site and affiliate to secure conformity with the 2015 version of ISO 9001 and 14001 standards. At the same time, we updated our quality management rules and guidelines and stepped up education for managers with regard to quality management.

We will continue to implement measures to strengthen our corporate governance in fiscal 2018 and beyond. Employing our product safety management system, we will also engage in product stewardship initiatives aimed at ensuring that throughout their entire life cycles our products have no harmful impact on human health and minimal environmental footprints. As part of these initiatives, we will continue to provide our stakeholders with sufficient product information through the preparation of Safety Data Sheets while further developing our organizational structure and in-house rules to secure compliance with ever stringent legal regulations.

Initiatives to Enhance Product Quality

By the end of fiscal 2017, some 80% of Denka’s domestic production sites completed the upgrade of their quality and environmental management systems, bringing them into conformity with the 2015 version of ISO 9001 and 14001. With 70% of Group facilities having upgraded their quality and environmental management systems, plans now call for completing the upgrade process for all remaining Group facilities by September 2018. Upgraded systems now in place include procedures aimed at addressing possible emergencies (e.g., lack of labor force, infrastructure disruption and supplier problems) and the standardized utilization of Failure Mode and Effect Analysis (FMEA) in product design and development. These additional elements are expected to help us enhance the level of quality assurance.

Going forward, we will continue striving to boost our quality assurance by, for example, acquiring IATF 16949 automotive quality management system standard certification and conducting more robust design reviews at the R&D stage.

Major Quality Issues and the Number of Complaints

Since April 2016, we have experienced no product liability-related problems or major quality issues, such as serious client complaints or product recalls due to critical product defects. Moreover, the number of complaints registered in fiscal 2017 was down to critical product defects. Moreover, the number of complaints registered in fiscal 2017 was down approximately 8% year on year, a continuation of the declining trend we have seen over the last several years (393 in fiscal 2015; 326 in fiscal 2016; and 298 in fiscal 2017).

Creating New Products and Technologies That Contribute to Social Sustainability

Initiatives Undertaken by the New Business Planning & Development Department

Dedicated Team and Task Forces in Operation

The New Business Creation Team, a dedicated body charged with spearheading across-the-board initiatives aimed at creating new businesses, is currently engaged in theme exploration, scenario planning and feasibility studies* to help accelerate commercialization. In fiscal 2017, three taskforces were launched under the team to this end. With the New Business Planning & Development Department acting as a coordinator, efforts are also under way to raise employee awareness of new business creation and help them crystallize the specifics of their business blueprints.

Acquiring “Missing Parts” to Smoothly Launch New Businesses

To speed up our business creation initiatives, we are striving to shorten the development period by acquiring “missing parts,” namely, essential technological elements that can only be acquired from external sources. For example, Denka is a member of the Industrial Liaison Program sponsored by the Massachusetts Institute of Technology in the United States. This program is intended to help members collaborate with venture startups, and Denka is benefiting from it by acquiring missing parts and discovering cutting-edge technologies applicable to its operations. Denka also utilizes J-GoodTech, an online business matching platform run by the Organization for Small & Medium Enterprises and Regional Innovation, JAPAN.

Scenario Planning Aimed at Creating New Businesses

As part of initiatives to promote open innovation, young researchers at Denka interact with their peers at several partner companies. This encourages the generation of ideas for new businesses and facilitates scenario planning. Of countless theme candidates that have been identified via this interaction, more than 300 have been dropped from discussion due to the unlikelihood of the candidates benefiting either Denka or a partner. However, we have re-examined even discarded candidates on our own based on three perspectives, namely, core competence, scalability and practicality. As a result, we reasigned one theme candidate in fiscal 2017 to an industry study subject.

* Feasibility study: A process in which the possible commercialization of a new business is examined from the standpoint of securing ongoing profitability and other factors

Yamazaki: The very purpose of our products, such as diagnostic reagents, is to benefit patients. Therefore, looking at it as a patient, I believe that we are playing an essential role by delivering these products in a timely manner and enabling medical practitioners to conduct swift diagnostic testing that ensures optimal treatment and correct prescriptions. I believe all Denka Seiken employees, including me serving as a sales representative, are well aware of the importance of maintaining stable product supply.

Arai: The company consolidated diagnostic reagent production facilities at its Kagamida Plant in 2016. Thanks to this move, staff at production departments are now able to engage in more robust communication, which, in turn, helps strengthen our ability to maintain stable supply.

Muramatsu: I agree. For example, staff in charge of each production process often discuss methods for stabilizing diagnostic reagent production and increasing its output. Inhouse collaboration is now smoother than ever before.

Yamazaki: Demand for influenza rapid diagnostic test kits (POCT* reagents) can rapidly surge once an influenza outbreak emerges. Producers of these rapid test kits are called to maintain supply capabilities to secure responsiveness to emergencies of this kind and we are confident about our capabilities to address such a situation.

Shao: During the most recent winter season—late 2017 through early 2018—there were influenza outbreaks in South Korea, China and Thailand. Amid these outbreaks, Denka Seiken did not fail to meet any single shipping request. I also think that our important role as a maker is to ensure that local diagnostic reagent distributors in affected regions can fill patient needs without a fear of product shortfalls.

Striving to increase value delivered to patients through quality management

Arai: We are called to maintain not only a stable mass-production capability but also high quality standards. Accordingly, we take a thoroughgoing approach to the review and management of production records. At the same time, we regularly reconfirm the quality management efforts undertaken by the entire department.

Shao: In recent years, a number of non-Japanese makers in China and elsewhere in emerging economies have enhanced their product quality. Despite these circumstances, Denka Seiken products retain a strong market position. This, I believe, attests to the success of our quality management and other initiatives that have helped us to earn customer confidence in Japan and abroad.
**“Denka Value-Up” Management Plan**

**Shujiro Yamazaki**  
Manager, Reagents Sales Department  
Service years: 22  
I will help Denka Seiken become a leading company through further growths.

**Tsuighiko Yara**  
Assistant Manager, Global Business Development, Sales & Marketing Div.  
Service years: 8  
In addition to the B to B business, I consider the possibility of the company entering a B to C business.

**Shao Rongbing**  
Supervisor, Asia Business Development, Sales & Marketing Div.  
Service years: 10  
I would like to raise Denka Seiken’s brand strength in China and other countries abroad.

**Shina Muramatsu**  
Group Leader, R&D Center, KAGAMIDHA Plant  
Service years: 10  
I would like to develop products that help people lead a happier life.

**Daichi Arai**  
Bacterial & Viral Diagnostics Dept., KAGAMIDHA Plant  
Service years: 5  
I aim to develop a robust manufacturing environment that helps us respond to emerging needs for new products.

---

**Yara:** In terms of gaining customer trust, I recognize that taking a mindful and meticulous approach to customer service is as important as maintaining quality that lives up to customer expectations. Thanks to this approach, which happens to be an inherent strength of many Japanese makers, we have succeeded in differentiating ourselves from competitors. Although we offer an array of products made using raw materials of biological origin, we engage in tireless efforts to provide customers with accurate information and robust after-sales services that address their concerns. This is how we are winning their trust.

**Yamazaki:** I often discover valuable customer opinions and requests from daily sales reports submitted by sales offices and branches around Japan. These inputs help us upgrade our quality management capabilities.

**Arai:** We are also called to meet regulatory mandates in terms of product and substance registration. However, regulations are constantly changing. So, I organize study sessions to keep our staff updated while utilizing new findings in quality management.

---

**Endeavoring to help as many people as possible enhance their quality of life (QOL)**

**Shao:** I am in charge of diagnostic reagents for measuring lipoprotein subclasses, which serve as early indicators of possible deterioration in patient health. Thanks to these products, patients can be advised about what measures they should take to avoid serious symptoms even before they recognize they are ill. This contributes to their QOL in addition to reducing the burden of medical expenses for the whole nation.

**Arai:** As a member of the manufacturing staff, I believe that a stable product supply is also a factor enhancing QOL. In the face of a rapid increase in the number of new products being released, I am driving to optimize our schedules of operations, covering procurement to manufacturing, with an eye to better serving the market.

**Muramatsu:** The Ebola virus rapid diagnostic test kit is the kind of product that really makes my work on the R&D staff rewarding. It exemplifies the success of our efforts to help people around the world maintain their QOL. If I were to cite a more familiar example, I would say that when I attend clinical trials and see our products are being used, it really brings it home to me that my job is helping people.

**Yara:** As a sales representative, I strive to coordinate requirements in-house business units so that our products are smoothly delivered to customers who seek to improve their QOL. I am also aware of the importance of always paying attention to the latest customer needs.

**Yamazaki:** The earliest version of influenza diagnostic test kits required complicated procedures consisting of some 10 steps to yield testing results. To meet customer requests, Denka Seiken has developed a diagnostic reagent capable of obtaining results in a single step. Thanks to this invention, the POCT reagents have become fairly popular. I believe this is yet another instance in which Denka Seiken has contributed to enhanced QOL.

---

**Our corporate value hinges on taking on the challenge of expanding the possibilities of chemistry**

**Yara:** For Denka to increase its corporate value, it is important to flexibly accommodate customer requests and deliver products exactly when customers want us to deliver. I also feel that a B to C business approach has significant earnings potential. Once the company incorporates this approach, accelerating the pace of development will be essential.

**Shao:** To date, Japanese industry has been in the forefront in the eyes of the world thanks to its proactive stance toward the introduction of new technologies. I think that, as a Japanese corporation, Denka should take a leading role in the development of novel business fields that are as yet virtually unexplored by any of our overseas counterparts. To this end, Denka should espouse a more unconventional approach, for example, developing a plant-based reagent via the application of Icon Genetics' technologies, in line with its efforts to enhance corporate value.

**Muramatsu:** About two years ago, the R&D Center underwent a reorganization and adopted a more “flat” staffing structure. This helped us speed up our development as this structure enables us to swiftly allocate staff to business units in need. In addition, we must satisfy different reagent needs by country. Diagnostic reagents needed by countries with sophisticated infrastructure, such as Europe, the United States and Japan, and those needed by emerging nations with underdeveloped infrastructure, are totally different. Furthermore, I am keeping my eye on the future possibility of reagents tailored for individual patients, an area where pursuing unique technologies will equip us with strength in a particular area of specialty. To that end, we need to step up the coordination of a variety of technologies possessed by business units across the Denka Group.

**Arai:** Going forward, the company will push ahead with the development of new products. In step with this move, manufacturing departments are expected to enhance their production technologies. In order for us to get new businesses on a track and improve corporate value, it is important to take a proactive approach to the introduction of cutting-edge technologies and search for alternative materials so that we can make our production processes as highly efficient and cost-competitive as possible.

**Yamazaki:** When I began acting as a sales representative, the name of Denka Seiken was hardly known in the market. Since then however, the company has gradually garnered market recognition by, for example, releasing reagents made through the application of latex technologies. Today, when I visit hospitals, most of the people I meet there say they have heard the name Denka. Looking ahead, I would like to see Denka Seiken recognized by an even broader range of people as a reagent maker. I also hope that we will someday be seen as a leading company with distinctive strength in a specific field.

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*Point of Care Testing: Instead of requiring separate medical examination rooms for performing diagnostic tests, POCT reagents enable medical staff to quickly perform diagnoses at the forefront of their medical practices, without the need for massive equipment. Denka Seiken’s lineup of POCT reagents include rapid diagnostic test kits for detecting influenza virus and norovirus.
To realize the Denka Value-Up management plan, we are engaged in the strategic allocation of our resources.

Executing strategic investment centered on specialty businesses, we are striving to realize "Sustained Growth" and "Sound Growth."

With regard to shareholder returns, we remain committed to a targeted total shareholder return ratio of 50%. Simultaneously, we are placing even stronger focus on cash dividends while flexibly carrying out share repurchases by giving due consideration to such factors as trends in stock prices.

### Investment Plan

- **Breakdown**
  - Strategic investment: ¥75 billion (¥15 billion/year)
  - Of which, investment in specialty businesses (M&A, etc.): ¥60 billion
  - Regular investment: ¥125 billion (¥25 billion/year)

### R&D Plan

- **Policy**
  - We will expend a total of ¥90 billion in R&D over a five-year period.

### Shareholder Returns

- **Policy**
  - We will remain committed to a targeted total shareholder return ratio of 50%.
  - In addition to prioritizing cash dividends, we will flexibly execute share repurchases by giving due consideration to stock prices and other factors.

### Fiscal 2017 Achievements

In fiscal 2017, we paid an interim dividend of ¥50 per share and a year-end dividend of ¥55 per share. With full-year dividends totaling ¥105 per share, the dividend payout ratio stood at 40%.

### Fiscal 2017 Results

In fiscal 2017, R&D expenses for the entire Group totaled ¥13,868 million.
## Consolidated Financial Statements

### Consolidated Balance Sheet (As of March 31, 2018)

<table>
<thead>
<tr>
<th>Account item</th>
<th>(Reference) 158th term</th>
<th>159th term</th>
<th>(Millions of yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and deposits</td>
<td></td>
<td>10,258</td>
<td>14,115</td>
</tr>
<tr>
<td>Notes and accounts receivable―trade</td>
<td>85,069</td>
<td>95,583</td>
<td></td>
</tr>
<tr>
<td>Merchandise and finished goods</td>
<td>42,532</td>
<td>43,761</td>
<td></td>
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<tr>
<td>Work in process</td>
<td>3,745</td>
<td>3,669</td>
<td></td>
</tr>
<tr>
<td>Raw materials and supplies</td>
<td>16,907</td>
<td>18,870</td>
<td></td>
</tr>
<tr>
<td>Deferred tax assets</td>
<td>2,039</td>
<td>2,338</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>8,809</td>
<td>8,595</td>
<td></td>
</tr>
<tr>
<td>Allowance for doubtful accounts</td>
<td>(460)</td>
<td>(460)</td>
<td></td>
</tr>
<tr>
<td>Noncurrent assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property, plant and equipment</td>
<td>213,456</td>
<td>209,761</td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>39,849</td>
<td>39,424</td>
<td></td>
</tr>
<tr>
<td>Structures</td>
<td>22,132</td>
<td>22,111</td>
<td></td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>73,761</td>
<td>66,947</td>
<td></td>
</tr>
<tr>
<td>Vehicles</td>
<td>577</td>
<td>488</td>
<td></td>
</tr>
<tr>
<td>Tools, furniture and fixtures</td>
<td>2,895</td>
<td>3,249</td>
<td></td>
</tr>
<tr>
<td>Land</td>
<td>63,247</td>
<td>63,323</td>
<td></td>
</tr>
<tr>
<td>Lease assets</td>
<td>312</td>
<td>248</td>
<td></td>
</tr>
<tr>
<td>Construction in progress</td>
<td>10,679</td>
<td>13,968</td>
<td></td>
</tr>
<tr>
<td>Intangible assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software</td>
<td>10,342</td>
<td>13,880</td>
<td></td>
</tr>
<tr>
<td>Goodwill</td>
<td>5,694</td>
<td>9,315</td>
<td></td>
</tr>
<tr>
<td>Right of using patent</td>
<td>3,477</td>
<td>3,417</td>
<td></td>
</tr>
<tr>
<td>Investments and other assets</td>
<td>62,242</td>
<td>64,975</td>
<td></td>
</tr>
<tr>
<td>Investment securities</td>
<td>54,604</td>
<td>58,178</td>
<td></td>
</tr>
<tr>
<td>Long-term loans receivable</td>
<td>664</td>
<td>552</td>
<td></td>
</tr>
<tr>
<td>Long-term prepaid expenses</td>
<td>2,789</td>
<td>2,122</td>
<td></td>
</tr>
<tr>
<td>Deferred tax assets</td>
<td>1,608</td>
<td>1,482</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3,399</td>
<td>2,779</td>
<td></td>
</tr>
<tr>
<td>Allowance for doubtful accounts</td>
<td>(823)</td>
<td>(139)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>454,944</td>
<td>475,086</td>
<td></td>
</tr>
</tbody>
</table>

Note: Amounts are rounded down to the nearest million yen.

### Consolidated Statement of Income (From April 1, 2017 to March 31, 2018)

<table>
<thead>
<tr>
<th>Account item</th>
<th>(Reference) 158th term</th>
<th>159th term</th>
<th>(Millions of yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current liabilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notes and accounts payable―trade</td>
<td>46,811</td>
<td>53,625</td>
<td></td>
</tr>
<tr>
<td>Short-term loans payable</td>
<td>43,492</td>
<td>41,100</td>
<td></td>
</tr>
<tr>
<td>Current portion of long-term loans payable</td>
<td>72</td>
<td>634</td>
<td></td>
</tr>
<tr>
<td>Current portion of bonds</td>
<td>10,000</td>
<td>15,000</td>
<td></td>
</tr>
<tr>
<td>Accounts payable―other</td>
<td>14,229</td>
<td>14,677</td>
<td></td>
</tr>
<tr>
<td>Income taxes payable</td>
<td>3,659</td>
<td>5,855</td>
<td></td>
</tr>
<tr>
<td>Accrued consumption taxes</td>
<td>814</td>
<td>1,081</td>
<td></td>
</tr>
<tr>
<td>Accrued expenses</td>
<td>9,690</td>
<td>10,746</td>
<td></td>
</tr>
<tr>
<td>Provision for bonuses</td>
<td>2,880</td>
<td>3,002</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>12,539</td>
<td>12,322</td>
<td></td>
</tr>
<tr>
<td>Noncurrent liabilities</td>
<td>83,266</td>
<td>74,261</td>
<td></td>
</tr>
<tr>
<td>Bonds payable</td>
<td>20,000</td>
<td>12,000</td>
<td></td>
</tr>
<tr>
<td>Long-term loans payable</td>
<td>40,184</td>
<td>39,535</td>
<td></td>
</tr>
<tr>
<td>Deferred tax liabilities</td>
<td>5,895</td>
<td>6,604</td>
<td></td>
</tr>
<tr>
<td>Deferred tax liabilities for land revaluation</td>
<td>8,405</td>
<td>8,403</td>
<td></td>
</tr>
<tr>
<td>Net defined benefit liability</td>
<td>7,774</td>
<td>6,002</td>
<td></td>
</tr>
<tr>
<td>Provision for stock benefits</td>
<td>-</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1,006</td>
<td>1,696</td>
<td></td>
</tr>
<tr>
<td>Net assets</td>
<td>227,487</td>
<td>242,780</td>
<td></td>
</tr>
<tr>
<td>Shareholders’ equity</td>
<td>199,865</td>
<td>212,479</td>
<td></td>
</tr>
<tr>
<td>Capital stock</td>
<td>36,998</td>
<td>36,998</td>
<td></td>
</tr>
<tr>
<td>Capital surplus</td>
<td>49,284</td>
<td>49,391</td>
<td></td>
</tr>
<tr>
<td>Retained earnings</td>
<td>123,752</td>
<td>129,278</td>
<td></td>
</tr>
<tr>
<td>Treasury stock</td>
<td>(10,170)</td>
<td>(3,189)</td>
<td></td>
</tr>
<tr>
<td>Accumulated other comprehensive income</td>
<td>23,700</td>
<td>26,584</td>
<td></td>
</tr>
<tr>
<td>Valuation difference on available-for-sale securities</td>
<td>14,837</td>
<td>17,448</td>
<td></td>
</tr>
<tr>
<td>Deferred gains or losses on hedges</td>
<td>-</td>
<td>(195)</td>
<td></td>
</tr>
<tr>
<td>Revaluation reserve for land</td>
<td>10,265</td>
<td>10,260</td>
<td></td>
</tr>
<tr>
<td>Foreign currency translation adjustment</td>
<td>1,496</td>
<td>1,241</td>
<td></td>
</tr>
<tr>
<td>Remeasurements of defined benefit plans</td>
<td>(2,898)</td>
<td>(2,170)</td>
<td></td>
</tr>
<tr>
<td>Non-controlling interests</td>
<td>3,922</td>
<td>3,717</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>454,944</td>
<td>475,086</td>
<td></td>
</tr>
</tbody>
</table>

Note: Amounts are rounded down to the nearest million yen.
Consolidated Statement of Changes in Net Assets (From April 1, 2017 to March 31, 2018)

(Millions of yen)

<table>
<thead>
<tr>
<th>Shareholders’ equity</th>
<th>Capital stock</th>
<th>Capital surplus</th>
<th>Retained earnings</th>
<th>Treasury stock</th>
<th>Total shareholders’ equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance at beginning of the fiscal year</td>
<td>36,996</td>
<td>49,284</td>
<td>123,752</td>
<td>(10,170)</td>
<td>199,865</td>
</tr>
</tbody>
</table>

Changes of items during the fiscal year

| | | | | | |
| Dividends from surplus | (7,481) | (7,481) | |
| Profit attributable to owners of parent | 23,035 | 23,035 | |
| Change of scope of consolidation | (2) | (2) | |
| Change in ownership interest of parent due to transactions with non-controlling interests | 107 | 107 | |
| Purchase of treasury stock | (3,053) | (3,053) | |
| Disposal of treasury stock | 1 | 1 | |
| Retirement of treasury stock | (10,033) | 10,033 | |
| Reversal of revaluation reserve for land | 7 | 7 | |

Net changes of items other than shareholders’ equity

| | | | | |
| Total changes of items during the fiscal year | 14,837 | -10,265 | 1,496 | (2,898) | 23,700 |
| Balance at end of the fiscal year | 36,996 | 5,526 | 6,885 | 12,614 | 221,479 |

Accumulated other comprehensive income

<table>
<thead>
<tr>
<th></th>
<th>Valuation gains or losses on available-for-sale securities</th>
<th>Deferred gains or losses on hedges</th>
<th>Revaluation reserve for land</th>
<th>Foreign currency translation adjustment</th>
<th>Accumulated other comprehensive income</th>
<th>Non-controlling interests</th>
<th>Total net assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance at beginning of the fiscal year</td>
<td>14,837</td>
<td>-10,265</td>
<td>1,496</td>
<td>(2,898)</td>
<td>23,700</td>
<td>3,922</td>
<td>227,487</td>
</tr>
</tbody>
</table>

Changes of items during the fiscal year

| | | | | | | |
| Dividends from surplus | | | | | | |
| Profit attributable to owners of parent | | 23,035 | | |
| Change of scope of consolidation | | (2) | | |
| Change in ownership interest of parent due to transactions with non-controlling interests | | | | |
| Purchase of treasury stock | | (3,053) | | |
| Disposal of treasury stock | | 1 | | |
| Retirement of treasury stock | | | | |
| Reversal of revaluation reserve for land | | 7 | | |

Net changes of items other than shareholders’ equity

| | | | | | | | |
| Total changes of items during the fiscal year | 2,611 | (195) | (5) | (254) | 728 | 2,883 | (204) | 2,678 |
| Balance at end of the fiscal year | 17,448 | (195) | 10,260 | 1,241 | (2,170) | 26,584 | 3,717 | 242,780 |

Consolidated Statements of Cash Flows

(Millions of yen)

| Cash flows from operating activities | | | | | | | | |
| Income before income taxes | 22,486 | 29,571 |
| Depreciation | 24,047 | 23,860 |
| Amortization of goodwill | 311 | 738 |
| Increase (decrease) in provision for bonuses | 138 | 120 |
| Increase (decrease) in net defined benefit liabilities | (139) | (72) |
| Increase (decrease) in allowance for doubtful accounts | 298 | (68) |
| Interest and dividend income | (1,428) | (1,681) |
| Interest expenses | 820 | 707 |
| (Gains) losses on equity in affiliates | (568) | (1,105) |
| (Gains) losses on valuation of investment securities | 18 | 394 |
| (Gains) losses on sales of investments in securities | (672) | (79) |
| (Gains) losses on sales and disposals of property, plant and equipment | 1,083 | 176 |
| (Gains) losses on business restructuring | - | 1,928 |
| Increase (decrease) in notes and accounts receivable | (9,286) | (10,485) |
| (Increase) decrease in inventories | 781 | (3,424) |
| Increase (decrease) in notes and accounts payable | 5,065 | 8,010 |
| Other | 19 | 5,175 |

Subtotal | 2,678 | 52,054 |

Interest and dividends received | 2,146 | 2,068 |

Interest paid | (820) | (633) |

Income taxes (paid) refunded | (4,346) | (5,163) |

Net cash provided by (used in) operating activities | 39,557 | 48,776 |

Cash flows from investing activities

| | | | | | | | | |
| Purchases of property, plant and equipment | (22,037) | (24,981) |
| Proceeds from sale of property and equipment | 95 | 7 |
| Purchase of intangible assets | (546) | (388) |
| Purchase of investment securities | (1,083) | (34) |
| Proceeds from sale of investment securities | 1,177 | 166 |
| Purchase of investments in subsidiaries | (4,296) | | |
| Purchase of investments in subsidiaries resulting in change in scope of consolidation | (2) | | |
| Other | 137 | 228 |

Net cash provided by used in investing activities | (22,258) | (29,298) |

Cash flows from financing activities

| | | | | | | | | |
| Increase (decrease) in short-term loans payable | (4,489) | (2,206) |
| Proceeds from long-term loans payable | 11,975 | - |
| Repayment of long-term loans payable | (16,130) | (86) |
| Cash dividends paid by the Company | (6,228) | (7,481) |
| Proceeds from issuance of bonds | 7,000 | - |
| Payment for redemption of bonds | (10,000) | | |
| Cash dividends paid to non-controlling interests | (25) | (25) |
| Payment for purchase of treasury stock | (2,200) | (3,053) |
| Other | 19 | 40 |

Net cash provided by used in financing activities | (19,319) | (15,859) |

Effect of exchange rate changes on cash and cash equivalents | (35) | 57 |

Net increase (decrease) in cash and cash equivalents | (2,073) | 3,676 |

Cash and cash equivalents at beginning of year | 11,913 | 10,174 |

Increase (decrease) in cash and cash equivalents from newly consolidated subsidiaries | 434 | 250 |

Cash and cash equivalents at end of year | 10,174 | 14,101 |

Note: Amounts are rounded down to the nearest million yen.