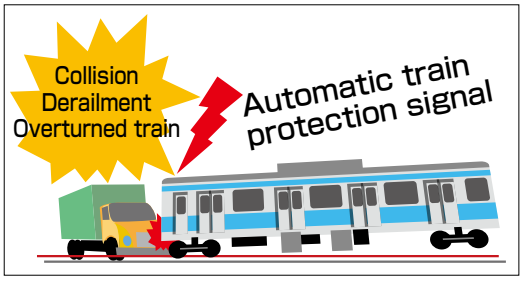
Safety Research and Development

Disaster risk evaluation system (EADaS) to prepare for natural disasters

We are currently developing a disaster risk evaluation system (EADaS: Environment, Agent, Disaster, and Structure), which will quantitatively evaluate the vulnerability to natural disasters of random locations across Japan by assessing relationships between natural environment features such as topography, geology, and climate and natural disasters due to topography, based on our experiences and experiments. We are now working on the systemization of the EADaS method, aiming for a system which will enable our staff on the front line of our field organizations to easily evaluate the vulnerability of locations to natural disasters.

An automatic train protection signal transmission system for enhanced safety levels

At JR East, we continue to improve our levels of safety through our research and development. In the case of an accident such as a derailment, we have introduced a train protection radio for the transmission of emergency signals to stop other trains. We have also developed a system to automatically transmit emergency stop signals with our train protection radio to further ensure prevention of the occurrence of a secondary accident. Even when train crews are unable to transmit signals manually or promptly, as can happen if there is a major accident such as a train collision, derailment, or overturned train, the system is able to transmit the emergency signals automatically. Since December 2008, the system has been in use on E233 Series Keihin Tohoku Line trains and we plan to introduce it sequentially to conventional lines in the Tokyo metropolitan area.



Operation image of the automatic train protection signal transmission system

Safety web portal site

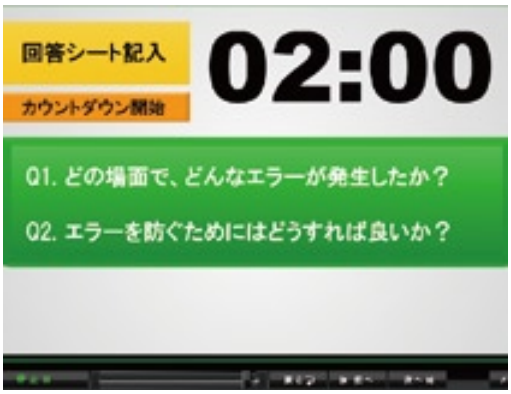
To allow our employees to deepen their understanding of the human factors involved in accidents and share information and know-how on human error prevention, JR East developed and runs a web portal site on safety, which employees have had access to since April 2007. On this site, useful safety information is regularly provided and available to our employees. The information is stored on the site in a database so that employees can search for necessary information whenever needed. Major content areas of the site include: human factor news, the 4M4E analysis room, a calendar of past accidents with lessons to be learned, and the Challenge Safety blue signal.

Safety web portal site

Training tools for workers handling maintenance vehicles

JR East has developed training tools for drivers and persons in charge of maintenance vehicles, and is utilizing the tools for training these people. Trainees can learn about frequently occurring human errors while conducting maintenance on trains through personal computers. The objective of the training is to assist trainees in learning the necessary skills for the prevention of human error. The tools encourage “thinking and speaking by themselves” trainee initiative and promote active learning through encouraging trainees to discover new things through mutual learning with other trainees and shared experience. By doing so, the tools aim for the training contents to be rooted and prevent operational accidents with maintenance vehicles.

A scene from a case example



A screen showing timed questions for trainees to answer