



# “Shinseondae” Container Terminal Construction at the Busan Port

Since 1980s, Ssangyong E&C embarked on its journey of actively expanding into the field of civil engineering projects including highways, airports, seaports and others. Against this background, Ssangyong E&C won the bid for the Busan Harbor Container Terminal construction project in March 1987. This was the key project of the Busan City’s three phased comprehensive plan to develop its harbor. Historically, since Busan Port opened in 1876, this harbor development project to build a container terminal at the “Shinseondae Cliff” of the Busan Port was the first of its kind and largest in scale. The construction amount was USD455 million (converted to current currency) and a total of 274 thousand workers per year were committed to the project.

Construction  
cost  
USD455  
million

Three  
50,000  
tonnage  
berths

Dredged  
2,240,000  
m<sup>3</sup>

Reclamation  
of  
2,700,000  
m<sup>3</sup>



Lowering the caisson built on land to the sea with a 2,000-ton-class maritime crane

## Constructing the Container Terminal at the Busan Port

- Construction period: April 25, 1987~June 26, 1991
- Construction cost: USD455 million (converted to current currency terms)
- Client: Busan Maritime and Port Authority
- Descriptions: 900 m container ship berthing (Three 50,000 tonnage berths) and 17 annex buildings including container cargo station, Dredged 2.24 million m<sup>3</sup>, Reclamation of 2.7 million m<sup>3</sup>



Construction of pier-type rock wall\_ 1989



Construction of caisson-type wall\_ 1989

## The First Largest Container Port in Korea! Sea Transforms into Containers

The work for the “Shinseondae” Container Terminal kicked off in April 1987. This terminal site is spacious enough for simultaneous berthing of three 50,000-tonnage container ships of 260 to 270 meters in length. Given the nature of maritime projects, the construction work was heavily impacted by the weather conditions. The average working days per month was less than 15 days owing to rain, wind, and high waves therefore, the project team could not but work through adverse weather conditions.

To build a container terminal, Ssangyong E&C had to construct a 900-meter-long quay wall which consisted of a pier-type quay wall up to 258 meters and a caisson-type wall for the remaining 642 meters. To build the pier-type quay wall up to the 258-meter mark, 885 full-sized concrete piles (60 meters in diameter) and 440 concrete sheet piles were driven in and topped off with upper slab concrete.

Undoubtedly, the task required a high degree of precision in which each pile had to be driven within a marginal error of 15 centimeters.

As for the caisson-style wall for the remaining 642 meters, a total of 46 caisson concrete blocks weighing 1,500 tons each (one block-width: 14 m, breadth: 10.5 m, height: 16 m, size: equal to 5 story building) were fabricated on land. After temporarily installing them on the sea via a 2,000 tonnage floating crane then the caissons were reinstalled in the designated positions with a 200-tonnage floating crane. This is equivalent of sinking 46 five-story buildings into the sea.

The process was complicated and difficult requiring precision and rigor as the seabed where caissons were to be installed had to maintain an even level thus the foundation work on the sea floor had to be carried out first. Also, the intervals between the caissons could not exceed 5 cm wide which requires high degree of precision and accuracy.

Based on these efforts, the construction of the container terminal at the Shinseondae Cliff of the Busan Port was finally completed in June 1991, just three years and eight months since the commencement of the project.



Chairman and CEO S. Joon Kim (left) visiting the pier-type quay wall construction site of the “Shinseondae” container port in Busan. The hundreds of piles on the sea symbolically demonstrate the complexity of the construction project (April 27, 1989)



Site under construction \_ January **1991**



After completion \_ June **1991**

## Ssangyong E&C Awarded with the Highest Order of Industrial Service Merit

The grand completion ceremony was held on June 26, 1991 where more than 1,000 participants including the Prime Minister, Minister of Transportation, and Commissioner of the Maritime and Port Authority attended. During the ceremony, the Korean government awarded Chairman and CEO S. Joon Kim with the Highest Order of Industrial Service Merit in recognition of his contribution to enhancing Korea's logistics competitiveness with the successful project completion. This was the first time for a domestic construction project to be recognized with such an accolade. Notably, for two years in a row from 1994 to 1995, Ssangyong E&C was selected as the best site management contractor by the Korea Maritime and Port Administration thanks to the relentless quality and safety management. Ssangyong E&C received commendation from the Ministry of Labor for maintaining accident-free sites. 



Expanded Terminal as of November 1997: Ssangyong E&C executed the additional construction project to expand the pier to allow simultaneous birthing of four 50,000 tonnage ships (From November 1997 to May 1995)



Completion Ceremony group photo with Chairman and CEO S. Joon Kim (middle) and site staff (June 26, 1991)