



Hong Kong
22-27 October, 2017

27th International Railway Safety Council 2017

How to nurture train-related workers

<Author's First Name & Last Name> Masami Yoshigiwa

<Qualifications> Assistant Director General of Managers' Section

<Company of Affiliation> East Japan Railway Workers' Union

<Post/Title>

1. Sudden stream of changes of generation

East Japan Railway Company(JR-East) was established in April 1, in1987, and is 30th anniversary this year. When Japan National Railways(JNR) were divided and privatized, and East Japan Railway Company was launched, it had about 82,500 workers. There were about 56,500 members as of the April 1 in 2017. The number of staff members had decreased and along with that new generations were taking over remarkably.

The decreasing number in staff members came from technological innovations such as introduction of new railroad car and new systems, outsourcing and improvement of efficiency. However as the most significant reason, the number of retiree of JNR-hired employees is much more than the number of newly hired employees. This large number of retirees will continue until 2023 and during the 7 years from now, about 18,000 workers will retire at the age of 60 years old. Furthermore, in the past 8 years between 1983 and 1990, the company suspended hiring new workers. These factors made up the warped age structure of the company employees.

Consequently, there is a division between JNR-hired employee and JR-East hired employee. In order to fill the age gap, a system called "life cycle" was introduced. JR-East hired workers should start at "station staff" then become "conductor" and finally work as "driver". That system was introduced in order to secure the enough number of drivers because the tightness of drivers was no excuse. Following the "life cycle" system, a newly hired employee can become a driver after 7 years at the shortest period since entering the company at present time. This is almost the same as an employee in departments of station staff, maintenance staff in cars and facilities. As a result of this sudden change of generations, average length of continuous service in the company is about 20 years, and its employee structure of the company is getting younger.

Therefore, at this period of generation change, it is urgent necessity to nurture train-related workers for future. Moreover instructors of technique are also getting younger and this is another problem in instruction field.

2. A series of serious accidents, that are warnings to the safe of JR-East, happened!

Since 2014, a series of serious accidents happened, and passengers and crew members were endangered.

On Feb 23 in 2014, an out-of-service train hit a construction train. It is called "Keihin-Tohoku Line Kawasaki Station ward: Derailed and rolled accident".

On April 12 in 2015, a mast fell down on a track due to a mistaken operation plan and procedure. It is called "Yamanote Line Kanda Station - Akihabara Station mast-fallen accident".

On June 6 in 2016, construction trolley hit a train. It is called "Joban Line Kitamatsudo Station-Matsudo Station construction trolley collision accident".



Luckily there was no death, but these accidents were alarms to the safe measures of JR-East and to the current situation of railroad business.

3. Successive errors in handling and a change of their tendency

During about 1 year from August in 2016 to September in 2017, there were 13 incidents that construction workers were late to evacuate and as a result trains emergently stopped. Every month, collisions were narrowly avoided. These accidents occurred with the common reason. As construction workers were on the move or concentrated on their task too much to notice trains were coming, delay of evacuation had happened.

Previously workers who were concerned to these accidents were usually subcontractors' workers. The subcontractors are professional groups of construction and they don't have enough knowledge of safe measures which came from lessons of various accidents. Or they sometimes put more priority on tasks and lead to the operation deviated from the rule. As a result many accidents were triggered. This tendency lies in some recent incidents as well.

On the other hand, what we should pay attention in recent incidents is follows. JR-East employees who should manage subcontractors' workers in safe instruction, put more priority on the task than safety, and lead to delay of evacuation. This new tendency should be recognized seriously.

4. What comes before safety?

Here is a distinctive incident.

January 9 in 2017, at Yamanote Line Ikebukuro Station Ward, on the patrol of railway track, 2 JR-East workers as track inspectors were whistled from incoming train and the train emergently stopped. If a driver had found them too late, or they had noticed the train too late, they could have collided regarding unsecured visibility distance with curve.

The direct cause was that. One of the workers said that he wanted to check a "turnout" to the other train watchman. Then they enter the railway track without a stop-train operation.

This patrol of railway track in the original plan included checking the situation of track buildings with turnouts from the formation level. And at that morning the roll call before the operation, they had fully understood that they could not enter the track.

However, as another turnout in the deferent place was found to be malfunctioning, he wanted to make sure that the turnout had no malfunction. Then he checked it without the stop-train operation or increasing of the train watchman.

He put more priority on "the desire to check it" than safety, so it led to delay of evacuation. The reason we can say he put more priority on "the desire to check it" than safety is mentioned below. They entered the track again to check it soon even if they felt danger. That followed the train left after safety was secured. And when they noticed the next train was coming, they ran away in a hurry. This true story was unbelievable.

Here is another incident.

On May 7 in 2017, during driving between Tabata Station and Komagome Station in Ymanote Line, a conductor on rear side of a train pressed a button and as a result lowered the pantograph and room lights turned off. The button is never touched in usual operation.



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He confessed that he wanted to make an attempt of pressing the button, which had no cover above it, because he thought that the buttons, which need to prevent conductors from handling, were covered. During driving, he pressed the button which might cause to cut overhead contact line involuntary. Consequently he pressed the button again and understood the purpose of the switch. He took the action from his curiosity without realizing it, and that might cause serious accidents.

These 2 accidents have something in common. A state of mind, where something weighed on his mind, caused these accidents. They could not think of the result of their actions. As far as seeing the results, we could not conclude them with the term of “curiosity” or “aspiration” of employees. Even if these actions were caused by their efforts to get more skill and knowledge, their mind situation of “Safety is of Second importance” was like those who lost their reason as railway workers, who should hold “Safety, First”.

5. What is nature of labor in crew?

Next I will show you accidents by drivers. But before that, we should think of the nature of crew’s labor. The labor of crew is “transport labor”. They maintain safe transportation daily, though there are a lot of transport obstacles, troubles and they perform long-time continuous duty on the train. As abnormal weather increase danger, they make every effort to escape the danger.

And the labor of crew is repeated job. In this repetition performing duty without mistakes needs a lot of perseverance. Labor related to transportation such as freight and bus is a work that performed by operation and handling without mistakes. When workers face an extraordinary event, they are asked to have enough knowledge experience excellent judgment in order to choose the safest way to protect human lives based on daily training and education.

They must bear in mind the distinctive character of the labor when performing duty.

On July 24 an accident happened in driving between Meguro station and Gotanda station in Yamanote Line. When a train departed the train could not accelerate over 10Km/h. The driver checked the braking force and ascertained that it could continue to drive, under the instruction of operation commander he drove the train with coasting operation to next station Gotanda station. After passenger were getting on and off at Gotanda station, pilot lamp didn’t light, the driver judged for the vehicle breakdown and made all passenger get off, and deadheaded to the depot. Afterwards the train was inspected. It was found that when the train departed from Meguro station and accelerated to around 10Km/h, the signal relay in the train, which was used for opening and closing doors, was broken down and the pilot lamp lighted out.

Drivers should observe the pilot lamp lighting during driving. If lamp lighted off during driving, the driver should operate emergent stop and alarmed train protection radio assuming the worst case that passenger drop or get off. In this case the both treatment could not be undergone.

This is because after new cars introduced, when doors open during driving, pilot lamp light off and at the same time an indication of “doors open” display on the driving monitor and an alarm sound. In this case only relay signal had broken down and doors did not open. Therefore no indication showed on the monitor.

Responded to this accident, most veteran drivers have the same opinion that “power running shut off at the same time when the pilot lamp turn off, therefore drivers should check pilot lamp at that moment”. And also instructors of drivers pointed out young drivers are vulnerable to extraordinary events.

Because of introduction of new trains and new systems, important machines had become black boxes. And it came to be pointed out the ability of response is decreasing. Along with the highly developed mechanical system, a lot of unpredictable incidents happen, crew members are not able to fix those troubles with temporary repairs for themselves, there are difficult situations in workplaces. In this accident the driver

could not perform the right action for the safety because of the weakness in responding to extraordinary events such as vehicle breakdown and of his state of mind for fear to vehicle breakdown.

Train drivers are internationally specialized job. Especially, Shinkansen (bullet train) drivers are recognized as specialists for drivers of rapid trains in the world. We have something to make sure. That is as follows. Crews job is specific work. They are asked to improve their special skill and brush up their ability with satisfaction on their duty, with a sense of mission, and with responsibility for their duty. In this text their duty means original one. The base of drivers' duty stands on "they should perform their reasonable duty properly and surely. This leads to maintain of transport safety, and to bring about passenger liability, and to acquire high appreciation as social necessary transportation. We can say conductors, maintenance staff are the same regardless the different type of occupation.

Once crew start to their job, they need to perform only for themselves. When an extraordinary event occurs, they are asked to be judge the situation as a responsible person. In that special situation the fear of vehicle breakdown like train can't move weigh more than the action of securing the safety. The fact produced this action.

The driver had 5 year experience and reliable mid-grade employee. In the "life cycle" system, workers can become drivers after 7 years since their entering at the shortest period. In the future there will be a tendency for young people to become instructors. The situation will be more serious.

4. Facts from Questionnaire on workplace

Here is important results for our future. The questionnaire was conducted on 2,973 crew members in Tokyo branch which took responsibility of transportation in the core part of metropolitan area. (Subjects were all drivers, all conductors in JREU. The ratio of organized labor is 94.5%) This survey result was very accurate because at the response rate of 96.5%.

The purpose of the questionnaire is to realize in nurture workers suitable for train related industry focusing the original duty to run trains "Safety First". "Original duty" means the train operation of all routes and all types of position in order to run safe.

The questionnaire conducted because that. In 2012 the system of personnel and wage were reviewed and human resources training became to be aimed to succeed technique, skills, and knowledge of train industry. To achieve that employees are asked to tackle self-enlightenment actively except for "original work" and some activities such as so-called "My project" and "committee" held at workplaces.

At present management, performing "original duty" is a matter of course, and the performance of self-enlightenment activity, which are added to "original duty", are highly valued. Employees with such high aspiration and voluntary activities were valued higher as enthusiastic employees.

In the results of questionnaire, 69.5% JREU members answered that evaluation system of employees valued “My project” and “committee” activities highly. When workers wanted to be highly appreciated enthusiastic employees, some concentrated on these activities cutting their essential labor to perform “original duty”. Actually an employee who made a mistake in “original duty” said “I will recover it by doing “My project”

As I mentioned before, “they should perform their reasonable duty properly and surely. This leads to maintain of transport safety.

Railway industry consists of team work in which everyone do his best to maintain safety in his field. If someone is missing, normal train operation can't be expected. But nowadays every worker is concerned about his appreciation therefor the situation of the lost in security of safe transportation, no recognition of importance in his duty was produced. And everyone is tend to move separately. The reason was the competition between employees, which is brought about as an company environment.

This shows that aspiration and enthusiasm were used to get higher valuation, originally instead of the pursue for safety. The sense of “To get higher valuation, it is not enough to perform the duty at the same way with others” is the root of those accidents such as the delay of evacuation in Ikebukuro station and the pantograph accident. It is the state of mind that employees want to look excellence.

JR-East had changed course to the nurturing way approaching the nature of transportation labor, after a lot of sincere discussion between management and employee reflecting those past serious accidents and mistakes. But it will take long time for the idea to be established firmly.

We JREU have the experience that there were no casualties of crew members and passenger in the Great East Japan Earthquake. The reason of this achievement was judgement ability that had been accumulated by daily training and power of action. And we have on-site power that produced the judgement ability and power of action.

Now we need the work environment where employees work hard together in friendly and rivalry, not the competition. The mistake, which could be prevented from leading to serious accident, will be told as a successful example in the environment. We need the human resource training where young employee learn and take over its safe conditions built by many predecessors.

It is said the sense of belonging to railway is becoming decreasing but both labor and management will produce the responsibility for safe transportation and the effort of operating trains safely. Moreover, I will conclude with saying we put the most important value on safety, and tackle to realize “the safest railway train in the world” and “offering-best-service train in the world”