

## Safety Improvement Created through Teamwork by Expanding the Strength of Each Individual

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### SUMMARY

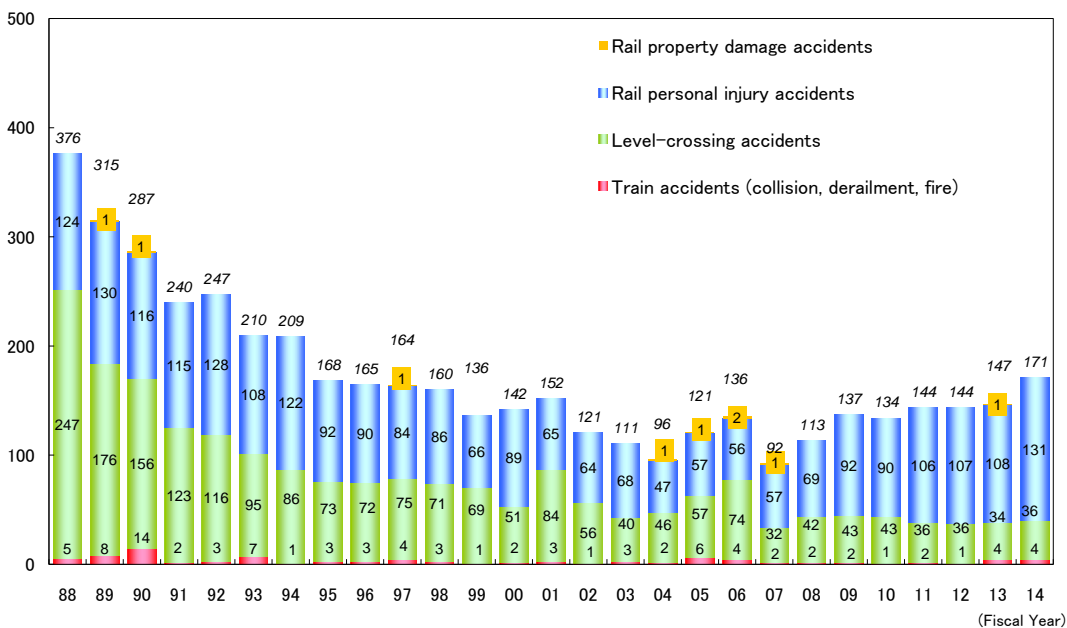
East Japan Railway Company has formulated the new five-year safety plan “JR East Group Safety Plan 2018” (fiscal year 2014 to 2018), poised to take on the challenge of “ultimate safety”.

This report, while providing an overview of the indicated plan, describes points including the succession of safety-related technologies and knowledge in response to environmental changes.

### INTRODUCTION

Since the inauguration of our company, we have positioned safety as the top-priority issue for our operation and have made great efforts toward its enhancement. Through a wide variety of steps taken up until now, such as formulating and implementing five-year safety plans a total of five times, railway operation accidents involving our company has successfully been reduced. The total number of accidents, including personal injury railway accidents, level-crossing accidents, and derailment accidents, has fallen from 376 at the time of our inauguration to 147 last year. However, even today the situation is that over 100 railway operation accidents occur annually.

(Number of accidents)



Rail property damage accident: Accident causing ¥5 million or more in property damage due to operation of train(s) and/or carriage(s)

Rail personal injury accident: Accident causing fatality/injury due to operation of train(s) and/or carriage(s)

Level-crossing accident: Accident where train and/or carriages hit person(s) and/or vehicles on level crossing

Train accident: Accident such as train collision, derailment, and train fire

**Figure 1: Trends in Railway Operations Accidents**

In order to resolve the remaining safety-related issues and achieve further improvements in safety, there is a need to ensure the advancement of policies and measures that have been implemented up to this point. At the same time, the environment surrounding our company has been changing in recent years, involving such aspects as the progress of systematization, responses to generational changes, expansion of out-tasking among group and partner companies, and frequent occurrences of natural disasters.

Bearing these perspectives in mind, the new five-year safety plan “JR East Group Safety Plan 2018” (fiscal year 2014 to fiscal year 2018), poised to take on the challenge of “ultimate safety”, has been formulated with the following content. We have added the word “Group” to our plan to emphasize our collective cooperation because operations by group and partner companies have increased in recent years.

## CLARIFYING DIRECTION OF SAFETY MEASURES

Continuing the previous plan “Safety Vision 2013”, the goals for the “Safety Plan 2018” include “zero passenger fatalities and injuries” and “zero employee fatalities” (including employees from group and partner companies). To achieve these goals, we have clarified the following three directions, and have laid out specific initiatives for everyone to implement.

The first objective is to completely eliminate “accidents due to in-house.” Incidents like signals passed at danger, speeding, and improper track-closure procedures are caused by in-house factors, so we will prevent such accidents by improving rail operations and maintenance.

The second objective is to reduce the risk of “accidents due to outside factors” by systematically improving facilities and making other efforts to minimize damage after accidents resulting from natural disasters, etc.

The third objective is to cooperate with regional communities at large to develop comprehensive countermeasures to “accidents closely related to society,” such as preventing level-crossing accidents, people falling off train platforms, etc. We will not only provide the main impetus for implementing steady countermeasures but will also cooperate with customers and regional communities to develop measures, such as reducing level crossings, and carefully communicating the dangers of railways to the public.

## 4 PRINCIPLES

Figure 2 shows an overall image of the ‘JR East Group Safety Plan 2018’. We are implementing specific efforts based on the four principles to achieve our goals and directions.

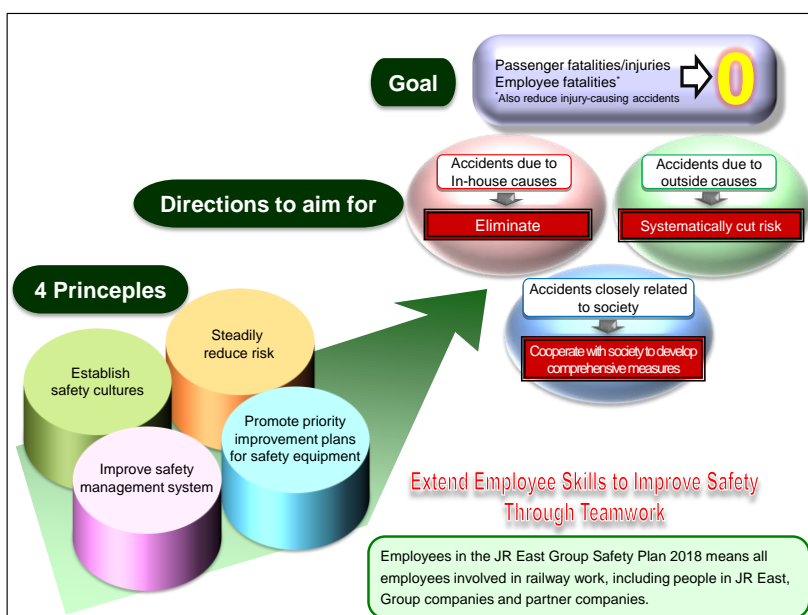


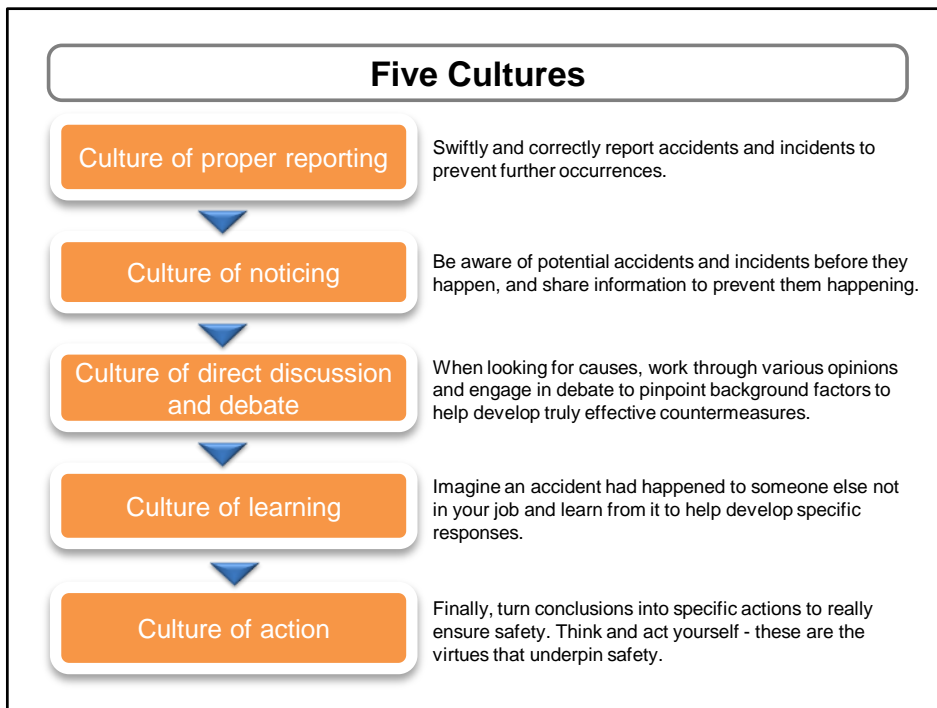
Figure 2: Overall Image of ‘JR East Group Safety Plan 2018’

## **ESTABLISH SAFETY CULTURES**

By assigning all the safety approaches developed so far to our 'safety cultures' as a foundation for safety matters affairs, we shall establish safety as 'part of the DNA' of each employee.

### Five Cultures

We will promote a culture where employees take serious note of accidents and incidents—a culture where employees discuss, learn from, and act on the issues based on information (Fig. 3). Especially, in the culture of action, we will implement a firm code of behaviour for our group that will comprise the golden rule: 'Stop the train if you feel something is dangerous'. As part of our effort to conscientiously and strenuously maintain safety on a daily basis and thus prevent accidents, we will also work to re-acknowledge the importance of basic actions in confirmation dialogue as well as pointing and calling out to confirm the completion of manual and mechanical actions.



**Figure 3: Five Cultures**



**Figure 4: Train protection training at training facility**



**Figure 5: Train driver pointing at signaling indicators and calling out the status**

#### Principle of Three Actualities

Safety issues always occur at actual locations, and the truth can be recognized at actual locations. Consequently, we will pursue 'principle of three actualities' (actual location, actual objects, and actual persons) that involve actually going to locations to see, hear, experience, and think about what is happening in order to see the reality as well as unearth the issues in the process of producing true solutions.

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|---|
| <p><b>Actual location:</b> Go to the actual location to understand the circumstances.</p> <p><b>Actual objects:</b> Examine the actual object (rolling stock, equipment, machine, tool, etc.) to understand its condition.</p> <p><b>Actual persons:</b> Meet face-to-face with the people actually involved to understand their situation.</p> |
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**Figure 6: Principle of three actualities**

#### 'Challenge Safety' Campaign

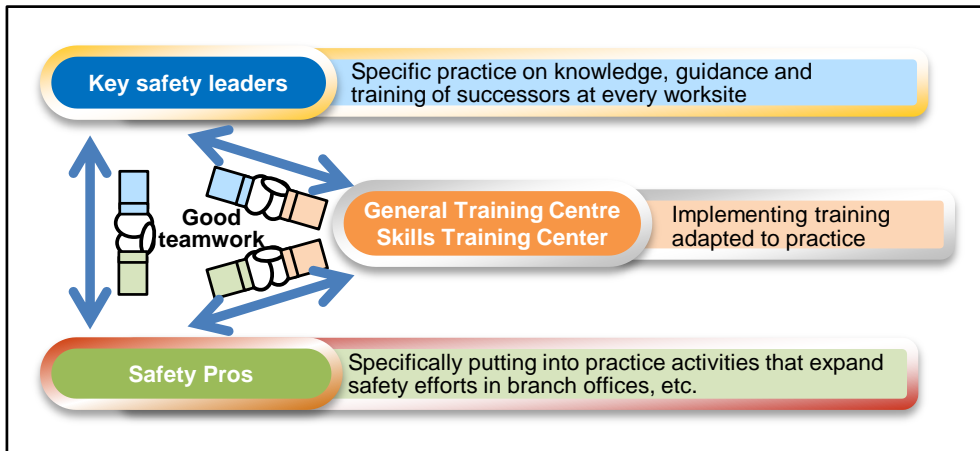
This campaign seeks to proactively encourage employees in every workplace to think about safety, debate it, act on it, and feel satisfaction in achieving it, and in so doing refine their safety consciousness and sensitivity and channel these into further safety-related approaches. By doing these things, we will not simply implement standard formulas, like conferences and presentations, but rather we want individual workplace units to address safety issues in a free-thinking manner.

#### **IMPROVING SAFETY MANAGEMENT SYSTEM**

Amidst the rapid loss of skilled veterans retiring, the importance of nurturing younger employees who will be at the core of safety-related knowledge, technologies, and leadership is growing greater. To meet this challenge, we will improve our management system in the area of safety based on personnel training and passing-on technical expertise.

#### Developing Specialists in Safety Management

We will work to develop personnel by exposing them to 'safety professional's working in regional management offices, key safety leader in all our operational offices as well as the General Training Centre and Skills Training Centres where training adapted to actual practice is implemented.



**Figure 7: Developing Specialists in Safety Management**

Proactive and Practical Succession on Technical Expertise

We will search out and pass on knowledge of the history of safety rules and the backgrounds of previous accidents, and the wisdom that comes with experience retained by veterans. In addition, we will hold seminars run by safety authority in specific expertise comprising JR retirees with a wealth of safety-related experiences.

In readiness for emergencies, we are learning lessons from the Great East Japan Earthquake to ready ourselves for the massive damage if an accident, earthquake or large fire occurs, and will nurture the skills to make the necessary responses.



**Figure 8: Seminar by Safety Authority in Specific Expertise**

Improving Safety by Integration JR East Group

We will share information among the entire group, including both group and partner companies, and push ahead with specific initiatives like sharing the same vision of safety senses, sharing safety training and educational facilities, as well as establishing a scheme to improve facilities.

Initiatives for 'Deep' Learning the Misery of Accidents

We will ensure all employees visit our Accident History Exhibition Hall (at the JR East General Training Centre) with exhibits of actual trains involved in railway accidents. By getting employees to experience simulations of train accidents and incidents, we will implement initiatives for 'deep' learning the misery accidents.

## Minimizing Human Errors

Since complicated rules and the increasing diversity of machines are sources of human errors, we will seek simplification by refining our rules and unifying machine types.

## Providing Understandable Learning Materials and Information

We will make use of our Safety Portal website to create an environment where materials (including video clips) can be viewed. Moreover, we will use e-learning to help personnel study whenever they want on personal computers and tablets.

## **STEADILY REDUCING RISK**

We will categorize cause of accidents in-house, those outside and social ones, and will then decide how to approach each category to promote steady risk reduction.

Even if certain issues are not presently recognized as risks, we will continue to stay one step ahead by unearthing and coping with potential risks that are emerging with the changing circumstances in the railway sector.

## Thoroughly Reducing Risks Accompanying Accidents due to In-house

For accidents due to in-house that can be prevented by improving railway operations and maintenance, we will take every possible means to eliminate such accidents, including systematically enhancing traditional measures to reduce risks, making use of technologies development outcomes, and reviewing our setup.

To start, we will evaluate incidents that did not result in accidents, but that could have led to fatalities and injuries among customers and employees. We will aim to eliminate any recurrence of similar incidents due to the same causes.

## Reducing Risk of Accidents due to Outside Factors

In readiness for severe earthquakes and increasingly more-frequent severe weather, etc., we will reduce risks by promoting disaster countermeasures to minimize secondary damage after disasters.



**Figure 9: Reinforced Elevated Bridge against Severe Earthquake**

## Reducing Risk of Accidents Caused by Social Factors

We are implementing measures to prevent level-crossing accidents, people falling from platforms onto tracks, etc., by installing warning devices at level crossings, and automatic platform gates. At the same time, we will cooperate with customers and regional communities to develop overall measures, such as reducing level

crossings when possible and developing campaigns (about platforms, level crossings, elevators, etc.) to communicate the dangers of railways to the public.



**Figure 10: Automatic Platform Gates**

### **PRIORITIZING SAFETY EQUIPMENT PLANNING**

Since our foundation 27 years ago, JR East has invested more than ¥3 trillion in safety, and the JR East Group Safety Plan 2018 invests about ¥1 trillion more over the next 5 years. In specific terms, we will continue to invest in countermeasures for severe earthquakes, introduce even better protection devices, and work on measures to prevent level-crossing accidents. Also, we will work to complete installation of automatic platform gates at all 23 stations in Tokyo metropolitan area, as well as formulate installation plans for other lines.

#### **Eliminate Accidents due to In-house Causes**

- Further install Auto Train Stop system and other improved protection devices.
- Introduce a system that will transmit information to train drivers about temporary reduced-speed restrictions, etc., caused by strong winds or heavy rain, etc.
- Work to introduce backup equipment to ensure operation of level crossings when trains are passing.
- Install measuring devices on trains, and aim to make practical use of monitoring technologies to monitor onboard and on-the-ground sensors.
- Make use of GPS, etc., and aim to make practical use of devices that warn track workers of nearby trains.

#### **Reduce Risks of Accidents due to Outside Causes**

- Continue to implement severe-earthquake countermeasures, such as infrastructure reinforcing.
- Continue to implement storm countermeasures, such as fitting tracks with windbreaks.
- Continue to implement rock-fall and landslide countermeasures.

#### **Reduce Risks of Accidents Closely Related to Society**

- Work to complete the installation of platform doors at 23 stations in Tokyo metropolitan area and develop and implement installation plans for other lines.
- Continue to install obstruction warning devices (PB units) and crossing obstruction detectors on level crossings to prevent crossing accidents.

**Figure 11: Main Safety Equipment Provision Plan**

## **CONCLUSION**

“JR East Group Safety Plan 2018” is a 5-year plan for improving the safety of both people and facilities. All employees share our strong resolve to prevent any major accidents, and will continue to eternally rise to the challenge of ‘ultimate safety’.