

## RTRI's initiatives in "Research 2025" for addressing SDGs

The Railway Technical Research Institute started to address Sustainable Development Goals (SDGs).

### 1. Objective

Through the research activities based on the master plan “RESEARCH 2025”, RTRI will contribute to achieving 9 goals among the 17 SDGs, focusing on “Goal 9: Industry, Innovation and Infrastructure” where RTRI has advantage and enhance its presence as a research institute.

### 2. What RTRI will do

Our society is facing a number of issues including protection of the global environment, increasing social burden due to the aging populations and regional disparity of economy. Radical technological innovation is essential in order to overcome these issues. As a research entity leading technological innovation for railways, RTRI will provide solutions to the difficult problems facing railways in coordination with railway operators, academic and research institutes and industries, and pursue the research and development to achieve a sustainable society and to create the future for railways.









Through the research activities based on “Master plan –Research and Development Creating the Future of Railways - RESEARCH 2025”, RTRI will address the activities to achieve 9 goals among the 17 SDGs including “Goal 7: Affordable and Clean Energy” and “Goal 8: Decent Work and Economic Growth” placing a particular emphasis on “Goal 9: Industry, Innovation and Infrastructure”. (Fig. 1) Our specific activities are shown in Table 1.









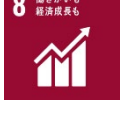
We will communicate our contribution (Fig. 2) in our periodicals and website.

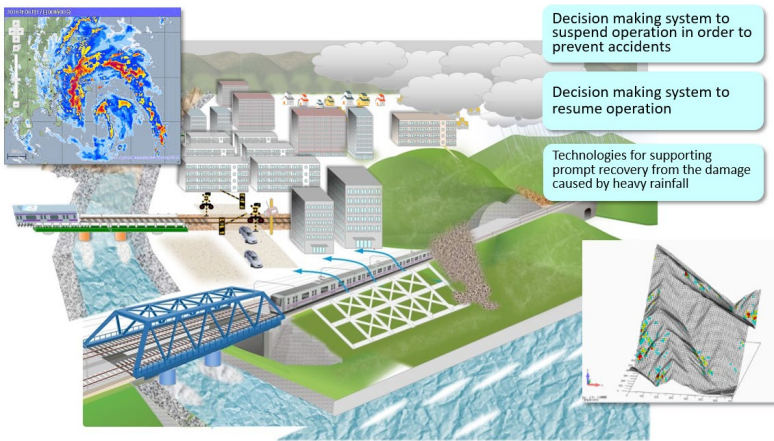


Figure 1: 9 SDGs RTRI is addressing

Table 1: Research activities to achieve SDGs under “RESEARCH 2025”

Activities defined in “RESEARCH 2025”	Specific activities	SDGs
<p><b>1. R&amp;D activities</b></p> <ul style="list-style-type: none"> <li>Enhancing safety with an emphasis on improving resilience to natural disasters</li> </ul> <hr/> <ul style="list-style-type: none"> <li>Innovating railway systems based on digital technologies</li> </ul> <hr/> <ul style="list-style-type: none"> <li>Creating high-quality results by taking advantage of our collective strength</li> </ul>	<ul style="list-style-type: none"> <li>A particular emphasis on the R&amp;D that contributes to safer and more reliable railway transportation</li> <li>R&amp;D to prevent failures and aging of ground and vehicular equipment.</li> <li>Investigations of the damage and causes of disasters and accidents and proposing recovery methods and prevention measures</li> </ul> <hr/> <ul style="list-style-type: none"> <li>A particular emphasis on the R&amp;D of labor-saving technologies in order to respond to issues of labor-shortages at railway sectors</li> <li>Speeding up Shinkansen while preserving the trackside environment</li> <li>Further energy saving on the railways</li> <li>Initiatives that contribute to the creation of new customer services such as “Mobility as a Service” (MaaS)</li> </ul> <hr/> <ul style="list-style-type: none"> <li>R&amp;D for the future of railways, the development of practical technologies with immediate benefit to railway businesses, and basic research to understand and analyze railway-specific phenomena</li> <li>Development of more advanced simulation technology and original testing and research facilities</li> <li>Accumulating the know-how relating to railway technologies and developing human resources</li> <li>Interdisciplinary and cross-cutting approaches for resolving various issues in railways</li> </ul>	    
<p><b>2. Survey Activities</b></p> <ul style="list-style-type: none"> <li>Reflecting the understandings of the changes in the society, economy, and technologies</li> </ul>	<ul style="list-style-type: none"> <li>Collecting and analyzing information concerning mid- to long-term trends in railway safety, environmental issues, and the transportation economy and trends in cutting-edge technologies</li> <li>Predicting the future of railways and Identifying technical items for R&amp;D</li> </ul>	
<p><b>3. Technical Standards Activities</b></p> <ul style="list-style-type: none"> <li>Achieving the design that will increase the efficiency in construction and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>The development of design standards, maintenance standards, and design calculation patterns in consideration of the shrinking labor force</li> </ul>	
<p><b>4. Information Services Activities</b></p> <ul style="list-style-type: none"> <li>Providing timely and appropriate rail-related technical information</li> </ul>	<ul style="list-style-type: none"> <li>Collecting, compiling and disseminating Japanese and overseas railway technical information</li> <li>Providing high-quality R&amp;D results and the information on the activities, using a variety of media</li> <li>Serving as a base facility to provide the information supporting rapid recovery of train operation following earthquakes</li> </ul>	

<b>5. Publication and Seminar Activities</b> <ul style="list-style-type: none"> <li>Disseminating the results of R&amp;D</li> <li>Providing systematic training courses for all levels of participants from beginner to expert</li> </ul>	<ul style="list-style-type: none"> <li>Further improvement of the contents of periodicals, lectures and technical forums</li> <li>Providing training courses on railway technologies</li> </ul>	
<b>6. Diagnostics Advisory Activities</b> <ul style="list-style-type: none"> <li>Prompt investigations of the damage and causes of disasters, accidents and equipment failures and proposals of recovery methods and prevention measures</li> </ul>	<ul style="list-style-type: none"> <li>Responding to the needs of all railway operators carefully and appropriately</li> <li>Responding to the severe natural disasters by forming a cross-cutting team.</li> </ul>	 
<b>7. International Standards Activities</b> <ul style="list-style-type: none"> <li>Developing strategic international standardization activities to maintain and further improve Japanese railway technology and to expand it overseas</li> </ul>	<ul style="list-style-type: none"> <li>Working actively as a domestic review organization of ISO (International Standards Organization) and IEC (International Electrotechnical Commission)</li> <li>Active involvement in standardization activities being promoted by international rail-related organizations</li> <li>Addressing a number of issues including the stipulation and systematization of Japanese technologies and know-how and review of the domestic certification system as part of the entire efforts of standard development</li> </ul>	 
<b>8. Qualification Activities</b> <ul style="list-style-type: none"> <li>Contributing to maintaining and improving technical capabilities of railway engineers and the development of human resources in the entire railway industry</li> </ul>	<ul style="list-style-type: none"> <li>Review of the professional railway design engineers' examination in order to make it more accessible for railway engineers.</li> </ul>	
<b>9. International Activities</b> <ul style="list-style-type: none"> <li>Enhancing international presence of the Japanese railway technologies</li> </ul>	<ul style="list-style-type: none"> <li>Improving both the quality and quantity of information disseminated overseas through expanding joint research with overseas universities and research institutions and sending a larger number of researchers to overseas</li> <li>Promoting the advancement of Japanese railway technologies into the overseas market through the international expansion of technologies developed by RTRI</li> <li>Supporting the international development of railway operators and suppliers</li> </ul>	
<b>10. Job satisfaction</b> <ul style="list-style-type: none"> <li>Creating a motivating workplace where staff can demonstrate their abilities</li> </ul>	<ul style="list-style-type: none"> <li>Respecting each individual staff member as a valuable human resource, we will develop researchers that are able to respond to the needs of railway operators and to drive creative R&amp;D in a global perspective</li> <li>Initiatives for workplace health and safety, mental health, and work-life-balance and support for the next-generation development</li> <li>Fostering an open workplace environment where researchers of different technical fields, generations and positions are able to have free and vigorous discussions</li> </ul>	 

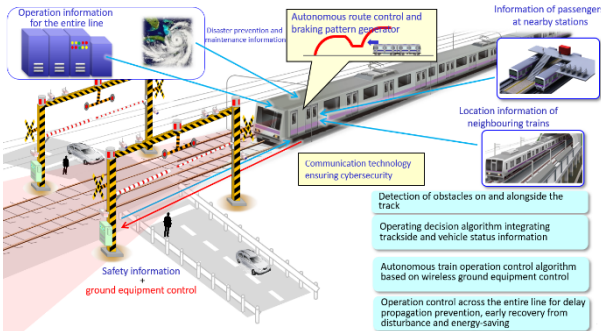


## SUSTAINABLE DEVELOPMENT GOALS

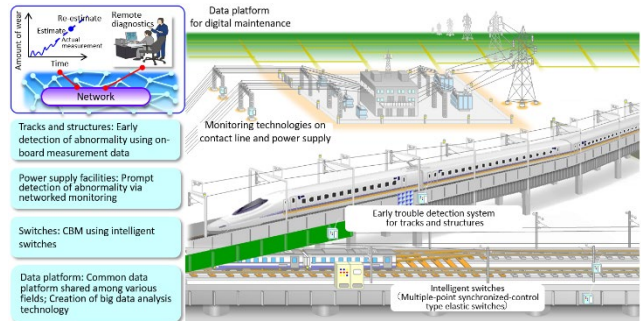


RTRI supports SDGs

### Building resilient railway systems against increasingly severe weather disaster



Labor saving by digitalized maintenance



Autonomous train operation

Figure 2: R&D to achieve SDGs