



Newsletter on the Latest Technologies Developed by RTRI

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Vision of RTRI and Implementation of Dynamic R&D

Norimichi KUMAGAI
President

Celebrating the 50th anniversary of the Tokaido Shinkansen last year, we renewed our awareness that the innovative technology contributed a lot to Japanese society and impacted the later development of other high-speed railway systems on a global scale. The transportation networks including the high-speed, intercity railways have drastically changed how people move. We believe that RTRI should address challenging research and development to create new values in the society, just as Shinkansen created innovative railway systems.

Specifically, RTRI has launched a new vision titled RISING (Research, Initiative and Strategy - Innovative, Neutral, Global) with a message to clearly denote the direction of its activities: "We will develop innovative technologies to enhance the rail mode so that railways can contribute to the creation of a happier society."

This vision includes establishment of the following three missions:

- To intensify research and development activities so as to improve railway safety, technology and operation, responding to customers' needs and social change;
- To develop professional expertise in all aspects of railways and, as an independent and impartial research body, to fulfill our tasks using the best science available in an ethical way; and
- To pioneer cutting-edge technologies for Japanese railways and become a world-leader.

For the important challenges related to safety, RTRI will push ahead with research on disaster-reduction technology based on an active safety concept. As an example high-performance simulation



models will be used to help railways build robust counter-measures against natural disasters such as a large-scale earthquake, strong winds, and deluging floods, etc. As for prevention of human-error triggered accidents, RTRI will start a basic study on the relationship between behaviors of a crew during train operation and accompanying changes in physiological indices such as their brain activity. In addition, RTRI will pursue innovative railway systems based upon information networks by utilizing information and communication technology (ICT) and analyzing large-scale data bases. In terms of energy conservation, we are developing high-temperature-superconducting power feeding cables which reduce power losses. As an example of dynamic research and development, basic studies will be conducted to clarify dynamic phenomena so as to reduce aerodynamic noise and prevent derailments.

I am confident that RTRI's presence will be enhanced by providing quality research outcomes and winning trust. Aside from addressing challenges in safety, energy efficiency, and speed increase, we will allocate our limited resources to the research activities as efficiently as possible in order to produce practical results which meet the needs of railway passengers, operators and industries promptly and precisely.