Due to the recent worldwide trend toward larger trailing suction hopper dredgers, dredgers of the 46,000 m³ class are being built today. So far all these mega dredgers have been constructed in Europe which is known for its advanced dredging work and construction of dredgers. The largest dredger previously ever built in Japan was 6,000 m³ and was also built by Mitsubishi Heavy Industries (MHI) for the Suez Canal Authority. Finally the time arrived to construct a dredger which was genuinely large in the worldwide sense.

1. Outline and features of this vessel

Table 1 shows the principal particulars of the vessel while Fig. 1 shows its general arrangement. This is the largest trailing suction hopper dredger ever built in Japan and is also in the largest class in the world, having a hopper capacity of 10,000 m³ and a maximum dredging depth of 35 m (the title picture shows this dredger). From the viewpoint of diversity in discharging dredged soil, this dredger has reached the world's top level. A total of three discharge methods are available,
with conventional conical bottom valves and bow quick coupling for shore discharging and also a bow discharge nozzle for a special discharge function called Rainbow which is used for large-scale reclamation (Fig. 2).

This dredger employs a state-of-the-art dredge control and monitoring system (DCMS) developed jointly by Vosta LMG of Netherlands and SAM Electronics of Germany. This system is equipped with consoles on both wings of the bridge which serve to control the suction pipes, while the console in the center of the bridge serves to monitor and control all the dredging process conditions such as the dredged soil, the dredge pump, the piping system, and the overflow system. Further, despite its multifunctionality by having such functions as dredge log creation and abnormality diagnosis, the system ensures high usability based on simple operation screens (Fig. 3).

2. On-site performance test

After being completed at the MHI Kobe Shipyard and Machinery Works, the vessel was sailed to the Suez Canal in Egypt, where on-site test operations were conducted. After verification of the speed performance in shallow water, dredging performance at three locations with different soil qualities, and equipment reliability under the climatic conditions of Egypt where the temperature reaches as high as 45°C in midsummer, the vessel was delivered to the Suez Canal Authority of Egypt.

3. Operation of this vessel

Along with the rapid expansion of worldwide logistics operations in recent years, the importance of the Suez Canal as a hub of sea transportation has been increasingly recognized. Meanwhile, as the Suez Canal is close to the mouth of the River Nile and is surrounded by desert, the maintenance of the waterway to secure a specified depth is a crucial issue. This dredger is provided with large, state-of-the-art equipment and contributes to efficient waterway maintenance work.