Building a robust, streamlined management platform is crucial for a company to survive and sustain growth in the ever-changing economic environment. Just as essential is constant business evolution that allows the company to flexibly respond to changes in customer needs and desired technologies, such as those resulting from the enforcement of more stringent environmental regulations, accelerated electrification and autonomous vehicle operations in the fields of vehicle and materials handling equipment businesses.

This Special Feature highlights an initiative called Aozora Ichiba (“open-air market”), which aims to share kaizen efforts globally among our consolidated subsidiaries and business partners and to reinforce the management platform of the entire Toyota Industries Group.

Kaizen Embedded in Our DNA

Underpinning Aozora Ichiba

Since its foundation, Toyota Industries’ spirit of kaizen has been passed down in its DNA. We have been promoting various types of kaizen initiatives that include QC circle activities by each workplace and Toyota Production System Bushi Kenyuu Kai (autonomous Toyota Production System study groups) in manufacturing departments. Our Aozora Ichiba, which is one such initiative, held its 16th exhibition in fiscal 2017.

Starting Out as a Small Project

Aozora Ichiba started in 2002 for the purpose of reducing costs associated with the purchasing of secondary materials used in production activities, such as cutting tools, work gloves, hard hats and other supplies utilized within a plant. Business divisions gathered to compare secondary materials they had purchased individually and successfully cut costs by switching to less expensive products or making bulk purchases. Later, with the launch of emergency profit improvement activities following the global financial crisis triggered by the collapse of Lehman Brothers in 2008, the Aozora Ichiba project changed drastically. Under the strong leadership of top management seeking a more robust management platform, we expanded the area of activities and quickly transformed it into a Group-wide initiative.

Continued Evolution of Aozora Ichiba, Becoming a Place to Share Kaizen Ideas on a Global Basis

Aozora Ichiba, which has been evolving every year, is organized as follows. First, heads of manufacturing departments of each business division (Materials Handling Equipment, Vehicle, Engine, Compressor, Electronics and Textile Machinery, etc.) and the Aozora Ichiba administration office together select 10 to 15 members to form six loss reduction teams in the areas of quality, operational availability, efficient allocation of personnel, logistics, skills building & work training and materials. Then, each team leads loss reduction efforts, which are horizontally aligned across business divisions, in its responsible area and works to generate kaizen ideas for a half year from April in accordance with its annual action themes. Their efforts culminate with the annual Aozora Ichiba exhibition, which displays a number of kaizen ideas, small ingenuityes, more efficient work methods and other initiatives at production sites. The event literally serves as a market, in which participants from the Company as well as our consolidated subsidiaries and business partners from around the world earnestly look for and bring back applicable improvement examples to emulate in a way best suited for their respective workplaces and companies.

Tetsuji Ono, who is responsible for the handling of Aozora Ichiba, further explains: “Each team selects its own objectives and action themes at the beginning of a fiscal year under Toyota Industries’ Vision

**Activity Approach of Each Loss Reduction Team**

- **Quality:** Preventing both occurrences and recurrence of defects
- **Operational Availability:** Improving overall equipment effectiveness in production processes
- **Efficient Allocation of Resources:** Improving in-plant logistics
- **Skills Building & Work Training:** Increasing efficiency and standardizing work training
- **Materials:** Reducing secondary materials and other costs

**Strengthening of Human Resources**

- **Development of ingenuity in production processes**
- **Increasing the ratio of value-adding work through kaizen**

**Horizontally Aligned Activities**

- **Vehicle**
- **Engine**
- **Compressor**
- **Electronics**
- **Textile Machinery**
- **Materials Handling Equipment**
- **Die Engineering**
- **Subsidiaries in Japan**
- **Subsidiaries outside Japan**

**Exhibition**

- **Vehicle**
- **Engine**
- **Compressor**
- **Electronics**
- **Textile Machinery**
- **Materials Handling Equipment**
- **Die Engineering**
- **Subsidiaries in Japan**
- **Subsidiaries outside Japan**

**Sharing of Best Practices**

- **Post 1**
- **Post 2**
- **Post 3**
- **Post 4**
- **Post 5**
- **Post 6**
- **Post 7**
- **Post 8**
- **Post 9**
- **Post 10**

**Numbers of Exhibited Cases and Shared Best Practices**

<table>
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<th>Year</th>
<th>Vehicles</th>
<th>Engines</th>
<th>Compressors</th>
<th>Electronics</th>
<th>Textiles</th>
<th>Materials Handling</th>
<th>Die Engineering</th>
<th>Subsidiaries in Japan</th>
<th>Subsidiaries outside Japan</th>
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<tr>
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</table>

**Number of Visitors**

<table>
<thead>
<tr>
<th>Year</th>
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</tr>
</thead>
<tbody>
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2020 and works toward the Aozora Ichiba exhibition held in October. During the event, we present kaizen ideas through exhibiting panels, actual items, videos and demonstrations of mock production lines to help visitors understand how well these ideas work and to promote the sharing of best practices in their respective workplaces. Presentations are conducted by persons in charge, not by managers at a higher level, which serves to raise motivation. In recent years, we receive more participants from our bases outside Japan and see more cases of best practices in Japan shared around the world. This is proof that the initiative has been growing steadily on a global basis. The number of visitors attending the event has been growing each year, exceeding 4,700 visitors in three days in fiscal 2017. Koichi Kawata, who had served as the head of the team, explains: “The first theme is to shorten the time required to build skills of workers new to manufacturing operations so that they can work on their own without supervision. This will reduce lost time for both trainers and trainees. The second is to prevent loss associated with quality defects or industrial incidents by acquiring good skills among workers. The third theme involves the elimination of waste caused by redundant or insufficient training and education.” From fiscal 2015 to fiscal 2017, the team exhibited a train simulating an automatic guided vehicle (AGV) to reproduce an assembly line process. The simulator has evolved over the course of three years. “A training environment that closely replicates the actual work site has contributed to reducing the time required for building and improving skills,” explains Ishikawa. Trainees have regarded the simulator favorably, noting its ability to provide realistic, “moving” training not possible in the conventional fixed-type training equipment. The sharing of the practice has been proceeding well, with members from other business divisions about the themes we had tackled as a team, while incorporating views of many colleagues as increasing the types of work it can train. This has been a meaningful experience for me to have in-depth discussions with members from other business divisions about the themes we had to tackle as a team, while incorporating views of many colleagues in my office.” Recognizing the positive results of their activities, Kawata adds: “We have achieved significant kaizen in terms of on-site education and training. Besides that, I think Ms. Ishikawa has grown since she joined the team. The communication has become more activated within our office as well. The Aozora Ichiba initiative has generated combined results.”

Achieving Zero Defects Based on Kaizen Learned from Another Business Division

For the Aozora Ichiba exhibition held in fiscal 2017, Tutomu Kato of the Electronics Division served as the head of the Quality Loss team. He points out: “Different business divisions manufacture different products, but analysis methods used to reduce and eliminate defects are the same. Since divisions use these methods in their unique, specific ways, we can learn and notice many things every time we see other divisions’ approaches. That’s why I find activities to reduce quality loss interesting.” Kato continues: “Our team presented a kaizen example in fiscal 2017 that applied a shipping inspection method employed in the Engine Division, which uses tablet devices to check products, to an assembly process of the Electronics Division.” Conventionally, the inspection activities were conducted using a procedure manual in paper form. The team developed a tablet device that displays instructions linked to the progress of the device. Using these devices installed at production lines, workers select parts and tools as instructed on the screen, and when that particular step is completed correctly, the system automatically switches the screen to the next step. “We just installed the devices recently, but we have already achieved zero defects in this assembly process,” adds Kato.

Another initiative in the Electronics Division also significantly contributed to the reduction of quality loss in fiscal 2017. Kato proudly explains: “We had been checking the quality of some printed circuit boards and inspecting them manually and by using automatic appearance testers, but sometimes defects had passed through these inspections. To reduce such defects, we started filming products with a video camera and displaying highly magnified images on a monitor. This has helped us increase our ability to detect defective products and reduce the inspection time to one-fourth of the time needed previously, while also reducing workers’ eye fatigue.” Kato also adds: “Aozora Ichiba means a lot, as its activities actually generate positive results to extend and deepen relationships with members of other business divisions. It offers the chance to grow, and in turn enables us to recognize new things, and achieve better kaizen.” The team will follow its roadmap and continue to tackle issues for the next Aozora Ichiba exhibition in fiscal 2018.