
MATERIAL ISSUE IN

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2017

74 persons

Quality experts



356 cases

Safety environment audit

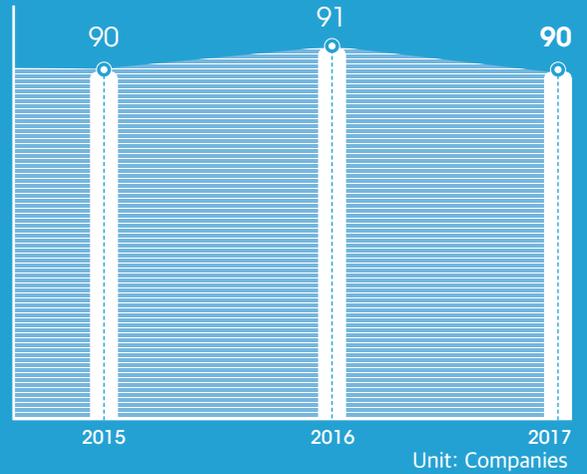


4.43 trillion KRW

Total purchase cost



S-Partner Certification



Employee training

2015 2016 2017
Training hours per employee-Korea Unit: Hour



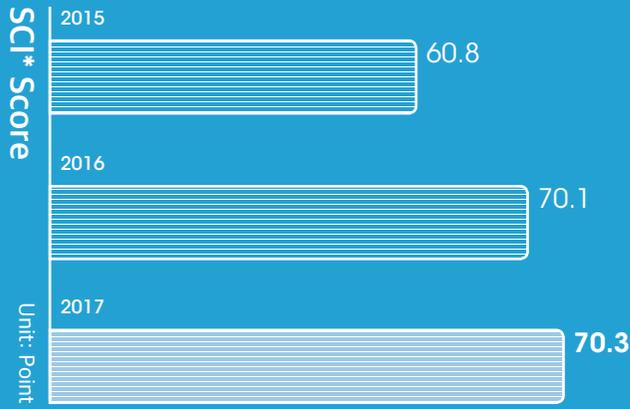
Training cost per employee-Korea Unit: KRW



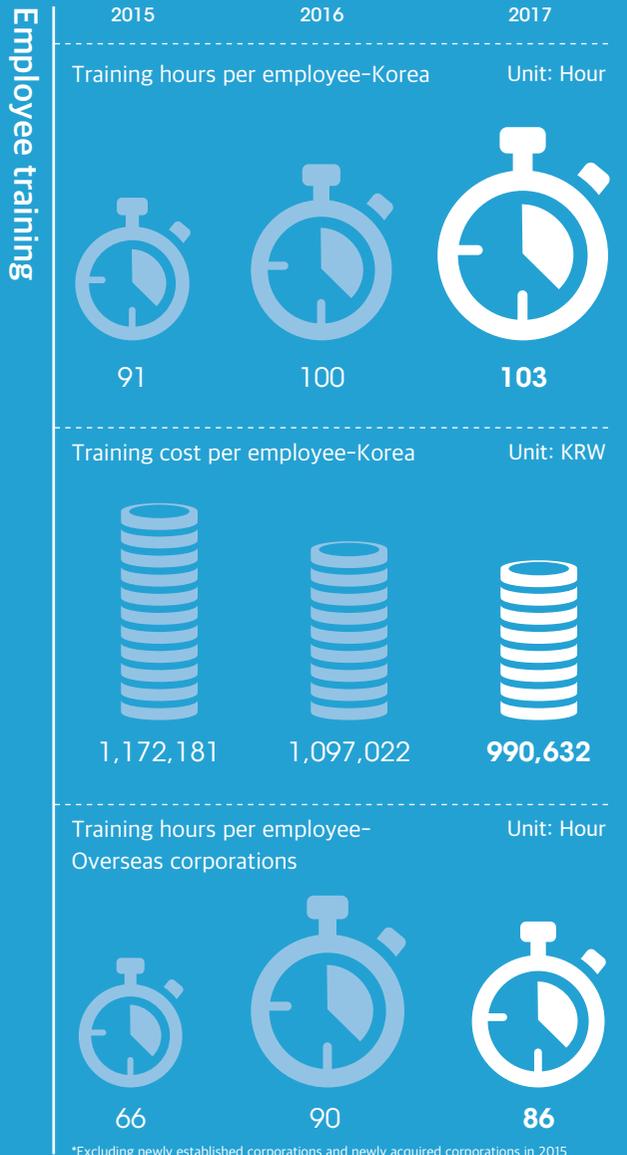
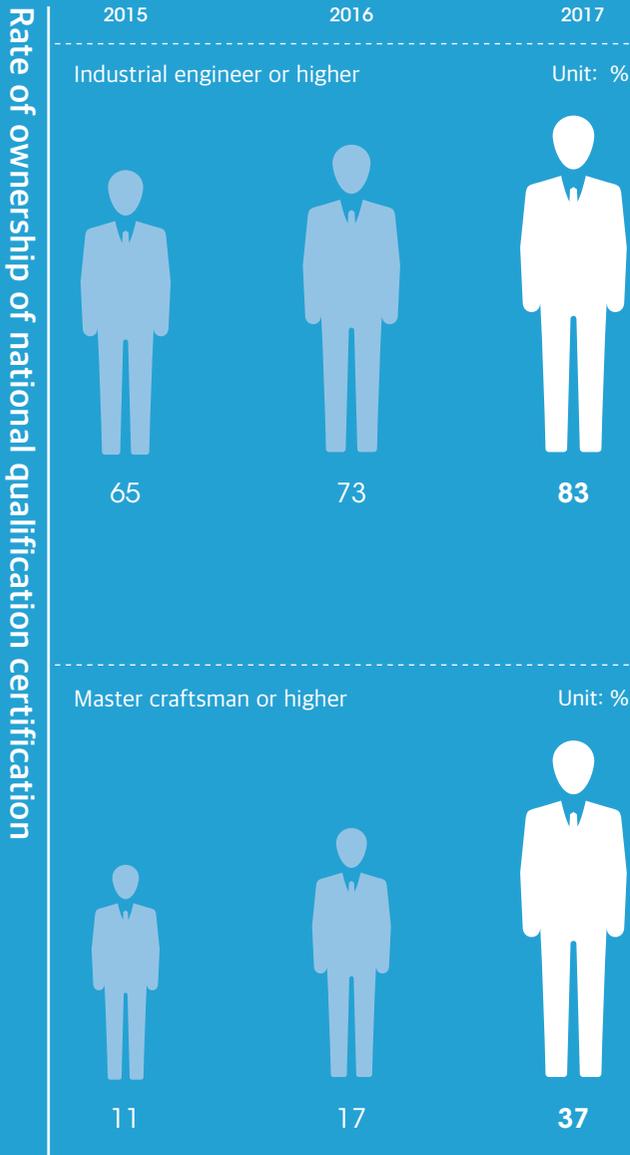
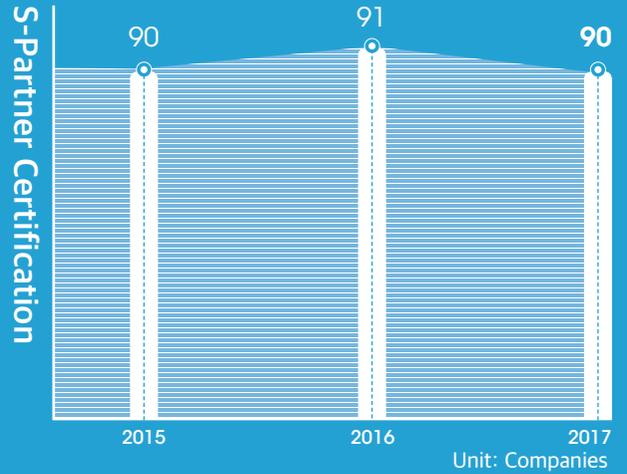
Training hours per employee-Overseas corporations Unit: Hour



*Excluding newly established corporations and newly acquired corporations in 2015



* SCI (Samsung Culture Index): Refer to page 53



*Excluding newly established corporations and newly acquired corporations in 2015

Improvement of customer satisfaction
through the enhancement of
product quality and safety



01

Product Quality and Safety

What are important issues?

Product quality and safety are the most essential factors in sustaining continuous growth based on customer confidence.

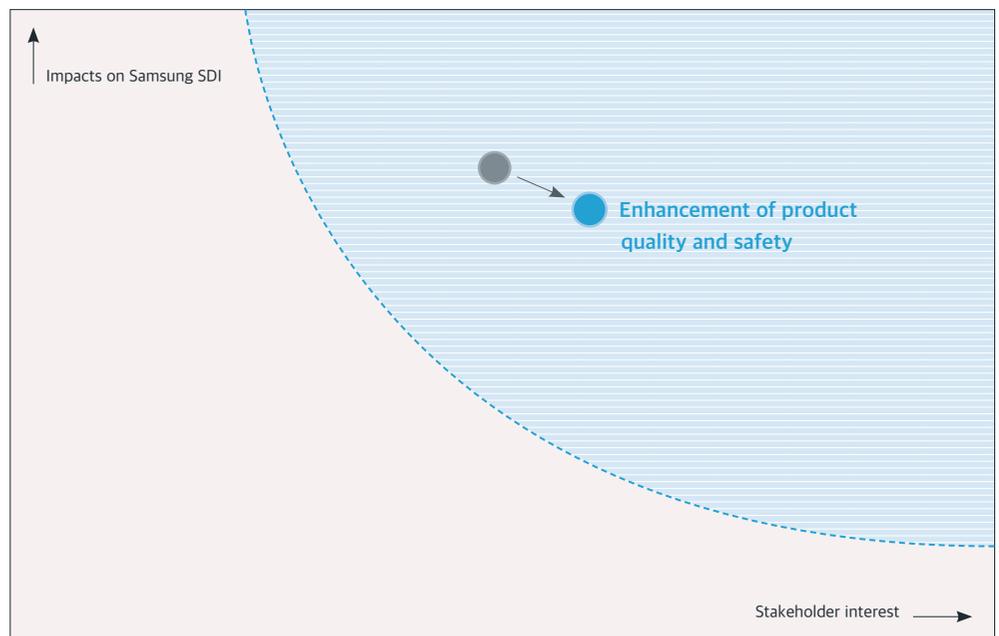
Strict compliance with the standards for product quality is required in the entire process, ranging from management of supply and demand of raw materials, product design and manufacture, to disposal.

Our status

In an effort to overcome potential quality problems, Samsung SDI prioritizes customers' opinions in its managerial activities. Through application of a stringent quality control system, we also seek to enhance customer confidence and satisfaction by preventing recurrence of the same defects.

Our evaluation

'Product Quality and Safety Enhancement', cited as one of the high material issues in the social and ethical sector in 2016, was also reflected in 2017 in the high material issues of the materiality assessment.



Our impact boundary

Stakeholders who are to be prioritized regarding product quality and safety enhancement are customers. At present, it becomes imperative to release high-quality products with excellent safety that also reflects customer needs.

Our performance & future plan

As part of the effort to introduce fundamental changes in quality control, the company operates a Quality Assurance Office under the direct supervision of the CEO. We also make our best effort to manage product quality and safety by changing the standards for quality inspection from the existing sampling method to a total inspection.

KPIs	Targets in 2017	Performances in 2017	Fulfillment	Targets in 2018
Ratio of ISO 9001 Auditor Qualification (%)	23	15	-	16
Ratio of Quality Management Qualification (Excluding ISO 9001) (%)	39	26	-	29

* Reduction in the ratio of qualification due to increase in the number of employees with Quality Assurance Office

Product quality and safety management system

As for the safety issues concerning batteries, in 2016, Samsung SDI established an omnidirectional quality innovation strategy so as to secure high quality and safety. In an effort to supply optimum batteries and electronic materials based on the analyses of demands in the market and consumer needs, we endeavor to develop safe products in diversified user environments.

Policy

Creating Value for Customers, Making the World a Better Place

● Code of Conduct

Build Customer’s trust by creating value

We enhance our customers’ value by regarding the needs of even our potential customers and actively reflecting them on our products. We maximize the close relationship with our customers based on trust, thanks to our speedy, accurate, and cordial VOC solving.

Place the environment and safety first

We comply with international environment regulations, and in order to place customers’ safety first, we value the awareness and responsibility of Zero Defect Quality.

Continuously improve Quality Management System and Process

Samsung SDI Quality Management Policy is in compliance with ISO 9001, IATF 16949. Each stage process and criteria of Development(PLM), Production(MES), Quality(IQMS,LIMS) System and 8 Main Quality Process (development management, reliability, component control, process quality, changing control, abnormal occurrence, outgoing assurance, VOC management) is clearly defined, strictly followed and continuously improved.

Support for the improvement of quality for partner companies and overseas corporations

We provide partner companies with advance support for quality control activities and distribute established and revised quality assurance manuals. Through quarterly reviews of quality descriptions of important materials, Samsung SDI selects inspection items, including quality issues and management failure cases from customers’ perspectives, thoroughly improves quality and rules out technical issues. In addition, as the Electronic Materials Business Division established SDI Wuxi (SDIW), we introduced analysis reliability devices and installed a phased quality evaluation system that features raw materials, processes, and products. Through these efforts, we succeeded in realizing mass production and high quality at an earlier stage while stabilizing the quantity of supply.

Using customer opinions to enhance product quality

In order to monitor and efficiently solve potential quality problems, Samsung SDI reflects and manages VOC as its main

KPI index for managerial activities. We also established real-time communication channels for customers to figure out customer needs and to listen to VOC through visits to customers and quarterly evaluations (QBR: Quarterly Business Review). At the same time, company manages lead-time by stage of VOC response, analyzes defects by type, and applies appropriate lead-time for the timely completion of VOC analyses and improvement. We also endeavor to reduce actual response lead-time experienced by customers through advanced sharing of an analysis schedule. Samsung SDI will further improve quality reliability by keeping the same defects from recurring through analyses on defect types and impacts and through the application of a lateral development management system in 2018.

Improvement agenda concerning quality management

Samsung SDI draws up an agenda concerning the improvement of process and the enhancement of quality competitiveness in order to give presentations under the supervision of the Quality Assurance Office, an enterprise-wide quality assurance organization. Prize winners selected after presentations benefit from incentives based on a year-end reward system, and excellent cases are shared enterprise-wide for quality improvement. At the same time, we designate four main assignments for quality improvement, including development, components, mass production and market, and draw up detailed action plans before execution.

Improvement of quality management in 2017

Component quality

Samsung SDI has expertise in managing components and partners by product. It is equipped with a system for inspecting the quality of components in the development stage and shares information about defective components throughout the supply chain management. We also establish a process ensuring the quality of finished components and securing quality and safety before warehousing.

Development quality

We perform inspection of development quality by analyzing defect types and impacts and by securing accelerated inspection tools for fundamental inspection technology in the entire product process. We also synchronize quality inspection of automotive & ESS battery cell modules based on the evaluation of quality characteristics of module properties.

Mass-production quality

Samsung SDI pushes for the improvement of process capacity in order to realize uniform quality at a global level. We also pursue big-data-based quality infrastructure through process analyses.

Customer quality

We have a global customer satisfaction response system and operate CS and FAE strongholds by area.

Customer satisfaction survey

Samsung SDI regularly performs a detailed customer satisfaction survey of activities by business sector. The survey targets not only product quality, but also a wide variety of other relevant items, such as R&D competency, service, and delivery for the purpose of the establishment of indices. The results of the customer satisfaction survey are appropriately reflected in product quality

by business sector and in the improvements at the level of infrastructure. As for the Small-sized Li-ion battery sector, among the main business sectors, a Customer Satisfaction Index (CSI) survey was conducted among 21 major clients to analyze customer complaints by item. Aiming to make improvements, this survey focused on quality characteristics, quality satisfaction, and service quality as compared to those of our competitors.

Category			Unit	2015	2016	2017
Customer satisfaction	Small-sized Li-ion battery	Customer satisfaction score	Point	78.4	76.8	81.9
		The number of companies conducting customer satisfaction survey	Companies	28	33	21
		The number of customers engaged in customer satisfaction survey	Persons	32	35	24
Automotive battery & ESS	Automotive battery & ESS	Customer satisfaction score	Point	-	82	85.9
		The number of companies conducting customer satisfaction survey	Companies	-	2	4
		The number of customers engaged in customer satisfaction survey	Persons	-	2	4
Electronic material	Electronic material	The number of companies conducting customer satisfaction survey	Companies	26	28	33
		The number of customers engaged in customer satisfaction survey	Persons	182	178	190

* For Electronic Materials division, we did not present a comprehensive customer satisfaction score due to various product portfolio

BUSINESS CASE

Product Safety and Innovation Task Force (TF)



Galaxy S8, first presented in March 2017, is equipped with a Samsung SDI battery characterized by considerably strengthened safety. In order to enhance battery safety, Samsung SDI conducted 'Product Safety and Innovation TF' activities with 100 employees from major divisions. We invested 150 billion KRW or more for about three months to figure out the problems in the entire process and to ultimately resolve these issues. Due to these efforts, defects such as low-voltage fault, heat generation, or burning damage were not noted, and its lifetime capacity was dramatically improved by 95% based on 500 electric charges and discharges.

Points to improve main safety impact factors

1. We have dramatically improved the method of forming a pouch that constitutes the exterior of a battery to completely remove the factors that might influence an electrode plate.
2. Due to the application of materials with enhanced physical properties in terms of mechanical intensity and thermal contraction rate, it has better safety characteristics in its basic composition.
3. Detailed management of the parts known to be vulnerable to electric stress was strengthened from the manufacturing stage and additional conduct as well as additional deconstruction analysis.
4. A bar code cell tracking system was established to examine the production process and the quality data of history in the entire process, ranging from the initial stage of battery cell and packaging, to installation in a mobile phone. Therefore, pertinent batteries can be instantly analyzed and the issues can be immediately resolved upon their occurrence.
5. As for X-RAY examination, a total inspection was conducted on anode-plate-aligning within a battery in the existing assembly process. The inspection in the outgoing stage and examination on electrode-plate-pressing were additionally reflected in the measures taken for improvement.
6. In order to be able to conduct an evaluation by a unit of tens of thousands of cells, the number of development verification samples has dramatically increased. Tests were conducted under severe conditions reflecting extreme circumstances so that even the smallest defect could be detected, and pre-inspection was completed to determine various defects that might occur after the release of the products.
7. Deconstruction analyses by process and on finished battery cells and packs were added not only in the development stage, but also in the mass production stage. Thereafter, volatile organic chemicals were examined.

Establishing safety culture
and the chemical substance
management system



02

Building Up Workplace Safety

What are important issues?

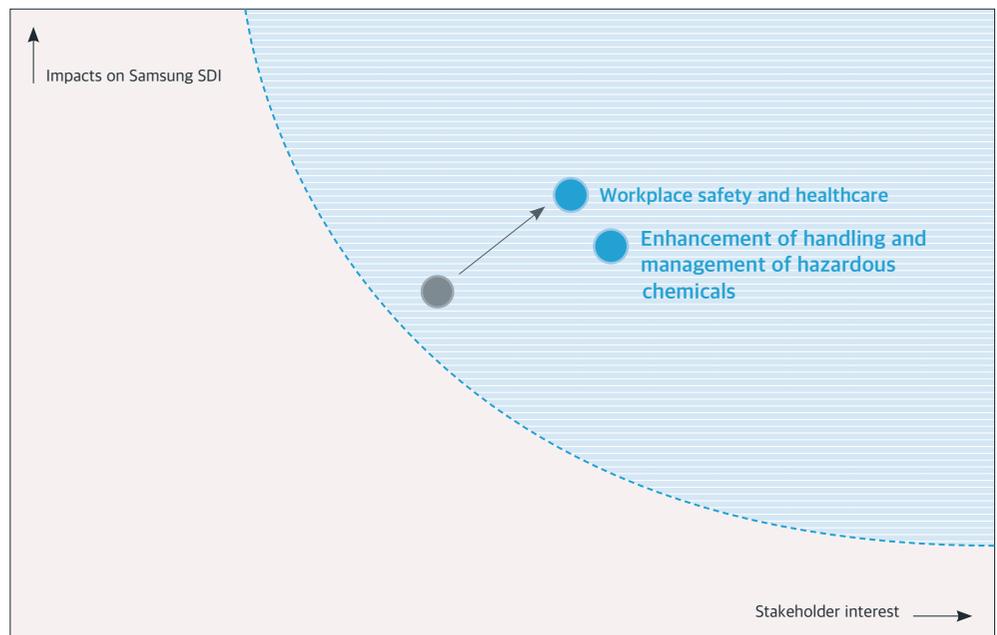
Safety regulations have recently been strengthened not only in Korea, but also throughout the world, including Europe and China. Accordingly, a growing number of people, including residents around workplaces, have developed an interest in safety issues in local communities. In 2015, as companies are requested to apply stricter standards to the importation and management of chemicals, the 'Chemicals Control Act' and the 'Act on Registration, Evaluation, etc. of Chemicals' were introduced to enhance the standards for handling hazardous chemical substances.

Our status

Samsung SDI regularly inspects risk factors in workplaces through safety environment meetings and on-site inspections by the CEO and takes appropriate action. We also constantly manage hazardous chemicals through the establishment of an imported enterprise-wide chemical management system while enhancing employee training.

Our evaluation

In addition to 'Workplace Safety and Healthcare,' cited as one of high material issues in the safety and environment sector in 2016, 'Enhancement of Handling and Management of Hazardous Chemicals' was reflected as a high material issue in the results of a materiality assessment in 2017.



Our impact boundary

Stakeholders who exert a string influence on workplace safety management are 'employees.' Since employees are exposed to various risk factors in the field of production, they need to be protected through appropriate safety management. In the meantime, in order to manage legal regulations on enhancement of the handling and management of hazardous chemicals, the importance of facilitated communication and cooperation with the government and related institutions should be emphasized.

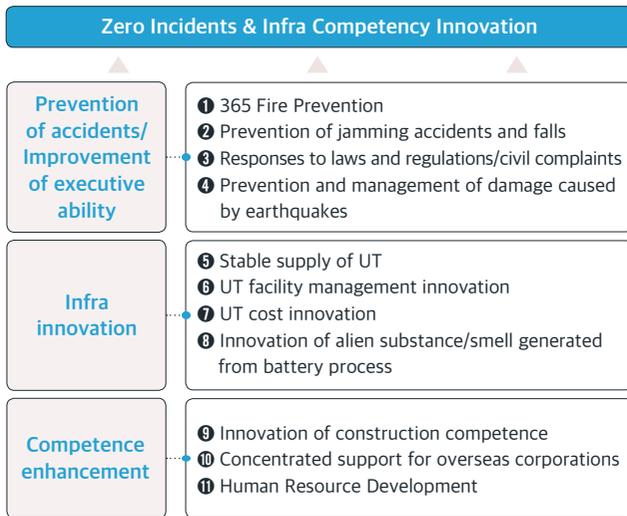
Our performance & future plan

We strengthen preventive management of accidents and safety monitoring and plans to promote safety culture in workplaces and among partners. It also consistently strengthens the hazard identification and monitoring process with regard to chemicals.

KPIs	Targets in 2017	Performances in 2017	Fulfillment	Targets in 2018
Zero Safety Incidents	0	0.14	-	0

Employee safety and health management

Samsung SDI consistently makes investments and improvements aimed at enhancing the health and safety of its employees in order to become a 'Global Leader in the EHS Infra Sector in 2020'.



Prevention and management of accidents

Operation of Safety Environment Integration System

Samsung SDI has established and operates an optimized system for the prevention of accidents and monitoring. Operation of Safety Environment Integration System is an integrated management system for the control of environment, safety, health, chemicals and hazard, providing information on systematic safety management. This system enables real-time monitoring.

Zero Accidents and Zero Violations

In order to prevent incidents that might cause serious crises in management, we perform comprehensive preliminary management and expand the scope of incident management. To this end, we share information on the causes of accidents and responses in order to prevent such incidents from recurring, as well as establish a detailed inspection management system to improve high-risk and outdated facilities. Through consistent precautions for accident prevention, we plan to have zero accidents and zero violations.

Regular Evaluation and Monitoring

Seeking to create a permanently safe work environment with the establishment of self-reliant safety culture, we diagnose functions by sector. In addition, problems detected in regular assessments are continuously resolved through consistent improvement in cooperation with management and employees.

EHS infra enhancement

Internalization of safety management

Samsung SDI prescribes the management, including the CEO, as well as the heads of business divisions and executives, to regularly conduct on-site safety inspections so that to establish a solid safety culture. We provide customized safety environment education to different workplaces and departments. In addition, in order to resolve detected safety-related problems that might occur in the field, we also hold safety environment meetings every other month under the supervision of the CEO and under the control of heads of business divisions.

Expansion of safety cultures in overseas corporations and partners

Given that accidents can occur irrespective of national borders, we focus on expanding our safety culture and on accident prevention in overseas corporations. To this end, we establish channels for communication with overseas manufacturing corporations, figure out the fundamental causes of frequent accidents, improves companies' safety records, and organize a council that includes the head office, business divisions, and overseas production corporations to regularly discuss pertinent methods of maintaining safety culture. Samsung SDI designates in-house partner companies as subject to the same safety management. To check the implementation of safety regulations by resident partners before resolving detected problems, we conduct enterprise-wide joint inspections.

Chemical substance management

Chemical substance management system

Since July 2016, when we established G-EHS system (Global EHS System), we have conducted preliminary inspections of hazardous chemicals. Overall, we aim to prevent the purchase of materials that are not approved by the system, as such materials are high-risk hazardous substances with detrimental impact on the human body. In addition, the system is consistently expanded and applied not only to domestic workplaces, but also to overseas corporations in Malaysia, Vietnam, Tianjin, Xian, and Hungary.

Regulatory responses

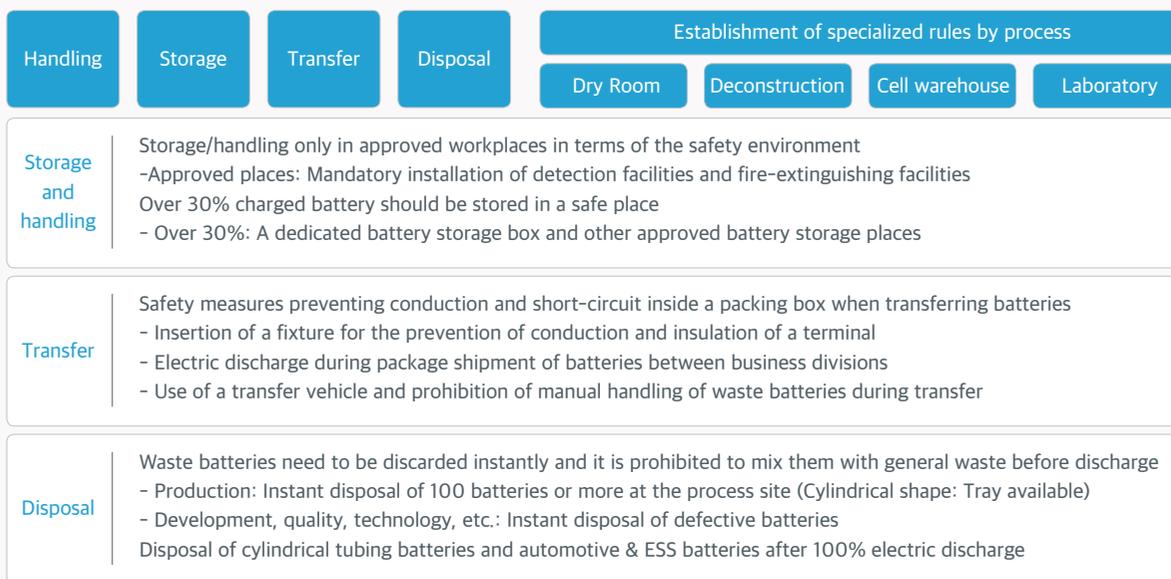
In 2015, when the standards for handling hazardous chemicals were strengthened, the procedures for the 'Registration of Subject Chemicals' in accordance with 'The Act on Registration, Evaluation, etc. of Chemicals' have been implemented. We also focus on establishing a cooperative system among related departments in preparation for possible legal revisions in the future. Furthermore, aiming to conduct preliminary management of chemicals, realize timely registration responses in accordance with the 'Act on Registration, Evaluation, etc. of Chemicals', provide ad-hoc checks for the improvement of the process of handling chemicals, and to efficiently manage safety by providing protective gear, we also operate an import declaration response system and an off-line verification process.

BUSINESS CASE

Battery safety management

Samsung SDI conducts consistent inspection and monitoring activities in order to manage the safety of batteries that might cause fires in workplaces. Executives and heads of corporations regularly perform ad-hoc inspections on the handling and management of batteries. Using in-house broadcasting of safety principles regarding batteries, and by posting incident cases and installing placards, we also provide relevant safety education to employees.

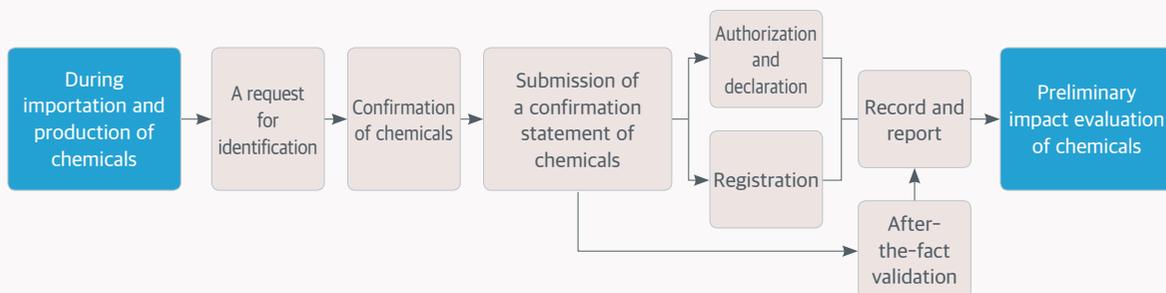
Establishment of standards of handling/storage management of batteries



- ▶ Focused education/promotion after establishment of 10 safety rules on handling of batteries
- ▶ Establishment of a master card on handling and storage of batteries ⇒ Focused management

Establishment of the chemical identification system

Regarding imported chemicals, in order to respond to the risks omitted in an identification statement and to conduct self-inspection on all imported chemicals, in 2016, we established a 'Guide for Chemical Identification System.' We also introduced a system enabling to request pre-evaluations of all chemicals subject to purchase and use, in addition to free samples. This system also makes it possible to minimize the risks related to the management of chemicals by making it necessary to submit an identification statement for the re-importation of exported products.



United Samsung SDI Acts
As One-Team
As If It Were One Body



03

One-Team Organization Culture

What are important issues?

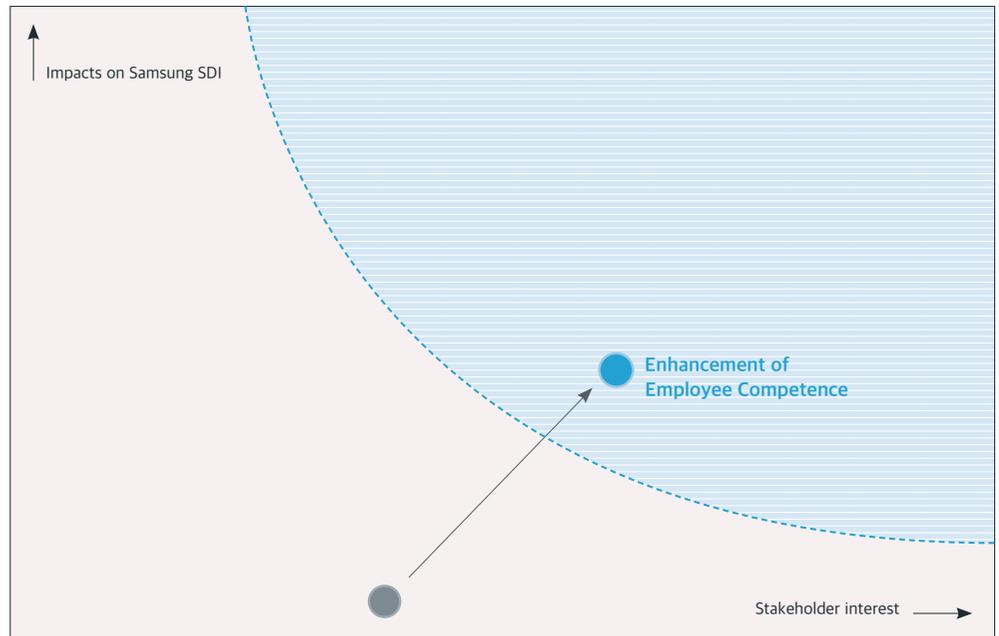
The development and retention of excellent human resources and the creation of a sound organizational culture are essential for a global company to lead the market. Accordingly, we find it necessary to nurture and expand global talent and to improve both the 'quality of work' and the 'quality of life' through an improved working culture.

Our status

Samsung SDI creates environments where employees can consistently achieve growth and provides support to enable their attaining a proper work-life balance. We also continuously expand core human resources equipped with global competence and offers various growth programs to help employees develop into highly qualified experts in the industry.

Our evaluation

'Enhancement of Employee Competence', which was classified as general issue for 2016, was applied as a high material issue in the results of a materiality assessment in 2017.



Our impact boundary

Stakeholders who should be prioritized for the creation of an excellent organizational culture are 'employees.' As the main body of innovation and development of the organizational culture, employees can further enhance corporate competitiveness through strengthening their specialized competencies.

Our performance & future plan

We reinforce development programs for the consistent enhancement of competence and improvement of leadership of employees. We also conduct various organizational cultural activities aiming to increase the satisfaction of employees and expands programs for work-life balance by allowing flexible working hours, making it possible to adjust working hours within a 40-hour week.

Realization of a sound organizational culture

Samsung SDI selects CLs (Culture Leaders), the organizational cultural leaders in the field, to play an essential role in drawing core assignments for further communications and vitality in terms of departmental organizational culture. In 2017, a total of 252 CLs were selected to hold quarterly events for enhanced organization. These events included departmental monthly meetings, conferences by level, cultural experiences, and various sports activities. We also pursue department-specific activities for social contribution and 'Work Smart' activities to promote self-oriented work ethics.

Realization of One-Team Organization Culture

Samsung SDI has workplaces not only in Korea, but also in various countries in the world, including Asia and Europe. We recognize 'differences,' this enabling employees from diverse cultures to achieve harmony in an excellent environment, and endeavor to create a One-Team Organization Culture where each and every employee works as if an integral part of the whole.

Organization of 2017 Culture Fair

The management of Samsung SDI takes the lead in developing and introducing organizational culture by setting a good example. In 2017, we organized a 'Culture Fair,' an event to share enterprise-wide excellent organizational cultural cases, for the first time. The event was attended by the CEO, heads of business divisions, and executives who evaluated excellent cases based on fair reviews and pursued harmony by sharing accomplishments.

Organizational culture-sharing events

Samsung SDI regularly holds organizational culture-sharing events to share its excellent organizational culture enterprise-wide. In particular, with the aim of celebrating its fresh start, strengthening organizing ability of team members, and realizing an energetic organizational culture to be shared, Samsung SDI Research Center organizes 'Sharing, Communication Hof Day.' Through the 'Dream Walking' Program, a walkathon, the participated employees indulged in social contribution activities (receiving and donating 4,000 KRW whenever each of them finished walking 10km). Other social contribution participation programs included compassion concerts, half-shooting challenges, and basketball games.

Operating Internal and External Communication Channels

Samsung SDI runs diverse in-house communication channels including SDI Talk, Global Pick, and in-company broadcasting to share corporate news with employees. We also make efforts to facilitate in-house communication via bulletin boards that all employees can use. In the meantime, we operate social media channels including the official website, blog, and Facebook page in order to deliver the latest news upon products, corporate activities, and recruitment to customers and external stakeholders of Samsung SDI. There is a Customer Inquiry Section on the website as a communication channel that enables Samsung SDI to listen to external stakeholders.

BUSINESS CASE

Cheonan Production Site operates under the slogan 'New Work, All Achieve'

The New Wave



The Cheonan Production Site introduces 'New Wave,' a new organizational culture brand, and motivates employees to think that nothing is impossible. The New Wave is based on the commitment

to creating a service culture befitting a global company where everyone participates and where employees achieve growth along with the business by making a fresh start with new leadership and an underlying strength that helps them to cope with crises. Samsung SDI also implements changes in work culture, sharing, communication, and collaboration. The New Wave is a slogan for a new organizational culture of the Cheonan Production Site. It was created with the aim of ranking 1st in the world through 'Settlement of Culture of Communication and Collaboration with Fulfilled Basics and Realization of Technology Leadership and Production Competitiveness.' All employees at the Cheonan Production Site share common goals based on a firm determination to 'innovate and grow together while creating an autonomous working environment to achieve the goal in unison'

Main programs of the New Wave

Upright Wave Campaign

Starting with heads of business divisions, all participating individuals set a good example in order to keep the 'Upright Wave' Campaign's aim to establish a sound work culture and to prevent it from becoming a nominal slogan.

The New Wave Award

We introduced the New Wave Award to reward, on a monthly basis, the team that demonstrates excellent performance in the three principles of 'Technology Leadership, No. 1 in the Market, and Superior Product Competitiveness.'

One Team Road

In order to eliminate departmental partitions, department members are granted the opportunity to communicate with each other by having lunch together.

Work and Life Balance

Samsung SDI creates advanced sound work environments to help its employees focus on their work and to produce better results. We endeavor to raise job satisfaction by establishing diverse resting spaces and supports in-house club activities so as to promote generation of new ideas in a relaxed and comfortable environment. We provide support to enable employees to achieve work-and-life balance. To this end, a service culture was established where efficiency increased through the use of flexible working time, Korea's representative autonomous working time system, and by introducing an annual vacation plan to facilitate more effective use of annual holidays.

Operation of Open Counseling Center

Samsung SDI operates an 'Open Counseling Center' in all workplaces; in this center, licensed psychologists provide diverse services to enhance employee mental well-being and to strengthen their abilities for stress management. Employees benefit from instant support regarding the resolution of personal and business problems through one-on-one counseling via interviews, calls, and messages. Based on counseling ethics imposed on counsellors, all counseling contents remain strictly confidential. In addition, the center permanently operates open programs for mental well-being related to couples, children, interpersonal relationships, and self-understanding and offers a meditation room for meditation training, which helps employees to learn to consistently control their mindset, which ultimately results in a stable corporate life.

Enhancement of job satisfaction

We analyze problems through regular diagnosis of organizational culture (SCI Diagnosis) and explore vulnerabilities that are then addressed by various improvement initiatives. In 2017, seeking to collect opinions on matters requiring correction, we conducted a job satisfaction survey among 92.3% of our employees.

Family-friendly management

On the occasions of Family Day and Children's Day, Samsung SDI holds family-invitation events and offers diverse family participation programs, including family participation volunteer activities and healing camps. We also support a subfertility leave system to improve the likelihood of pregnancy. Another advancement is the introduction of a maternity protection room and a reduction in working hours during female employees' pregnancy and infancy of their children.

Development of employee competency

Excellent human resources are an essential factor involved in strengthening corporate competitiveness and ensuring a flexible response to the rapidly changing management environment. Samsung SDI invests every effort to enhance employees' specialization and to nurture core human resources through systematic competence development systems and programs.

Learning corporate culture

Since 2013, in order to further business expertise and to introduce a voluntary learning culture, Samsung SDI has operated 'Technology

Meister' System. Technology Meister is a title granted to employees who have acquired three Master Craft Certifications or two Master Craft Certifications and one Engineer Certification. Such employees are also granted a qualification bonus and extra points at the time of advancement evaluation. In addition, they also receive a specially designed copperplate when they are inducted to the Hall of Fame. In 2016, the Master System that had previously operated only in some workplaces was expanded to all company's workplaces. We also plan to nurture employees' business expertise and to further a voluntary learning culture so as to facilitate diverse in-house systems.

* Master Craft: National Technical Qualification Certification

Development of Job Expertise

Samsung SDI operates job-related e-Learning, classroom training, and OJT, which includes development, technology, manufacture, sales/marketing, and managerial support for the enhancement of job competency for our employees. Specifically, domestic employees' job competence level is diagnosed, and, based on job competence diagnoses, guides for competence enhancement are provided. We also operate an academic training system to enable our employees to grow into experts who, through completion of systematic training, can contribute to advancing the organization as a whole. We also support a certification-acquisition system to encourage our employees to obtain international/national licenses in the purchase, quality, management, and finance sectors.

Development of global human resources

Samsung SDI operates various language programs to proactively support its employees who wish to develop themselves in the era of globalization. We also operate an International Dormitory to provide global competence enhancement programs aimed to integrate language, business, and culture through education in foreign languages, soft skills for business, and diverse cultures. Samsung SDI also runs regional expert programs as a core course for the development of global leaders. We provide support to enable employees to have language training for three months and conduct field studies for one year so that they can become sufficiently competent to fulfill their responsibilities if they are sent to pertinent areas overseas. Based on employee performance rating and their contribution to Samsung SDI, most effective employees are selected and then sent for annual training. In 2017, we sent regional experts to various places in the world, including China, Germany, Hungary, and India, where they are meeting their obligations based on corporate support for language study and research.

Recruitment and development of overseas masters and doctoral degree holders

To enhance its global competitiveness and to expand its overseas markets, Samsung SDI also explores excellent human resources in advantageous areas world-wide to attain strategic business strongholds. We also provide mentoring programs to new employees on a continual basis. In particular, we regularly post overseas job openings, recruit new employees on campuses in the Americas in order to select excellent Korean R&D personnel studying overseas, and make continuous efforts to secure foreign engineers.

Establishment of
Closed Loop Supply Chain
for Resource Recycling



04

Recycling

What are important issues?

Effective use of resources and the resultant reduction in detrimental environmental impact have recently emerged as salient environmental issues while securing rare minerals used as raw material looms large amid a rising demand for batteries. Accordingly, we are requested to establish a Closed-Loop* System for the reuse of raw materials.

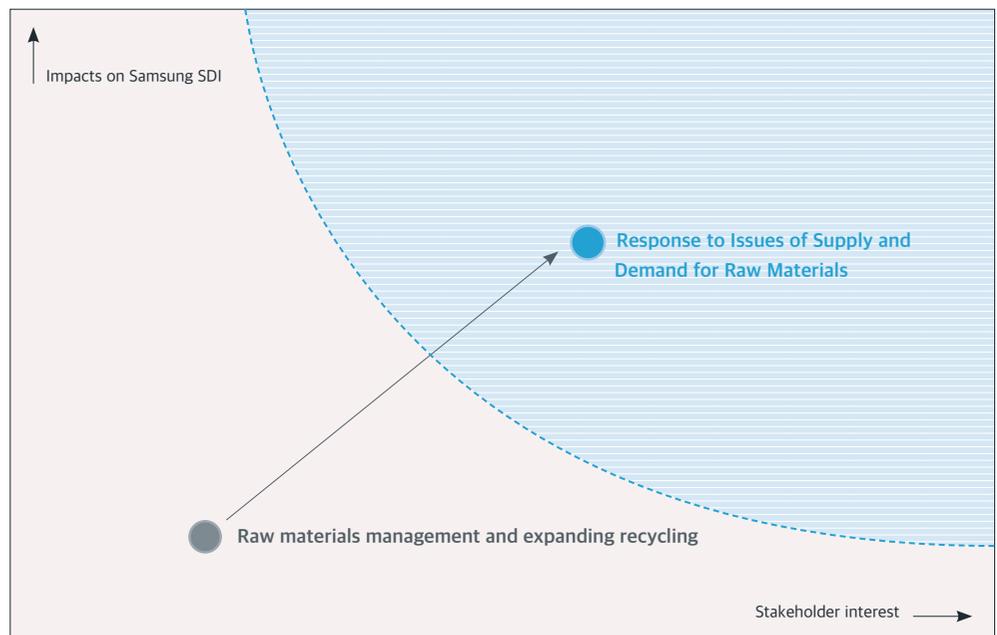
* Closed-Loop: A system aimed to reuse metals extracted through recycled waste batteries as raw materials for the production of new products

Our status

Samsung SDI seeks to save resources and to stabilize the supply of raw materials through the expanded application of recycled materials. To this end, we endeavor to secure stable channels by exploring recycling companies required to establish the Closed-Loop System.

Our evaluation

According to the results of the materiality assessment in 2017, the 'Response to Issues of Supply and Demand for Raw Materials,' classified as a general issue in 2016, has emerged as a high material issue.



Our impact boundary

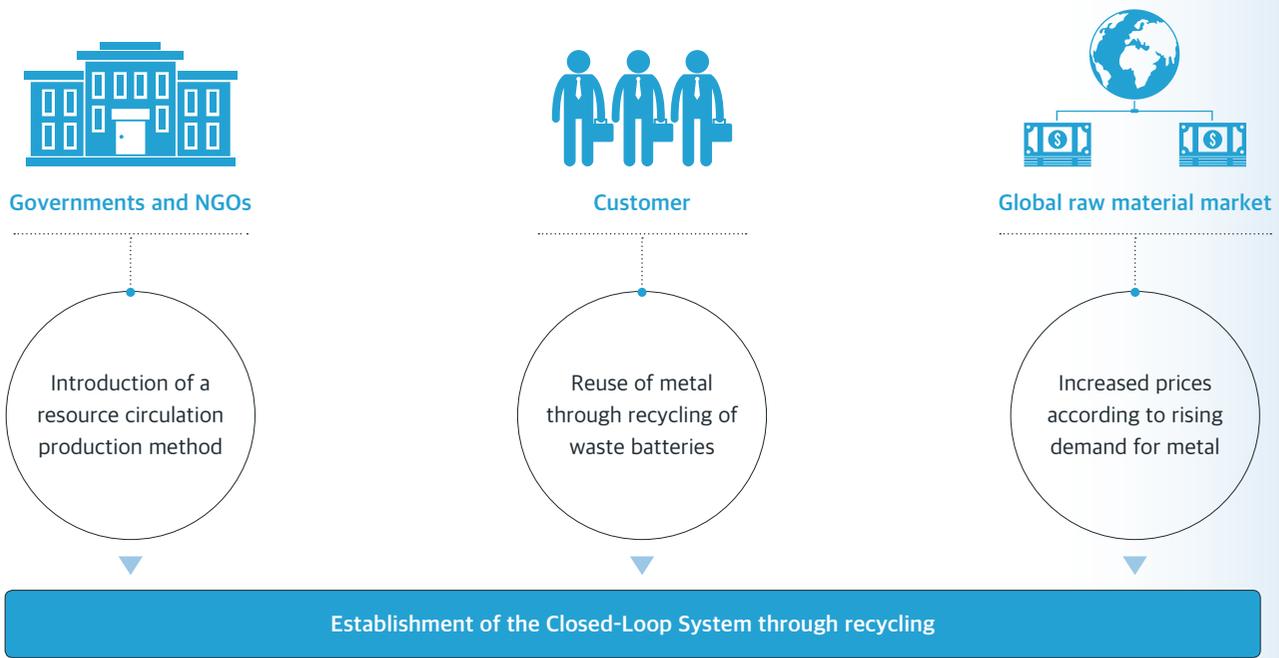
Stakeholders who should be taken into account with regard to recycling are 'local community' and 'the government.' In particular, with an increase of social demand for the fulfillment of corporate environmental responsibilities corresponding laws and regulations have been strengthened, and these changes and developments are expected to have a strong impact on determining the direction of business activities.

Our performance & future plan

We aim to consistently explore and expand competitive recycling companies. In the long term, we plan to strengthen our strategic partnership with customers, take back companies, and recycling companies, as well as to secure some raw materials through the recycling process.

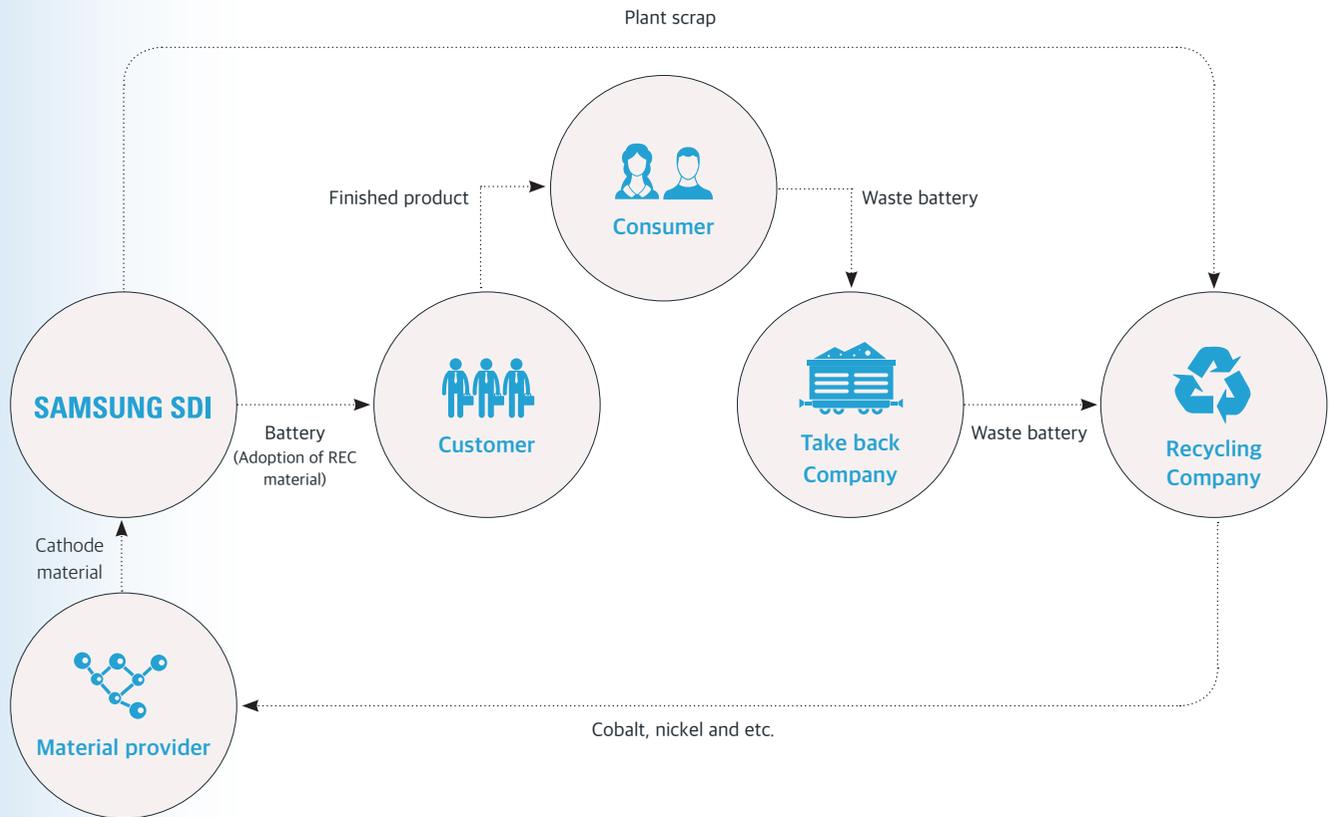
Purpose of implementation

As the waste of resources aggravates environmental contamination all over the world, a growing number of governments and NGOs request a 'resource circulation production method.' Global clients demonstrate strong interest in the Closed-Loop System aimed to apply metal extracted through recycled waste batteries to new products. In the meantime, demand for metal (cobalt, lithium, and nickel) used in manufacturing batteries continuously grows, resulting in a rise in the prices, and the resultant supply and demand risk increases as well. In this context, in order to respond to resource-circulation-related requests made by customers and civic societies and to diversify suppliers of core raw materials, Samsung SDI pushes for the establishment of a recycling eco-system.



Resource Take back Process

There are two ways to take back waste batteries for recycling. First, scraps generated in the process of manufacturing products in a factory are taken. Second, waste batteries are taken back in the process of disposal after having been used by consumers. Waste batteries taken back are then sent to recycling companies to go through shredding and chemical treatment before being recycled as metal materials, including cobalt and nickel. In cooperation with Small-sized Li-ion battery clients, automotive battery and ESS clients, and recycling companies, Samsung SDI plans to establish strategic cooperative relationships for the introduction of the Closed-Loop System by installing a waste battery take back system.



A trusted first-rate company
achieving shared growth
along with partners



05

Sustainable Supply Chain

What are important issues?

As corporate competition expands from rivalries among enterprises to contests among supply chains including partners, strong partnerships for fair and transparent shared growth, along with effective supply chain management, become urgently needed.

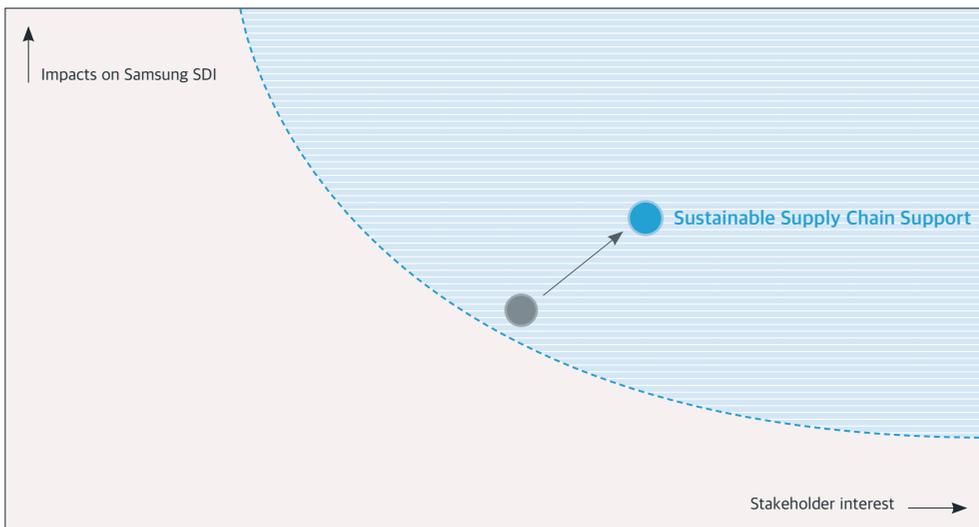
In addition, as stakeholders, including customers, investors, and civic societies, strongly request fulfillment of social accountability from the supply chain, management of a sustainable supply chain is recognized as an important factor in corporate competitiveness.

Our status

In an effort to improve the sustainability of the supply chain, Samsung SDI employs a systematic strategy. Specifically, we explore highly competent partners and continuously monitor and moderate the economic, social, and environmental risks of partners. In order to create a shared growth culture, we also operate diverse programs. Regarding conflict minerals that have emerged as an important global issue, we organize dedicated human resources to conduct consistent management and respond to human rights issues within the supply chain.

Our evaluation

Following a materiality assessment of Samsung SDI stakeholders conducted in 2017, 'Sustainable Supply Chain Support' has emerged as a high material issue. In this respect, this part includes a 'Responsible Mineral Sourcing' Issue that Samsung SDI deems to be internally important.



Our impact boundary

Samsung SDI's main supply chain is partner supplying raw materials used in the production of batteries and electronic materials. Samsung SDI provides diverse support activities aimed to raise competitiveness by establishing agreements on shared growth with primary and secondary partners, offering financial and technological support and training and sharing accomplishments. With the growth of the need for the responsible sourcing of minerals, requests for fulfillment of sustainability and social responsibilities are spread throughout the supply chain of subsidiary materials.

Our performance & future plan

Samsung SDI also plans to expand and implement various programs in order to establish sustainable developmental relationships with partners in the supply chain. We will strengthen monitoring and prevent related risks from occurring in an effort to proactively respond to social responsibility issues on the supply chain.

KPIs	Targets in 2017	Performances in 2017	Fulfillment	Targets in 2018
Financial support (100 million KRW)	Continued expansion	378.9	Achievement	Continued expansion
Group and online training (Persons)	1,030	905	-	1,100
S-Partner Certification (Case)	100	90	-	100

Purchase policy

Samsung SDI establishes and operates a purchase policy for the introduction of a virtuous ecosystem for coexistent cooperation with partners. All purchase contracts are concluded based on four practices namely, 'Desirable Establishment of Contracts,' 'Selection and Registration of Partners,' 'Installation and Operation of Internal Deliberation Committee,' and 'Issuance and Preservation of Documents.' Golden rules on social responsibility for the supply chain of partners were established to obligate all present partners to comply with them. Partners violating these regulations are requested to rectify the situations; furthermore, if violations continue, limitations are imposed on future transactions.

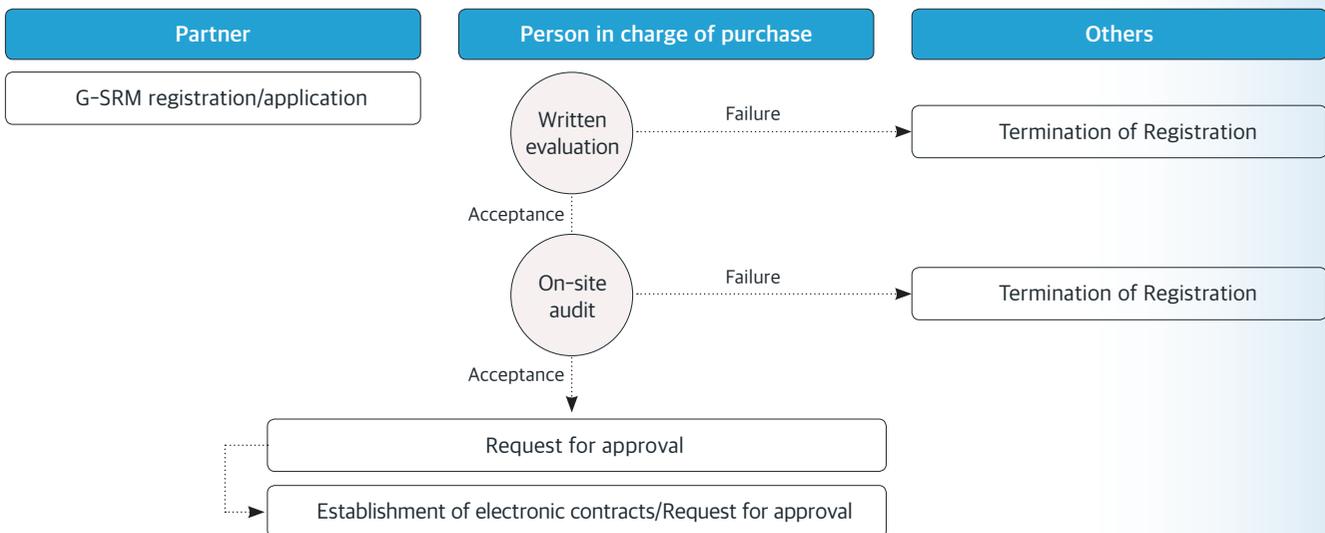
The current state of the supply chain

Samsung SDI divides partners into primary, secondary, and tertiary partners for management. Primary partners supply raw materials and components used in the components and products manufactured by Samsung SDI, while secondary and tertiary partners provide raw materials and subsidiary materials to primary partners.

Selection of fair partners

Samsung SDI includes the selection and registration of partners in our four practices for purchasing team and discloses them on its website. Written evaluations are performed, and due diligence on pertinent companies in the process of selecting and maintaining partners is executed. We also ensure transparency and equitability in non-financial risks, including safe workplace environments and human rights, as well as financial position, production capacity, and quality. In an effort to continuously manage the risks that might occur in the supply chain, we also request the signing and submission of a new 'Declaration of Compliance on CSR.'

● Partner selection and registration process



Operation of Subcontracting Deliberation Committee

In order to deliberate on the equitability and legitimacy of subcontracting transactions at a certain level or higher, Samsung SDI also holds a monthly Subcontracting Deliberation Committee Meeting. The deliberation committee consists of members of the Compliance Support Team and Purchase Team and discusses equitability in the process of making contracts and determining prices, as well as the possibility of infringing related laws and regulations, including the Subcontracting Act. Based on the discussions of the deliberation committee, matters that might violate laws and regulations are remedied, and, if employees made intentional or material mistakes, punitive measures are applied depending on the seriousness of those violations.

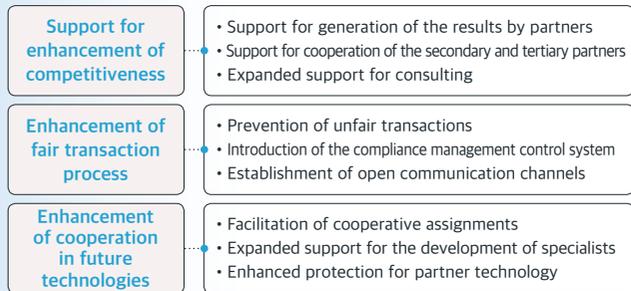
Establishment of channels to communicate and share information

Samsung SDI controls the new registration and management of partners through operation of a partner web portal (SRM) which provides a communication channel where information regarding various issues, such as regulation on hazardous substances and conflict minerals, is shared. In order to collect information on complaints and shared growth from partners through our website, as well as to enhance the tracking of illegalities, corruption, irregularities, and unfair transaction issues, Samsung SDI has also installed 'Shinmungo' for Partners (Compliance Reporting System).

Shared growth promotion system

Based on vision for 'shared growth into a global leader through cooperation for co-prosperity,' Samsung SDI pushes for three main assignments: 'support for enhancement of competitiveness,' 'intensification of fair transaction process,' and 'reinforcement of cooperation in future technologies.' We have Coexistent Cooperation Office under Purchasing Strategy Group for the systematic pursuit of assignments.

● Three major project



Support for enhancement of competitiveness

Aiming to enhance its partners' competitiveness, Samsung SDI operates diverse assistance programs. Among other initiatives, we provide financial assistance and sales outlets in addition to tailored specialized consulting. Through various forms of financial assistance, such as industrial innovation assistance, shared funds, and coexistent payment system, we in addition to primary partners, also expand the scope of assistance to the secondary and tertiary partners.

Introduction of shared growth culture and establishment of fair transactions

In 2017, Samsung SDI held its 21st 'Shared Growth Day' Event, a channel of communication with partners. The event was attended by various stakeholders, such as employees in charge of related departments, CEOs of partners, and the Chairman of the Shared Growth Committee; the main aim of the event was to share the innovations of partners and to reward excellent partners. We also introduced a shared growth culture by pushing for 'Purchase Consulting for Partners', designed to give partners a chance to expand their customer base, and organizing 'Partners' Excellent Products Exhibition' so as to promote excellent technologies by partners. In addition, we also conduct preliminary prevention activities against unfair transactions for the proliferation of a fair transaction culture throughout the supply chain.

Technology support and protection

In an effort to secure a future growth engine for partners, we also carry out joint cooperative assignments in cooperation with partners. For instance, in 2017, we conducted diverse cooperative assignments, including 'Public-Private R&D Project' and 'Purchase Performance-Sharing System.' Samsung SDI installed a Technology Deposit System by which the Corporate Partnership Foundation could protect its partners from patent infringement. We also introduced 'Certification of Original Document of Trade Secrets' for the protection of information on technology and management by supporting the defrayal of costs incurred when registering information. On top of that, in order to develop specialized researchers with partners, Samsung SDI also expands support for advanced job training and the recruitment of specialists, as well as provides customized training activities for consultancies.

S-Partner System

Samsung SDI performs self-diagnosis and on-site audits of CSR risks in the supply chain in terms of human rights/labor, environment, safety and healthcare, ethics, and management system by operating the S-Partner System. In particular, we have zero tolerance for such important items as child labor, compulsory labor, pollution emission, and environmental destruction; accordingly, we also requests our partners to fully comply with the laws and regulations against these issues.

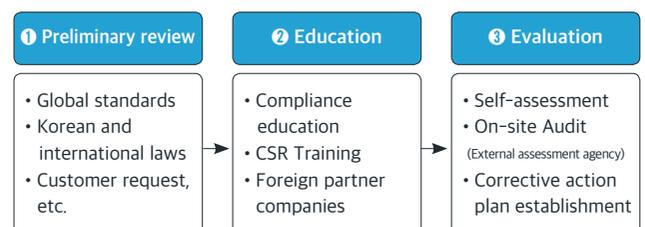
● Audit items

Human rights and labor	Labor Principles and Procedures, Freely Chosen Employment, Prohibition of Child Labor, Working Hours, Wages and Benefits, Humane Treatment, Non-Discrimination, Living Conditions
Environmental	Environmental Management, Accountability and Responsibility, Environmental Principles and Procedures, Environmental Permits, Pollution Prevention, Waste Water and Solid Waste, Air Emission, and Management of Hazardous Substances within Products
Health and Safety	Occupational Safety and Machine Safeguarding, Emergency Preparedness, Occupational Injury and Physically Demanding Work, Industrial Hygiene
Management system	Health & Safety and Environmental Management System, Health & Safety and Environmental Management System Factors, and Business Continuity Management
Ethics	Principles and Procedures, Business Practice and Management System

Evaluation process

To provide information on relevant Korean and international laws and regulations, global standards, corporate requirements, and the S-Partner Operation Process, Samsung SDI operates annual partner training courses related to corporate social responsibility. Every two years, we conduct on-site audits of new partners and existing partners that supply raw materials. For non-compliance and violations detected during on-site audits we request submission of a Corrective action plan within one month, and if violations are detected in the matters that are subject to mandatory compliance, or if it records less than 80 scores (70 scores in case of new partners), a re-audit is requested to be completed within three months.

● S-Partner Process



BUSINESS CASE

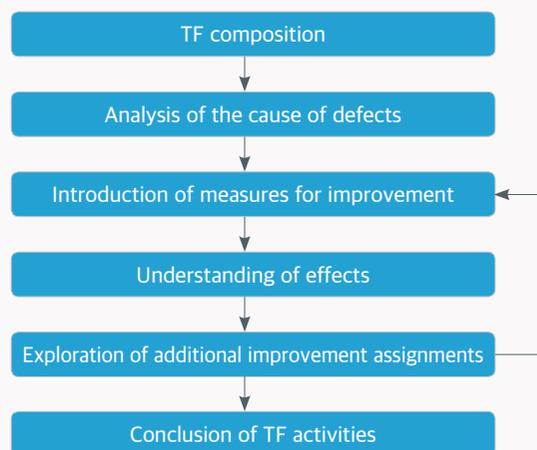
Innovation Task Force (TF) in cooperation with partners

Beyond just coexistent partnership, Samsung SDI maintains cooperative relationships with partners. These relationships are based on the value of shared growth by emphasizing 'One Can Go Further Together'. Samsung SDI explores and shares annual excellent innovations attained by partners. In 2017, Korea Innotech was selected as an excellent case for comprehensively improving efficiency by 18% through innovative TF activities conducted in cooperation with Samsung SDI. Korea Innotech manufactures various components related to batteries, and Samsung SDI has maintained its partnership since 1999. Presently, Korea Innotech's main item is insulation boards used in making cylindrical batteries. The insulation board is a thin plate inserted into a battery and a component used in a short-circuit occurring when the inner components of a battery touch one another. Recently, in order to raise the efficiency of production of the insulation boards, Korea Innotech found it necessary to conduct systematic management on the rate of defects. Responding to the seriousness of the problem, Samsung SDI dispatched a quality specialist to form a Production Innovation TF before figuring out and resolving the problem.



The Production Innovation TF was responsible for figuring out the cause of the defects and correcting them. To resolve the cause of process defects, a sensor and a monitoring system that can maintain the thickness of an insulation board at a certain level were installed, and a contact-type temperature meter that helps keep the temperature constant was introduced. In addition, improvements were implemented for about four months by upgrading the work environment, inventory management, and logistics system.

As a result, process defects were reduced by over 50%, and the comprehensive facility efficiency improved by 18%. Four long-term projects and three projects for standardization and habituation were additionally explored to set related goals and to create action plans. Through these efforts, we plan to solidify our business.

Innovation TF Process



The challenge of Transparency in Cobalt Mineral

Company Policy & Management System

Over the past two years Samsung SDI improved its human rights due diligence policies and practices explicitly for cobalt, in compliance with OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. Since 2017 our policy has been publicly disclosed in our website and fully detailed in our progress report. The policy is regularly communicated -and submitted for improvement- over a number of training sessions to all our stakeholders, including our executive management, our purchasing department, our investors and our suppliers. We are far from being perfect, but our policy improvements started showing some results this past year with an encouraging number of smelters volunteering to undertake third party audits.

Risk Assessment

In 2017 we have demonstrated that it is possible to map the factual circumstances of the supply chains of cobalt, although the biggest challenge that we have encountered is to link specific supply chains with the identified risks associated with extraction, trade, handling and export of cobalt.



Risk Response

We are at the onset of the design and implementation of a strategy to respond to the identified risks in order to prevent or mitigate adverse impacts. Being an active founding member of the RCI, our aim is to shape a risk mitigation strategy that spans across the industry and have a long lasting effect, by seeking the support of our automotive and consumer electronics customers, as well as our suppliers.

Audits

We are fully devoted to push all the cobalt smelters that fall under our supply chain to undertake. Third-party audits and we are hoping that by the end of 2018 several will complete the audits.

Year over Year progress towards participating cobalt smelters and refiners in Samsung ADI cobalt supply chain.



Public Reporting

Samsung SDI was the first and only battery company in the world to publish a progress report on responsible cobalt supply chain in 2017. As anticipated in the above mentioned report, we have committed to report publicly on supply chain due diligence policy and practices on a yearly basis. Starting from this year we have incorporated our progress report on cobalt and our list of smelters as sections of this sustainability report.

* PROGRESS REPORT ON RESPONSIBLE COBALT SUPPLY CHAIN : http://www.samsungsdi.com/upload/download/sustainable-management/Samsung_SDI_-_2016_Progress_Report_on_Responsibile_Cobalt_Supply_Chain_V12.pdf

Reported Countries of Origin

Based on the information provided by Samsung SDI suppliers, smelters and refiners, as well as from other sources, Samsung SDI reasonably believes that the countries of origin of Cobalt contained in its products include the countries listed below.

The origin of cobalt

- 01 Australia
- 02 Democratic Republic of Congo (DRC)
- 03 New Caledonia
- 04 Madagascar
- 05 Russia
- 06 Finland

Reported Smelters and Refineries

Based on the information provided by Samsung SDI's suppliers and its own best faith due diligence effort from January 1, through December 31, 2017, Samsung SDI believes that the facilities that may have been used to process the Cobalt contained in Samsung SDI's products include the smelters and refiners listed below.

Smelters and Refiners	Location
01 Freeport Cobalt Oy (Kokkola)	Finland
02 Ganzhou Tengyuan Cobalt Industrial Co., Ltd.	China
03 Ganzhou Yi Hao Umicore Industries Co., Ltd. (GYHU)	China
04 Jingmen GEM	China
05 Haopeng	China
06 Huayi	China
07 Jiana	China
08 Jiangmen Chancsun Umicore Industry Co., Ltd. (JUC)*	China
09 GEM (JIANGSU) Cobalt Industry Co., Ltd.,	China
10 Jiangsu Xiongfeng Technology Co., Ltd	China
11 Jiangxi Jiangwu	China
12 Jiayuan Cobalt	China
13 Lanzhou Jinchuan Advanced Materials Technology Co., Ltd.	China
14 Maolian	China
15 Murrin	Australia
16 Sherritt	Madagascar
17 Tengyuan	China
18 Umicore Olen	Belgium
19 Zhejiang Huayou Cobalt Co., Ltd**(not smelted through CDM)	China
20 Mechema	Taiwan
21 Norilsk Nickel	Finland

Response to Graphite Issue



We have received several grievances and read numerous reports about potential threatening conditions associated with the mining and processing operations of Chinese graphite suppliers.

Lithium batteries' anodes can employ either artificial, or natural graphite, or a combination of both. While artificial (synthetic) graphite is a by-product of oil refining processes, most of the environmental problems are linked to the extraction and processing of natural graphite (airborne dust and chemicals leaking into local waters).

In 2017 we have audited again our Chinese Natural Graphite suppliers but we haven't found any significant violation to our suppliers' code of conduct. We will keep on searching violations by monitoring our suppliers very closely. We have already scheduled audits of Chinese Natural Graphite suppliers for 2018.

Policy for Conflict Minerals and Improvements

In an effort to eradicate concerns on utilization of 3TG minerals (Tantalum, Tin, Gold, and Tungsten) unethically extracted in the Democratic Republic of Congo and adjoining countries, Samsung SDI establishes conflict minerals management system within partner company's web portal(SRM) and conducts investigations into utilization of a conflict minerals by partners and information on smelters and the country of origin through CMRT (Conflict Minerals Reporting Template) within the system. In 2017, Samsung SDI selected several partners utilizing 3TG and conducted on-site audit in order to validate reliability of information shared by partners. The company delivered Samsung SDI's policy on responsible mineral sourcing through training given to partners. It requested partners to conduct transactions only with the CFSP (Conflict-Free Smelter Program)-certified smelters that do not utilize conflict minerals. As of the end of 2017, all smelters of 3TG used in Samsung SDI products completed CFSP certification.

● Conflict minerals management process

