

Feature: Dialogue | Safety Improvement and Safety Culture at Production Sites



Representative Director,
Executive Vice President,
in charge of Safety and Production,
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Assumed his current position in 2019 after working as a specially appointed assistant professor at Keio University Graduate School and as a specially appointed associate professor at Niigata University Graduate School. He has conducted numerous joint and contract research projects mainly with major chemical and materials manufacturers, working to improve safety management and foster a safety culture at business sites in Japan and overseas.

In the wake of a fatal accident that occurred at the Nagoya Factory in January 2022, the Company has continued to conduct thorough investigations into the cause and discuss countermeasures. Efforts are being undertaken under the new structure with the aim of achieving fundamental and permanent reform.

As part of such efforts, the Integrated Report 2023 invited Dr. Akira Tose, Associate Professor of the Faculty of Engineering at Niigata University specializing in corporate safety culture, to the Nagoya Factory, where Kohei Maeda, General Manager of the Production Division, had an interview with him. (Titles omitted)

The first step toward a safety culture is to “raise the standard of the norm”

Maeda: As a prerequisite for business operations, we believe that fatal accidents should never occur. We are strongly committed to addressing this as an issue prior to productivity and cost, and we have continued to discuss permanent measures.

Tose: The first thing to do when discussing safety culture is to “raise the standard of the norm.” We live in a world where any loss of life in the course of business is unacceptable.

It is not about avoiding fatal accidents as much as possible, but about never allowing them to occur. What do we need to achieve this? What should we change? These questions are the first steps toward a safety culture.

We now know how to prevent most accidents to some extent. However, since it is quite difficult to predict in advance, we work backward from the types of situations in which accidents at the factory may occur, and consider what needs to be done. The first point is to think that it “could happen in our company.”

The next factor is the system. It is impossible to achieve the goal by asking on-site workers about dangerous areas and making changes in those locations. People with expertise in safety, equipment, physical phenomena, chemical phenomena, and other fields need to work together with on-site workers to get things done. It would be nice to have such functions in-house, but I think it is difficult in some respects. Therefore, it is the job of the management to decide what to do internally and what to outsource.

Maeda: Going forward, the Safety Promotion Department will focus on the two pillars of emergency response and long-term response. We can start immediately with seminars and courses for managers, but in the long term, we also need to work on training younger employees to become experts. Since we have just started, I expect it will take several years for the younger employees to develop.

Tose: It will take at least 10 years. What is important during this period is whether or not you can ensure that the safety culture takes root and grows in the same direction, no matter how many different safety leaders you may have in place.

Maeda: How to instill a safety culture in each and every employee is not really an issue on-site, but rather depends on how seriously management is willing to show its commitment.

Sanyo Chemical has its own safety

Tose: In the case of Sanyo Chemical, it is necessary to create a system suited to the production of its small-quantity, high-mix, high-performance products. In order to maintain the customer value and continue to generate profits, the sales section also needs to know what part of their demands on the factory are a burden and what kind of consideration is needed.

Maeda: Employees in sales, production administration, and other sections close to customers must also understand how our products are made.

Tose: Exactly. If the factory can respond flexibly to changes in the grades of products or the manufacturing order made at the request of customers, Sanyo Chemical’s competitiveness will be enhanced. To this end, the sales and production sections should understand each other, and the sales section should make requests to ensure that the production process is not overstrained. Whether or not this collaboration can take place is the key point.

Maeda: At the Nagoya Factory, many divisions use the same production equipment, which complicates production plans. Therefore, most general managers did not know how their products were planned and manufactured. Last year, however, President Higuchi sent a strong message to the sales section to see how much of a burden they were placing on the factory. As a result, our mutual understanding has gradually deepened.

Tose: When it comes to safety, moral hazards are likely to occur. If an accident occurs immediately when the factory is put under too much stress, it is usually clear who should bear responsibility. In reality, however, the accumulation of stress creates distortion that will only manifest years later as an accident. As a result, the person who gave the excessive order is often evaluated as having achieved results, while the exhausted on-site workers are left to clean up the mess. How to avoid this is the key to governance. For example, to ensure that safety investment will not be changed according to changes in the division’s policy, the factory manager can be given greater authority to allow a certain amount of safety investment from the beginning.

Is it an investment in safety or a repayment of debt?

Tose: We need to determine whether the money spent on safety is just paying off past debts or is an actual invest-



ment in the future. Failure to address the deterioration may force you to spend more money years down the line. Since this is just paying off a debt that should have been paid in the past, it does not improve safety. Upgrades are required to meet safety standards whose levels rise with the times.

Maeda: If we had spent the money in the past, the total cost would be lower and also safer. It is difficult to verify, though.

Tose: Yes, it is difficult. Even if we compare one billion yen that can be saved now with three billion yen that will be saved in the future, we cannot be sure that we can actually save three billion yen in the future.

A user-friendly factory is a safe and profitable factory

Tose: That is why factory design standards are so important, so as not to allow excessive corner-cutting in safety measures. Before regretting later that we should have done this or that, the necessary money should be incorporated into the factory design standards and utilized in the construction of new factories. The know-how should be accumulated and used again the next time. The difference between a company that has been running this process and a company that has been building factories haphazardly will gradually widen. You have accumulated the know-how to maintain the functionality and quality of your products. At the same time, if you accumulate know-how and expertise in factory design, you will be able to efficiently carry out small-quantity, high-mix production. This will be a unique strength of Sanyo Chemical that no other company can imitate.

Maeda: A factory that makes it easy to manufacture products is a profitable factory, and at the same time a

safe factory. Although we have been building various factories for the past 60 years, our philosophy regarding factory safety may not have been very clear.

If a factory is no good, it cannot make products properly, and the quality will vary. So the burden on the workers is very high, and such a factory is unsafe.

Tose: That's the essence of it. If equipment or production frequently shuts down or if there are many quality issues, more people will enter the factory on a non-routine basis. That's the most dangerous time.

Maeda: Yes. Moreover, as a result, we spend a lot of money on it.

Tose: The key is whether or not a company's system incorporates efforts to improve the ease of making products. Various factors can cause delays, and I believe that gathering and analyzing the causes to make improvements is the basis of production technology and the job of the production technology section. This can't be done in a manufacturing section that is busy handling orders that come in one after another. It's best to create an environment for the production sites where the workers can concentrate on doing what they're supposed to do.

Maeda: In July 2023, we established the Manufacturing Innovation Center at the Nagoya Factory in order to fundamentally improve the production sites. With a dozen employees from the R&D section having been allocated, I believe we can improve safety.

The days when on-site workers have to pay attention are over

Tose: I think the days of having on-site workers pay attention to safety are over. Having to pay attention is stressful enough as it is. Sanyo Chemical's safety policy includes observance of basic rules. In order for the rules to be followed, the people who set the rules must guarantee that the work be completed properly if it is done according to the rules. Rules are broken because the work cannot be completed unless the rules are broken. In this sense, staffing and budgets reveal the true intentions of the company. On-site workers check who is assigned where, and what the budget is. A safety policy is only an outward appeal and has no reality unless proper staffing and budgeting are in place. I think an important role of executives, especially the president and the vice president, is to show that the company is serious by providing adequate staffing and budget.

Maeda: Yes. The protective equipment we must wear becomes heavier the more hazardous the chemicals we work with. This is tough during the rainy season and

mid-summer. We would like to automate factories that make such chemical products.

Tose: In the process of maintaining and upgrading factories, it is important to make specific improvements and standardizations, such as modifying sampling ports to make sampling safer and easier, and to accumulate these improvements. Regarding safety technology, I think it will be easier to proceed if the Manufacturing Innovation Center and manufacturing sites work together to build a set of "safety, stability, and quality."

Maeda: Since the R&D department is under the Business Division, various improvement activities up to now have been conducted from the perspective of the Business Division. But the newly established Manufacturing Innovation Center belongs to the factory. Their mission is to eliminate defective products, stabilize process time, and reduce the number of mid-process analyses, which should lead to both overall profits and safety.

Tose: Sanyo Chemical may not have had such a function in the past, but if you don't do it now, you may end up with even more debt.

Also, rules should be as simple as possible, since people cannot pay attention to more than one thing at a time. Countermeasures that require on-site workers to monitor them tend to increase since they are less costly, but management must look at realistic workloads and burdens at the site.

Maeda: In the factory I showed you today, one person is responsible for several pieces of equipment. The worker inevitably gets flustered, wondering whether to prioritize this reactor or that reactor, or thinking that if this work is not finished today, it will cause trouble for the next shift worker. That is when accidents are more likely to occur.

Last year, when I assumed the position of General Manager of the Production Division, I set a policy of putting safety first. I told the employees to keep telling me what they noticed regarding safety, and that I would definitely take care of it even if it costs a little more money. However, few opinions were given. So I am very interested in what you mentioned earlier about giving the factory manager a safety budget.

Becoming a safety expert is the gateway to becoming the next leader

Maeda: Last year, we started visiting factories of other companies. They also seem to wonder if their safety measures are really sufficient, and when we approach them, they say, "Let's exchange ideas."

Tose: Since the knowledge involved in safety covers

an extremely broad range of fields, including machine design, chemicals, human behavior, and ergonomics, young people must be trained as safety managers. I believe that better countermeasures can be created by having a team of people who have accumulated a wide range of safety knowledge through their experience at various factories, and people who know what is being done on site.

Maeda: We are thinking about how we can eventually make sure that employees who have belonged to or served as Manager of the Safety Promotion Department will become company executives, and that in a visible way.

Tose: I have seen reforms in various companies, and the first stage is usually to assign a great person whom everyone recognizes as the leader of safety. Once the importance of safety is understood to some extent, the second step is to have the position of safety representative serve as a gateway to success in the career ladder. It is the position for candidates toward becoming the next leader of the company. The idea is to have them prepare now so that they will not be in trouble when they are in a position where they have to take responsibility as a factory manager or General Manager of the Production Division in five or 10 years.

Maeda: That's the way it should be. This is also a business of management.

Tose: When I first started creating safety culture diagnostics,* many people said they were useless. But today, no one says safety culture is useless. If you leave your factory unsafe, it will slow down the growth of Sanyo Chemical and your business.

Maeda: I agree. Thank you for your time today.

* A diagnosis tool with which factors common to organizational accidents are sorted in eight groups and approximately 80 questions are presented to be answered by respondents so as to visualize the situation of the safety culture rooted in an organization on the eight axes.

