Cambodia National Highway No.5 Rehabilitation Project Team

【Obayashi Corporation】

Representative : Hideaki Kamimura（Obayashi Corporation, Asia Pacific Regional Head Quarter, Civil Engineering Construction Department, General Manager）

No. of Member : 1 2 （Obayashi Corporation 1 2 ）

National Highway No. 5 (Asian Highway No. 1), which connects the capital of the Kingdom of Cambodia, Phnom Penh, with neighboring Thailand, is also part of the Southern Economic Corridor, an economic artery that connects ASEAN by road, and is an important trunk road that is essential for the economic development of Cambodia. Obayashi Corporation has overseen the construction of 47 km of the existing National Highway No. 5 between Pursat and Prey Svay since 2019, out of the 366 km of four-lane renovation work that has been underway since 2017 with loan assistance from the Japan International Cooperation Agency (JICA).

The challenge in advancing the construction was the process management, where delays had become apparent in the preceding construction section. The problems with process management included 1) the difficulty of managing construction over a long distance, 2) the tropical monsoon climate with a rainy and dry season, 3) securing embankment materials (borrowing pits), 4) the process management level of local contractors, and 5) the difficulty of maintaining the detours in the construction section.

In the Obayashi section, the construction policy was to start construction on eight bridges early (including design changes) and 57 cross drainage ditches in the first dry season, and to focus on construction in four urban areas (5.2 km in total) where construction efficiency would decrease in the second dry season, with an emphasis on continuous construction as much as possible.

To secure the embankment materials required for earthwork, detailed prior investigations and planning were conducted from the bidding period in 2018, shortening the lead time (unexploded ordnance detection was essential), and earthwork was started promptly after construction began.

However, one year after the start of earthwork, a three-month delay occurred, so the six-km section was switched to direct construction without sub-contractor and the site management system was strengthened accordingly. Japanese engineers with extensive experiences in road construction were always stationed to check the daily construction procedures, and a PDCA cycle was established so that Cambodian engineers could see the site from the same perspective as Japanese engineers and practice quality and schedule management.

Throughout the construction period, the quality of the key earthworks (Embankment and Subgrade) was thoroughly controlled, including checking the basement of the road, replacing necessary areas, and carefully selecting embankment materials, because even a quality defect of one meter can lead to a delay in the process.

Amidst this, the construction work was carried out under even more severe conditions due to the recovery from the flood damage that occurred in October 2020 and the COVID-19 pandemic.

Cambodia also has a country risk in that the traffic accident mortality rate is about five times that of Japan (statistics for 2022). Most of these accidents were caused by motorbikes. Under these circumstances, the detours for general traffic diversions and temporary bridges set up beside existing national highways, and the maintenance and management of safety equipment along the construction route and dust prevention measures were meticulously continued day and night to thoroughly eliminate the risk of third-party accidents. Led by the top management, basic

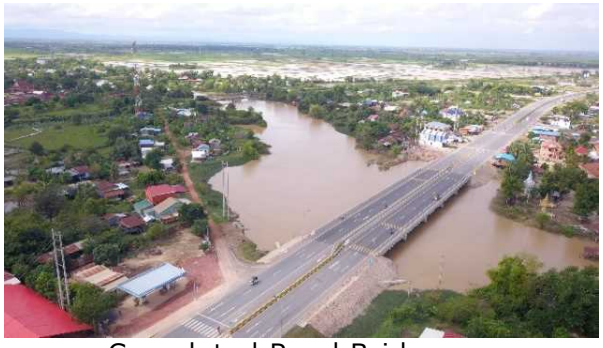
guidance was continued to ensure that staff, heavy equipment operators, and each worker understood and acted on the principle of "avoiding accidents and not causing accidents. What should we do to achieve this?". The special caution of Obayashi's site engineer was emphasized on management of dump truck drivers (230 trucks at peak) under the considerable risk of traffic accidents involving dump trucks transporting materials (soil and crushed stone).

With the understanding and cooperation of local government agencies and residents, these risk management measures were implemented one after another, and construction was prevented from being halted due to serious accidents or environmental issues, which resulted in the recovery of the schedule.

In the eight sections including Japanese companies, only Obayashi completed the project within original contract period. As a result, the road was opened one month before the end of the construction period, contributing to improved logistics functions and reduced travel times.

Furthermore, dedicated maintenance was conducted as a trade-off for quality control during the defect liability period, which often causes a problem in developing countries, contributing to extending the road's lifespan.

Due to the above outstanding achievements and future developments, this case deserves an award in the field of international contributions.



Completed Road Bridge

Completed Road (Rural Area)