

“There is No Easy Path to Ensuring Safety.”

We must continue our steady efforts to cultivate a safety culture!

Masamitsu Tamura

Professor Emeritus, The University of Tokyo

1969 Completed the doctorate program specializing in fuel engineering at the University of Tokyo Graduate School of Engineering. Joined Toyobo Co., Ltd. (formerly Toyo Boseki K.K.)

1977 Appointed lecturer at Reactive Chemicals Department, Faculty of Engineering, University of Tokyo

1990 Professor of Reactive Chemicals Department, Faculty of Engineering, University of Tokyo, and served various other important posts

2004 After retiring from the University of Tokyo, appointed Professor Emeritus

Specialty

Chemistry of nitrogen oxide, chemistry of energetic materials, chemistry of safety, etc.

Academic societies and organizations

Chairman of Japan Explosives Society and the Japan Society for Safety Engineering, Director of Research Institute for Safety Engineering, Director of Disaster Information Center, etc.

The more time passes, the more we must consciously make an effort to ensure workers realize the terrifying reality of accidents.

Tannowa:

Even the rawest memories begin to fade with time and this cannot be helped. However, our memory of the accident at Iwakuni-Ohtake Works where we lost a precious life is something we must not allow to fade. This is one of the reasons why I speak to our employees about the accident at each opportunity, including the beginning of the fiscal year. I have repeatedly communicated to everyone that **“the prerequisite to ensuring the sustainability of our company is safety”** and that **“safety is our top priority.”**

Four years have passed since that accident, and the number of employees who have joined the Company after the accident is increasing. How can we pass down the memory of the accident to this younger generation? The more time passes, the more aware we must be. We are preserving not just photos but also the equipment damaged in the explosion and its fragments

in an effort to communicate how destructive and terrifying the explosion was.

Tamura:

It is extremely meaningful in the cultivation of a safety culture that the top management speak about their strong commitment to safety. The role of the top management, first and foremost, is to clearly present the principles and policies regarding safety. Then having understood this, it is important that the workers onsite conduct safety activities proactively. I think that it is also the role of the top management and managers to create an environment where workers can conduct these activities.

They need to provide the human, material, and financial resources and have systems for commendations. These systems for commendations are a message from the Company that “if you give your best effort, your efforts will be recognized.” The top management should also visit the worksites and exchange ideas and opinions with the employees. I believe that it will have a significant effect in improving the motivation of onsite workers.

Tannowa:

I agree that there is no easy path to ensuring safety, so I go to the workplaces to communicate my message to our employees. I make an effort to hold direct exchanges with a wide range of employees twice a year in Japan and at least once a year at our overseas affiliates.

However, there is a strong feeling that “ensuring safety is something that everyone must naturally do” so it can be difficult to connect it to proper recognition. I hope that by recognizing steady efforts in safety activities, we can cultivate a safety culture.

Combine self-assessment and third-party assessment to realize strengths and weaknesses

—Professor Tamura, you emphasize that “Safety is not something that is provided to you from others. It is something you must feel yourself.” Can you be more specific?

Tamura:

Looking at recent industrial accidents, I get the sense that onsite capabilities which used to be the strength of monozukuri in



Tamura
Improving frontline capabilities is essential to ensuring a safe environment.

Japan has gotten slightly weaker. I am considering whether we can cultivate an environment that ensures safety in order to recover onsite capabilities. **Our starting point is becoming aware of the actual situation regarding safety.** Only when we are aware of strengths and weaknesses can we implement effective measures. We must **expand safety activities in a way that fits the workplace by gathering and organizing good examples from your own and other companies, thinking for ourselves, and finding a method that is satisfying.** By doing this, I believe that workers become more aware of safety, and continuing such efforts will help to cultivate a safety culture.

Tannowa:

We are keenly feeling the importance of this point. It is vital that everyone is able to think autonomously. With safety activities, there is always a possibility that workers will feel as though they are being forced from above, but that only makes it harder for them to truly accept the activities. They must create manuals and SOPs (Standard Operating Procedures) that they are certain they can comply with. In order to do this, they must **thoroughly discuss and accept each item as something they truly need to follow.** Then they must take action based on these manuals and SOPs.

Tamura:

I think there are two ways to conduct assessments to understand your current situation. The first is to conduct self-assessment. The second is a third-party assessment. **The important aspect of self-assessment is reconfirming your**

weaknesses, and that is a vital process in making improvements. However, self-assessments lack objectivity, and that is why **it is effective to have additional third-party assessments. They will help you to see strengths and weaknesses that you did not notice before.** You can also utilize services like the Process Safety Capability Assessment provided by the Process Safety Capability Improvement Center of the Japan Society for Safety Engineering.

In order to conduct objective assessments, risk assessment is also important. This process starts by extracting hazards (hazard sources). By doing this, we can proceed to steps in risk management where risk assessment is conducted and safety measures are implemented where necessary. However, if there are omissions to the extraction of hazards, proper risk assessment cannot be conducted and safety measures cannot be implemented. It is also necessary to raise sensitivity towards hazards from a variety of perspectives including third-party assessments in order to prevent omissions in hazard extraction.

Three Pillars of Fundamental Safety Measures at the Mitsui Chemicals Group

—The Mitsui Chemicals Group has continued fundamental efforts for the cultivation of a safety culture. What results have you noticed from these efforts, and what should be the focus in the future?

Tannowa:

During the three years following the acci-

dent at Iwakuni-Ohtake Works, we investigated what our fundamental issues were, and thoroughly discussed what measures would be effective. These efforts are starting to take root, and I think that things are getting better.

We have three priority issues in our fundamental safety measures. The first is **adjusting the management scope of onsite line managers such as section managers and chiefs, and ensuring they are appropriate.** The current trend in society is to make the divisions within organizations larger with the aim of increased efficiency, but this puts a lot of burden on the line managers, and we believe that this prevented them from properly managing the worksites and made it difficult for them to be aware of safety. We have implemented measures to change this situation.

Tamura:

It seems like this is an issue that many companies are concerned with. I think that the Mitsui Chemicals Group's efforts will serve as a model for other companies.

Tannowa:

The second priority issue is **improving and passing down technical skills.** At many of our Works, we are entering a period where the baby boomers are retiring en masse, and so generation change is progressing rapidly. We can replace the number of employees by hiring new ones, but we cannot avoid the reality that the average years of experience of our employees will drop.

We must figure out how to resolve this issue. One example is the Operation Technology Training Center. We will conduct training using these facilities to make up for what the employees lack in years of experience.

The third issue is **ensuring that safety is our top priority, cultivating a sense of professionalism, and giving employees a sense of accomplishment in their work.** We have created a system through our fundamental safety measures, so we will bring that down to the worksites and continue to promote the activities until our employees can conduct them naturally.

Tamura:

The passing down of skills is an issue shared by each company. When attempting to cultivate a sense of professionalism, I believe it is important to recognize and complement efforts at the worksite and enhance motivation. I hope that these efforts will be continued. In the future, I am sure it will also be important to properly assess the results of such efforts.

Cooperate with other companies and educational institutions to enhance safety in Japan

—What do you think about the training of human resources in the worksites of the chemical industry?

Tannowa:

Activities must be based on ensuring there is a safety culture. This is connected to the issue of training human resources at all levels from section managers to engineers and frontline employees as well as the employees of contractors. It is difficult to train only with classroom lectures, so I believe that **our first step is to provide opportunities to experience and actually sense things.** Additionally, **by providing employees with opportunities to interact with other companies and Works, I think they will be able to step out of their shells, and that their experiences and ways of thinking will accumulate to form our safety culture.**

The Mitsui Chemicals Group's Operation Technology Training Center is a training facility that allows employees to experience and sense issues with a particular focus on safety. While receiving visits by outside parties, the facility has received high assessments and many requests for use. As a result, the Center was opened to other companies from April 2015.

Tamura:

I think that your efforts are valuable in that they contribute to improving safety technology throughout the chemical industry.

I also agree that the most important factor in ensuring safety is people.

I feel that the major cause of accidents and problems is the drop in onsite capabilities that I mentioned before. I think that perhaps one of the reasons behind this drop is changes in the environment and way of thinking regarding safety. Children these days grow up in a safe environment where there are no hazards. Therefore, they do not have as many opportunities to learn the skills for detecting and avoiding hazards. These social issues must be dealt with by creating a systematic program in safety education that starts with education at home, continues from elementary, secondary, and higher education on to training by companies, with thorough efforts at each stage. Additionally, companies must ensure they conduct proper safety training, but I think that there is also a need for companies to share and cooperate with programs at universities.

In order for Japan to continue to provide the world with high-quality products, the entire country needs to work to enhance safety.

From this perspective, I hope that the Mitsui Chemicals Group will continue your efforts as a leading company.

Tannowa:

Thank you. We also conduct activities to show children what we can do with chemistry, and to experience the fun and mystery of science through chemical experiment classes for children called the "Wonders of Chemistry." As for our efforts with other companies, there are many common issues shared by each company regarding safety, so we hope to cooperate with others by sharing information to Big Data whenever possible.

Cultivate a safety culture that fits the characteristics of each region

—What are your thoughts about safety training at our overseas sites?

Tannowa:

I don't think that **we have any differences in our concepts and measures for our domestic and overseas sites.** We welcome trainees from our overseas affiliates at our Plant Operation Technology Training Center. I hope we can continue our steady efforts in this way.

However, thinking back to our past experiences, it is not practical to use the same training methods in all regions. Each country has unique situations and cultures. It is far easier to convey information when those providing instructions are well versed in local conditions.

Tamura:

The area of safety is a strength for Japan. One major theme is how we can expand our advanced knowledge, technology, and concepts in a way that fits the situation of each region.

Another theme that I am also interested in recently is the economic effects of safety. The National Institute of Advanced Industrial Science and Technology is leading deliberations into creating a system for assessing economic effects of safety.

Tannowa:

It is important to know that by continuing to ensure safety, we are actually cutting costs.

Tamura:

Once the positive effects of ensuring safety become clear, I think it will be easier to convince people and it will make it easier to conduct safety activities.

—In closing

"Safety is our top priority." At the same time, we recognize that "safety is the prerequisite to ensuring the sustainability of our company".

Let us continue our steady efforts in safety activities with the understanding that "Safety is for yourself, for your family, for your colleagues, and for society."

Interviewer:
Atsushi Deguchi
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Safety & Environment Technology Division,
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Tannowa
Always be aware that
"safety is our top priority."