

7. System for Selecting and Positioning Disaster Waste Treatment Machinery - Multi-objective Optimization Based on Genetic Algorithms -

Hiroomi Habuchi, Ryosuke Imai, Shoji Suzuki, Fujiko Osumi

Several large-scale natural disasters, including the Nankai Trough earthquake, Nemuro Peninsula offshore earthquake, and eruptions of Mount Fuji, are anticipated in the relative near future. Many local government and construction company staff stationed on the front lines of disaster waste disposal after such disasters are likely to face unprecedented circumstances. As a result, during the disaster, they will spend effort on unfamiliar processing plan development, leading to delays in action, increased processing costs, and prolonged processing periods. It is essential to establish a framework and response strategies that can be effective in the next disaster while in normal times, as this will contribute to the promptness and appropriateness of initial response efforts.

To facilitate the rapid selection and placement planning of optimal processing machinery for disaster waste disposal, we have developed a system that confirms the optimization of processing period, costs, and CO₂ emissions as the three objectives.

Keywords: temporary storage areas, sorting, processing period, processing costs, CO₂ emissions