

## Feature: Initiatives Supporting Disaster Recovery —Getting Everyday Life Back on Track

# Kajima Initiatives Supporting Recovery

## CASE 01



Kajima has been consistently involved in recovery activities at the Fukushima Daiichi Nuclear Power Plant and efforts to remove debris in damaged areas, following the Great East Japan Earthquake.

### Recovery Activities at the Fukushima Daiichi Nuclear Power Plant *Development of Unmanned Construction System*

Drawing on IT-based construction technology and expertise honed over the years in unmanned construction and remote operations, Kajima has upgraded its unmanned construction system that enables the remote operation of 10 heavy construction vehicles simultaneously from a distance of 500 meters. This system is deployed today at the Fukushima Daiichi Nuclear Power Plant's No. 3 Reactor Building to tear down and remove debris. Given the long-term nature of the task under highly irradiated conditions, this technology is critical to

reducing the radiation exposure of workers and advancing restoration work in an efficient manner, thereby ensuring worker safety. Multiple cameras and microphones are installed on each piece of machinery, with real-time visuals and alerts transmitted directly to the control room. This allows operators to control the machinery as if they were actually in the cockpit. Kajima also developed a one-touch refueling system for heavy machinery, making it possible to undertake the entire task without putting workers on site.



Tearing down a damaged building at the Fukushima Daiichi Nuclear Power Plant.  
(Photo: Tokyo Electric Power Company)



To eliminate the need for on-site workers, cranes in highly radioactive locations are operated from this control room.

## Removing and Processing Debris in Damaged Areas

The Great East Japan Earthquake brought an unprecedented level of devastation to Iwate, Miyagi and Fukushima prefectures. The resulting rubble is posing an immense obstacle, both physical and mental, to restoration efforts. Clearing up the piles of debris from the temporary storage yards is an urgent concern, as they contain hazardous substances that may ignite spontaneously, and some of the yards are located near residential areas and schools.

Of all the debris removal work awarded to Kajima, the largest is the Ishinomaki block earthquake debris processing project. The necessary work includes installing debris sorters and intermediary processing equipment at the secondary temporary stockyards, covering an area of 68 hectares. Debris sorters first shred incoming rubble and then send the material down a conveyor belt for manual sorting that determines the final disposal methods. In general, wood and plastics are recycled, combustible materials are incinerated, and non-combustible materials go to landfill.

Five incinerators have been installed as part of the intermediary processing equipment. With a combined daily incinerating capacity of 1,500 tons, they will finish processing the massive quantity of debris over a period of as short as two years.

Debris removal of this size requires expertise in a broad range of fields, including selecting and installing the right equipment, undertaking soil remediation, devising an optimum access plan, carrying away a variety of hazardous substances, and handling radioactivity. Once awarded the project, we immediately formed teams of experts from across our organization, and today Kajima is devoting effort to helping accelerate this removal work.



Massive quantities of debris being processed.

### Secondary Temporary Stockyards in the City of Ishinomaki

