

Evacuee Guidance in case of Tsunami for Passengers of the JR Yokosuka line and Users of Kamakura/Zushi Stations

The outbreak such as large-scale earthquakes in the metropolitan area is predicted in Japan with high probability in the future, and a tsunami of 14.5m is expected in Kamakura city where a total of 18 million tourists visit in a year. In this presentation entitled “Evacuee Guidance in case of Tsunami for Passengers of the JR Yokosuka line and Users of Kamakura/Zushi Stations”, based on lessons learned from Great East Japan Earthquake, I will propose that "reviewing the vehicle installation products", "maintaining field marks and the manual for a quick evacuation", “having field training in order to develop on spot judgment”, “placing a disaster prevention professional in the workplace” and “cooperation with the local government" with examples from a field survey conducted by our union members at the workplace.

First, we investigated JR East Hachinohe line, where tsunami measures were taken since Great East Japan Earthquake disaster. The Hachinohe line ran along the coastline of Pacific from Aomori Hachinohe Station to Iwate Kuji Station, but it was damaged from the massive tsunami of the Great East Japan Earthquake and suspended until reopening on March 17, 2012. I would like to introduce our measures at reopening of the station.

In the train of the Hachinohe line, the guidance of the evacuation methods, “how to get off a vehicle”, “an evacuation guide map along the railway line”, and how to evacuate from “a track to outside route” are placed on the walls.

On the track side, an evacuation guidance indication board is maintained. There are two marks; going straight to the height above the sea level and the back, and the arrow mark indicating the direction of the nearest exit leaving for the place of evacuation for the people to follow in the time of emergency.

The fire escape is equipped on a rack, and the guidance of how to build and use ladders is put on the wall under the ladder.

The Uge station is built in front of the shore. A tsunami really flocked to the top of the station building and crushed the building. Now, the waiting room is cleaned-up well, and a map of evacuation route was posted, and an emergency exit (stairs) which went up on the hill is set up. Not only at the station, but also between the stations, emergency exits are established. The sign of the tsunami evacuation route is built over the stairs leading to the road. A sign is chained, which can be easily come off.

And then we investigated other JR companies, the Kisei main line in particular, to learn about their advanced measures. The Kisei main line goes along the coastal line of the Kii Peninsula from Kameyama Station (Mie prefecture) to Wakayamashi Station (Wakayama prefecture). JR Central Company, manages Wakayama part and JR West Company manages Mie part after Shingu Station.

First, I would like to introduce the story about the JR West section. I went to the southernmost Kushimoto Station. A tsunami can arrive at Kushimoto-cho depending on a place but in the fastest three minutes, and a tsunami of a maximum of 18 meters is assumed. An evacuation map is laminated for carrying use was put in the waiting room of the station. In the station building, a tsunami evacuation map was posted on several places. Station employees told us "we have employees, who are off duty, carried out a tsunami fire drill once a month, and people in the waiting room were suddenly asked to participate in those training".

Now let me introduce you a sign put on the Kushimoto Station yard. An arrow signboard of the red and green that a green arrow was written in the red background is put on the telephone pole. This pole is called "direction arrow for evacuation" and it guides us to outsides of the track and the inundation expectation area. This beacon is put on the telephone pole of the inundation expectation area between the stations continually as well as

the station yard. Then another “exit to outside the track” sign is put further down from “direction arrow for evacuation” as well. Not only the passengers but also whoever may watch this white signboard knows what it means pointing to the nearest place of evacuation site and calling for evacuation. I saw a lot of this “exit to outside the track” sign between stations. Visibility was very good and stood out.

I left Kushimoto Station and actually followed the direction of the red and green “direction arrow for evacuation” sign and walked out the track along with a white “exit to outside the track” sign.

These signs are linked with the white and green signboard showing an evacuation route the town prepared and go ahead through the paved mountain path following to those signs. This road is paved with concrete, and even a wheelchair friendly. An indication board indicating the current height above the sea level is installed on the way and can confirm current one's height.

There was a large space when I climbed up to 22 meters above the sea level, and a disaster prevention warehouse was put there and emergency stuff was stored. When I asked the residence close to the evacuation route a story, he/she said "the residences divide the mowing areas, and do it on our own. Originally there was the disaster prevention warehouse in the low place, we moved to the hill when we maintained an evacuation route.”

Then, I moved to the east from Kushimoto Station and observed the evacuation route of the Kushimoto-cho Omizusaki district. Directional markers are equipped with the photovoltaic power generation, and the directional marker turns on at the time of the blackout. They establish evacuation route sign on the door so that the residence can cross the track to evacuate, and therefore the door is not locked. It is written clearly, "it is the urgent passage at the time of the disaster" on the door.

There are stairs maintained with concrete crossing the track. Five battery lighting are installed in the passage and it will turn on with battery after a blackout for two hours. When climbing up these stairs, you will be at the playground on the uphill. 3 meters above sea level to 37 meters. Due to the completion of this evacuation route, time for escape shortened for approximately five minutes from 15 minutes. The hill is proud of very large space, and there is a large athletic ground, and a hotel near.

And municipality Hospital, a fire department and disaster prevention center, and a heliport are moved to this hill.

Then, an emergency ladder to lead from the track to the road is installed in the Kisei Main line. A getting off stand is installed in another place. It can be at the position of the door of each car model, and a stop position sign is maintained, and getting off is possible without using the ladder. Furthermore, the stairs to the road are established. And JR West carries out a fire drill in cooperation with the local residence

Now, I would like to talk about JR Central section. It runs in Mie part across the Kumano River from Shingu Station. In the expected tsunami danger area of JR Central, a tsunami warning sign is installed, and in an expected tsunami danger local section is appointed intermittently. The kinds of the arrow go straight on, a U-turn, and exit indication. This tsunami warning sign does not write "evacuates to where". It only displays a direction escaping outside a track. At the JR Central, after evacuating following "a tsunami warning sign" and going outside a track, all crews are to carry "the tsunami refuge map which showed a place of evacuation and the evacuating route" and evacuation guiding from the track to outside.

Now, I would like to propose the measures that we should carry out through an action in this

year in JR East and at the local government.

At first, as a proposal of "evacuation and the instruction", the first point is a review of the present in-vehicle installation. For example, there should be a LED-type powerful flashlight without running out of ball, psyllium on the driver's cab for night and blackout measures. In JR West, there are 20 of them on each driver's cab and put psyllium in small bag by a bunch on an emergency ladder to light up the ladder at the time of getting off. As for the radio, JR Central will adopt generation function radios.

The second point demands the vehicle installation of the life jacket. At the Great East Japan Earthquake disaster, the staff, who survived calling for refuge in Minamisanriku-cho while being caught in a massive tsunami, has testified that the life jacket is necessary to protect the life of a crew who is put in the situation to remain in the spot till the last to protect the life of the passengers.

The third point is that the escape from a vehicle should be changed to the facilities which can be got off quickly from the front driver's cab.

The fourth point is the improvement of the in-vehicle emergency ladder and the deployment to all trains. The current in-vehicle ladder cannot be assembled alone, and setting takes time. In addition, it is carried only by the train of the commuting type. We demand the deployment to all trains including limited express form. JR West trains are equipped with the refuge ladder which even women can assemble alone within one minute.

As for the fifth point, a 2-story green car is connected with a commuting type train on Yokosuka line and the Shonan Shinjuku line, thus quick refuge is enabled by installing an exit in the first floor car. The exit is set on the first floor part of 2nd cart of the 251 system of

the Super View Odoriko now.

The sixth point is to maintain the tsunami evacuation marks. We demand the setting of "the sign continually indicating a direction escaping to the site outside" and "the sign for exit and the evacuation site" from the tsunami regulation section of the Yokosuka line. This must be the visible thing by the local residence and visitors as well as JR employees. Of course, it has to be turned on by night and demands at the time of the blackout for a certain period of time. In JR West, the sign for exit to outside the track of a white signboard with a LED solar power supply.

The seventh point is to build the escape facilities which can derive it immediately to the track outside. In the metropolitan area, a fence is installed along the track and cannot be escaped easily outside the track. Therefore, in the constant place having a long section between a railroad crossing and another railroad crossing, an evacuation route (de-exit) for track crossing in the up and down lines like Kushimotocho is needed. Passengers and the local residences close to the shore cross the track and allow them to evacuate.

The eighth point is to install a walk board in the track of the evacuation route (de-exit) for the wheelchair to cross the track easily. Kushimoto-cho residence requests for this as well.

The ninth point is a way of thinking about the evacuation and unification over written signals. The high place where running away from tsunami is to be unified as "the tsunami temporary evacuation place". For tsunami, many has the wrong idea to evacuate to a evacuation place. In stead, the message should be really clear "that run for a higher place at any cost". Therefore we should not use a term such as refuge to limit the place with a temporary place and facilities with particular name attached to it. And synchronize the idea that the first place to escape is to a higher ground and then only if one cannot return to home

even after the tsunami is gone should go to the evacuation center.

Next, I will propose "education and the training". The first point demands a placement of a "professional of the disaster prevention" who knew about the railroad section well in order to train crew members on how to instruct to evacuate.

The second point is enforcement of the local training to develop judgement. During the time, our members wrestled by a local survey voluntarily in each workplace.

Many members who participated in a survey also appeal for the importance of actually being in the field as well as the need of the training. The crew members of Hachinohe transportation ward, who carry out those training, said that it is important to watch a track from a road as you walk to the high place. The ability to judge for the place where a track was spread and the topography and refuge, an instruction where is high is only cultivated by being in the field once.

The third point clarifies the way of the training. The way of thinking about the tsunami training is mainly a two-fold. One is local training to feed judgement. The other is a getting off training. This takes practice repeatedly in vehicle center in order to perform quickly.

The fourth point is a review of the crew's manual. There should be places noted pointing outside the track and then put the height above the sea level in every spot for a high place to locate the a track and know the height of the present location afterwards. A manual should be reviewed and revised from the one calls to evacuate from place of assumed evacuation center to the ones calling to evacuate from the present location whenever maybe to the high place.

The fifth point demands an on-site judgment and the company should have the responsibility. It is no good for an on-site crew to hesitate in a judgment. Therefore when the danger of the tsunami approaches, the system such as the one in JR West Company, the authority should be transferred to the on-site crew members and the Company to take the responsibility is necessary so that the crew members can make judgement calls with out hesitation.

Then, it is about knowledge of the disaster prevention. The basics of the way of thinking are mind of self-act, mutual assistance, and government/public assistance. Centering on mind of the humanism, each raises a disaster preventative ability and cooperating relations. It is not good enough as the measures if it stays only in the JR system. The mind of prevention has to be synchronized as the local government along the line and local residence. Administration, business owners, residences, and public transportation users' mutual understandings of the disaster prevention, prevention measures, every individual's understanding of nature and a disaster damage reduction is necessary. This way of thinking is risk communication.

Therefore, an agenda arise from this mutual understanding is how to deal with the government. First of all, it is important to talk with the local government daily. We visited the local government of the Tokaido and Yokosuka line along the line during this period and heard a story from the disaster prevention person in charge, about the measures for those who have difficulty coming home and the exchange information system. And we received opinions about the duty as the company of JR East about the information communication system with person measures and the administration from many local governments. The administration demands our opinions to act on the site of JR. Therefore professionals of the disaster prevention of each workplace gather in every railroad section and should discuss various problems with the local government.

For example, it is in a condition that a toll bar is going down when the railroad crossing is cut off by blackout. There were incidents where people waited for the bar to open and died at Great East Japan Earthquake disaster. It should be publicized to the local government and residences that a railroad crossing has fallen down at the time of the blackout, and it is necessary to examine measures with the local government and residences.

At the time of the earthquake disaster, anyone is a victim. Self-act is basic and the place where the self-act does not cut then extends to in mutual assistance and government help. Let's stop the way of thinking, "The local government does something at the time of the disaster. We should go to the evacuation site."

The evacuation route of Kushimoto-cho that I showed you earlier was build and maintained by the local residences, who heard about the example of the tsunami of Okushiricho, the southwest of Hokkaido. The town mayor was touched by the enthusiasm of residences' performance and build the concrete pavement and stairs at the expense of the town and became the current form. "The evacuation route was we put up ourselves so we manage to keep it right ourselves" they said.

However, in the metropolitan area such as Kamakura, there is the opposite opinion that "the city will lose tourists" or "land prices go falling" if we put the signs about the tsunami, which hinders advancement of prevention measures. It is important to enlighten the knowledge about the tsunami inside and out the country, and show the posture to have tourists relieve by appealing in working on the maintenance of the sign for the evacuees in a fire drill.

Under the present conditions, signs about the refuge are vary in each local government, and confusing. Therefore, we demand to unify a way of thinking and notation nationwide like a way of the evacuation with the crew's evacuation manual which I proposed earlier.

The JREU negotiated with the Company to create "tsunami evacuation manual" and established that crews were to evacuate based on a voluntary judgment, action and confirmed the thing that the Company does not call to account for the results. It is big result that we were able to confirm such a thing between the labor and management.

On the other hand, another agenda is how to train and nourish a professional of the disaster prevention in the workplace, and the crew who can instruct people to evacuate in times of emergency. Two members of the JREU spent 60,000 yen out of their own pockets and acquired the certification to become "professionals in disaster prevention". In this training, the trainer said to us "when a disaster actually hits, the game is already over". The game is what we can do prior to the disaster," "it cannot be expected for anyone to do things in emergency when he/she is not usually do in ordinary days " and "it is important to educate the mind and nourcher authenticity to protect own life".

Therefore, the most important point when taking actions towards disaster prevention is to be fully aware of the fact that "a disaster can happen to me" and how one can act deal with the situation independently. JREU is aim to establish "the railroad which protects life from disaster" by encouraging leaders of our workplaces to be certified as a professional in disaster prevention as well as carrying out field training to build our members' safety awareness.