





The Great East Japan Earthquake was the worst natural disaster in the long history of Japan, a country that experiences more natural disasters than most other places on earth. Nevertheless, as it has done in the past, the country has overcome many hardships in the aftermath of the earthquake, and is united in the effort to build the safer, more secure infrastructure people need to pursue their lives.

In addition to the Great East Japan Earthquake of March 11, 2011, Japan also suffered extensive damage from various other unprecedented natural disasters in 2011, including severe rainfall in the southern areas of the Kii Mountain Range, extremely heavy snowfall, tornados and typhoons. It was a year for the Japanese people to re-examine the safety of their infrastructure, which they had generally assumed to be sound, and to renew their respect for the powerful forces of nature.

At Kajima Corporation, as well, we took a fresh look at our own priorities in the construction and infrastructure development business, and took the year resolutely as an opportunity to re-evaluate our obligations to society.





A Year after the Earthquake: From Emergency Repair Work to Laying the Foundation for Complete Recovery

On March 11, 2011 at 2:46 p.m., a massive earthquake occurred in the Pacific Ocean off the northeast coast of Japan. The earthquake was like none ever experienced in the country before, and left people stunned by the images shown over and over in news reports, displaying a scale of destruction previously unimaginable. People in Japan had grown accustomed to earthquakes and even become gradually numb to the seismic data regularly presented in the media. But the experience of the Great East Japan Earthquake made everyone recognize anew the importance of ensuring that infrastructure is safe and secure.

Emergency Repair Work: The First Step of Recovery

Following the earthquake, Kajima quickly sent a large number of engineers from stations all over Japan to the areas affected by the earthquake and tsunami. The engineers assessed the damage to buildings and structures that the Company had been in the process of constructing or had built in the past, as well as any others that people requested to be checked. Based on the results of these assessments, Kajima initiated emergency repairs of railways, roads and other transportation infrastructure.

Meanwhile, Kajima set up a disaster response headquarters at its Head Office, and the entire Company came together to respond to the disaster, with technical specialists from every division working together with branches as well as the Technical and Research Institute to provide support to employees stationed in the disaster areas.

From Emergency Repair Work to Full-scale Reconstruction

As basic facilities and services were gradually restored in the disaster-hit areas, efforts turned to repairing damaged factories and offices to bring them back online. Since many production facilities integral for the workings of all kinds of industries had sustained damage, requests to repair them and resume operations were urgent.

Against this backdrop, Kajima responded in earnest as a member of Japan's corporate community. We applied the technical skills and experience that the Company had gained in the past at disaster sites, and made the most of our networks in the community and industry to facilitate recovery efforts by quickly providing building materials and heavy machinery, and assigning capable personnel to places in need. We approached these activities knowing that, while the Company was facing completely new circumstances, it could draw on its experience with helping in the aftermath of other earthquakes, such as the Great Hanshin-Awaji Earthquake and the Niigata Chuetsu Earthquake. Everyone at Kajima worked together with a sense of purpose and an understanding of the Company's role and responsibilities. The outstanding team effort made us able to accomplish our initial tasks of repairing transportation and production facilities in a timely fashion.

Removing Debris to Prepare for Full-scale Reconstruction

In the city of Sendai and other urban areas, communities began to return to normal, but work to repair and reconstruct coastal areas damaged by tsunamis proceeded at a much slower pace. Tidal waves of an unprecedented scale had left massive amounts of rubble unlike anything ever seen before, and full-scale reconstruction work could not begin until it was removed. The sheer volume of debris was overwhelming: stretching hundreds of kilometers along the Tohoku coast, it would have required decades or even a century for municipal governments to remove it with the means available to them. As such, there appeared to be no way to deal with the problem using their conventional methods.

Given the situation, a large number of companies specializing in heavy transport and waste removal were needed to quickly and efficiently perform the disposal work. Organization of this project, however, required general contractors that know how to coordinate such specialized firms in construction projects that could last several years. Kajima was put in charge of a joint venture of nine companies to handle the disposal of debris in the Ishinomaki area, the place where the disaster claimed the highest number of victims and destroyed the most homes.

At Kajima, we are deeply committed to completing this ongoing project. The Company is applying the expertise it has gained in past construction projects to accurately determine conditions across the entire area and devise the most effective ways to ensure that the flow of wide-area operations proceeds efficiently. Kajima's Head Office and branches are working as a united team to complete the removal of debris as quickly as possible.

Construction

location

Facing the Unknown: Handling a Large-scale Landslide Disaster with Our Expertise and Technology

In September 2011, Typhoon Number 12 roared across Japan and caused damage from torrential rains in the country. In the Kii Peninsula, especially Nara and Wakayama prefectures, the typhoon caused the greatest amount of destruction seen in the post-war period, with rain causing massive landslides equivalent to about 100 million cubic meters of earth. This caused rivers to clog and flood in many areas, and huge natural dams to form at five locations.

Kajima, a member of the Japan Federation of Construction Contractors, immediately sent people to the area to directly assess the damage, cooperating closely with others. At present, Kajima is continuing to carry out construction work in the Kawarabi River area to prevent mudslides from clogging rivers and causing floods.

Reducing the Immediate Threat to People's Livelihoods

Landslides in the Kawarabi River area produced about 9 million cubic meters of mud and created a natural dam. If this dam were to collapse, communities downstream could be washed away by flooding. Nearby cities and towns were forced to designate the area as restricted and evacuate 179 people from 95 households.

The goal of the construction project was to let out some of the dammed up water and control its outflow to allow a single, constant flow downstream, and also to control the overflow from the lake created by the dam even as its level was rising. Kajima recognized that area residents depended on this project for a quick return to their homes.

Working in Shifting Terrain with Each New Rainfall

In the first ten days after the typhoon hit the area, Kajima's project leader, Toshio Funabasama, managed operations onsite, visiting affected areas to assess the damage in person. The landslides had not only altered the terrain significantly but also buried roads, forcing everyone to walk 4.5 kilometers along the riverside to reach the dammed up spot. So the first task was to clear the road as far as the dam so that construction work could proceed. Unfortunately, a second typhoon struck immediately after work began, changing the landscape yet again. As new streams of water appeared, construction work had to be started over.

Conditions for carrying out the work were harsh, as the river and surroundings shifted constantly with the falling rain, and mud continuously slid down the damaged mountain slopes. Everyone involved could witness the forces of nature firsthand. Driven on by their commitment to ensuring safety in downstream areas as soon as possible so that evacuees could return home, Kajima and its partner companies worked in unison to clear roads and drain the dammed up water. Without taking any days off, they braved the severe conditions to restore the river. Finally, in February 2012, the restrictions on entering the area were lifted and the residents returned to their homes.

Ensuring the Safety of Everyone Involved

Implementing this construction project required effective onsite management to determine the number of workers and heavy machinery needed and how they would be put to work. In this regard, Kajima could depend on its accumulated technologies and draw on its collective expertise gained in many previous projects handled under emergency conditions. By collaborating closely with its regional partner companies that were familiar with the Kawarabi River area, Kajima brought out the best from the personnel involved in the project, and effectively dealt with the power of the typhoons and torrential rains that continually altered the landscape with landslides and flooding. At the site, Kajima responded with flexibility and precision to emergency conditions, such as suspending construction temporarily according to changing weather, and setting up communication systems to implement those decisions. Disaster drills were also held repeatedly to keep everyone on alert in these constantly dangerous natural conditions. In this way, Kajima was able to ensure the safety of everyone onsite and bring the project to a successful conclusion.

Becoming Better Prepared to Respond to Disasters

After assessing the damaged area and as work proceeded on the project, Kajima worked closely with the client on the necessary technical measures how to guard against landslides, how to reduce damage when flooding occurred. Amidst the disorder and confusion after the disaster, it was essential to consider what work should be given the highest priority from a variety of standpoints. As an added-value contractor, Kajima worked hard to provide good advice while following the guidance of the client.

While carrying out this project, Kajima acquired considerable experience in performing soil erosion work, thereby building on its techniques in civil engineering and related fields. Consequently, we believe that the Company can take on a broader range of construction activities when responding to similar natural disasters that may occur in the future. Based on the experience of managing the Kawarabi River project, Kajima has gained a fresh appreciation of the role it must fulfill as a member of the construction industry to pursue the next stage of emergency response in times of natural disaster. Going forward, we will continue channeling our collective efforts toward this goal.

Utilizing Experience for a New Age



Solving Immediate Problems with a Vision for the Future

People have experienced various natural disasters throughout history, but they have overcome these misfortunes each time and even made advancements in the process. The damage caused by every disaster is eventually repaired, and people take precautions against a new calamity by examining how the damage occurred. All of these ongoing efforts have accumulated so that people today can enjoy safer and more secure lives than ever before.

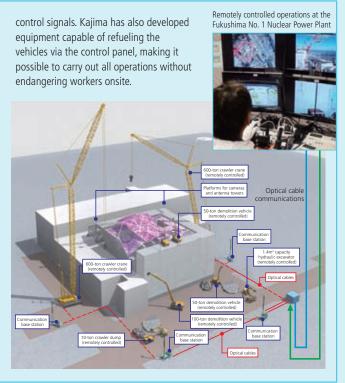
At Kajima, we believe that immediately after an emergency occurs, the first response should be to bring the affected area under control, and then work to return everyday life and economic activities back to normal as soon as possible. When things have been brought back to normal, then attention should turn to preparing for possible disasters to come. In this regard, Kajima is working to reduce the impact of disasters that could happen in the near future and to alleviate any damage that could result if one occurs, while implementing risk management over the medium to long term. From these perspectives, Kajima's infrastructure and system solutions provide the safety, security, and comfort that our clients expect and the people deserve.

Safely Reaching Dangerous Areas by Remotely Controlling Various Kinds of Heavy Machinery

Kajima has developed computerized construction machinery and constantly applies it to make advancements in the efficiency of construction work. The Company also employs these devices to perform work at sites where people are unable to gain access, such as volcanic areas and buildings that have collapsed from earthquakes.

Most recently, Kajima applied its unmanned construction and remote control technologies and expertise to develop a system capable of remotely controlling ten unmanned heavy construction vehicles simultaneously, eight demolition vehicles and two crawler cranes, from a location about 500 meters away. The system is currently being employed at the Tokyo Electric Power Company's Fukushima No. 1 Nuclear Power Plant, where it is dismantling and removing the collapsed roof of the nuclear reactor building of Unit 3. By performing this work at the highly radioactive site over a long period, the system is contributing to safety by reducing workers' exposure to radiation while providing a means to efficiently handle essential operations.

The system is equipped with multiple cameras to provide various views for the equipment operators, putting them in the virtual driver's seat of the vehicle. The system also incorporates a communication system and network that can transmit the visual data from multiple vehicles along with



Preventing and Alleviating Damage from Disasters

The progress of technology research and development often accelerates through the experience of dealing with natural disasters like earthquakes. On the other hand, each new disaster presents new tasks to address based on completely novel circumstances.

Specifically, the Japanese government has to revise building codes to account for the structural problems of buildings that sustained the greatest damage in the aftermath of an earthquake, and must require steps to be taken in society to ensure that similar damage does not recur. In Japan, it is a fact that safety standards for buildings have been raised after each major earthquake in modern times.

Likewise, with every major earthquake it has faced, Kajima enhanced its analytical tools and systems and went on to develop more advanced antiseismic technologies. For example, during the Great East Japan Earthquake, non-structural elements of buildings, such as ceilings and plumbing, were unable to withstand the violent shaking, sustaining serious damage in many cases. Therefore, Kajima immediately responded with efforts to develop non-structural elements that are earthquake-resistant, and then put them into practical use as a way to prevent or alleviate similar damage from earthquakes in the future.

Kajima is also working quickly to improve safety and provide an array of proposals for the construction of new levees and flood barriers to protect nuclear power plants situated in coastal areas, with reference to tsunami data. Taking the stance that society must be fully prepared for natural disasters, Kajima is striving to enhance its technological capabilities to help people better protect themselves from potential damage.

Adopting a Medium- to Long-term Outlook

Recognizing that energy security is an urgent issue for Japan, Kajima is exploring the potential of wind power generation. Since 2008, the Company has been constructing floating wind turbines for a pilot project, and expects to finish construction of wind turbines off the coast of Choshi, Chiba Prefecture, in the summer of 2012, despite the challenges posed by the Great East Japan Earthquake. When applying natural energy in this way, and creating new energy networks in the future, we will strive to meet society's expectations for visionary research and technology development.

Many observers expect new developments and increasingly sophisticated software for earthquake and urban flooding prediction systems to follow the current trend toward personalized information devices such



as tablet computers and smart phones. In this context, Kajima is enhancing its own business continuity management (BCM) system, which covers emergency response for equipment, buildings and systems, and is actively proposing it for inclusion in the business continuity plans of its clients in the private sector and in the plans of the public sector, as well. Kajima's system is not limited to the Company's construction operations, but also draws on its expertise refined over many years in the real estate development business, potentially offering useful applications in reconstruction project management and new plans to create the safe and comfortable urban areas of the future. By making maximum use of all its human resources and technical capabilities, Kajima hopes to help revitalize society and contribute to greater safety, security, and comfort.



Kajima's poster is displayed at Tokyo Electric Power's Fukushima branch office in Iwaki. The poster was designed based on a drawing which the head of the branch office, Shinya Okada, received from his family as a gift.

Delivering New Technological Breakthroughs for Every Era

Restoration projects at damaged sites and essential disaster-preparedness measures are being carried out around the country as Japan deals with the recent natural disasters. Kajima is playing a major role in this effort, fully aware of the sweeping change in the everyday lives and awareness of the Japanese people, especially when it comes to disaster preparedness. All of us at Kajima are working to leverage the Company's construction techniques and expertise to address the dangers posed by natural forces, improve the safety and security of society, and maintain harmony with surrounding ecosystems.