



Enhancing Rail Safety and Operational Security in Thailand

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Background / Context

Thailand's rail sector is undergoing rapid transformation with the construction of high-speed and expansion of double-track rail networks. However, this growth presents significant operational security and safety challenges. Current threats include person and animal intrusions, illegal railroad crossings, and vulnerabilities to natural disasters such as floods and landslides. Many intercity rail segments are still unfenced and lack critical surveillance infrastructure, leading to frequent accidents and service disruptions.

Objectives

This study aims to outline the strategic response of the Department of Rail Transport (DRT) to mitigate operational security risks and improve rail safety. It highlights policy interventions, technological innovations, and public awareness efforts targeting illegal crossings, intrusion prevention, and disaster resilience in the Thai railway systems.

Methods / Approach

The DRT has formed a multi-pronged approach, including:

- Formation of a proactive Railroad Crossing Safety Improvement Committee.
- Closure of 108 illegal railroad crossings out of 793 nationwide in the past year.
- Development of a real-time railroad crossing database and problem reporting tool accessible via web and mobile applications (DRT Crossing).
- Pilot installation of AI-integrated CCTV cameras at high-risk railroad crossings to be able to detect obstructions and intrusions.
- Collaboration with regional stakeholders to develop infrastructure drainage standards with disaster preparedness guidelines and current development of disaster prevention in GIS based application (DRT Alert).

Results / Findings

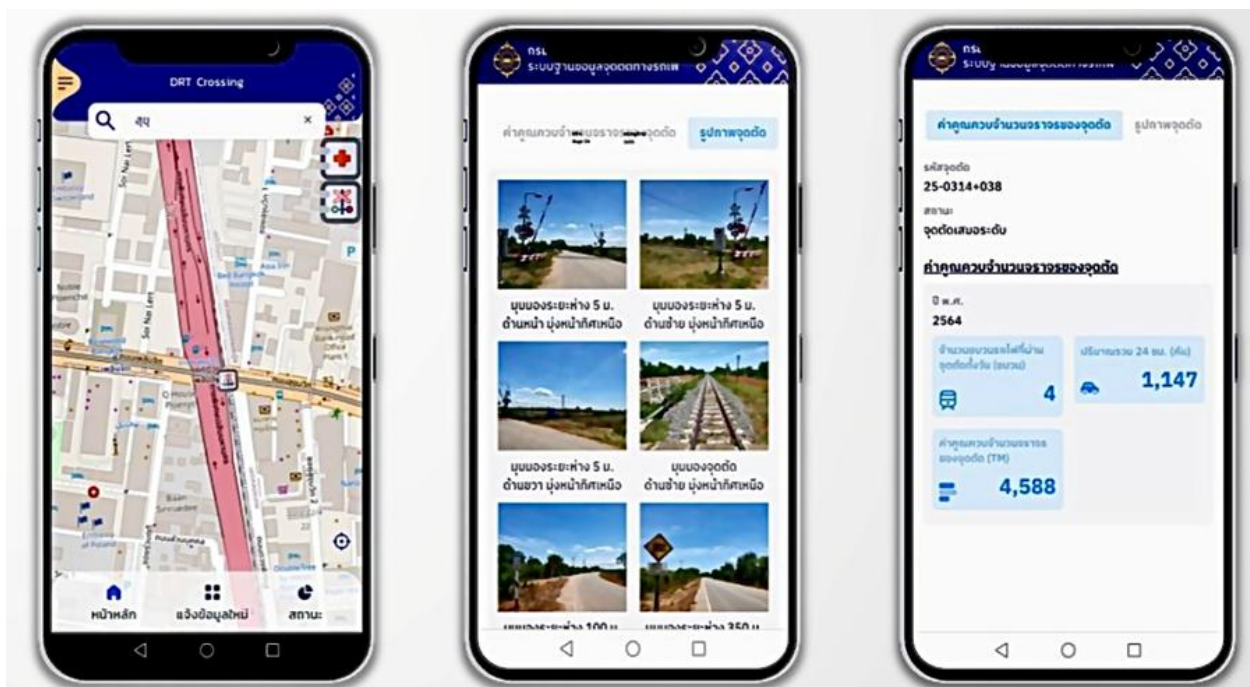
Initial pilot deployments of AI cameras show improved detection of unauthorized entry and potential hazards, with real-time alerts sent to central control units. The DRT's applications-based reporting and database tools enhance situational awareness and issue-solving efficiency. On the other hand, flood and landslide events underscore the urgency of implementing drainage system standards.

Conclusions

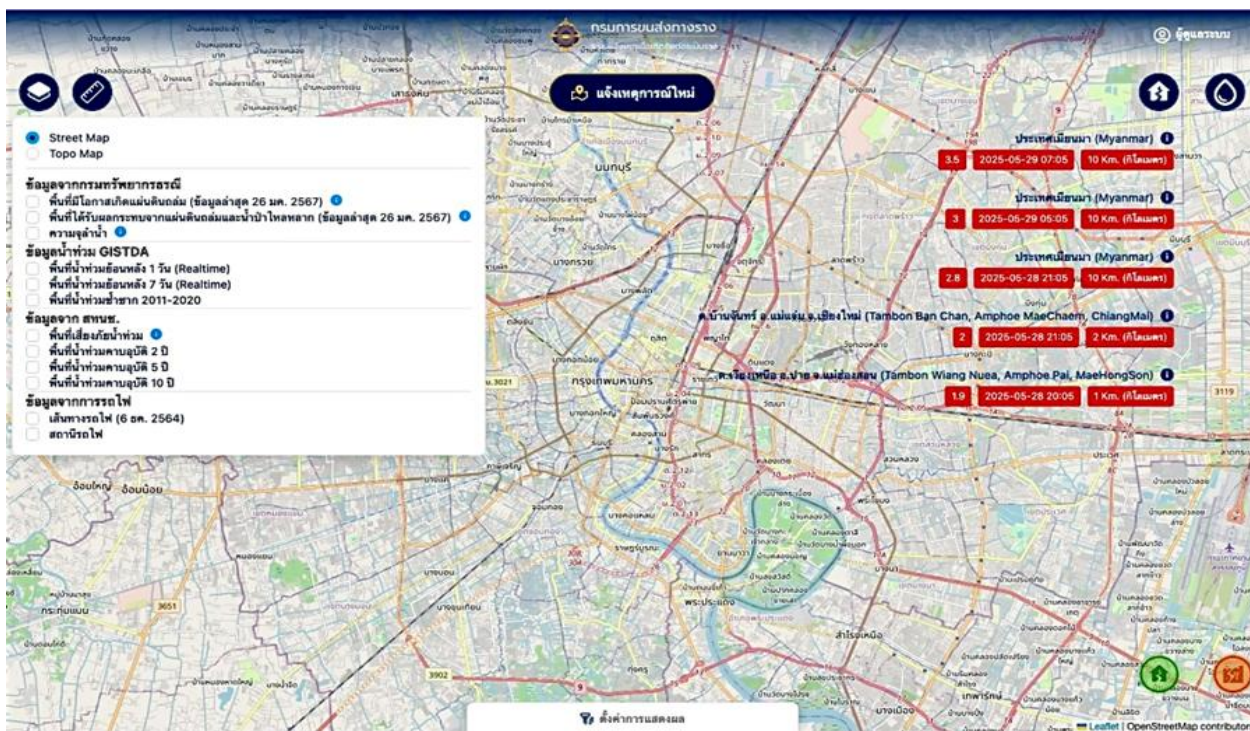
Thailand's strategic integration of technology, infrastructure design, and inter-agency collaboration presents a model for improving rail safety and operational security in developing rail systems. The



findings emphasize the importance of regulatory support, public engagement, and disaster risk reduction as cornerstones of a resilient and secure railway network.



DRT Crossing Application



DRT Alert Application