



Newsletter on the Latest Technologies Developed by RTRI

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An Overview of Research and Development Activities at the Railway Technical Research Institute

Ikuo WATANABE
Executive Director

The Railway Technical Research Institute (RTRI) is promoting a wide array of research and development based on its five-year master plan “Research 2020” from 2015 with the aims of maximizing safety, pursuing cost reduction, enhancing harmony with the environment and improving convenience. For the “Research and Development for the Future Railway Systems” there are four major objectives as shown in Figure 1.

In our efforts to “pursue even safer railway systems,” the first objective shown in Figure 1, we are going to develop the bogies that can resist derailment by combining technologies to suppress the decrease of the wheel load and reduce the lateral force. We are also continuously building up technologies for preventing and reducing natural disasters that cause catastrophic damage to railway properties. In the research to “revolutionize railway systems with information network,” we are going to propose



a more efficient method of maintaining structures by applying information and communication technology (ICT). With the aim of energy saving, RTRI will develop control technology which coordinates vehicles, power feeding systems and train operation systems. For the “speed up of Shinkansen” objective, we are conducting research for prediction, assessment and reduction

of a) the aerodynamic sound and pressure variation due to increasing speed, b) micro-pressure waves in tunnels and c) ground vibration. RTRI will also improve adhesive and non-adhesive brake systems for high-speed railways. In order to “construct railway simulators,” RTRI is developing a simulator for each constituent system of the railway systems, and will also develop a railway simulator that enables a comprehensive analysis by combining those systems. Additionally, RTRI is continuing the construction of unique, large scale test facilities such as a pantograph testing equipment to evaluate the current collecting performance and a moving-model rig for analyzing the pressure variation phenomena in open sections during high-speed running of a Shinkansen train.

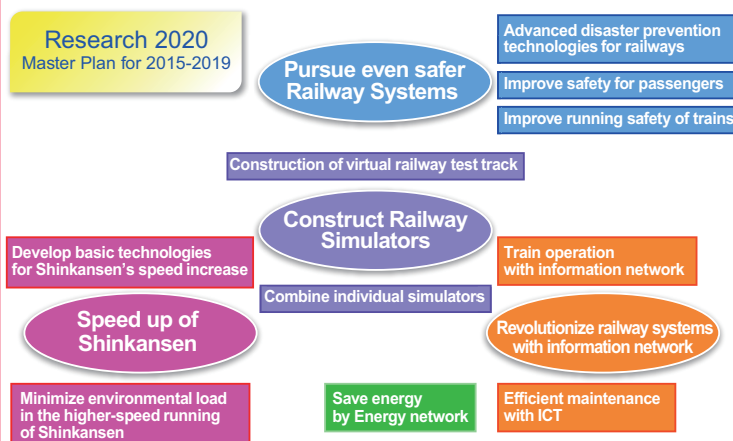


Fig.1 Research and Development for the Future Railway Systems (FY 2015-2019)