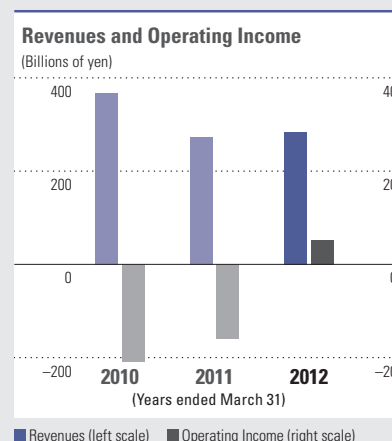


Review of Operations

Kajima has maintained a leading position in Japan's civil engineering industry for many years. With the comprehensive evaluation bidding format, which emphasizes both price and technologies, gaining popularity, Kajima is giving full play to its unrivaled technological expertise to help build various social infrastructure. In overseas markets, Kajima is strictly selecting projects where it can best leverage its technological prowess.



CIVIL ENGINEERING (Parent Company)

Topic 01

A New Main Artery for Japan—The Shin Tomei Expressway

The Shin Tomei Expressway is a new expressway that was designed to disperse traffic concentrated on the Tomei Expressway. Kajima has been in charge of constructing bridges,

tunnels and others in 19 places. The new expressway features almost no steep slopes or sharp curves in order to alleviate traffic congestion and lower fuel costs. Almost a straight line, this expressway had to run through mountains and traverse valleys in inland Japan. As such, the project demanded sophisticated tunneling, bridge building and other technologies.

Generally speaking, the larger the cross-section of a tunnel, the greater the difficulty of construction. Moreover, Japan's geology actually makes it unsuitable for large cross-section tunnels. Kajima's TBM Pilot and Enlargement Excavation Method was employed at the Fujikawa Tunnel, which is both long

and also has a large cross-section, drawing on its TBM capabilities proven at overseas projects. With this method, Kajima first created a heading for conducting a soil strata survey, after which it used the New Austrian Tunneling Method (NATM) to widen the tunnel and thus construct a tunnel with a large cross-section.

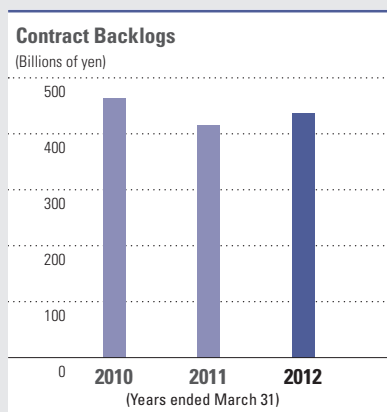
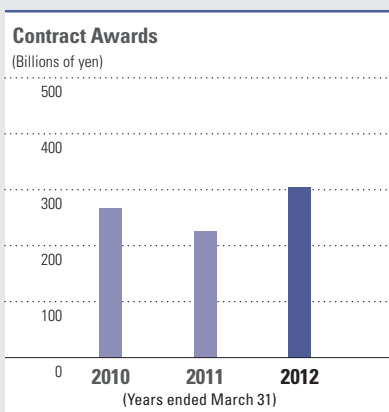
Kajima also drew on advanced technologies for the Sanagawa Bridge (bridge pier: 89m high), which is a design-build section. We employed a Super-RC structure using high strength reinforcing steel and concrete. This structure enabled an approximate 40% reduction in the cross-section of the bridge pier compared to using conventional materials and saved costs. We managed to complete construction in approximately 30% less time than proposed by the client by employing the self-climbing form method for constructing the bridge pier, and by using 16 movable vehicles for the bridge girder.



Fujikawa Tunnel



Sanagawa Bridge



Topic 02

A Viaduct Atop Existing Shinkansen Lines—JR Tohoku Through Line

The JR Tohoku Through Line is being constructed with the aim of enhancing the transportation network connecting the south and north of the Tokyo metropolitan area through direct operation between the terminal stations of Tokyo and Ueno (3.8 km).

Kajima was selected as the contractor for the 1.5 km section of the project where the Shinkansen bullet train and six other conventional lines run closely together through a densely packed area of office buildings. In this critical section, Kajima is constructing a new viaduct directly on top of the existing

Shinkansen lines. Since work must proceed above the existing Shinkansen lines without hindering operations, construction is permitted only in the small hours of the morning when the Shinkansen and other conventional lines are not in service. That means there are effectively only around three hours left for work after deducting time needed for safety confirmation and other procedures. So this is a challenging project in terms of both time and space.

There are 16 bridge piers, comprising 260 pieces in the entire section Kajima is constructing. Only one piece can be erected in the time available for a day's work. Work is proceeding cautiously, with a 100-ton crane being inched along delicately on the Shinkansen lines.

In every span of between 20 to 60 meters, a set of 17 pre-cast concrete (PC) girders and 2 steel girders, which can weigh up to 600 tons, was erected. A colossal 1,700-ton movable erector, which stands 20 meters tall and which can expand 200 meters long, was installed above the Shinkansen tracks as there was no space available at all outside the tracks.



Viaduct being constructed above the Shinkansen lines



PC girders installed during nighttime work

CIVIL ENGINEERING

Projects completed during the fiscal year ended March 31, 2012



📍 Tono Dam

Client: Chugoku Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism
Location: Tottori



📍 Kasegawa Dam

Client: Kyushu Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism
Location: Saga



📍 Uratakao Bridge

Client: Central Nippon Expressway Company Limited
Location: Tokyo





Karebbe Dam

Client: P.T. Vale Indonesia Tbk.
Location: Indonesia



Shin-sugita Common Utility Duct

Client: Kanto Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism
Location: Kanagawa

