

The development of Coronel Container Terminal

Diego Seljak & Bart Winder, RMG Consult BV, Rotterdam, The Netherlands

The Port of Coronel has been in operation since 1996 as an export port for break-bulk forest products. It is situated in the Coronel Bay, about 30 km south of Concepción, at the Gulf of Arauco, which is about 400 km south of the capital Santiago de Chile in Chile.

In 1995, the sandy natural beach in Coronel was converted into a real export port with the construction of the first jetty and cargo warehouses. The existing shacks and community living on the beach were relocated to a completely new neighbourhood in Coronel with all facilities, such as water and electricity financed by the new port.



Figure 1. Coronel, Situation in 1995.

Specifications

Coronel Port, owned by Chile's largest forest products company Celulosa Arauco y Constitución (Celco), Ultramar, Empresa Constructora Belfi and Fondo de Inversiones CMB Infraestructura, grew rapidly, and the existing two berth jetty was expanded to four berths in 2004, while the total throughput reached up to

2.5 million tonnes. In addition to the jetty expansion, additional warehouses and railway tracks were constructed, and the port reached its existing configuration as of 2008.

The total beach area along the coastline of the bay was paved for open storage, which includes nine covered warehouses (101,000 m²) for the storage of wood and cellulose. The port area amounted to 34 ha; the first jetty had four berths, about 400 m in length, with a width of 41.5 m and a water depth up to 13.5 m.

The community of Coronel city was often involved in the activities of the port. Aside from providing employment for a variety of inhabitants of Coronel, it also supported ample social activities in the city. Educational support to schools and to other institutes was quite common, and yearly festivals were organised to involve the community in the activities of the port.

Birth of the container terminal

Post year 2000, the port of Coronel began noticing a gradual change in the export market. The container market was growing faster than breakbulk export, such as wood and cellulose. In 2007, plans were made to benefit this growing container market by adding a modern container terminal.

However, this was easier said than done. The existing jetty was constructed for handling breakbulk not containers, and certainly not for accommodating large container cranes. In addition, the port area was sufficient for current operations, but not for the storage and handling of containers. The pavement structure requirements for container operations are different than for handling breakbulk. In addition, the operational and management structure had to change in order to suit a container terminal.

Competition in the 8th region (the province of Bio-Bio) to which Coronel belongs is strong. Major competitors are the Port



Figure 2. The Port of Coronel in 2007.



Figure 3. A container vessel calls at the new jetty.

of Lirquen and the Port of San Vicente. Both ports are active in the field of forest products export. Contrary to the Port of Coronel, both competitors had already successfully started container activities.

In 2007, plans were set in place to make the Port of Coronel one of most modern container ports in the 8th Region. Construction of a new jetty was started and two STS gantry container cranes from ZMPC in China were ordered.

At the same time, a large area of land was acquired about 3 km east of the port area (Manco). This land could serve as overflow area for the storage of containers. The idea was that the type of export products at the port would not change much when the container terminal became operational. Major export products from the region, such as wood, cellulose, fish and fruits are stuffed into containers for export. For that reason, the operational sequence at the terminal is that empty containers are imported, stuffed and prepared for full export. Such operations require carefully planning and large areas for the stuffing and storage of containers.

Port master plan

The Rotterdam Maritime Group (RMG) was commissioned to prepare a port master plan and to provide technical expertise on the design of the Coronel Container Terminal. In 2009, according to this plan, the land construction such as pavement, lighting masts and offices were to be constructed.

The challenge in these plans was to create efficient and cost effective container operations. The layout of the terminal and Manco is designed in such a way that driving distances are kept to a minimum and container moves are minimal. The Manco area is designed for amongst other things, the storage of a large amount of containers as well as for container stuffing. It can boost the total annual capacity of the Coronel Container Terminal (CCT) up to more than 350,000 TEU. As the assistance of a sophisticated terminal IT system for the optimal control of information is a must for any modern terminal, such a (CTIS-) system was purchased from HPC.

The second jetty (container jetty) in Coronel was finished in early 2009. By this point, the port's expansion included another three



Figure 4. The port in 2009.

deep-water berths dedicated to container handling. The second jetty is 400 m long, 36 m wide and provides a water depth of 13 m.

Delivered at the end of February 2009, the ZPMC STS gantry cranes went into service in April and handled the first panamax container vessel, MSC Andes, at the start of May 2009. The cranes, which are more than 60 m in height, have a lifting capacity of 60 tonnes and a handling capacity of 40 containers per hour. In addition, they can handle Post Panamax sized vessels. These characteristics will increase the efficiency of the port and give the shipping industry the ability to reduce costs. Shipping lines, including Mediterranean Shipping Company, are keen to deploy larger tonnage in the south of the country where forest products play an important role in balancing trade between Chile and Asia.

Handling equipment

At the end of May 2009, the port of Coronel became the first of the three main ports in the region to employ ship-to-shore gantry cranes in response to a trend to containerize more cellulose and forest products.

As well as the two gantry cranes, the facility has acquired two mobile harbour cranes, 10 reachstackers, four empty container handlers and 30 terminal tractors, creating a facility with an annual capacity of more than 350,000 TEU.

A total of US\$75m has been invested in developing this dedicated container facility. The company hopes to move 150,000 teu a year in the first year of operation positioning the port as one of the most important ports in the region

CCT's other main goal is to contribute to the development of the regional exporting industry and improve the level of the zone's harbour sector, along with generating new jobs.

On the subject, Alberto Miranda, General Manager, Port of Coronel has the last word, stating "We will provide shipping lines with greater efficiency through our latest generation export and import terminal. We are convinced that this will boost local industry and generate related services and job opportunities in the region".

ABOUT THE COMPANY

The Rotterdam Maritime Group (RMG) is a joint venture of some 30 public and private enterprises located in the Rotterdam region.

The group has a strong position within the international service sector and is engaged in a large variety of activities in the field of multi-modal transport. It offers its clients services which concentrate on the optimum functioning of the entire transport network be it maritime, road or rail. RMG activities are related to both public and private tasks. RMG is able to carry out the largest projects, such as economic and technical studies, design, construction, dredging, equipment

supply, financial engineering and training. Within the Group all aspects of multi-modal transport activities are covered, both theoretically and practically. Members of the Group include port and terminal operators, training institutions, port services companies, banks, insurance companies, software houses and specialised consultancy firms.

ENQUIRIES

Web: www.rmg.nl

- Consistency
- Productivity
- Reliability
- Drive

We drive industry.

The largest installed base of legacy and new crane control systems says a lot about what we bring to the table. In fact, we've been the driving force in crane controls and automation for more than 50 years.

TMEIC GE has earned a global reputation for delivering reliable industrial drive and automation systems for crane applications. Our service-oriented team is committed to engineering solutions that realize unparalleled long-range value for our customers.



We drive industry

www.tmeicge.com

Phone: +1-540-283-2250
1325 Electric Road
Roanoke, Virginia 24018 USA

metals
cranes
paper
oil & gas
utilities
cement
mining
rubber & plastics

