Innovation

At the MCHC Group, we consider environmental and social issues along with market needs in leveraging our core technologies to create new value chains and innovative lifestyles. We provide and realize comprehensive solutions. Our efforts extend beyond component and material research and development of technologies. We pursue innovation in manufacturing processes and distribution channels, and find new uses for existing solutions. In this pursuit, we create value for our customers and our business partners throughout the value chain, in all regions in which the MCHC Group is active.

The MCHC Group embraces various approaches to strengthen our core technologies, including internal R&D, external R&D, venture investments, open shared business (OSB®) and M&A activities. Moreover, by developing systems to promote information sharing between operating companies and reduce the risk of information leaks, MCHC accelerates synergy among its core technologies and engages in R&D management that tracks the progress using Management of Technology (MOT) Indices. The twelve MOT Indices were selected to quantify the following: efficiency of research and development (R&D Index), technological superiority (Intellectual Property Index), and compatibility with social needs (Market Index). The indices were introduced on a trial basis in FY2013 and reviewed during the formulation of APTSS 20. The new indices have been in use since FY2016. The table on the right shows achievement percentage of representative indices in FY2017 against target values.

Example MOT Indices and Results in FY2017

<table>
<thead>
<tr>
<th>Index</th>
<th>Success Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOT Index</td>
<td>Elevated stage success ratio (development stage to launch stage)</td>
</tr>
<tr>
<td></td>
<td>137%</td>
</tr>
<tr>
<td>Intellectual Property Index</td>
<td>Overseas patent applications ratio (percentage of overseas applications out of total number of applications)</td>
</tr>
<tr>
<td></td>
<td>104%</td>
</tr>
<tr>
<td>Market Index</td>
<td>New product ratio (percentage of new products and services out of total revenue)</td>
</tr>
<tr>
<td></td>
<td>109%</td>
</tr>
</tbody>
</table>

Early Commercialization of Next-Generation Businesses

To secure our growth during FY2020–FY2025, we promote commercialization of next-generation businesses, reflecting trends in our focus markets.

Example MOT Indices and Results in FY2017

<table>
<thead>
<tr>
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<th>Success Ratio</th>
</tr>
</thead>
<tbody>
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</table>
Creating new waves for the company, the industry and society with digital technology and its philosophy to transform MCHC’s business and culture

Kazuo Iwano
Executive Officer
Chief Digital Officer

We live in an era of global change that is becoming increasingly complex at an accelerating pace, driven by Information Technology such as cloud computing, big data, Internet of Things (IoT), and artificial intelligence (AI). We predict that this situation will have significant impact not only on consumer business but also on the heavy and large-scale chemicals and materials industries. In April 2017, the MCHC Group launched the new post of Chief Digital Officer (CDO) to which I was appointed. Working for many years in the IT industry, I have always been thinking about the essence of the technology and concept on which today’s digital technology is based and its implications for business and society. In this way, I have tried to sharpen my sense. I feel fulfilled and strongly responsible when serving the MCHC Group to create products and services that support economic and social activities around the world and to help create new value by taking advantage of this sensitivity. The MCHC Group has four assets which are very significant to the digital transformation. First, a huge volume of long-accumulated data. Second, actual real business fields. Third, the will for digital transformation of our leaders. Fourth, various businesses and associated professionals. Considerable time has passed since we first heard about the era of big data and artificial intelligence. Until now, discussions and the utilization of these have been confined to the business to consumer (B2C) area. Around 2017, some started remaking, “data is creating a new economy” and “data is the new oil of this century; data mining to turn data to value by ourselves can really produce the greatest profit.” The day has come when we, as holders of data and real fields, create value by ourselves. In addition, in the domains of Cyber Physical Systems (CPS) and IoT, the physical world and cyberspace will be fused and be fully filled with opportunities to create value. In this respect, innovative changes will occur in the business to business (B2B) area with a higher regard and will have a massive impact on society and industries. It is time for us to be a leader in this challenging transformation. In this rare opportunity, the MCHC Group with its valuable heritage and cultural accumulation has had a fantastic chance to remake, “data is creating a new economy” and “data is the new oil of this century; data mining to turn data to value by ourselves can really produce the greatest profit.”

Message from the CDO

To realize the vision of digital transformation, we carry out activities based on five pillars as illustrated on the right. Specifically, the MCHC Group’s operating companies, business divisions and plants are working together to carry out Digital Projects aimed at resolving business issues using digital technologies and its philosophy. In the FY2017, we engaged in dozens of projects focusing on Operational Excellence and produced the results mentioned below.

Creating new waves for the company, the industry and society with digital technology and its philosophy to transform MCHC’s business and culture

Kazuo Iwano
Executive Officer
Chief Digital Officer

Inheritance of knowledge utilizing text mining

The value of information is long sustained in the MCHC Group. However, the information and data are either scattered or possessed by individuals and we were facing a risk of losing knowledge and expertise with the retirement of skilled employees. This was an issue in the situations such as responding to inquiries on products from customers, so we used text mining technology to turn documents, including textbooks on the products concerned and past responses, into a knowledge base that was visualized and searchable. As a result, we have improved the response quality and speed.

Detected signs of errors in processes at plants

Detects in a large chemical plant have such a huge impact on business activities that they lead to losses of business opportunities. It has been difficult to detect through chemical engineering alone for a long time. Data from sensors installed in a plant are analyzed using statistical and machine learning methods to achieve the practical and predictive detection of abnormalities.

We have established the methodology in the solution process acquired through a digital project as the MCHC method and we are broadly introducing it together with the common infrastructure platform to Group companies. We are also working to advance technologies by developing working-level engineers and other personnel through hands-on training, exchange and flexible introduction of outside knowledge. As a company at the upstream part of the supply chain, we will work hard to establish a new business model in collaboration with our downstream partners.
Sustainability

Based on our unique approach, Management of Sustainability (MOS), the MCHC Group drives corporate activities including development technologies, provision of products and services and improvement of manufacturing technologies to contribute to sustainability for people, society and our planet Earth.

Material Issues Related to the Global Environment
Key management issues that the MCHC Group should address through its corporate activities, innovation, and provision of products and services in the aim of achieving the sustainable well-being of our planet Earth.

MCHC has identified the important issues in the medium-term management plan APTSIS 20, and has prioritized these issues based on their impact on corporate and other factors. Results of this materiality assessment are used as a compass for our corporate activities.

Relevance between Processes: MOS and SDGs
We believe that initiatives taken by the MCHC Group to realize KAI TEKI largely contribute to achieving the sustainable development goals (SDGs). We will promote and develop MOS with awareness of the relevance between the 17 SDGs and our material issues to contribute to achieving SDGs and solving the material issues.

Material Issues Related to the Social Systems
Key management issues that the MCHC Group should address through its corporate activities, innovation, and provision of products and services in the aim of creating the sustainable well-being of society.

Material Issues Related to the Company and Its Organizational Structure
Key management issues that the MCHC Group should address in its internal operations and external relations as a corporate group aiming to realize KAI TEKI.
**Outline of C Indices**

In terms of preventing accidents and injuries (C-1-2), we surpassed our targets concerning the reduction rate of safety incidents, but fell short of the reduction rate of environmental incidents and lost-time injuries frequency index. We achieved steady progress in terms of improving awareness of compliance (C-1-1) and promoting communication with business partners (C-2-1). However, we did not achieve notable progress and failed to meet our targets in terms of improving awareness index and improvement rate in the number of complaints (C-1-3). We largely achieved steady progress in the employee wellness index (C-2-3), in which we have adopted eight measurement items: the employee satisfaction, the proportion of long-time workers, the percentage of non-Japanese presidents of key local subsidiaries and employees’ awareness of orchestration within the Group. We will aim to improve the indices by linking them with KAITEKI Health and Productivity Management.

The MOS Indices Annual Trend Diagram

The MCHC Group introduced the MOS Indices as management benchmarks in FY2011. To coincide with the formulation of APTSIS 20, we undertook a revision of the MOS Indices and set updated targets. In FY2017, we achieved steady progress, earning 152 points. We will continue working towards achieving 300 points as a final year target.

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**Outline of H Indices**

We made good progress and achieved targets in terms of providing pharmaceuticals (H-1-1), providing health management and health checkup information (H-2-2), and providing products for the health field (H-3-1). However, we did not achieve notable progress and failed to meet our annual targets in terms of providing clinical testing services (H-1-2) and providing products for the health field (H-3-1). However, we did achieve notable progress and failed to meet our targets in terms of patient satisfaction, the proportion of long-time workers, the percentage of non-Japanese presidents of key local subsidiaries and employees’ awareness of orchestration within the Group. We will aim to improve the indices by linking them with KAITEKI Health and Productivity Management.

**Outline of S Indices**

We have achieved good progress in S Indices on the whole. We made progress on reducing environmental impact amid stable operation and achieved the target for reducing the environmental impact on the atmosphere, water, and soil environment (S-1-1 to S-1-3). We also achieved better results than the annual targets for promoting activities to conserve energy (S-2-1), promoting use of renewable energy (S-2-3), providing products and services that contribute to reducing GHG emissions (S-3-1), and providing products and services that help solve food problems (S-3-3). However, we did not meet the targets on reduction of resource volume in the conversion to resource-saving and reusable materials (S-2-2) and providing products and services that help solve water resource problems (S-3-2).

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**Related Articles**

- Promote activities to conserve energy (S-2-1) → **FOCUS** The MOS Indices: (see page 71)
- Convert to resource-saving and reusable materials (S-2-2)
- Promote use of renewable energy (S-3-1)
- Provide products and services that help solve water problems (S-3-3)
**FOCUS**

**The MOS Indices**

Approx. 90% of CO2 emitted by the MCHC Group through its business activities is from energy. In response, the MCHC Group proactively promotes energy conservation activities, which lead to the prevention of global warming, and quantitatively evaluates the reduction effect.

Among the energy-saving activities, energy efficiency improvement in the manufacturing process is highly effective. We also work on the optimization of operating conditions, replacement of fuels and well-planned replacement of devices with energy-efficient ones.

For example, air separation units, which are used to produce oxygen, nitrogen and argon from the air, normally require a lot of energy for the air compression process. Replacement of those units with energy-efficient ones enables a significant reduction in energy consumption. In FY2017, this was a variety of other initiatives made progress, resulting in a 148% improvement in energy-saving effects from the previous fiscal year. The accumulated total amount of energy-saving effects in FY2016 and 2017 was 51,699 tons of heavy oil equivalent.

The pharmaceuticals provision index consists of two items; the degree of contribution to treatment of disease and expansion of utility. The degree of contribution to treatment of disease is calculated based on the treatment satisfaction of diseases for which the products are administered and the number of patients to whom the products were actually administered. We monitor how much our products contribute to the medical care for hard-to-treat diseases. On the other hand, for the expansion of utility, we evaluate the level of expansion of indications for our products, increase the number of countries where they are marketed and other factors.

In FY2017, we released Radicava (product name in Japan: Radicut), the first new therapeutic agent in approx. 20 years in the U.S. for amyotrophic lateral sclerosis (ALS), a neurodegenerative disorder of unknown etiology. This product was administered to more than 2,500 ALS patients. Through this and other initiatives, we achieved steady progress, resulting in the contribution index for pharmaceuticals provision at 10.87 points, up 92.0% year on year. We will continue to contribute to medical treatment by providing more patients with treatment options through pharmaceuticals.

**Case 01**

**Providing solutions that contribute to improving the water environment of Myanmar**

Myanmar faces urgent need for improvement of access to water supply and sewage systems and other water-related technologies, including ones for water quality analysis. This is due to the low water supply system coverage rate and aging waterworks facilities and also rising turbidity and salination of river water attributed to the prolonged rainy season and dry season, which are regarded as the effects of climate change.

The MCHC Group has established MW Aqua Solutions Co., Ltd. as a solution provider in Myanmar, which supplies safe drinking water by taking advantage of the advanced technologies of Wellthy Corporation that is engaged in the production of drinking water from groundwater. We will contribute to improving the water environment of Myanmar by operating a solution business that integrates water treatment engineering in conjunction with water quality analysis. In addition, we contribute to improving the water quality analysis technologies in the country. For example, we provide technical support to the governmental laboratory in the JICA Project for Capacity Development in Basic Water Environmental Management and Environment Impact Assessment System in Myanmar.

**Case 02**

**Initiatives to create a future in which anyone can enjoy sports**

The MCHC Group regards compliance as one of the most important managerial issues in its continued existence as a company that merits public trust. We take measures to impart a compliance culture in the Group, including the provision of training and awareness-raising activities inside and outside Japan.

In Japan, we outsource to an external agency surveys of compliance awareness among all employees within the MCHC Group. We use the responses from four of the survey items, which are highly relevant to awareness of compliance and workplace culture, to measure the MOS Indices.

In FY2017, annual targets were exceeded in all four items, demonstrating that our variety of initiatives steadily contribute to spreading and imparting compliance. We will continue to promote initiatives for raising the awareness of compliance, aiming to develop a corporate culture that is free from injustice and misconduct.

**Material Issues of MCHC**

**Safety, Corporate Governance**

Guidance for the MCHC Group Charter of Corporate Behavior

**Indices**

**C-3-1**

Promote activities to conserve energy

**S-2-1**

Indices for the MCHC Group Charter of Corporate Behavior

**H-1-1**

Indices for the MCHC Group Charter of Corporate Behavior

**Material Issues of MCHC**

**Energy and resources**

Energy-efficient, super-large air separation unit

**Material Issues of MCHC**

**Medical care**

The pharmaceuticals provision index consists of two items; the degree of contribution to treatment of disease and expansion of utility. The degree of contribution to treatment of disease is calculated based on the treatment satisfaction of diseases for which the products are administered and the number of patients to whom the products were actually administered. We monitor how much our products contribute to the medical care for hard-to-treat diseases. On the other hand, for the expansion of utility, we evaluate the level of expansion of indications for our products, increase the number of countries where they are marketed and other factors.

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**Case 02**

**Initiatives to create a future in which anyone can enjoy sports**

The MCHC Group is pursuing a number of initiatives aimed at a future in which anyone can enjoy sports.

Mitsubishi Chemical Corporation (MCC), one of the operating companies, concluded an official partnership agreement with Japanese Para-Sports Association (JPSA) in April 2017. The company will support para-sports under this agreement.

MCC is also proactive in carrying out activities for promoting understanding of para-sports among its employees, having its employees support the operation of sports competitions hosted by JPSA as volunteers (such as working as receptionists and setting up venues), watch games and cheer for athletes, in addition to holding internal boccia competitions.

We will continue to support para-sports to help create a society that is physically and mentally healthy, where everyone enjoys the fun and pleasure of playing sports and the individuality of each person is respected, regardless of their age, gender, abilities and other attributes.
Initiatives to maximize active participation of workers

The MCHC Group recognizes that “people” are the driving force behind the sustainable growth of society and business, and considers human resources as one of its most important management resources.

We are trying to promote initiatives that fully utilize people’s skills and maximize the active participation of workers as KAITEKI Health and Productivity Management*.

Approach to KAITEKI Health and Productivity Management

We aim to build a basis for high levels of creativity and productivity by fostering offices and workplaces where diverse human resources work with energy and vitality.

Message from the CHO

Since the declaration of Promotion of Health and Productivity Management in FY2016, MCHC has been carrying out a variety of activities from the view points both health support and workstyle reform as two sides on the same coin. The main focus of the previous activities reform was the reduction of overtime hours. Under KAITEKI Health and Productivity Management, we have changed the focus to employees’ job satisfaction and sense of personal growth, shift in their awareness of workstyle, life satisfaction, improvements in health-related items and other factors as Key Performance Indicators (KPIs) and promote this reform using ICT and IoT. We lend wearable devices to employees to obtain data on their sleep quality and amount of activity. We have also created My Page, a terminal from which each employee can check the above data, as well as the results of their health checkup and their workstyle along with health support information. Group companies carry out these and many other distinctive activities, including study sessions held by industrial physicians and support for smoking cessation.

A workplace where diverse human resources work with energy and vitality is the foundation of the organization, which bustles with friendly communities, and society’s wellness. Through this virtuous circle, we will promote “workplace wellness” to become a company with high levels of creativity and productivity.

Examples of Activities

01 Safety Fitness Tests

The MCHC Group takes measures against work injuries focusing on human element. MCC takes two core measures against injuries in a fall. They are KAITEKI exercises aimed at sufficiently strengthening the body not to fall easily, and safety fitness tests for assessing employees’ risk of falling. There are three safety fitness tests for assessing balance ability, risk of stumbling and weight bearing capacity (muscle strength). Bodily functions are assessed through these tests and the results are used to develop physical strength to prevent falls.

02 Utilization of ICT

Full-fledged utilization of i² Healthcare

MCHC has developed i² Healthcare, an ICT system that provides employees with support related to the health cycle. We have begun to fully implement this system within the Group. Many employees use wearable devices that allow them to monitor their physical condition, including their quality of sleep, amount of exercise and heart rate in real time. They make use of this system like enjoying a game.

Approach to KAITEKI

Healthy and Productivity Management

We aim to build a basis for high levels of creativity and productivity by fostering offices and workplaces where diverse human resources work with energy and vitality.

KPIs and target values

In promoting a wide range of activities and measures, we have selected three KPIs (Activeness index, workstyle index and health life index) and set target values to be achieved by FY2020, in order to share the direction and vision of achievement. Based on these KPIs, we promote the PDCA of KAITEKI Health and Productivity Management.

<table>
<thead>
<tr>
<th>Description</th>
<th>FY2020 targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Activeness index</td>
<td></td>
</tr>
<tr>
<td>Index for employees’ job satisfaction, enthusiasm, trust and growth</td>
<td>15% or more in the health survey*1</td>
</tr>
</tbody>
</table>

| 2. Workstyle index | |
| Index for levels of workstyle awareness, behavior and initiatives | |
| Increasing positive choices by at least 10% or more in the health survey |

| 3. Health life index | |
| Index for health checkup items, lifestyle quality and level of life satisfaction | |
| Increasing employees who gain the number of applicable items among the 10 items indicating the health standard by 10 points (one item) or more |

*1 The health survey is aimed at discovering initiatives taken by each employee for Health and Productivity Management, in addition to matters covered by our conventional employee awareness survey.
### Environmental Data

<table>
<thead>
<tr>
<th></th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy consumption/ Greenhouse gasses (GHG) ¹</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenhouse gas emissions (Scope 1 + Scope 2) (1,000 t-CO₂e)²</td>
<td>12,054*₄</td>
<td>14,269</td>
<td>14,815</td>
</tr>
<tr>
<td>Scope 1</td>
<td>7,771</td>
<td>7,223</td>
<td>7,470</td>
</tr>
<tr>
<td>Scope 2</td>
<td>4,283*₄</td>
<td>7,046</td>
<td>7,345</td>
</tr>
<tr>
<td>Scope3*₅</td>
<td>43,240</td>
<td>54,370</td>
<td>49,640</td>
</tr>
<tr>
<td>Energy consumption (GWh) *₃</td>
<td>34,935*₄</td>
<td>38,950</td>
<td>40,977</td>
</tr>
</tbody>
</table>

### Constitutional employees (MCHC Group)

<table>
<thead>
<tr>
<th></th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of consolidated employees</td>
<td>68,988</td>
<td>69,291</td>
<td>69,230</td>
</tr>
<tr>
<td>Number of employees by district In Japan</td>
<td>44,858</td>
<td>44,034</td>
<td>43,406</td>
</tr>
<tr>
<td>Outside Japan</td>
<td>24,130</td>
<td>25,257</td>
<td>25,824</td>
</tr>
</tbody>
</table>

### Water use

<table>
<thead>
<tr>
<th></th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>water withdrawal (Million m³) (excluding seawater)</td>
<td>171</td>
<td>189</td>
<td>193</td>
</tr>
</tbody>
</table>

### Social Data

<table>
<thead>
<tr>
<th></th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of employees by gender Male</td>
<td>22,508</td>
<td>21,736</td>
<td>21,770</td>
</tr>
<tr>
<td>Female</td>
<td>19,194</td>
<td>18,459</td>
<td>18,440</td>
</tr>
<tr>
<td>Percentage of females (%)</td>
<td>3,314</td>
<td>3,277</td>
<td>3,330</td>
</tr>
<tr>
<td>Percentage of female managers (%) *₇</td>
<td>14.7</td>
<td>15.1</td>
<td>15.3</td>
</tr>
<tr>
<td>Paid leave utilization rate (%)</td>
<td>71</td>
<td>7.7</td>
<td>8.0</td>
</tr>
<tr>
<td>Lost-time injuries frequency rate (LTIFR) *₈, *₉</td>
<td>66.8</td>
<td>67.6</td>
<td>65.4</td>
</tr>
</tbody>
</table>

---

1. Indicators with this icon have been assured by KPMG AZSA Sustainability Co., Ltd. for FY2017.
2. Energy used to produce electricity and steam sold externally and the resulting CO₂ emissions were excluded from figures for FY2015 and prior years (CO₂ emissions were excluded from Scope 2 emissions), but in conformity with the GHG protocol, they are not excluded starting in FY2016.
3. The unit higher heating values for fuels specified in the Act on the Rational Use of Energy or by the IPCC are used.
4. The FY2015 results include GHG emissions of 1.65 million tons and energy consumption of 1,942 GWh by affiliate companies that are closely associated in terms of energy management, but the FY2016 results and thereafter exclude GHG emissions and energy consumption of these companies.
5. For the calculation method for Scope 3 GHG emissions, see page 3 of the non-financial data sheet on the MCHC website.
6. The data for FY2015 covers the three operating companies MCC, MTPC, and LSII, and their domestic and overseas Group companies. The data for FY2016 and 2017 covers these four operating companies and their domestic and overseas Group companies. (Group companies are directly-owned consolidated subsidiaries.)
7. Percentage of female employees out of all employees at assistant manager level and above.
8. Scope of data aggregation: Figures from domestic operations of the four operating companies MCC, MTPC, LSII and LSE and their Group companies.
9. The LTIFR is the number of lost-time injuries, illnesses and fatalities per million hours worked.

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In the President and CEO of Mitsubishi Chemical Holdings Corporation.

We were engaged by Mitsubishi Chemical Holdings Corporation ("MCHC") to undertake a limited assurance engagement of the environmental and social performance indicators marked with "[ ]" (the "Indicators") for the period from April 1, 2017 to March 31, 2018 included in its KAI TEKI REPORT 2018 (the "Report") for the fiscal year ended March 31, 2018.

### The Company’s Responsibility

The Company is responsible for the preparation of the Indicators in accordance with its own reporting criteria ("The Company’s reporting criteria"), as described in the Report.

### Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Indicators based on the procedures we have performed.

We conducted our engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000, Assurance Engagements other than Audits or Reviews of Historical Financial Information and the ISAE 3400, Assurance Engagements on Greenhouse Gas Statements, issued by the International Auditing and Assurance Standards Board. The limited assurance engagement consisted of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other procedures, and the procedures performed vary in nature from, and are less in extent than, a reasonable assurance engagement. The level of assurance provided is not as high as that provided by a reasonable assurance engagement. Our assurance procedures included:

- Interviewing the Company’s responsible personnel to obtain an understanding of its policy for preparing the Report and reviewing the Company’s reporting criteria.
- Inquiring about the design of the systems and methods used to collect and process the Indicators.
- Performing analytical procedures on the Indicators.
- Examining, on a test basis, evidence supporting the generation, aggregation and reporting of the Indicators in conformity with the Company’s reporting criteria, and recalculating the Indicators.
- Visiting the Sakai Chemical Plant of Mitsubishi Chemical Corporation and PT. Mitsubishi Chemical Indonesia selected on the basis of a risk analysis.
- Evaluating the overall presentation of the Indicators.

### Conclusions

Based on the procedures performed, as described above, nothing has come to our attention that causes us to believe that the Indicators in the Report are not prepared, in all material respects, in accordance with the Company’s reporting criteria as described in the Report.

### Our Independence and Quality Control

We have compiled with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements based on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. In accordance with International Standard on Quality Control, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.
Corporate Governance

MCHC aims to contribute to the sustainable development of people, society and the Earth, in addition to solving environmental and social issues through corporate activities for the realization of KAITEKI.

With eyes on these objectives, we are focusing efforts on establishing a better corporate governance structure by improving management transparency through proper disclosure and dialogue with stakeholders, while updating systems for enhancing both the soundness and efficiency of management.

Corporate Governance Structure for Sound Management and Greater Efficiency (As of June 26, 2018)

MCHC is a company with a nominating committee, etc., which separates functions for the supervision and execution of business in a bid to enhance management transparency and openness, to strengthen supervisory functions, and to improve management agility through prompt decision-making. While management supervision is now undertaken by the Board of Directors and three committees; the Nominating Committee, Audit Committee, and Compensation Committee, corporate executive officers make business decisions and are in charge of business execution.

Concept of roles and constitution of Board of Directors

The Board of Directors determines basic management policies such as medium-term management strategies and annual budgets, and supervises the execution of business by the corporate executive officers, who are in principle delegated to responsibility to decide about business execution based on these basic policies, with the exception of matters that must be legally resolved by the Board of Directors. To reflect diverse opinions in management as well as to strengthen supervisory functions, MCHC has elected not only internal directors who have an intimate knowledge of the Group’s business domains along with specialized fields including management strategies, finance, compliance and corporate governance, and technology, but also five outside directors with experience in corporate management, expertise in social and economic issues, science and technology, as well as ICT, and also members certified as full public accountants and attorneys. To strengthen supervisory functions of the Board of Directors, a majority of the directors are in non-executive roles. MCHC’s Articles of Incorporation restrict the number of directors to 20 or less. As of June 26, 2018, there were 12 directors, including five outside directors and three directors who also serve as corporate executive officers. The term of each director is one year, which helps to clarify management responsibilities and to establish a management structure that is able to swiftly respond to changes in the business environment.

Consitution of Board of Directors (as of June 26, 2018)

<table>
<thead>
<tr>
<th>Internal directors</th>
<th>58%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside directors</td>
<td>42%</td>
</tr>
<tr>
<td>Executive directors</td>
<td>28%</td>
</tr>
<tr>
<td>Non-executive directors</td>
<td>72%</td>
</tr>
</tbody>
</table>

01 of which, 1 director is non-Japanese and 1 director is female.

Outline of Evaluation Results on Effectiveness of Board of Directors for FY2017

1. Implementation of evaluation on effectiveness of the Board of Directors

The Mitsubishi Chemical Holdings Corporate Governance Guidelines require MCHC to evaluate the effectiveness of the Board of Directors each year. The evaluation was performed as an outline of the results. The evaluation method and the outline of results on the effectiveness of the Board of Directors for FY2017 are as follows.

2. Analysis and evaluation method

In FY2017, MCHC commissioned a third-party external consultant to conduct a survey and analyze the results in order to ensure the objectivity and transparency of evaluation and comprehensively verify MCHC’s overall corporate governance in accordance with the Corporate Governance Code (including the revised draft). Moreover, in light of the fact that three years had passed since the transition to a company with a nominating committee, etc., we also evaluated the effectiveness of not only the Board of Directors but also the Nominating Committee, the Compensation Committee and the Audit Committee. The specific process was as follows. An anonymous survey consisting of a 20-question survey comprising the following five categories was conducted among all directors including the Chairperson. In addition to the 5-scale evaluation, the format was designed to grasp the current situation and extract items in terms of both a quantitative and qualitative evaluation through the creation of a column for comments on each question (MCHC-April 2018).

- Composition of the Board of Directors
- Discussion at the Board of Directors
- Training to invigorate discussion
- Roles and evaluation of individual directors
- Composition and effectiveness of each committee
- Constructive discussions with shareholders

(MCHC’s Board of Directors received a report on the results of the survey from the external consultant and discussed a 20-question survey based on the results of the report in May 2018. In light of the results, the Chairperson evaluated the effectiveness of MCHC’s Board of Directors and each committee and reported the results to the Board of Directors.)

3. Outline of evaluation results

(1) Summary

The evaluation conducted that MCHC’s Board of Directors as well as the Nominating Committee, the Compensation Committee and the Audit Committee are being managed appropriately and that their effectiveness is being generally maintained, primarily through management supervisory functions. The results of the survey showed a high proportion of responses providing a positive evaluation on most questions about both outside directors and the Board of Directors.

In particular, in response to the previous year’s evaluation results, the provision of information to outside directors was improved by taking the following measures listed in 4 below. Further, it was confirmed that constructive discussions were held at the Board of Directors, the internal control and risk management systems were appropriately supervised and responsibilities for training to promote lively discussion at Board meetings, especially by outside directors, were appropriately provided.

In regard to each committee as well, it was confirmed that the management of each committee and feedback to the Board of Directors had been carried out appropriately and, in particular, that the Audit Committee had adequately supervised the business execution of corporate executive officers.

(2) Initiatives aimed at improvements

However, we will promote initiatives aimed at further improvements in the issues below that were recognized in the results of the survey and through discussions at the Board of Directors.

- Board of Directors’ documents and explanation methods
- Discussion outcomes and report details of the MCHC Risk Management Committee, which is chaired by the President and holds meetings once a year, are reported to the Board of Directors. The Committee enables the Board of Directors to directly supervise the status of responses to risks that include natural disasters and cyber security.

4. Measures to address the results of the previous evaluation

As the evaluation effectiveness conducted in FY2016 identified the issues that led to the provision of information to outside directors should be enhanced and the Board of Directors should conduct more effectively, we took the following measures in response.

1. Enhance explanation methods for Board of Directors’ documents

In order to efficiently manage and supervise the status of business execution by the Board of Directors, we reformulated the format of explanations in business meeting reports provided by corporate executive officers and managed the progress of the mid-term management strategic plan currently being executed.

MCHC will continue to enhance the efficiency of the Board of Directors in light of the latest evaluation results of the effectiveness of the Board of Directors and each committee and the various opinions presented by each director.
Corporate Governance

**Nominating Committee**

The Nominating Committee nominates candidates for directors and corporate executive officers, as well as the presidents of major directly-owned subsidiaries that are not listed subsidiaries: MOC and LSI. In consideration of the candidates' performance in the process of nominating candidates, an outside director serves as the chairperson of the committee.

**Compensation Committee**

The Compensation Committee determines the remuneration amount of individual director and corporate executive officer. It also determines the amount of remuneration for each of the presidents of major directly-owned subsidiaries that are not listed subsidiaries. Moreover, an outside director serves as the chairperson of the committee to increase transparency and fairness in the decision-making process.

**Audit Committee**

The Audit Committee audits the execution of duties by corporate executive officers and directors, and reviews the Group’s internal control systems, etc. In principle, the committee meets once a month. The Audit Committee consists of five members, including three outside directors. With two full-time members, the Audit Committee collaborates closely with the accounting auditor, the Internal Audit Office which conducts internal audits, and the Internal Control Office which formulates and promotes policies on maintenance of internal control systems, to reinforce the audit system administered by the Audit Committee. An internal director who is a full-time member of the Audit Committee serves as the chairperson of the committee to ensure the smooth collection of information and sufficient cooperation between departments.

**Director Remuneration**

The remuneration for each director and corporate executive officer is decided by the Compensation Committee based on the following policies.

The remuneration standards and the ratio of basic remuneration and performance-based remuneration are continually deliberated, and the policies are reviewed at the Compensation Committee as necessary.

### Policies on Deciding Remuneration for Directors and Corporate Executive Officers

<table>
<thead>
<tr>
<th>Directors</th>
<th>Corporate Executive Officers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remuneration for Directors</td>
<td>Basic Remuneration (Fixed)</td>
</tr>
<tr>
<td>Performance-based Remuneration (Variable)</td>
<td></td>
</tr>
<tr>
<td>Remuneration for Corporate Executive Officers</td>
<td>Basic Remuneration (Fixed)</td>
</tr>
<tr>
<td>Performance-based Remuneration (Variable)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Amount of Remuneration for Officers (FY2017)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Persons</th>
<th>Amount of Remuneration (million of yen)</th>
<th>Performance-based Remuneration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directors (internal)</td>
<td>6</td>
<td>239</td>
<td>12</td>
</tr>
<tr>
<td>Directors (outside)</td>
<td>5</td>
<td>197</td>
<td>1</td>
</tr>
<tr>
<td>Corporate Executive Officers</td>
<td>5</td>
<td>256</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>577</td>
<td>75</td>
</tr>
</tbody>
</table>

### Activities of Outside Directors

**Takeo Kikkawa**

At Board of Directors meetings, Mr. Kikkawa makes remarks as necessary based on his profound insight into company management from the perspective of business history and his experience as an expert in theories on the energy industry. As the chairperson of the Nominating Committee, he takes care of committee procedures and reports the results to the Board of Directors. As a member of the Compensation Committee, he expresses his opinion as necessary at meetings.

**Taigi Ito**

At Board of Directors meetings, Mr. Ito comments as necessary, utilizing his experience and strong perceptions as a certified public accountant. As a member of the Audit Committee, he proposes audit plans, monitors audits in progress and their results, and expresses his opinions as required. As the chairperson of the Compensation Committee, he oversees meeting procedures and reports the results to the Board of Directors.

**Kazuhito Watanabe**

At Board of Directors meetings, Mr. Watanabe makes remarks as needed, utilizing his extensive experience as a corporate executive officer and expert in information processing, as well as his profound insight into diversity promotion. As a member of the Nominating Committee, he expresses his opinion as necessary at meetings. As a member of the Audit Committee, he proposes audit plans, monitors audits in progress and their results, and expresses his opinions on necessity.

**Hideko Kunii**

At Board of Directors meetings, Ms. Kunii makes remarks as necessary, utilizing her extensive experience as a corporate executive officer, an expert in information processing and her profound insight into diversity promotion. As a member of the Nominating Committee, she expresses her opinion as necessary at meetings. As a member of the Audit Committee, she proposes audit plans, monitors audits in progress and their results, and expresses her opinions on necessity.

**Takayuki Hashimoto, Outside Director**

By accelerating the globalization of governance and strengthening our unique regional initiatives, we will pursue growth of the Group.

**Message from an Outside Director**

Takayuki Hashimoto, Outside Director

At the end of January 2018, I had an opportunity to visit MCHC Group companies in the United States. My visit had three objectives: to confirm whether defensive governance was functioning appropriately, to comprehend and provide advice on the progress status of offensive governance, and to alleviate the so-called asymmetry of information by gaining a better understanding of business operations by seeing local places of business with my own eyes and communicating with people.

In regard to defensive governance, I was able to confirm that since Mitsubishi Chemical Holdings America, Inc. was established in 2010, it had undertaken governance and risk management of more than 40 MCHC Group companies in the U.S. Moreover, when Mitsubishi Chemical America, Inc. was established in April 2017, marketing, business development, brand strategy, human resources strategy, and product and solutions development of MCHC Group companies in the U.S. were integrated and globalization was accelerated. At present, the unification of business cards, collaborative exhibitions at exhibitions and joint approaches to specific industries are still in their infancy but I confirmed that they are steadily progressing. Subsequently, I visited six companies and I heard many people welcome the fact that the Group had gained an opportunity to display synergies. However, as we are lagging behind in regard to the initiatives of European and American companies that are actively engaged in globalization, I believe we need to adopt unique initiatives while increasing the speed of our globalization.

This can only be achieved by transferring authority to local companies, carrying out decision-making in places that are closer to markets and providing optimal solutions with global high added value. I think that our business in the innovative U.S. has great potential and if we further hone our sensitivity and responsiveness to the market and our intra-regional integration capability, it will make a big contribution. I am convinced that this experience will have a positive impact on the Japan side and lead the Group to its next stage of growth.
Risk Management

While the word “risk” can be defined in various ways, the MCHC Group defines risks as “potential events that could, during the course of corporate activities, undermine public trust in or the corporate value of the MCHC Group.” We recognize, analyze, and evaluate risks and prevent materialization of significant risks. We take measures to minimize the personal, economic, and social damage arising in case of materialization.

Risk Management System

MCHC has in place a risk management system whereby the MCHC President is responsible for risk management across the entire Group based on the MCHC Group Risk Management Basic Rules. The management of significant risks and risk management policy that affect the entire MCHC Group are deliberated and decided by MCHC’s Risk Management Committee. The contents of those deliberations and decisions are reported to the Board of Directors, as needed. The Presidents of operating companies are in charge of risk management at their respective Group companies, embedding their Group risk management system locally and overseeing the operations through the local Risk Management Committees.

Recognizing the importance of fostering risk control awareness among all executives, managers, and employees, everyone is expected to be involved in risk management from their respective standpoints.

Measures Against Major Risks

The MCHC Group has isolated the following categories of risks as warranting priority measures. Having identified these risks, we take measures to avoid their incidence and minimize the resulting damage in case of materialization.

Compliance

In order to enhance compliance within the Group, we have compiled rules and standards, such as the MCHC Group Charter of Corporate Behavior, published a compliance guidebook, provided education, training and seminars on compliance, performed audits, and opened a compliance hotline. At overseas Group companies as well, we endeavor to strengthen compliance by compiling rules and codes of conduct in accordance with the laws, regulations and social norms of each country.

Accidents, work injuries, and large-scale natural disasters

Each operating site endeavors to prevent facility-related accidents by ensuring the soundness of facilities and equipment and proper operation of them through risk management. Moreover, the Group works to prevent accidents by applying these measures to other similar facilities and equipment or operations. Learning lessons from past large-scale disasters, MCHC has made further improvements to its business continuity plan (BCP). In the event that it becomes impossible to continue operations at the MCHC head office (Tokyo), we have plans for transferring head office functions to a temporary backup site with the aim of minimizing damage and ensuring business continuity in disaster situations. We are also examining ways to maintain the procurement of raw materials and our responsibility of supplying products by procurement from multiple suppliers, as part of our BCP.

Information security

MCHC has developed the MCHC Group Information Security Policy in order to protect its information systems and assets from internal and external threats, with the aim of maintaining and improving corporate value. Based on this policy, we established the Information Security Committee and charged it with reinforcing the maintenance and management of information security at our business sites inside and outside Japan. We regularly conduct educational and training sessions for all employees, including those overseas, on our policy to ensure employee awareness and compliance with it. For example, based on the Cyber Security Management Guidelines formulated by the Ministry of Economy, Trade, and Industry (METI), we are striving to collect the latest information and establish an emergency response system, in cooperation with outside institutions, so as to prevent problem occurrence as much as possible and minimize damages in case of an occurrence. We are also working to increase employee awareness about information security by drilling them with e-mails made to look like targeted e-mail attacks and arranging e-learning opportunities.

Overseas business development

By doing more active overseas business, we are taking various initiatives to reduce risks related to the particular laws, regulations and systems of the countries in which we do business. For example, in the business domain of polystyrene used for food packaging materials, if the raw materials did not conform with the regulations of an export destination country, significant risks of not being able to sell or losing trust of customers could occur. In order to prevent such a case from occurring, we have adopted rules on confirmation procedures and have made them known in all companies and we thoroughly put them into practice.

To prevent lapses in awareness of serious risks, including the above, we created a Global Risk Map collecting publicly available case studies of significant problems and legal violations in each country. This is distributed to Group companies overseas. In addition, we established a communication system for local companies, the head offices of operating companies, and MCHC to use in the event of political turmoil or other disruptions in the relevant country.
Compliance

The MCHC Group recognizes the word “Compliance” as a broad term covering corporate ethics and general social norms, not only basic legal adherence.

We regard compliance as one of the most important managerial issue to achieve continuing existence as a company that merits the trust of the public, and we take measures to embed a compliance culture in the entire Group.

Compliance Promotion Structure

The Group Chief Compliance Officer (CCO) is appointed by the MCHC Board of Directors. The Internal Control Office supports the CCO, acting as a secretariat dealing with compliance matters. To support Group activities, the secretariat compiles standard education tools, arranges training courses, and has established hotline systems for overseas Group companies. It also aims to ensure compliance in accordance with regional conditions through regional control companies established in the United States, Europe, and China. Each operating company has its own Compliance Promotion Committee as well as an Internal Control Promotion Department that serves as secretariat. They operate hotline systems and implement training courses and seminars, business audits and compliance awareness surveys based on the MCHC Group Compliance Promotion Rules. In the event of a compliance violation, this must be reported to and discussed with the relevant company’s Internal Control Promotion Department or the MCHC Internal Control Office, so that corrective actions and recurrence prevention measures can be taken.

Hotline Systems

Hotline systems are managed and operated with the MCHC, operating company Internal Control Promotion Departments, and external lawyers as contact points. In FY2017, 144 cases were reported via the hotline systems. We respond to the reported issues through our investigation teams headed by the managers of the Internal Control Promotion Departments. In case of any issue, corrective measures are taken promptly in line with the relevant regulations under the CCO’s direction.

Measures and Results in FY2017

In FY2017, we commissioned an external agency to survey employee compliance awareness within the MCHC Group in Japan in order to continuously monitor the spread of compliance awareness. The results are shared with the operating companies as feedback and contributes to raising compliance awareness. Likewise, awareness surveys, trainings, and the operation of hotlines are conducted overseas as well. We can recognize that our employees’ compliance awareness has been growing by the year. Looking ahead, we will continue sharing information between Japan, the United States, Europe, China, and other parts of Asia. Through this network, we aim to further promote compliance as a Group.