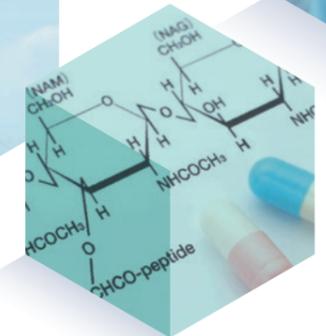




# JSR Group CSR Report 2019 Highlight



**JSR** With chemistry,  
we can.



# MATERIALS INNOVATION

# Materials Innovation

Today's world presents us with innumerable challenges. They include

- Global environmental issues, such as climate change, conservation of resources and biodiversity;
- Health-related issues, such as safe water, food and health care; and
- New issues relating to digital revolution-initiated changes in the social structure brought by advancements in AI and IoT;
- Issues related to the development of a society where all people are respected and have hope for the future

Various materials are utilized to effectively manage these issues and challenges as well as to form

the basis of products and mechanisms designed to improve the world.

By pursuing new possibilities for materials through the potential of chemistry, and contributing to the development of society and a sustainable global environment,

JSR Group would like to ensure its own sustainable growth.

“Materials Innovation - We create value through materials to enrich society, people and the environment.”

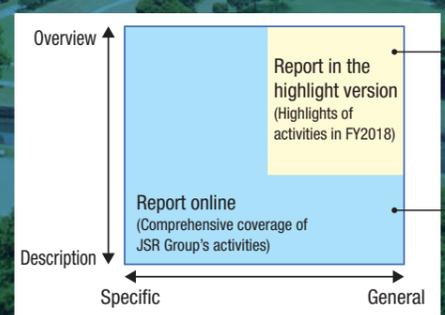
It is our corporate mission to pursue such possibilities through the integration of business activities and CSR initiatives.



**The CSR Report 2019: Formats**

JSR Group's CSR Report 2019 is available both in online and highlight versions. The online version presents a comprehensive report on JSR Group's CSR activities. [http://www.jsr.co.jp/jsr\\_e/csr/](http://www.jsr.co.jp/jsr_e/csr/)

The highlight version features highlights of JSR Group's CSR activities in FY2018. Other corporate information (products, services, financial information, etc.) can be found on the JSR website: [http://www.jsr.co.jp/jsr\\_e/](http://www.jsr.co.jp/jsr_e/)



## Editorial Policy

Under the corporate mission of "Materials Innovation - We create value through materials to enrich society, people and the environment," JSR Group aims to build and maintain good relations with all of our stakeholders and become an indispensable corporate citizen. We intend to resolve social issues by integrating management and CSR as well as demonstrating our corporate mission with actual results.

We recently launched a new management organization (CEO Eric Johnson and Representative Director, President, and COO Nobuo Kawahashi) at the General Meeting of Shareholders held in June 2019. This report contains a message by the newly appointed Representative Director, President, and COO, Mr. Kawahashi. Mr. Johnson and Mr. Kawahashi also participated in the Dialogue with Stakeholders, where they spoke in their capacities prior to the new organization's launch; namely, as Managing Officer responsible for Life Sciences and North America Business and as Executive Managing Officer responsible for Research and Development, Human Resources Development, and Diversity Promotion, respectively.

We executed our activities by arranging our CSR priorities into three approaches: "Basic Issues in JSR Group's Corporate Activity," "Social Issues Attributable to JSR Group's Corporate Activity," and "Social Issues that JSR Group Can Help Resolve." This report aims to communicate our CSR activities during FY2019 to all stakeholders in an easily comprehensible way.

The report's Online Version provides a detailed account of our CSR activities. Its primary focus is on priority issues that were arranged into the three approaches. It also includes a collection of data that organizes related details into an easy-to-reference format. In addition to the Online Version, we have published a Highlight Version in the form of a PDF file that outlines the essence of our CSR activities in FY2018. This version is available on the Internet.

## Referenced Guidelines

- United Nations Guiding Principles on Business and Human Rights
- Environmental Accounting Guidelines 2005 / Environmental Reporting Guidelines 2012, Ministry of the Environment
- Environmental Accounting Guidelines for Chemical Companies, Japan Chemical Industry Association (JCIA)
- Global Reporting Initiative (GRI) Standards

## Target Period and Fiscal Year

Target Period and Fiscal Year

- FY2018: April 1, 2018, to March 31, 2019

Please note that some sections include activities conducted during periods that are other than that provided above.

FY: Fiscal Year means the year starting April 1st.

## Operations Covered

- The entire report  
JSR Group: 61 companies  
JSR: Head Office, Yokkaichi Plant, Chiba Plant, Kashima Plant, Yokkaichi Research Center, Tsukuba  
Research Laboratories, JSR-Keio University Medical and Chemical Innovation Center, Nagoya Branch, Taiwan Branch  
Group Companies: 20 domestic Group companies, 40 overseas Group companies (Current as of March 31, 2019)
- RC data (environment, safety, health)  
JSR Group: 19 companies  
JSR: Head Office, Yokkaichi Plant, Chiba Plant, Kashima Plant, Yokkaichi Research Laboratories, Tsukuba Research Laboratories, Nagoya Branch  
Group Companies: 9 domestic Group companies, 9 overseas Group companies\* (Current as of March 31, 2019)

\*For information about Group companies that collected RC data, see the asterisks (\*) in "JSR Group ESG Data" on the JSR website.

"JSR" and "JSR Group" are classified as follows:

- JSR Group: JSR and Group companies
- JSR: JSR Corporation

## Note concerning Numerical Notations

For both absolute values and percentages, numerical values that fall below the shown number of digits are rounded off.

For this reason, the sums of individual numbers may differ from the sum values provided.

## Publication Information

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(Previous issue: September 2018)

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## Responsible Care®

("Responsible Care" is referred to as "RC" in this report.)

In the chemical industry, each company handling chemical substances is responsible for ensuring that safety, health, and environmental issues are addressed throughout the chemical lifecycle, from development and production to distribution, use and disposal, publishing the results of their activities and maintaining dialogue and communication with society—all voluntarily. This initiative is called "Responsible Care."

Source: Japan Chemical Industry Association pamphlet

"Do You Know about Responsible Care?"

Information on RC is available online

Details and data concerning Responsible Care are provided in the Online Version.





# Creating New Value by Anticipating Social Change

## Launching a New Management Organization to Reflect a New Age

JSR Corporation launched a new management organization at the General Meeting of Shareholders held in June 2019. Former President Koshiba became Representative Director and Chairman and Mr. Eric Johnson was named Representative Director and CEO. With his appointment, Mr. Johnson becomes the first non-Japanese to lead our company. I assumed the position of Representative Director, President, and COO. As the chief executive charged with thoroughly realizing and executing JSR Group's management policy, I will push the new organization forward in tandem with the new CEO.

To take JSR Group even farther in the new era called "Reiwa," I will set policy by listening to as many people concerned as possible and incorporating various views. I will also apply a personal trait of mine, which is to decide and act quickly and decisively, in order to provide management that has a sense of speed.

## Responding to Social Change; Responding to Society's Expectations and Demands

JSR Group supports the Ten Principles of the UN Global Compact and aims to do its part in achieving the SDGs.\* This posture is based on our belief that "social and corporate sustainability" are important. We have particular interest in the SDGs, which advocate "global reform" as their fundamental principal. Furthermore, if viewed from another perspective, the SDGs—which envision an "ideal world" in 2030 and establish targets for realizing it—are also a collection of business needs that will lead to the resolution of global social issues in the future.

I personally believe society will undergo a major transformation from around the mid-2020s. In the chemicals industry, "digitalization" will spark dramatic changes in the way we do business. Among those changes, I will be paying particular attention to phenomena called "individualization" and "regionalization." I predict the arrival of a world in which the importance of needs rooted in individuals and regions will grow exponentially. We are already seen this in the life sciences field, where responses to individualization are becoming essential in medical care settings. This trend will likely expand to all fields as "digitalization" evolves. As for the other change, regionalization, I

predict that unique demand will erupt within limited regions. This phenomenon will take place on the opposite side of the spectrum from "globalization." I think the time will come when demand corresponding with the special characteristics of specific regions will be born; those technologies and products that do not meet that demand will become irrelevant. Digitalization's advancement will accelerate the optimization of regional supply and demand without regard for time or place. No longer will things be invented in developed countries and then brought into developing countries. Instead, various types of innovation will be born from unique regional needs.

Based on my prediction of change founded on individualization and regionalization, I intend to give particular attention to business fields that address them. Moreover, some of the SDGs are in line with "individualization" and "regionalization," and therefore I want to be constantly aware of our contribution to the SDGs from this perspective.

\* Sustainable Development Goals (SDGs): International goals for the year 2030 that were set forth in "Transforming our World: The 2030 Agenda for Sustainable Development," a plan for action that was adopted at a UN summit in September 2015. They are comprised of 17 goals and 169 targets for achieving a sustainable world.

## A Mindset Capable of Responding to Change and Open Innovation

In this age of change, things will happen quickly. Thus, rather than studying risk for a long period of time and then promoting business on a large scale, we will need to move ahead with smaller starts and then later ascertain direction through repeated reviews.

We are a chemicals company that proudly upholds its Corporate Mission of "Materials Innovation." Therefore, if we can anticipate future changes and the needs that will arise from them, the door opens for us to expand our business to peripheral fields, including services. That said, "materials" will remain firmly established at the very foundation of our business. Conceptualizing "materials × something more," we will accelerate our business by starting small with open innovation-based material development, and by conducting repeated reviews while expanding and diversifying how we look at possibilities for new business, including in service fields.

I believe the "mindset" of employees will become even more important in

responding to social change. The development of human resources that are strong in the face of change will be the most important item in our new management organization. We will be looking for people who possess "wisdom and flexibility." "Wisdom" does not materialize without a flexible way of thinking. While knowledge is simply learned, "wisdom" is the ability to create new things by using knowledge. We will develop practical training programs for producing "one" from "zero," not classroom learning whose purpose is simply to instill knowledge.

I expect all employees to maintain an attitude of never being satisfied with traditional ways of doing things. I want them to not turn away from coming social changes, but rather to translate them into opportunity. "Do not fear crisis; turn it into a resource." I am convinced that having many employees with this strong mindset will allow JSR Group to achieve sustainable growth into the future.

At the same time, in this age of modern business, we can no longer overcome challenges with own knowledge and technology alone. We will have difficulty keeping up with social changes if we do not achieve greater speed, even if it means accepting knowledge and technology from outside.

I always cherish the phrase "I know that I know nothing." People tend to think that they "can do anything when they have knowledge." So they fear changes for which they have no knowledge. But if you realize that "there are things I do not know," this lack of knowledge allows you to eliminate the "fear of not knowing" by gathering information, making predictions, and accepting other people's views and knowledge. I think this leads to revolutionary innovation.

This is why, during the past few years, JSR Group has been opening three new research centers charged with promoting open innovation. One of them is the JSR-Keio University Medical and Chemical Innovation Center (commonly known as JKIC), which opened in 2017. It is a facility that develops innovative materials and products that support medical care through industry-academia collaboration. Additionally, the Center of Materials Innovation on the grounds of the Yokkaichi Plant and a new life science and business incubation laboratory in Tonomachi, Kawasaki City, are actively engaged in open innovation.

## Steadily Progressing Reform in JSR Group

Various reforms are also taking place within JSR Group. I would like to mention four of them as keywords deserving attention in the CSR field. They are "industrial safety," "environment," "global governance," and "diversity."

"Industrial safety" is simultaneously extremely important and extremely difficult. In light of this, we are now making improvements to various safety activities using digitalization. They include conducting onsite inspections with drones and providing hands-on education based on virtual reality. The performance of ICT and AI is getting better every day, so I want to apply these technologies to take our safety activities even further. On the other hand, we must squarely face the fact that the number of accidents in our facilities is not decreasing. One thing that particularly bothers me about this is a worsening balance in the distribution of employees' age groups as baby-boomers retire. The center of the distribution spectrum is being lost. As

a result, our workforce is comprised of comparatively young employees with less safety education and on-the-job experience on the one hand, and older workers who, despite being expected to have more experience, lack understanding of their declining physical condition and end up having accidents as a result on the other. About four or five years ago, I began feeling that education that takes elderly employees into account should be added to education that is based on differences in rank and experience. I intend to address advancing ICT and further changes in the age structure by reevaluating these issues in a manner that also considers educational methods.

Looking at "environment," for chemicals companies in particular, which must make significant contributions to society, this ranks among the most important responsibilities. We must naturally reduce the environmental impact of our business activities, and I believe our contribution through the products we supply to society is quite significant. For example, our synthetic rubber "SSBR" (solution polymerization styrene-butadiene rubber) for fuel-efficient tires is effective in simultaneously reducing fossil fuels consumption and carbon dioxide emissions worldwide. In addition, the backlighting of LCD televisions consumes a considerable amount of electric power, but less power is required if the panel itself becomes brighter with good transparency. The effects of this can be traced back to lower carbon dioxide generated from fossil fuels. I believe that if, from the design stage, developers incorporate improvements into all products with attention to not only better performance but also impact on the environment, major benefits can be achieved even when the effects of each individual improvement are small. I think the accumulation of such consideration is important.

Sixty percent of JSR Group's revenue comes from overseas, and one-third of its employees are not Japanese. We must shift the axis of our business to overseas markets, and therefore I see "global governance" as a priority issue for JSR. Particularly in the case of overseas business, we must firmly maintain governance while keeping harmony between the different cultures and business customs of other countries and the company's sustainability. Under the new organization, we will quickly uncover unique regional needs and reinforce our global-level governance under the leadership of a new CEO who is keenly familiar with circumstances both in Japan and abroad.

Moreover, I will accelerate initiatives concerning the "diversity" of our human resources. To secure personnel who can succeed on the global stage, I will promote the development of workplace environments within which employees of different nationalities, religions, and lifestyles can work together while demonstrating their own unique characteristics. At the same time, I will work on measures to expand opportunities for female employees and promote diversity management with the aim of making the company one in which women can succeed as leaders in any department.

JSR will continue responding nimbly to our ever-transforming society without fear of change, while striving to resolve the numerous challenges of the world through business.

**Nobuo Kawahashi**  
Representative Director,  
President, and COO  
JSR Corporation

Integration of management and CSR creates benefits for both society and JSR Group through its contribution to the development of a sustainable global environment and society.

Under the corporate mission of “Materials Innovation - We create value through materials to enrich society, people and the environment,” JSR Group aims to build and maintain good relations with all of our stakeholders and become an indispensable corporate citizen. We intend to resolve social issues by integrating management and CSR as well as demonstrating our corporate mission with actual results.

## JSR Group’s Corporate Mission and Priority Issues

### Corporate Mission

#### Materials Innovation

We create value through materials to enrich society, people and the environment.

#### Management Policies:

##### Fundamental Pillars of Management

- Continuous Creation of Businesses
- Enhancement of Corporate Culture
- Increase in Corporate Value

#### Management Policies:

##### Responsibility to Our Stakeholders

- Responsibility to Our Customers/Business Partners
- Responsibility to Our Employees
- Responsibility to Society
- Responsibility to Shareholders

#### Course of Action: The 4Cs

CHALLENGE  
COMMUNICATION  
COLLABORATION  
CULTIVATION

Issues facing society that need to be addressed

#### WE SUPPORT



### Basic Issues in JSR Group’s Corporate Activity

- Corporate Governance
- Compliance
- Risk Management
- Responsible Care



- Business Development for Higher Profitability
- Reinforcement of Global Competitiveness
- Nurturing of Next-Generation Businesses

## Innovation

### Social Issues that JSR Group Can Help Resolve

- Eco-Friendly Products
- Health and Longevity
- Better Access to Healthcare and Medical Care
- Quality of Life and Happiness

## Sustainability

### Social Issues Attributable to JSR Group’s Corporate Activity

- Health and Safety Initiatives
- Environmental Impact Reduction
- Climate Change Mitigation
- Water Resources Conservation
- Waste Reduction
- Human Rights
- Labor Environment
- Diversity
- Supply Chain Management
- Communication with Stakeholders

Development of a Sustainable Global Environment and Society

## Basic Approach to Tackling the SDGs

The scope of JSR Group's business activities is in the process of shifting from a Japan-centric focus to a truly global focus. In order to carry out global business activities, we need to have a deeper understanding of worldwide issues and the problems faced by regions around the globe.

On the other hand, efforts to resolve these issues and problems can provide opportunities for new business. We can further expand the scope of our business by actively grasping these opportunities.

The Sustainable Development Goals (SDGs) provide us with a compass in this endeavor by outlining worldwide issues and regional problems.

The SDGs are comprised of 17 goals and 169 targets that all United Nations member states will strive to achieve by 2030 for the purpose of bringing sustainability to the global environment and people's lives. In addition to conventional development goals, such as eradicating extreme poverty and hunger, the SDGs also cover challenges faced by developed countries, among them the promotion of gender equality, creation of a strong employment environment, reexamination of production and consumption, conservation of marine and forest resources, and development of safe communities. However, one company does not have to solve everything. It can strive to resolve even just one problem by applying its strengths in its own areas of expertise.

To which of the SDGs can JSR Group make a contribution? Looking at this question in terms of "Social Issues Attributable to JSR Group's Corporate Activity" and "Social Issues that JSR Group Can Help Resolve," JSR Group will help achieve the SDGs through business activities that extend from the past into the future.

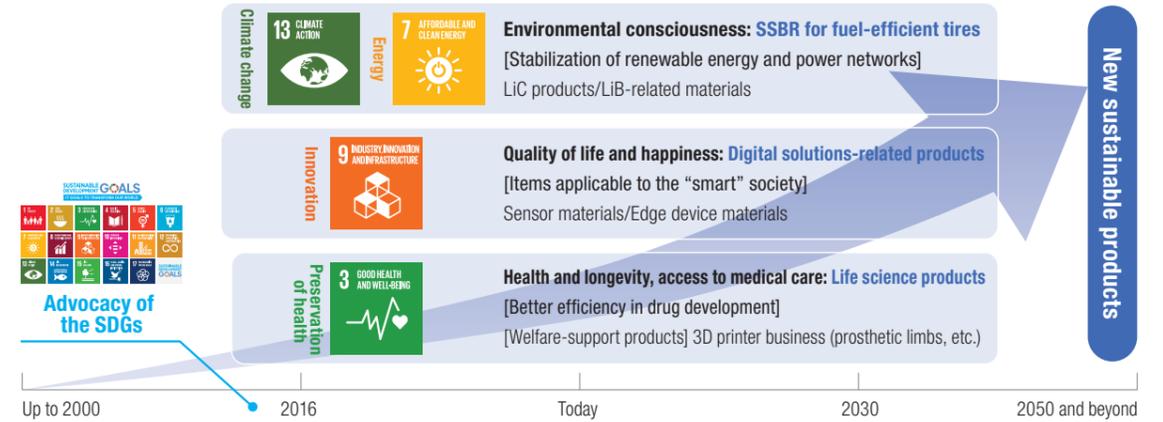
\*1: Agenda: Problem to be studied or action plan  
\*2: Gender: Sex defined socially and culturally



## Social Issues that JSR Group Can Help Resolve

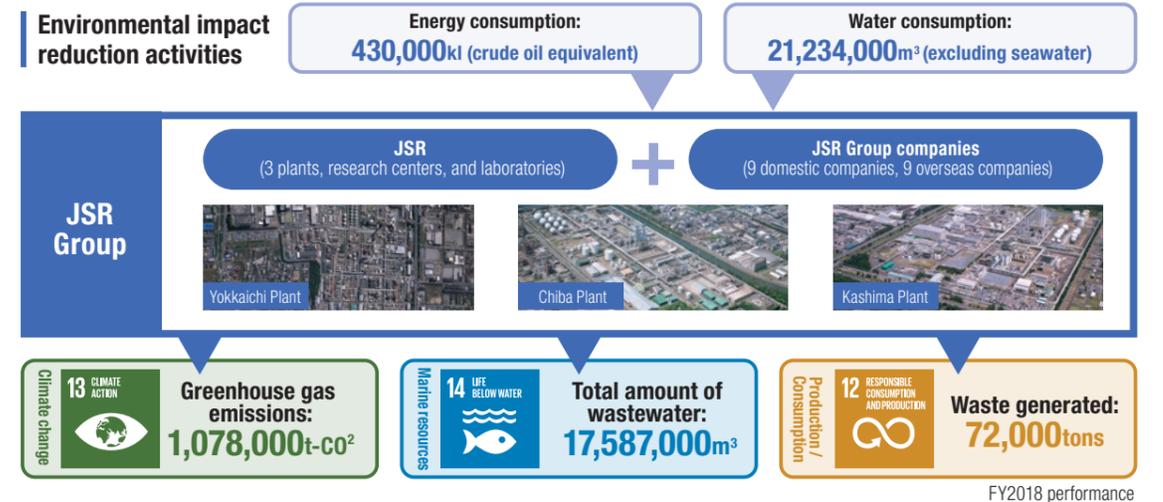
JSR Group will help resolve various social issues through business activities in line with growth scenarios for individual businesses that are oriented toward an "ideal" Group in 2030, as well as through business activities that seize new business opportunities. We know that we must continue to move quickly in response to changes in society's needs and supply new product lines that help resolve social issues.

### Business activities to resolve social issues: SDG-oriented products



## Social Issues Attributable to JSR Group's Corporate Activity

JSR Group has an impact on the environment through its business activities. It consumes natural resources (namely energy and water), emits greenhouse gases, and produces waste. The Group is executing various initiatives to lessen this impact with the aim of achieving a sustainable global environment and society. However, even further initiatives and efforts are required.



# JSR Group's Materiality and the SDGs

In FY2015, we took the step of identifying our Materiality (Priority Issues) for the entire JSR Group. We reexamine this Materiality each time we prepare a new mid-term business plan in order to advance management founded on integrated business and CSR. International moves toward realizing a sustainable society are accelerating. This is evidenced, for example, by the adoption of Sustainable Development Goals (SDGs) by the United Nations. With this in mind, we welcomed experts on ESG investment, the SDGs, and other international social trends to participate in a dialogue on the theme of "JSR Group's Materiality and the SDGs." This dialogue was oriented toward a reevaluation of our materiality that is scheduled to take place during formulation of our next mid-term business plan, whose commencement will be in FY2020.

We began by having two experts give their views on the identification and validity of JSR Group's current materiality before moving on to the main discussion.



Left to Right: Yasufumi Fujii, Takao Shimizu, Keisuke Takegahara, Kaori Kuroda, Eric Johnson & Nobuo Kawahashi

Participants

## The outside experts

### Keisuke Takegahara

Executive Officer of the Development Bank of Japan  
Member of METI's Study Group on Long-term Investment toward Sustainable Growth

### Kaori Kuroda

Executive Director of CSO Network Japan  
Member of the Cabinet Office's SDGs Promotion Roundtable Meeting

## JSR

**Nobuo Kawahashi** Director and Executive Managing Officer\* Research & Development, Human Resources, Diversity Development

**Eric Johnson** Managing Officer\* Life Sciences, North America Business

**Takao Shimizu** Senior Officer Office of the President, IT Strategy, Business Process Renovation

**Yasufumi Fujii** Officer General Affairs, Secretarial Office, CSR

\*The titles provided above are as of the date the dialogue took place.

Eric Johnson became Representative Director and Chief Executive Officer (CEO) and Nobuo Kawahashi became Representative Director, President and Chief Operating Officer (COO) in June 2019.

## Informing Society of JSR Group's Strengths

### Reflecting Business Dynamism on Materiality

**Takegahara:** Thank you for allowing me to participate in this dialogue. The first point I'd like to address from the standpoint of an investor is the fact that JSR Group is reevaluating its materiality in conjunction with its mid-term business plan. The very fact that JSR's materiality will be reevaluated each time a new mid-term business plan is established in itself communicates the message that JSR sees financial value and non-financial value as being



equal. I think this is a manifestation of what is known as "integrated thinking"\* and proof that business management and CSR activities are being pursued in an integrated manner.

\*Integrated thinking: A way of thinking that sees corporate activity in its entirety by integrating financial and non-financial information

**Kuroda:** I understand that you review your materiality simultaneously with your mid-term business plan every three or so years. The world has changed drastically between three years ago and now. I think it's good that JSR's materiality will continue to be reevaluated every three years based on anticipated great changes in the world and society.

**Takegahara:** The word "materiality" is taking on a slightly different perspective when viewed in terms of ESG investment. In the past, a matrix

was prepared based on two axes—namely, "importance from the standpoint of multiple stakeholders" and "importance for the company." Those points lying within the "high importance" area for both in the upper right of the matrix were considered "materiality." But what investors want to know is very simple. First of all, and this is very important, they want to know if the company is a strong company—one with high earning power—that is worth investing in. Then they want to know if the company can maintain its strength into the medium and long term; in other words, they want to know its corporate value.

**Kuroda:** I agree. For example, in most cases, there's a gap in terms of achievement between goals ultimately established to resolve important issues and currently-available technologies and business models. How will that gap be rectified? This is a matter of concern not only for investors but also society at large.



**Takegahara:** Whether or not JSR Group can maintain its current strengths for the long term is of course important. As its point of view, if we look at the current material items arranged into the three categories of "business opportunity," "business risk," and "business foundation" from this standpoint, I think these items have been well identified, without much excess or omission. On the other hand, if we look at information disclosure, all companies in Japan's chemical industry grapple with the same issues, and thus their orientations and strategies in such non-financial areas as materiality and ESG are very similar. So, if you ask me whether JSR Group's strengths are being differentiated from those of its competitors through this form of disclosure, I would say probably not as well as they could be.

**Kuroda:** Many companies view materiality from two aspects—namely, "active" and "passive" materiality. But it may be that this conventional way of identifying materiality is gradually falling out of step with reality. For example, in the life sciences, there are "active" aspects, such as extending healthy life expectancy. But, at the same time, human rights issues may emerge. As this shows, there are always both positive and negative sides in all things. So my sense is that it is no longer possible to speak of individual items in terms of "this is active" and "this is passive."

**Takegahara:** One of JSR Group's strengths is that its three mainstay businesses are each firmly responding to social issues. Given the dynamic nature of the Group's businesses, characterized by, for example, the M&As taking place in life sciences and innovation in such forms as "materials x digitalization," rather than presenting materiality in terms of "active" and "passive" aspects, it might be better to tie its characteristics to materiality for presentation to the public. This approach should be able to convey your "story" of developing new business models that look two or three decades into the future and achieving even greater growth through them.

**Kuroda:** Then it is important to apply the SDGs, which are global issues, and prioritizing items from the 169 targets of the 17 goals that can take advantage of JSR Group's strengths. There is no need to insist on continuity and classification with the previous materiality. Bring an SDG that you want to put particular focus on to the forefront and then take an "outside-in"

approach.\* From there it is important to prepare a road map or "story" that leads to its resolution.

\*Outside-in approach: A way of setting organizational goals that is based on social issues.

## Getting Society to Recognize the Value that Technology Produces

**Kawahashi:** You said something that is very insightful when you mentioned tying future business reform and materiality. For example, take "Climate Action," which is SDG number thirteen. If our business grows well and our production increases, our CO<sub>2</sub> emissions will also naturally increase. However, thinking of decreasing production and plant lines in order to prevent global warming is nonsense when seen from a corporate perspective. Instead, I think JSR should be a company that makes a contribution through environment-friendly products like SSB, which improves cars' fuel efficiency, and technical innovations that reduce carbon dioxide in terms of production units. And then there is the third SDG, which is "Good Health and Well-Being." I am proud that we are making a significant contribution in the sense of raising society's quality of life (QOL) by developing equipment that supports medical care. As Mr. Takegahara pointed out, we are also contributing to the resolution of social issues as we dynamically transform our business. I want to do more to highlight the fact that such business and our materiality are solidly linked.



**Johnson:** Our Life Sciences Business confirms strongly to the SDGs. JSR Group's business is, quite naturally, strongly tied to better human health and living—in other words, QOL. It is our mission to improve people's lives and health. And in this sense, the Life Sciences Business fits perfectly with this mission and therefore has high priority. The problem is, we must also firmly link our excellent technologies to revenue. It is, after all, quite difficult for a business to continue if it does not have economic sustainability. In the end, I think it will become important for our technology's value to be recognized by society.

**Takegahara:** In the investment world, there are such phrases as "impact-based finance" and "impact-based thinking." Looking forward, the word "impact" will become key. When a business contributes to the resolution of social issues by growing, "impact" serves as the means of measuring that contribution quantitatively.

The chemicals industry tends to be seen as an energy-intensive industry, so no matter how many excellent environment-friendly products you produce or how much social value you have, in the end the things that are measured are consumed energy and water. But if it is possible to measure positive impacts on society, I think this will help earn society's recognition of your value and, further, help differentiate you from your competitors.

**Johnson:** I think that's right. But on the other hand, what concerns me most is environmental burden that is attributable to business. Recently the impact of microplastic on marine life has become a matter of global concern. Of course, at JSR, we are striving to improve the environmental performance of our products and to make highly durable products. But the question remains

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whether such efforts are enough, and whether they alone are the correct approach.

**Takegahara:** Of course, if there are positive impacts, there are also negative impacts. However, risk and opportunity are two sides of the same coin. So I think it is important to present your message as “JSR Group: A company that creates social value while controlling negative environmental impacts.”

**Kawahashi:** Looking at the problem of microplastics, we see that biodegradable bioplastics are attracting attention as a possible solution. But my sense is that developing bioplastics that JSR does not currently have in order to provide a solution is not a choice we should make if we consider the economic risk to the company.

If we reexamine the value of an existing product or ongoing research, we often find things that are rather useful. For example, increasing the brightness of an LCD display can lower its power consumption. In other words, it can help reduce carbon dioxide and conserve energy. Our customers can control process costs without consuming massive amounts of energy by using our environment-friendly products even before our materials are commercialized and reach society. In fact, it is very important to solve problems through this kind of accumulation. The idea that it may be possible to make a greater contribution to society simply by changing our way of thinking should be the basis for approaching research and development.

**Johnson:** It is certainly possible that seeing the purpose of R&D in broader terms, without being constricted by monetization or road maps, will lead to the discovery of even greater value. It might be a good idea to add another axis to R&D to achieve that



**Kawahashi:** It is of course important to respond sincerely to social issues. But even just thinking more flexibly and building on what we can do, without being overly concerned about those issues, should create more leeway for us to make a contribution.

### How to Best Incorporate the SDGs

**Shimizu:** As Ms. Kuroda pointed out a moment ago, building strategies that tie solutions to problems existing in society—such as the 17 SDGs—to our own growth is extremely important. However, I question whether our premise should be that all of the SDGs are applicable. I think that when we consider our sustainability as a company, we must take our discussion a bit deeper, looking not only at achieving goals in 2030 but also at the kind of essential value we must have in the future beyond that.

Specifically, the SDGs are far too comprehensive and some items have a trade-off relationship with others. For example, if we attempt to eliminate hunger, raise living standards, and increase GDP, energy consumption will also increase and the seventh SDG will not be attained. These goals have a relationship whereby “satisfying one means not satisfying another.” I think we should proceed carefully by also discussing which items to choose within the trade-off and why.

**Kuroda:** I agree. I think that when the UN prepared the SDGs, people did not expect the Global Goals to spread that much, particularly among Japanese

major companies. However, behind the SDGs’ formulation is a sense of crisis concerning climate change and other issues. There are some who say that, as it becomes necessary to do business in an age of rising uncertainty when predicting the future is impossible, the successful experiences of Japanese-style management thus far are not being utilized much in dealing with the crisis. So some kind of bold change of thinking will be required. In that sense, the SDGs’ philosophy is important but there is really no need to be tied up by their 17 goals and 169 targets. I think it is acceptable to utilize those areas that you can utilize.

**Shimizu:** In Japan, in particular, there is a strong sense that companies are expected to commit to all 17 goals. But if we look at individual companies and industries, it is apparent that choice and prioritization are required. This makes it necessary to clarify “what it is we aim to do.” Moreover, I think a process whereby we tell society that “we will do this but we won’t do that” based on evidence and gain the acceptance and understanding of our stakeholders is important. For that reason, I think it is vitally important that we raise our own literacy\* with regard to quantitative information and evidence.



\*Literacy: The ability to understand, apply, and utilize information given in a particular field.

**Johnson:** Literacy is important. Literacy is also needed in communication. We must communicate with society responsibly.

**Shimizu:** Both the “speaker” and the “listener” must improve their literacy in order to achieve good communication. I therefore think that employee education will become important in addition to better education systems in society at large. This will lead to fully developed discussion.

**Johnson:** As for the details of the SDGs, people who hear about them almost always see things in simplistic terms. I think there is an aspect of the SDGs that is too simplified, as in “this is good and this bad.” So we have to be aware that we cannot educate all of society. We should provide better education to raise our own literacy and then take a more realistic and constructive approach.

**Takegahara:** Companies that list all 17 SDG logos do not understand their relative importance, and so we cannot say they are good companies for having done so. If it is a business company, the items to which it can contribute through its business will naturally be limited, and those issues that demand a response in accordance with its growth vectors will inevitably become apparent. The company will then help solve social issues by extending that field. This, I think, is material, and anything else is not material. I think we can arrange things in this manner.

**Kuroda:** Yes, I agree that “equal attention to all 17 SDGs” became the trend in Japan. One thing that impressed me was that some pharmaceutical company in Europe focused on four or so important goals from among the seventeen. Then, while linking them to their business, they spotlighted the most important one, the third SDG, which is “Good Health and Well-Being,” and presented themselves with a well-modulated message that says, “This is our goal.”

**Fujii:** I have heard it said that “Selecting materiality is discovering issues within the scope that answers can be found that have the greatest impact inside and outside the company.” That might be true in essence.



**Kuroda:** Speaking of the SDGs, a good number of companies in the US and Europe declared between 2015 and 2016—immediately after the SDGs were formulated—that they will tackle them. But I hear their number has been gradually falling to a certain extent more recently. The more that companies venture into the SDGs’ essence, the more they realize how high a hurdle the SDGs actually present. However, even so, the SDGs have achieved such a level of global recognition that I see no way but to use them.

**Takegahara:** Some people use the SDGs as a tool for discovering social issues. But what about finding the issues first and then considering how one can be of use in solving them? This might be the correct way of using them. But, like I said at the beginning, what we investors want is to make our investments after choosing companies that will survive with a strong business model. Accordingly, the question is whether or not the company can grasp the social issues it will face twenty or thirty years in the future and can use those issues as a source of its own growth.

Previously I found explaining the grasping of social issues to be rather troublesome. But then the SDGs came out and became a kind of international language with the participation of stakeholders from around the world. Companies can extend their core competencies\* based on them and, as a result, help resolve social issues. Narrowing down the SDGs that you will commit to and then showing the public that you have a strategy and long-term plan that is based on them—I think that is another way of using the SDGs.

\*Core competency: The competitive core part of a company’s abilities.

**Kawahashi:** I am proud to say that, even before the SDGs existed, JSR did not engage in business that ignored the issues covered by their goals and targets. For example, when we procure raw materials, we conduct a detailed study of the “country risks”—including factors concerning human rights—of the country where the production plant is located. We thus see our procurements as being screened from the very beginning. With or without the SDGs, we first arrange and analyze how our business and CSR activities fit within society and then check them against the direction we should be taking going forward. If anything is amiss, I want to view it as an important issue that needs addressing at that moment and to discuss it specifically with reference to materiality.

### What is “Differentiated Materiality”?

#### Considering Business Fields and Management Foundation as a Dualism

**Takegahara:** Looked at from the standpoint of an investor, JSR’s materiality is extremely clear. I think there are many social issues that can be grasped in life sciences, such as contribution to lower medical costs by greatly

improving the efficiency of new drug development. And fuel-efficient tires can undoubtedly contribute to climate change countermeasures. If you say that “issues tied to better quality of life in society are our materiality and also the SDGs that we should commit to,” then I think you will have a very clear message.

**Kuroda:** I also found it very easy to understand. Going further, because there is no need for JSR Group to resolve all issues alone, I think “Partnerships”—the seventeenth goal of the SDGs—should also be considered. For example, external partnerships that involve, say, using other company’s technologies or collaboration are important in addressing microplastics. There should be no need to solve everything on your own.

Another approach is to use the SDGs not only in positive strategic aspects but also in improving areas that tend to swing in a negative direction, such as diversity and industrial safety. In the case of Japanese companies in particular, no matter how much they promote women’s participation and the like, those efforts don’t produce results. So they need to say what kind of future strategy they have concerning the ratio of female directors, for example, even if they currently have no female directors. So, in this sense, it may be better to show the “business fields” portion and “management foundation” portion separately when considering materiality.

**Takegahara:** That is exactly a point I wanted to make. “Business fields” and “management foundation” should be considered separately. No matter how much financial growth it achieves, if a company has weak corporate governance or holes in its compliance, it will attract social criticism. Thinking of the management foundation that supports the company’s strength and the business fields that enhance its strength as a dualism, and then incorporating diversity, human rights, human resources development, and the like into the management foundation will make the company’s strength stand out even more. I think this will fit in very nicely when you speak about JSR Group’s materiality.

**Fujii:** Speaking of what make up the core competencies of JSR Group, I think one is human resources. If we consider what supports business reform that meets social needs, it is human resources that can adapt to various changes in the business environment.

Looking at JSR’s business, when our business expanded from petrochemical products business to what was then called “fine chemicals” business and then further to life sciences business, which is happening now, our human resources-generating corporate culture and human capital have allowed us to make the necessary adaptations. Diversity and human rights are listed as risk items in JSR’s current materiality classifications. However, I think that such human capital is actually a “strength.” So I felt we should highlight this point a bit more. In our materiality, I want to bring more attention to the fact that our human resources development capabilities, which produce people capable of adapting to business globalization and to changing business structures, are a strength of our company.

**Kuroda:** When I speak with people from Japanese companies, the subject of human resources development often comes up. But usually the discussion is premised on talented employees’ coming into the company. As Japan’s birthrate falls and its society ages, it will become more difficult to secure

To the next page

human resources. So, although human resources development is important, I get the sense that the time will arrive when hiring high-quality human resources will also become a candidate for materiality.

**Kawahashi:** As you say, when it comes to human resources, attention almost always goes to development. JSR also has many training programs and curricula for all levels. We are constantly working to make changes that are appropriate for the times by suitably modifying our educational programs as circumstances demand. But recently we have also been very conscious about acquiring talented human resources. In our case, hiring people with advanced knowledge and know-how in life sciences, materials informatics,\* and other fields has become particularly problematic. We need to reexamine this issue, beginning with our personnel assessment system and compensation system. We are currently beginning this discussion by going back to that point.

\*Materials Informatics: A method to efficiently search for new materials and alternative materials through information science.

### The Importance of Expressing Impact Quantitatively

**Shimizu:** When responding to SDGs is required, actions such as “SDGs wash”\*\* also arise. But even when no such intent exists, there is the risk that people will say “what you’re doing differs from what the SDGs are supposed to be about.” How should we avoid that risk? If you know of any useful examples or perspectives from other companies, even overseas companies, would you mind sharing them with us here?

\*\*SDGs wash: The taking of only superficial steps to address the SDGs

**Takegahara:** Recently, the EU Commission has been preparing a catalogue that delineates what is an activity compatible with sustainability and what is not. It appears that, ultimately, the catalogue will be used to prepare ISO standards. So I asked, “If even the question of what constitutes sustainability will be decided by the ISO, won’t this eliminate originality and obstruct innovation?” But it seems they think that delineation is necessary to secure the minimum level of transparency, as not doing so will result in just “green wash” and “SDGs wash.” There is no doubt that international opinion is moving toward stricter rules.

The point of “impact” that I mentioned earlier seems to be a focus of debate in Europe, and how to express impact will be the key. Methods for measuring impact are currently being discussed, and various proposals are being put forward. The gist is that, in order to judge what is sustainable and whether or not something truly makes a contribution, it is important to disclose the impact of activities continuously in accordance with international rules. I think this will probably come together within the question of how to measure impact.

What this means is that measuring the impact brought by a product or activity as quantitative data and then preparing designs that will facilitate analysis later will be effective as a means of deciding what constitutes materiality. Because no means for quantification have been available, we have thus far generally talked in qualitative terms. However, if you can confirm positive effects as numerical values based on impact analysis conducted in line with established methods, you should be able to avoid accusations of “SDGs wash.”

**Shimizu:** There have been various attempts at quantification. Examples include LCA\* and carbon footprint.\* But it seems to me that these efforts have somehow lost momentum. I have some concern that quantitative evaluation of the SDGs will also fade away in five years or so. But considering that SRI (Socially Responsible Investment) has finally taken root after twenty years, it takes a certain amount of time before these things become socially recognized and established. So we may have to approach the SDGs with the same mindset.

\*LCA: Abbreviation of Life Cycle Assessment. A method of quantitatively analyzing and assessing a product’s environmental impact throughout its entire life cycle.

\*Carbon footprint: The total amount of living- and activity-related greenhouse gases emitted by individuals, organizations, and companies after conversion into CO<sub>2</sub>.

**Takegahara:** That is because finally, even in Japan, investors are making long-term investments, such as ESG investments, after gauging which companies can create value over the long term.

**Shimizu:** No matter the industry, there are giant companies that lead major trends. For example, things can change suddenly the moment such a company declares it will no longer use products derived from fossil fuels. Looked at in this light, it’s possible that, in the case of JSR, there is greater risk of market change in the digital solutions field than in the petrochemical field.

**Johnson:** That’s right. One of JSR’s major customers in North America is Intel, which is a leading company in the digital field. One advantage of doing business with Intel is that we can quickly learn of possible industrial trends of the future. Intel has firm diversity guidelines and recently publicly announced that men and women will receive equal pay. It also presents strong statements for both financial and non-financial matters in its annual report. And most importantly, it clearly states that it emphasizes ESG in its relationship with vendors. So I think partnering with giant companies like Intel is an advantage, not a risk.

**Fujii:** Where do you see the difference between Japan and the United States?

**Johnson:** Much of the U.S. business environment is polarized right now, and thinking concerning climate change is no exception. Specifically, a general shift has been taking place recently, and I think that, right now, the U.S. is standing at a crossroads from which major change is about to take place. My feeling is that people of the world see many challenges before them. This is causing them vague anxieties and leading to emotional responses. In this kind of social environment, I think it is very important for JSR Group to think about how it will fulfill its own responsibilities as a company and how it will convey its intent to do so.

### Incorporating Materiality into Business Schemes

**Takegahara:** So it becomes necessary to analyze risk and opportunity in each business field in that sense as well. But, even now, I think that, in JSR’s case, your orientation toward realizing this as a business and the social value that it generates are being very clearly demonstrated. On the other hand, demonstrating the impact of social value with the KPIs\* is necessary to avoid being accused of practicing “SDGs wash.” Through our discussion so far, I

feel a good approach might be to discuss this matter with attention to international trends concerning impact measurement, with an eye to ensuring that the KPIs do not become self-directed, and then to present a strategy.

\*KPI: Abbreviation of Key Performance Indicator. An indicator for quantitatively assessing an individual’s or department’s progress toward a goal within a company or other organization.

**Shimizu:** Mr. Takegahara has given us some valuable comments. He noted that we should indicate impact quantitatively and explained how investors look at companies. Ms. Kuroda has said that we need not commit to all of the SDGs. Their insights made us realize the importance of ranking our priority ourselves and, indeed, the extremely heavy responsibility we bear in doing so.

**Fujii:** My department will be in charge of disclosing non-financial information, something that will be a significant issue going forward. So from that standpoint, I reaffirmed my desire to support JSR Group in its entirety by explaining and sharing how our activities contribute to a sustainable society in easy-to-understand terms.

**Shimizu:** I was reminded of the importance of three things during the discussion today. The first is “execution.” The point here is how to make a contribution toward actually realizing the SDGs within business activities, rather than just using them as a slogan. Companies that operate globally across national borders play extremely important roles, and thus execution is, in itself, a social responsibility that is imposed upon us. The second is “priority.” Specifically, it is important to steadfastly set and verify priorities. And the third is “literacy.” The question here is how to improve the literacy of all, including employees, vis-à-vis the SDGs’ concept and the social issues before us.

**Kawahashi:** The thing that particularly struck me in today’s dialogue was the point about quantifying impact. Without it, JSR’s policies will not take shape and the PDCA cycle will not work as it should. By all means, this point should be made part of future discussions concerning the formulation of materiality. I was also impressed by the remarks concerning the importance of discussing business fields and management foundation separately and of

preparing their policies independently. The point that logically explaining them becomes impossible if they are mixed together really struck me. From now on, I intend to arrange our company’s materiality with awareness of this point in order to ultimately produce a uniform policy for JSR.

**Johnson:** Whether it’s CSR or the SDGs, seeing them as peripheral to business will lead to failure. If they become superficial efforts made simply for publication in reports, they will end up being a waste of time and resources. Likewise, pretending that we can achieve all 17 of the SDGs or that we can set all as priorities will also be meaningless.

**Takegahara:** That’s exactly right. Stakeholders do not want a summary of activities. They want to know if JSR Group has a strategy that can properly measure and present actual impacts to be brought by its technologies and innovation. That should become an important message in your next materiality.

**Johnson:** Through our discussion today, we gained a good appreciation of the importance of setting priorities in materiality. But more than that, we understood that those priorities will be meaningless unless they are thoroughly absorbed into our business schemes.

The first thing that is necessary here is literacy. This means firmly understanding the business environment, social environment, and technical environment. The second is quantifying and measuring goals based on that understanding. If we cannot do this, we will be unable to present clear actions later. Having understanding and then quantifying impact makes it possible to apply the PDCA cycle. From there, necessary actions will become apparent and, at the same time, accountability will become clear. Only then can we make a commitment to our stakeholders. We will be able to tell them how we intend to grow and thrive by presenting a convincing story. I firmly believe that, if we can do that, we will be attractive to highly talented personnel. I further believe we will be able to establish healthy cycles in all areas, including in building the best possible relationship with our customers. Thank you very much for this wonderful discussion time and your valuable opinions.



Facilitator

|| Hidenori Imazu Program member of the academic association “Japan Forum of Business and Society”

May 13, 2019, at JSR Corporation Headquarters

Looking to ensure that the corporate body known as JSR Group continues to survive and grow over the next twenty or thirty years, we will resolve priority issues by seeing “business” and “CSR” as one and the same, and by establishing three points of attack: “Social Issues that JSR Group Can Help Resolve,” “Social Issues Attributable to JSR Group’s Corporate Activity,” and “Basic Issues in JSR Group’s Corporate Activity.” Particularly when it comes to “Social Issues that JSR Group Can Help Resolve,” we know that we must move quickly and boldly in response to changes in society’s needs. Quite simply, we will need to be a company with innovative strength and sustainability.

Our new mid-term business plan JSR20i9, which started in April of 2017, lays out growth scenarios for JSR Group in each of our main businesses: the Elastomers Business, the Digital Solutions Business, and Life Sciences Business.

We will help resolve social issues through business activities that are in line with these three business growth scenarios.

### Eco-Friendly Products

Because both humans and innumerable other living things share this planet Earth, we must make an earnest effort to deal with environmental issues. JSR Group is therefore taking action to reduce its environmental impact. It is also engaging in business activity designed to create new environment-oriented business opportunities in terms of products, and endeavoring to resolve problems associated with environmental impact, resources, and climate change.

### SSBR: A Synthetic Rubber for Low Fuel-Efficient Tires with Great Potential in the Effort to Solve Global environmental Issues

Fuel-efficient tires are environmentally-friendly products and yet maintain their ability to stop safely and securely. JSR Group’s polymerization SBR (SSBR) solution has received positive feedback from customers. JSR Group designed SSBR using technology that more readily facilitates rubber molecules and tire reinforcing material molecules to bond tightly, which reduces internal friction and rolling resistance.\*1 In addition, this is achieved without changing the characteristics of rubber that enable tires to stop. SSBR allows large reductions in environmental impact through the entire lifecycle of the tire, from the material selection and its usage to disposal.

Automobiles will still require tires even after automotive engines are replaced with electric motors. Thus, demand for SSBR is high both in countries and regions where environmental standards are high, such as Japan and Europe, and in emerging nations where reducing transportation-related environmental impact is an urgent issue.

Amidst the rapid pace of automotive electric motor adoption, SSBR not only adds lower rolling resistance to tires, it also contributes to wear resistance and durability, thereby helping to maintain long-term performance. In addition, SSBR helps in meeting the growing demand for all-season tires that can be used year-round by adding a degree of softness that ensures even tires with safe stopping performance in the summer can also provide reliable stopping performance on cold road surfaces.

Within the JSR Group, we are constantly working on delivering more of this sort of added value through the innovative SSBR products that we develop and bring to market.

The JSR Group currently manufactures SSBR in two countries: At the Yokkaichi Plant in Japan and JSR BST Elastomer in Thailand. Additionally, production is scheduled to start at JSR MOL Synthetic Rubber in Hungary in 2019. We will continue helping to solve global environmental issues by meeting the global demand for fuel-efficient tires.

\*1 Rolling resistance: Resistance in the direction opposite to the direction of tire rotation.



JSR BST Elastomer Co., Ltd. (Thailand)

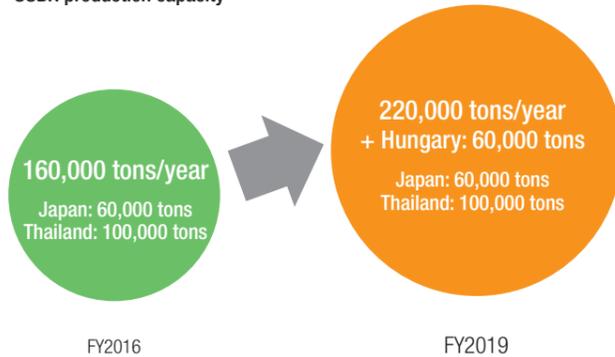


SSBR before packing



JSR MOL Synthetic Rubber Ltd. (Hungary)

### SSBR production capacity



### Environmentally-friendly modified asphalt waterproofing material: HAL E-COAT

The HAL E-COAT modified asphalt enamel manufactured and marketed by JSR Group company Emulsion Technology Co., Ltd. is an environmentally-friendly asphalt waterproofing material used in newly constructed buildings, commercial facilities and various other construction projects.

Conventional asphalt waterproofing techniques (“conventional techniques”) utilize fire to melt the asphalt, which results in noxious odors and smoke being produced that have a significant, negative impact on the workers and the surrounding environment; however, because HAL E-COAT can be used at normal temperatures, it has less of an impact on the surrounding environment and cuts CO2 emissions by 99% compared to conventional techniques.

Moreover, the number of steps and materials required to install HAL E-COAT are less than those required by conventional techniques; thus, for example, by using HAL E-COAT on a roof, the weight of the waterproofing layer can be reduced by 50% to 70%.

In addition, when assessed by Construction Technology Review and Certification\*2 standards, HAL E-COAT achieves the same degree of waterproofing performance and quality as conventional techniques and is garnering attention as a future, environmentally-friendly alternative to conventional waterproofing techniques.

\*2 Construction Technology Review and Certification is a review, certification and popularization process aimed at helping new construction technologies developed by private sector entities become registered and widely recognized, and it is carried out by registered examination authorities in Japan.



JSR Center of Materials Innovation  
HAL E-COAT is also used on the Center’s roof.

### Energy utilization-enhancing pre-doping technology for power storage devices

Lithium-ion secondary batteries (LIB) are used in electric automobiles, smartphones and a wide variety of other devices, but as the market for LIB expands, so too does the need for greater power storage capacity per unit size and reusability without degradation or loss.

The pre-doping technology developed by JSR offers a novel approach to meeting these needs, for which it is attracting attention. Generally speaking,

the problem of deteriorating charge/discharge capacity is due to the lithium ions inside the LIB being consumed by secondary reactions and other internal factors, but if an electrode is first used on these lithium ions that are going to be consumed (pre-doping), it has the effect of increasing storage capacity and battery life.

The pre-doping technology, which builds on many years of research and development by JSR, has found its way into such applications as the mass production of lithium-ion capacitors (LIC) developed by JSR Group company JM Energy Corporation. The newly developed process is used as the normal roll-to-roll system employed in LIB manufacturing, thereby allowing LIB manufacturers to introduce pre-doping technology without the need to significantly alter their materials or processes.

This pre-doping technology enhances the characteristics of LIB and other power storage devices, making it possible to widen their scope of application and, thereby, contribute to more efficient energy use and the realization of a low-carbon society.



Roll-to-roll pre-doping system

### HUSHLLOY™ Reduces Squeak Noise, Grease Application, and Non-Woven Fabric Lamination

HUSHLLOY™\*3, a product of JSR Group company Techno-UMB, has revolutionary effects in reducing the squeak noise caused by plastic joints in vehicle interiors.

Ordinarily, squeak prevention is achieved by applying grease or attaching felt fabric to plastic car parts. However, the use of HUSHLLOY™ makes these countermeasures unnecessary, allowing component manufacturers to shorten their production process and save energy. In addition, since the material itself has the effect of minimizing squeak noise, maintenance is not required for a longer period of time.

\*3 HUSHLLOY™ is a registered trademark of Techno-UMG Co., Ltd.

## Contribution to Quality of Life and Happiness

### Contributing to the World's Evolving Digitalization-Based Society

The materials developed through our Digital Solutions Business contribute to the creation of newer and better computers, microchip-equipped electronics and digital communications devices, and these, in turn, add value to society. As the ongoing digital revolution continues to evolve, we expect that such materials will have an important role to play in addressing the societal challenges embodied in the SDGs; thus, in order to contribute to a better quality of life and happiness for society, the JSR Group is expanding its business across the entire range of advanced materials essential to the digital revolution.

### Society and the Coming Digital Revolution

Today, when life without computers and the Internet is no longer imaginable, an even greater revolution is underway. For now, computers can only be run by programs; however, they are gradually gaining the ability to learn on their own (in a phenomenon called "cognitive computing"). The devices which we use directly—the personal computers (PCs), tablet computers, and smartphones equipped with semiconductors, displays, cameras and the like—are in fact terminal devices that connect the virtual world (a vast aggregation of various data) with people and things. Cloud computing (the "Cloud") stores and shares data through these terminal devices and the Internet. The world of the Cloud is a growing virtual space composed of artificial intelligence (AI) and other technologies that become dramatically smarter by learning from enormous amounts of collected data. In the future, it will not be just "people" who are linked to this virtual space through their smartphones; indeed, many "things," such as cars and manufacturing equipment, will also be linked to the virtual space as "edge devices" through various sensors (creating a phenomenon known as the

"Internet of Things": IoT). As a result, an unfathomably vast amount of data ("Big Data") will be aggregated there. AI will continue to get smarter, and eventually the day when we "people" use advanced AI unconsciously in daily life will come.

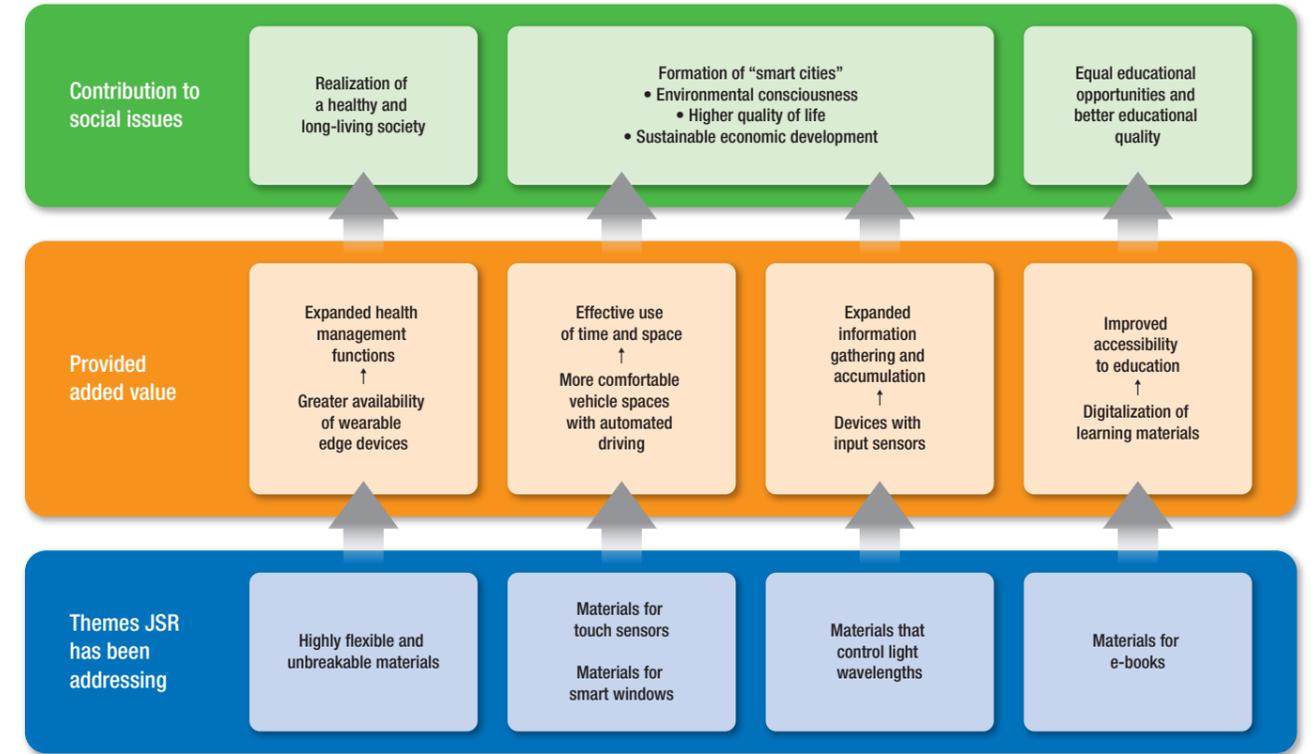
Furthermore, AI will make automation of diverse and complex operations through robotics possible. The application of such technical innovation and data will allow us to address "global social issues = true customer needs," which is something we have been unable to fully address heretofore. This will encourage economic growth gained by utilizing new technologies and data and also help solve various international issues. Our goal is to help bring about a more prosperous society for each and every person of the world.

### Added Value for Society by the Digital Solutions Business

The Digital Solutions Business of the cognitive computing age will need more than a materials-based approach whereby it simply supplies functional chemical products—specifically, differentiated high-value products. It will also require an approach that involves providing solutions that are matched to customers' needs. For this reason, JSR's Digital Solutions Business ascertains information and knowledge on cutting-edge social trends quickly and precisely as an organization, and with focus on the customer, it enables them to link to expeditious solutions. It provides added value for the resolution of social issues through products. For example, to address the social issue of realizing a healthy and long-lived society, it is developing materials for wearable devices that will make constant health management possible. Also, to tackle the social issue of ensuring equal educational opportunities, it is developing e-book materials that will help to improve educational accessibility.\* JSR's Digital Solutions Business will quickly respond to social change and contribute to the development of society utilizing IoT and Big Data.

\* Educational accessibility: The ability to access and use educational environments without physical, informational, institutional, or psychological impediments, regardless of disability or other physical or mental circumstances or living environment.

### Examples of added value provided for social growth, using the development of Big Data and IoT as a driving force



Source: Prepared based on materials of the Ministry of Economy, Trade and Industry's "New Industrial Structure Vision"

### Working to Improve the Performance of Paralympic Athletes with 3D Technology Participation in the Sports and Health Innovation Consortium

JSR is a participant in the Sports and Health Innovation Consortium,\* a body led by Keio University's Shonan Fujisawa Campus that conducts technical development to support athletes and others concerned.

One of the activities of the consortium is research to improve performance by applying 3D technology to create equipment matched to individual athletes engaged in Paralympic competition. JSR joined the consortium in October 2015 as part of its effort to develop business through 3D printing and associated materials technologies. Since then we have been developing gloves for wheelchair competition.

Gloves for wheelchair competition take time to produce because they are hand-made by each athlete. Translating a glove's original shape into 3D data and then producing gloves using a 3D printer makes it possible to repeatedly reproduce gloves that fit and also shorten the time required to make them. Furthermore, making slight adjustments to the 3D data can produce gloves that are even easier to use and can help improve athletes' performance. We will continue to provide new value that is useful to society through collaborative industry-academia initiatives such as this.



A wheelchair track-and-field event and competition glove



A glove for wheelchair competition

\* Sports and Health Innovation Consortium  
The Sports and Health Innovation Consortium is comprised of several private companies and represented by Professor Yuji Ogi of Keio University's Shonan Fujisawa Campus. With the opening of the 2020 Tokyo Olympic and Paralympic Games on the horizon, the consortium's aim is to conduct technical development to support athletes and others concerned through "digital humanics," an approach that "makes a science of capturing human movements in digital form and expressing and assisting them digitally." It further aims to use this as a starting point for creating technologies and businesses that will help solve quality-of-life-related social issues in the areas of sports, medicine, nursing, caregiving, and welfare.

## Contributing to a Healthy and Long-Living Society and Better Access to Healthcare and Medical Care (Life Sciences Business)

One in every three Japanese persons is expected to be over 65 years of age by 2035 (according to the survey conducted by Statistics Bureau, Ministry of Internal Affairs and Communications in September 2014). This super-aging society is already creating issues such as increased medical care expenses and elder-to-elder nursing. Extending healthy life expectancy without daily assistance or care is now an issue that our society faces. Development of personalized medicines which enhance the efficacy of therapies by matching treatment methods more precisely to the condition of the individual patient will increase healthy life expectancy in the future. Healthcare methodologies and techniques will likely change during the coming years. Examples of this shift include the development of diagnostic technologies for early detection of disease as well as advances in highly effective treatments and pharmaceuticals to treat serious diseases at early stages.

JSR Group's Life Sciences Business, which contributes to personalized medical care and other fields, is the Group's third base business, following the Elastomers Business/Plastics Business and Digital Solutions Business.

### Medical Care Trends and JSR's Life Sciences Business Fields

Speeding up the practical application of advanced therapies for quick delivery to patients—that's JSR's challenge.

As drug development becomes increasingly sophisticated, the cost and time required to develop drugs is growing and becoming a major issue within the pharmaceuticals industry. It has been reported that, between 2006 and 2014, the cost required for major pharmaceuticals companies of the world to commercialize one molecule as a drug was between 3.2 and 32.3 billion dollars (roughly between 300 billion and 3 trillion yen).<sup>\*1</sup> Moreover, the average length of time needed for a new drug to reach the

market was 12 years.<sup>\*2</sup> Advancements in innovation and analytical technologies as well as new understanding of biology have made drug discovery—and particularly the biologics and precision medicine fields—more complex. In accordance with such medical care trends, JSR Group is developing businesses centered on the bio-pharmaceuticals and advanced diagnosis fields. Moreover, we will continue working to raise treatment development success rates, shorten development periods and improve treatment efficacy in bio-pharmaceuticals-centered fields.

<sup>\*1</sup> Source: Shuhmacher, Gassman, Hinder, Journal of Translational Medicine  
<sup>\*2</sup> Source: California Biomedical Research Association

### Structure of the Life Sciences Business

JSR has built the structure of its Life Sciences Business through mergers and acquisitions to help bring greater efficiency and shorter time frames to the drug development process.

KBI Biopharma Inc., a company that became a consolidated subsidiary in 2015, possesses powerful technologies in biopharmaceuticals analysis and manufacturing process development. It undertakes contracted analysis and manufacturing process development from pharmaceutical companies as well as contracted manufacturing of commercial drugs.

Selexis S.A., which we acquired in July 2017, is a company that develops cell lines capable of efficiently and stably culturing proteins such as antibodies that become the basis of drugs. It accepts contracts for the development and supply of the optimal cell lines in accordance with proteins to be cultured.

Combining Selexis' high-performance cell lines and KBI's analysis and process development technologies allows us to shorten the time required for drug development.

JSR makes a contribution by using this capability in materials development to provide the various culture mediums and purification materials that are used in the manufacture of biopharmaceuticals. Using Selexis and KBI as platforms for evaluating such advanced materials and utilizing them for development helps us enhance the efficiency of our materials development.

JSR markets Amsphere A3, a high-capacity Protein A chromatography resin used in the process of manufacturing antibody drugs, and KBI plays a major role in developing and expanding the sales of this product.

Crown Bioscience Inc., which JSR acquired in 2018, provides services that can improve the efficiency of drug discovery research. Crown possesses the world's largest number of PDx<sup>\*3</sup> models. The use of diverse PDx models that are built from various patients' cancer tumors permits drug testing in an environment approaching that of the human body prior to clinical trials in humans. This helps improve the probability of success at the clinical trial stage. Additionally, Crown also accumulates data on genes, proteins, and other components of various cancer tumor types. By testing proteins that will become drug candidates with PDx models and analyzing them with a database, Crown can identify candidates for factors (biomarkers) that influence drug effects. Doing this makes it possible to select only those patients who possess factors on which the drug is effective and permits the efficient planning of clinical trials. Furthermore, when a candidate drug substance being developed is actually approved and put to practical use, it becomes possible to evaluate its effects prior to drug administration by diagnosing the presence of biomarkers.

In this way, the contract research services that Crown provides contribute not only to greater efficiency in the drug development process but also to the development of precision medicine.

<sup>\*3</sup> PDx: Patient Derived Xenograft. The transplantation of human patient-derived cancerous tissue into an immunodeficient mouse. It is more effective than conventional methods in the screening of anticancer drugs because assessments can be conducted in an environment that better approximates that of the human body.

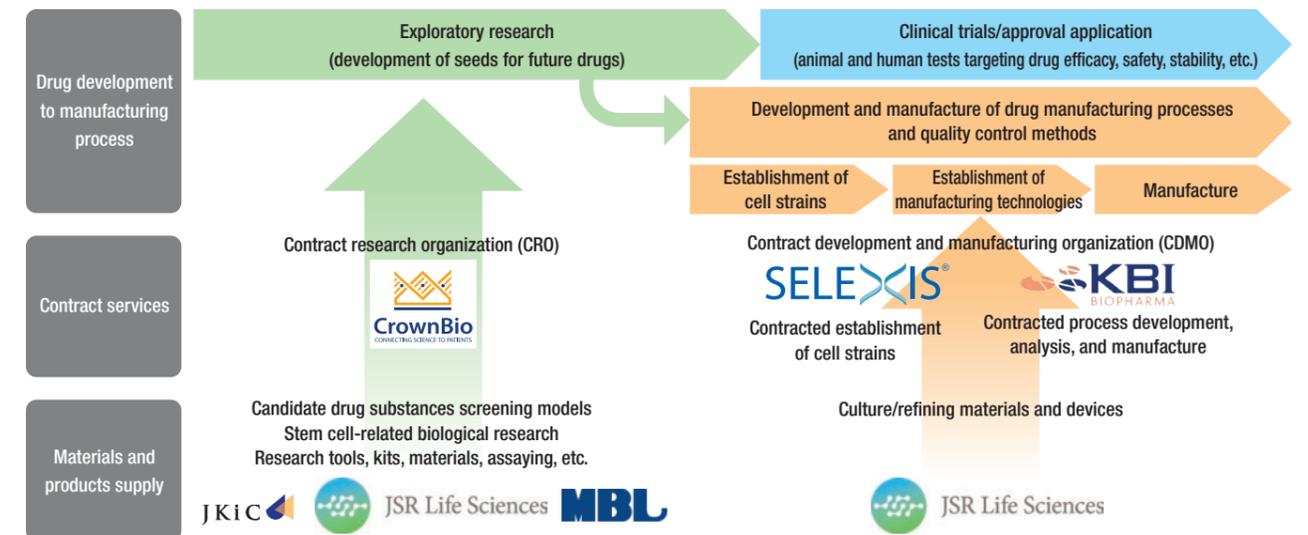
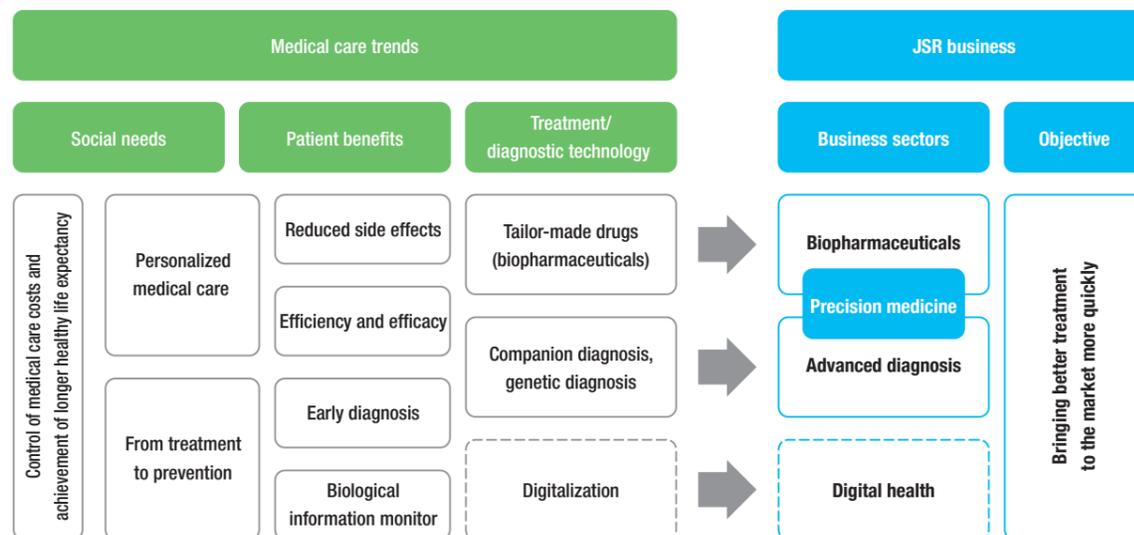
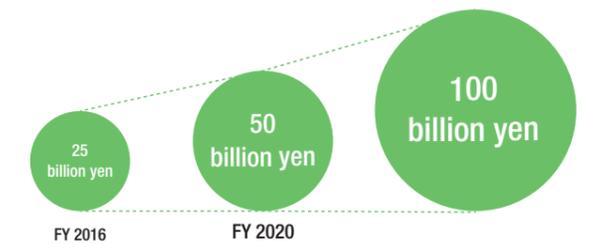
Medical & Biological Laboratories Co., Ltd. (MBL), which became a consolidated subsidiary in 2015, supplies various research reagents that are used in the contract research services provided by Crown. It is also contributing to the growth of precision medicine by turning biomarkers into diagnostic reagents. The JSR-Keio University Medical and Chemical Innovation Center (JKiC), an organization based on industry-academia collaboration that was launched with Keio University in October of 2017, is exploring seeds that will further precision medicine and developing

screening models that will contribute to more efficient candidate drug substances screening. The results of these activities are being provided to society through Crown and other members of JSR Group and contributing to more efficient and shorter drug development processes and the growth of precision medicine.

By adding Crown, a contract research organization, to the Group, JSR can now eliminate gaps at contact points with customers who conduct exploratory drug research. Additionally, JSR has completed rebuilding its business operations framework through the series of M&As that was described above. As a result, JSR's Life Sciences Business can now seamlessly provide value in areas ranging from the supply of products and services for drug discovery processes in the pharmaceutical industry to GMP<sup>\*4</sup> manufacturing. It is expanding strategic basic research, diagnostic reagent development, and contract drug discovery and development services on the upstream side of the drug development process, and also expanding everything from the establishment of cell strains to manufacturing process development and contract GMP manufacturing services in the biopharmaceuticals manufacturing processes on the downstream side. JSR Group will supply innovative services, products, and materials for all processes associated with the development of new treatments to pharmaceutical companies, biotech, and academia.

<sup>\*4</sup> GMP: Good Manufacturing Practice. An international standard pertaining to drug manufacture and quality assurance.

### Projected sales by the Life Sciences Business



Our customers and business partners, employees, society, shareholders, and other stakeholders will be affected in various ways as our scope of business grows. JSR Group will deepen mutual understanding with each stakeholder and meet their expectations.

## Health and Safety Initiatives (Accident Prevention/Occupational Health and Safety)

### Philosophy

Based on our "Basic Philosophy for Occupational Health and Safety" and "Course of Action," we are "moving toward becoming a 'mutually enlightened organization' in terms of (1) extremely safe behavior, (2) enhanced human resources and organizational strength, and (3) optimal risk management and security measures" as a vision of where we want to be in FY2020.

### Basic Philosophy and Course of Action for Occupational Health and Safety

#### (1) Basic Philosophy for Occupational Health and Safety

At JSR Corporation, safety is our highest priority and the foundation of all of our activities. Accordingly, we will create safe worksites and strive to maintain physical and mental health, with the goal of ensuring a safe return home at the end of each workday.

#### (2) Courses of Action

1. No matter the situation, we will act with safety foremost in mind.
2. We will comply with established rules and never fail to act in accordance with safety basics.
3. We will maintain safety by identifying and eliminating both actual and potential hazards.
4. We will strive to create comfortable work environments and promote physical and mental health.
5. Through communication and ingenuity, we will aim to achieve 100% employee participation in all safety activities.

#### JSR Roadmap for Health & Safety and Security Management

	2014		2015		2016		2017		2018		2019		2020		2021		2022			
	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct		
<b>Safety competency improvement step</b> * Safety competency: The whole of the safety foundation and safety culture	<b>1st Step</b> • Development of a foundation for preventing major workplace accidents • Identification of safety foundation and safety culture-related issues in project activity leadership				<b>2nd Step</b> • Development, maintenance, operation, and establishment of the safety foundation • Rebuilding of the safety culture (safety awareness, hazard recognition, passing on of skills, etc.) under managers' leadership				<b>3rd Step</b> • Penetration of safety values among employees and enhancement of human resources development/organizational strength • Maintenance of the safety foundation and improved efficiency with new technology				<b>4th Step</b> • Penetration of JSR's safety culture among all companies and employees • Continuous maintenance and improvement of the safety foundation with the latest technologies							
<b>Safety culture improvement objectives</b> (Based on the Bradley Curve's classifications)	Color coding indicates penetration with the passage of time																			
	Reactive								Dependent				Independent				Interdependent			

Notes:

Reactive: No action unless an accident happens; response by instinct

Dependent: Management by a supervisor/safety officer; doing what one is told to do

Independent: Action on a personal level; ability to act alone without being told

Interdependent: Working on colleagues; mutual awareness with colleagues)

(Source: DuPont)

### Health and Safety Vision for 2020 (Basic Policy for Security Management)

#### (1) Extremely Safe Behavior

The Basic Philosophy for Occupational Health and Safety has penetrated through the organization, the Courses of Action are established as applying to everyone, and safety competency is improving through independent safety activities.

#### (2) Enhanced Human Resources and Organizational Strength

High personal skills, organizational ability, and a healthy organizational culture are being maintained with the establishment and execution of the education and training programs needed for organizational management.

#### (3) Optimal Risk Management and Security Measures

Security measures corresponding to risk importance are being efficiently and effectively implemented using new technologies.

\* Regular activity verifications (by JSR and third parties) will be conducted to confirm progress toward fulfilling the vision.

### FY2018 Activities

Using the JSR Roadmap for Health & Safety and Security Management, we implement activities by establishing action plans comprised of annual targets, annual policies, and priority measures that take into account actual performance and activities of the previous fiscal year.

In FY2018, we tackled industrial health and safety by focusing attention on "elimination of unsafe behaviors" and "stratified safety education" with the aim of finishing the year "with zero workplace accidents (lost-time

accidents)." As for preventing accidents, we identified hazards using HAZOP\*1 and other methods to enhance our management of process accident risks and executed both infrastructure- and human-based countermeasures to important and major risks with the goal of ending the year with "zero facility accidents (or abnormalities stipulated in the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities)."

#### (1) Promotion of activities to elimination of unsafe behaviors

Our activities focused on initiatives for improving hazard awareness while continuing efforts to penetrate "safety first" values among all employees. We promoted activities to eliminate unsafe behaviors that were matched to the circumstances of business establishments, which produced apparent effects in terms of employees' notice of potential hazards. For this reason, we will present these activities to Group companies for implementation.

#### (2) Safety Education by Age Groups

Although the overall number of workplace accidents is falling, the tendency whereby more accidents involve inexperienced young employees and veteran employees remains unchanged. In light of this, we developed and began using curricula for hazard-recognition skills improvement training that is designed for inexperienced young workers, who tend to have more workplace accidents, and for assessing physical limitations that is intended for veteran workers.

#### i) Hazard Awareness Skills Improvement Training for Young Workers

Providing hazard-prediction training based on understanding of the causes of workplace accidents to improve risk-recognition skills

#### ii) Physical Limitations Checks for Veteran Employees

Assessing physical characteristics that can lead to falling (questionnaire and measurement) to encourage recognition of own situation

#### (3) Promotion of Risk Assessment

An important basis for process safety and workplace safety is risk assessment.

Using multiple risk assessment methods to ensure completeness, we identify serious risks and execute both infrastructure- and human-based countermeasures to deal with them.

#### (4) Execute Infrastructure- and Human-based Measures

Leakage accidents are increasing throughout JSR Group. Thus, measures against facility corrosion and deterioration have utmost importance at each business establishment. We are therefore checking the soundness of concerned facilities and making repairs with priority on those facilities having high risk in the event of a leakage. In addition, we began project activities aimed at eliminating leaks by reviewing our inspection and construction

methods, with priority on pipe frame contact points.

We are working to prevent accidents by continuing to use HAZOP\* and implementing measures to address hazard risks that are uncovered and identified in our plants.

\*1: HAZOP: Abbreviation of "Hazard and Operability Study." It is a method of safety assessment used to identify hazards in processes and operations.

#### (5) Preparations for Large Earthquakes

We adopted a mid-term business plan in FY1996 concerning preparations for a large earthquake and have been conducting systematic activities to enhance those preparations. Moreover, after the Great East Japan Earthquake prompted us to review the size of assumed earthquakes, we formulated safety measures that included enhancement of seismic resistance and tsunami countermeasures.

#### (6) The Safety and Health Activity Forum

The Safety and Health Activity Forum is a JSR Group initiative at which all business establishments of the Group present exemplary safety and health activities. Its objectives are to improve employees' safety awareness and to raise the quality of safety and health activities. Each year, we select presentation themes after conducting a careful screening of examples of safety activities that were nominated by each establishment.

In FY2018, we held a Safety Ceremony and Safety and Health Activity Forum on July 19. The following presentations were made in FY2019. After the presentations, a panel discussion was held by the presenters and became the scene of a lively discussion on ways of eliminating unsafe behaviors.

#### Presentation Themes of the FY2019 Safety and Health Activity Forum

Presenting group	Title
Kashima Plant Manufacturing Dept.	Verification of deviation in irregular operations through the "Sangen Shugi" principle
Chiba Plant Manufacturing Technology Dept.	Reinforcing safety sensitivity: What do we need now?
Yokkaichi Plant Manufacturing Dept.	Improving safety management skills by utilizing ICT
Yokkaichi Plant Manufacturing Dept.	Improving the Power Section's emergency response abilities and creating a safety-conscious workplace environment
Yokkaichi Plant Manufacturing Dept.	Sharpening "ability to think"

# Climate Change Mitigation, Environmental Impact Reduction

## Initiatives to Reduce Greenhouse Gas (GHG) Emissions

Environmental problems attributable global warming (e.g., forest fires, droughts, water shortages, rising sea levels, threats of extinction, and impacts on ecosystems) are occurring on a global scale. Such problems are also seen in Japan. They are represented by floods caused by torrential rains, health problems such as heatstroke that result from more and more days of extreme heat, and such impacts on the ecosystems as coral bleaching. JSR Group recognizes this as an important issue. We therefore strive to reduce GHG emissions by, for example, reducing the amount of energy needed in the various processes of producing and supplying our products.

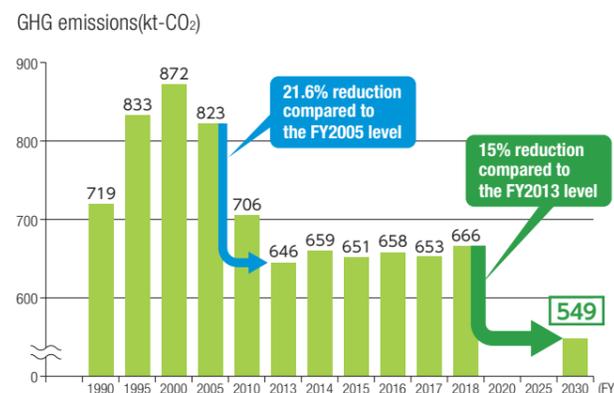
### (1) Response by JSR (business establishments)

#### ● Actions for Scopes 1 and 2

In FY2012, JSR established its "System to Reduce Total CO<sub>2</sub> Emissions from Three plants by 6% Compared to FY1990" by upgrading its energy-saving technologies through the introduction of fuel conversion at the Kashima Plant (Kashima South Joint Power Corporation) and a natural gas-fired gas turbine cogeneration system and sludge dewatering system at the Yokkaichi Plant. In FY2018, we reduced our CO<sub>2</sub> emissions by 7.4% compared to the FY1990 level.

Beginning in FY2005, we achieved a significant reduction of 21.6% by FY2013 compared to the FY2005 level by promoting the above-mentioned fuel conversion and making large-scale capital investments. However, since FY2013, our GHG emissions have remained about the same, despite our efforts to conserve energy. Looking ahead, we will strive to reduce our GHG emissions toward achieving a long-term goal of "reducing emissions by 15% in FY2030 compared to the FY2013 level." In addition to energy conservation activities, we will achieve this by introducing highly efficient equipment and using renewable energy.

### Changes in JSR's CO<sub>2</sub> emissions and 2030 reduction target



In th Tokyo head office, we are promoting energy conservation on our own initiative by voluntarily setting a specific power saving target.

In FY2018, our power consumption fell below the base year average as a result of the main initiatives described below, and we achieved a 15.6% reduction in our emissions compared to the base year average.

#### ● Actions for Scope 3

we have taken steps to reduce our transport energy use as a designated shipper under the amended Energy Conservation Act. In FY2018, as a result of policies to transport goods and raw materials by railway and ship, we achieved a modal share of approximately 85%, thus maintaining last year's high level, and successfully held down per-unit transportation energy.

### (2) Response by Global Group companies

Globally, we emitted 1,078 kt-CO<sub>2</sub> in FY2018. This represented an increase of 2% compared to the previous year. We will promote activities that take a long-term perspective on the global side of our business as well.

## Responding to the Marine Plastic Litter Problem

JSR considers the problem of marine plastic litter to be an important issue. In light of this, we are participating in the Japan Initiative for Marine Environment (JalME), an organization that was launched by five chemical industry bodies on September 7, 2018, as a founding member.

We are also investigating JSR Group's disposal processes for plastics in Japan based on the national government's proposed "plastic materials recycling strategy (tentative)" and studying management indices.

Looking ahead, we will promote further recycling of waste plastics by setting the following two points as long-term targets (FY2030). We will also strive to make a social contribution by, for example, raising awareness of the plastics problem through in-house seminars and explanatory briefings, promoting "3R"-based activities in daily life (e.g., regarding the use of plastic bags and PET plastic bottles), and participating in coastal cleanups.

- 1) 100% recycling (including heat recovery)
- 2) 60% recycling (not including heat recovery)

## Communication with Customers

We believe that an important role of JSR Group is to offer innovative materials and excellent products that meet our customers' needs through communication with them and to contribute to the making of a better society.

We strive to make necessary improvements by having our customers evaluate us in terms of management effectiveness, product development, product quality, technical and sales support, and other areas through customer satisfaction questionnaires. We will remain dedicated to accepting our customers' evaluations with sincerity, improving product quality, and continually improving satisfaction so that we may constantly meet changing quality demands.

### Receipt of Sysmex's Technology Uniqueness Award

Sysmex, a manufacturer of medical devices, held a 50th anniversary event (Partner Celebration) on November 12, 2018. At this celebration, JSR was awarded Sysmex's Technology Uniqueness Award in recognition of its development and sales of high-quality reagent materials.



Sysmex's Partner Celebration From left, Mr. Kenji Tachibana, Managing Board Member and Senior Executive Officer of Sysmex; Mr. Eric Johnson, then Managing Officer of JSR; and Mr. Hiroki Ito, General Manager of the Diagnostic & Research Reagents Department of JSR's Life Sciences Division

### Receipt of BOE's Collaborative Innovation Award

On May 11, 2018, JSR received a "Collaborative Innovation" award from BOE Technology Group Co., Ltd., China's leading LCD panel manufacturer, at the 2018 BOE Supplier Partner Conference held in Hefei, Anhui Province. This award is presented to companies that work with BOE to achieve innovation and breakthroughs and that contribute to BOE's product competitiveness and brand power. JSR was the first to receive it.



Mr. Keisuke Wakiyama, Division Manager of Display Solution Division, holding the award

## Communication with Shareholders and Investors

### Shareholders' Meetings

JSR Group has implemented a variety of measures to facilitate the exercise of shareholder voting rights. These include the holding of the general shareholders' annual meeting at an earlier date to avoid the typical peak period of shareholders' meetings, earlier notification for the meeting, the adoption of a voting system via Internet, participation in electronic platforms for the exercise of voting rights by institutional investors, the listing of invitations to shareholders' meetings on our website in both Japanese and English, and the introduction of smartphone compatibility.

We aim to make documents attached to invitations to our shareholders' meetings easy to understand. To this end, we provide not only legally required content, but also other useful information, such as information regarding our products and an overview of our mid-term business plan. Additionally, we make effective use of graphs, photographs, and color printing. We also employ various methods to enhance understanding of JSR at ordinary general meetings of shareholders. They include displaying panels that present JSR, explaining our business conditions with visual and audio media, and presenting a briefing on the mid-term business plan by the President.

### Company's Briefings for Investors and Analysts

In addition to conducting briefings on our business results after each quarter, we also organize seminars for investment institutions and analysts as well as various other events to achieve extensive bi-directional communication with shareholders and investors.

During FY2018, we held a total of about 240 meetings with investors in Japan and overseas. We also participated in several seminars (briefings) for corporate investment analysts and for individual investors. Feedback on opinions and questions received through these meetings is shared with management on a regular basis.

With regard to the global development of JSR Group companies, we voluntarily introduced IFRS\* from March 2018 in an effort to improve the comparability of financial information regarding international capital markets.

\* International Financial Reporting Standards



Analysts and the media meetings

# Communication with Employees and Society

## Work-Style Innovation

At JSR, we are focused on work-style innovation with the goal of realizing sustainable growth for both the company and our employees.

In advancing innovation-oriented activities, we will analyze factors in the workload of each department and then formulate and execute concrete measures to reduce work and alleviate workloads based on prioritization so that each employee can approach it with problem awareness. Management is demonstrating its commitment to these activities by, for example, establishing opportunities for reporting by assigned officer countermeasures proposed by each department.

Furthermore, we see three main approaches to changing work style: work place, work tools, and work time. Given this, we are implementing the "free address" system in some areas of our Head Office and Yokkaichi Plant. We are also publicizing JSR's fundamental rules on meetings and e-mail, encouraging the use of "no overtime days" at all major business locations, and encouraging the taking of paid holidays on workdays sandwiched between national holidays and in combination with three-day weekends.

### Holding of a Seminar on Work-Style Innovation and Corporate Culture Reform

On March 4, 2019, we organized a lecture presentation by Mr. Piotr Feliks Grzywacz, a person who has been involved in human resources development and organizational development for many years at Google and Morgan Stanley.

Mr. Grzywacz has written numerous books, among them *Fast Leadership* and *Why Googlers Deliver High Output Without Fatigue?* During the seminar, he spoke about future work styles and approaches to organizational structure while giving participants various projects to tackle.



State of lecture

## Recognized under the 2019 Certified Health and Productivity Management Organization Recognition Program

JSR was recognized for the third year in a row as one of the "White 500" enterprises under the 2019 Certified Health and Productivity Management Organization Recognition Program (large enterprise category), a scheme run by the Ministry of Economy, Trade and Industry (METI) and Nippon Kenko Kaigi. This designation, which we also received last year, acknowledges our standing as a listed company that practices outstanding health and productivity management. Moreover, five members of JSR Group—JSR Micro Kyushu Co., Ltd.; Japan Coloring Co., Ltd.; Elastomix Co., Ltd.; JSR Logistics & Customer Center Co., Ltd.; and JSR Health Insurance Society—were recognized under the Certified Health and Productivity Management Organization Recognition Program for 2019 (SME category).

The "Certified Health and Productivity Management Organization Recognition Program" examines large enterprises, SMEs and other organizations engaging in initiatives for overcoming health-related challenges in regional communities or for promoting health-conscious activities led by the Nippon Kenko Kaigi, and recognizes those enterprises engaging in particularly outstanding efforts for health and productivity management.

Seeing the health and fitness of each and every employee as vital to sustainable corporate growth, JSR Group will continue regarding employee health as a management issue and take proactive steps in executing measures to maintain and promote health and reexamining how our employees work.



## Promoting the Active Participation and Advancement of Women in the Workforce

As a part of our mid-term business plan, JSR has publicly announced our quantitative targets for the active support of our female employees. We have also developed an action plan to promote and support the lives of working women within JSR, based on and in accordance with the Act on Promotion of Women's Participation and Advancement in the Workplace (Women's Act). The Women's Acts' second phase is set for April 1, 2018 to March 31, 2020. These targets demonstrate our management's commitment in achieving understanding and cooperation throughout the organization. JSR has also publicly announced each of our action plans to nurture and raise the next generation of children. These plans are based the Act on Advancement of Measure to Support Raising Next-Generation Children (Next-Generation Act), which has been in effect since April 2005. The seventh phase of which is set for March 31, 2018 to March 31, 2020. We have continued to establish, notify, publicly disclose, raise awareness of, and implement action plans throughout the first phase of the Women's Act and sixth phase of the Next-Generation Act while executing initiatives in line with both acts.

## Dialogues with Local Communities

### Responsible Care Participation in Regional Dialogue Meetings

The Japan Chemical Industry Association (JCIA) RC committee holds regional dialogue meetings all over Japan as part of its RC initiatives. Participants include local residents, educators, civil servants, and members from various other organizations. They provide an opportunity to introduce participating companies, to explain their everyday safety and environmental measures to local residents to bolster their understanding and peace of mind, and to respond to residents' concerns and questions. In FY2018, JSR participated in a regional dialogue meeting held in Yokkaichi District.

### Environmental activities

JSR Group continues to help with local clean-up activities of roads, coastlines, and rivers at domestic and overseas offices and plants. Following last year, JSR BST Elastomer (Thailand) again participated in the International Coastal Cleanup event organized by the Ocean Conservancy NPO based in the US. In 2018, 117 employees and their families helped clean Mae Ram Phueng Beach and Namrin Payung Beach in cooperation with other companies located in the same industrial park, other local businesses, educational institutions, and community volunteers. This event is held on the third Saturday in September all around the world to clean beaches, lakes, seas, and rivers in various countries. The participation of nearly 500,000 people in 91 different countries makes this one of the largest marine conservation projects in the world.



International clean-up activity (JSR BST Elastomer)

## Education and Social Education

In November 2018, employees from JSR Kashima Plant visited Kamisu Third Junior High School and held a class for 129 second-year students.

Class contents consisted of three experiments—"Rubber manufacturing experience using a coagulant", "Bouncing ball and non-bouncing ball" and "Unbreakable plastic". The peculiarities of the materials and their relationship with molecules were explained in an easily understandable manner.



Visiting lecture by employees from Kashima Plant

## Culture and Art

JSR supports the activities of the non-profit organization SOAT. SOAT carries out support activities for victims in the Great East Japan Earthquake by creating motivation in life through an art workshop. As part of these activities, SOAT and women who suffered damages create wine bags, and sell them at JSR Trading's Wine Sale event. The wine bags are made out of leftover curtain cloth provided by Actus Co., Ltd., an interior goods store, and bottom liners provided by Techno-UMG Co., Ltd., and are sustainable. All profits go back to the victims.



A fabricated wine bags

Our initiatives targeting “Basic Issues in JSR Group's Corporate Activity” support our efforts to address “Social Issues that JSR Group Can Help Resolve” and “Social Issues Attributable to JSR Group's Corporate Activity.”

## Corporate Governance

### Tackling Corporate Governance as an Important Management Challenge

JSR continues to focus on the enhancement of corporate governance as an important management challenge.

As a company with Audit & Supervisory Board members, JSR principally monitors and oversees the execution of duties by directors and the management through its Board of Directors and Audit & Supervisory Board members. We have continuously strengthened the function of management supervision, improved efficiency in decision making and business duties execution, and enhanced the transparency and soundness of our business management to raise corporate value over the medium to long term. To that end, we have implemented measures that include the introduction of an officer system; the appointment of outside directors and Audit & Supervisory Board members who are independent from the company and have extensive business experience and expertise; the establishment of a Remuneration Advisory Committee and Nomination Advisory Committee, the majority of whose members are independent outside directors; and the introduction of performance based remuneration covering the medium and long term.

Additionally, we are strengthening our management monitoring and oversight functions by appointing two independent outside Audit & Supervisory Board members with extensive and sophisticated expertise (one is a lawyer and the other is a certified public accountant qualified as a certified public tax accountant) to the three-member Audit & Supervisory Board.

Moreover, we strive to ensure and improve the effectiveness of internal control by systematically conducting internal audits through an organization specialized in internal audit that is independent from business divisions and reports directly to the president (“Corporate Audit Department”), by strengthening collaboration between the Corporate Audit Department and Audit & Supervisory Board members, and by instituting a reporting system whereby important issues are reported by directors and employees to the Audit & Supervisory Board members when deemed necessary.

## Compliance

### Promoting Corporate Ethics Activities based on Three Pillars

To live up to our management policy, which requires us to fulfill all responsibilities to our stakeholders, we advance Group-wide corporate ethics activities, monitor and enhance our legal compliance, and promote respect and safeguarding of human rights in line with JSR Group Principles of Corporate Ethics.

(1) We ensure that employees at all Group companies can become acquainted with JSR Group Principles of Corporate Ethics in their native language or in a

language in which they are proficient. Moreover, we provide e-learning programs and training developed for all employees of JSR Group companies in Japan.

(2) We work to grasp and improve corporate ethics-related issues by conducting surveys on awareness of corporate ethics that target all JSR Group employees.

(3) We operate two types of hotline (internal reporting channel). For employees, we have an internal hotline connected to contact points for each JSR Group company or the Corporate Ethics Committee and an external hotline connected to a designated independent attorney. In addition, we have another external hotline connected to an independent and specialized outside organization that is capable of handling communication in Japanese, English, Chinese, Korean, and Thai.

Six reports were received during FY2018. Of them, four involved abuse of power. Suitable responses are being implemented in all cases.

JSR employs at its Procurement Department a “Suppliers' Hotline,” an external reporting channel for business partners, namely suppliers and services providers, with whom domestic Group companies do regular business. It receives reports from business partners to quickly discover and resolve violations of the law as well as actual and possible violations of corporate ethics in business transactions. Hotline services are entrusted to the same outside organization employed for the employees' hotline. Efforts are being made toward improving reliability, by thoroughly enforcing strict secrecy of reports and prohibiting handling of reports that would be disadvantageous to those reporting something.

### Legal Compliance Measures

Every JSR Group member defines legal compliance regulations that form the basis of its legal compliance. Moreover, in order to solidify compliance, JSR Group regularly reviews and improves compliance by self-checking the degree to which the business operations of all Group companies are legally compliant each year. It also strives to increase awareness of laws and regulations by providing legal training and to instill commitment to compliance.

JSR Group is thoroughly publicizing important points that demand legal compliance among employees in Japan, South Korea, and China by issuing Japanese, Korean, and Chinese versions of JSR's Compliance Handbook. The Chinese Version is issued to not only Group companies in China but also JSR departments and Group companies that sell products, supply samples, or otherwise engage in business dealings with Chinese enterprises. Through it, we are working to ensure thorough understanding and practice of legal compliance in China.



Compliance Handbook (Japanese, Korean, and Chinese versions)  
Each version is customized in terms of law names and other details to its respective country.

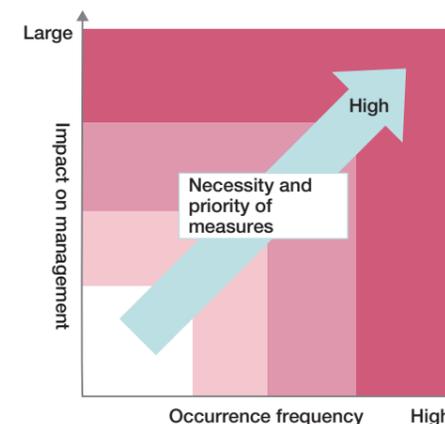
## Risk Management

### Working to reinforce risk management

#### (1) Identifying Risks and Selecting Important Risks

JSR Group believes that “preventing a major crisis from occurring” and “minimizing major crises' impacts on business activities” are important management roles. The Group has formulated Risk Management Policies and established a Risk Management Committee through which it actively pursues risk management activities.

Utilizing a risk map that represents level of business impact and frequency of occurrence, we identify risks that could have a significant impact on business continuity and organize them risks into the JSR Group Risk Factors. By monitoring and regularly reviewing risks that senior management has personally ascertained, we are building and maintaining a system for prevention and crisis preparedness.



#### (2) Crisis Management Training

JSR has formulated BCM procedures that summarize the BCM/BCP\* systems in place for both peacetime and emergency situations. These procedures define the BCM organization and the actual BCP, which includes stipulations on target recovery times, and BCP activation and cancellation standards. They also define the organizational structure that takes effect during activations of the BCP, and corresponding priority businesses and operations.

We also systematically conduct disaster drills and evacuation drills at our plants and offices to improve our crisis responsiveness and minimize impact.

As for our physical infrastructure, we are proceeding with step-by-step seismic reinforcement. In particular, we are conducting seismic retrofitting at our production bases and manufacturing facilities after establishing independent standards that are even stricter than those required by law.



The headquarters for accident and crisis control during the crisis management



General disaster drill conducted jointly by plants and offices in the Kashima District (JSR, Japan Butyl, and Kraton JSR Elastomers)

### Participation in the United Nations Global Compact

JSR Group became a participant in the United Nations Global Compact in April 2009. As such, we will more proactively fulfill our corporate social responsibilities with recognition that businesses operating on a global level must make a greater commitment to human rights, labor, the environment and anti-corruption, as expressed in The Ten Principles of the United Nations Global Compact. We will also advance initiatives oriented toward achieving the “Sustainable Development Goals” (SDGs) that were adopted by the United Nations in 2015 through our business activities.

JSR Corporation  
Representative director, CEO  
Eric Johnson



### The Ten Principles of the United Nations Global Compact

1. Businesses should support and respect the protection of internationally proclaimed human rights; and
2. make sure that they are not complicit in human rights abuses.
3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
4. the elimination of all forms of forced and compulsory labour;
5. the effective abolition of child labour; and
6. the elimination of discrimination in respect of employment and occupation.
7. Businesses should support a precautionary approach to environmental challenges;
8. undertake initiatives to promote greater environmental responsibility; and
9. encourage the development and diffusion of environmentally friendly technologies.
10. Businesses should work against corruption in all its forms, including extortion and bribery.

Inclusion in ESG indexes, socially responsible investment (SRI) indexes and investment universes (Current as of July 1, 2019)

The JSR Group is highly regarded for its CSR activities and other non-financial initiatives, as reflected by its inclusion in international socially responsible investment indexes and investment universes. Also, the JSR Group has been selected for inclusion in the FTSE Blossom Japan Index and MSCI Japan Empowering Women Index (WIN), S&P /JPX Carbon Efficient Index, these of which are ESG indexes selected by the Government Pension Investment Fund (GPIF).



We were selected as an investment brand of the "FTSE Blossom Japan Index" for being a Japanese company with excellent consideration for ESG (Environment, Social, and Governance)



We were selected by MSCI as an investment brand of the "MSCI Japan Empowering Women Index (WIN)" for being a company with excellent gender diversity."



For 16 consecutive years since 2004 we have been selected by FTSE Russell as a constituent of the FTSE4Good Index Series.



We are reconfirmed for inclusion in the EURONEXT Vigeo Eiris World 120 Index as a global company with outstanding ESG (environment, social, governance) performance.



On June 30, 2017, we were reconfirmed for inclusion in the Ethibel Pioneer & Excellence Investment Registers, which is an international SRI universe.



In recognition of our standing as a company with a high ESG (Environment, Social, and Governance) evaluation, we are reconfirmed by Sompo Japan Nipponkoa Asset Management Co., Ltd. (SNAM) as a brand for investment to be included in the SNAM Sustainable Investment Fund.

Additionally, the JSR Group has continually been ranked in the Global Compact 100 since FY2013. The MS-SRI, which was selected until last year, ended the calculation and publication as of December 2018.

JSR Profile (as of March 31, 2019)

Company name: JSR Corporation  
 Established: December 10, 1957  
 Head office: Shiodome Sumitomo Building, 1-9-2 Higashi-Shimbashi, Minato-ku, Tokyo, Japan  
 Representative Director: Mitsunobu Koshiba  
 Capital: 23.370 billion yen  
 Number of employees: 8,748 (consolidated)

JSR Group Companies (as of March 31, 2019)

Details are provided in ESG Data.  
 URL ▶ <http://www.jsr.co.jp/csr/2019/management/esg.pdf>

JSR Operations (as of March 31, 2019)

Head office		1-9-2 Higashi-Shimbashi, Minato-ku, Tokyo, Japan	
Branches	Nagoya Branch	Nagoya City, Aichi Prefecture	
Plants	Yokkaichi Plant	Yokkaichi City, Mie Prefecture	
	Chiba Plant	Ichihara City, Chiba Prefecture	
	Kashima Plant	Kamisu City, Ibaraki Prefecture	
Research centers and laboratories	Yokkaichi Research Center	Performance Polymer Research Laboratories	Yokkaichi City, Mie Prefecture
		Display Solution Research Laboratories	Yokkaichi City, Mie Prefecture
		Fine Electronic Materials Research Laboratories	Yokkaichi City, Mie Prefecture
		Advanced Materials Research Laboratories	Yokkaichi City, Mie Prefecture
		Edge Computing Research Laboratories	Yokkaichi City, Mie Prefecture
	Tsukuba Research Laboratories	Tsukuba City, Ibaraki Prefecture	
JSR-Keio University Medical and Chemical Innovation Center	Shinjuku Ward, Tokyo		
Overseas branch	Taiwan Branch	Taiwan	

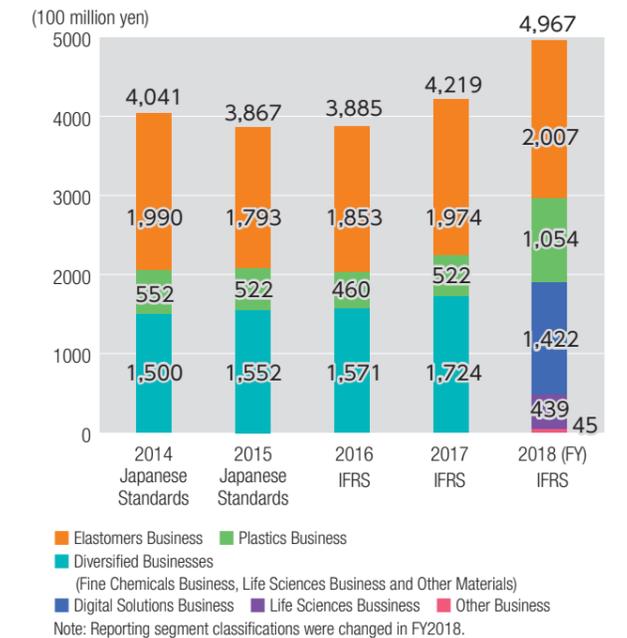
Major JSR Group Businesses (as of March 31, 2019)

The manufacture and sale of the following products

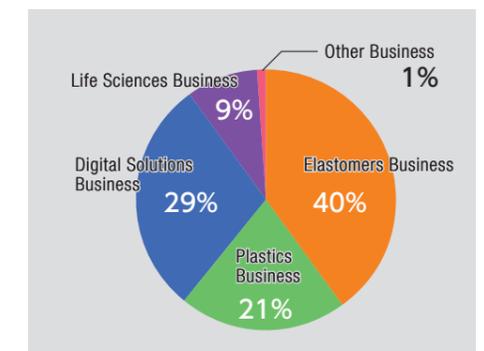
Type of business	Main products	
Elastomers Business	Synthetic rubbers	Styrene-butadiene rubber, butadiene rubber, ethylene-propylene rubber and other synthetic rubbers and refined processed products
	Thermoplastic elastomers	Thermoplastic elastomers and related processed products
	Emulsions	Latex for paper processing, general industrial-use latex, acrylic emulsion, and refined processed products made from raw latex
	Functional chemicals	High-performance coating materials, high-function dispersant, industrial particles, latent heat storage materials, heat reflection paint material, and battery material
	Other	Chemical products such as butadiene monomers
Plastics Business	Synthetic resins such as ABS resin, AES resin, AS resin, and ASA resin	
Digital Solutions Business	Semiconductor Materials	Lithography materials (photo resist and multi-layering materials), packaging materials, cleaning solutions, and CMP materials
	Display Materials	Color LCD materials and functional coating
	Edge Computing	Heat-resistant transparent resin, functional films, high-performance UV curable resins, stereolithography, and photo molding
Life Sciences Business	In vitro reagents for diagnostics and/or research, raw materials for such reagents, bioprocess materials, contract development, manufacturing of biopharmaceuticals, services to support drug development in pre-clinical phases	
Other Businesses	Lithium ion capacitors	

Financial Information

Revenue (consolidated)



FY2018 Revenue (consolidated) Composition Ratios



Operating Income (consolidated)

