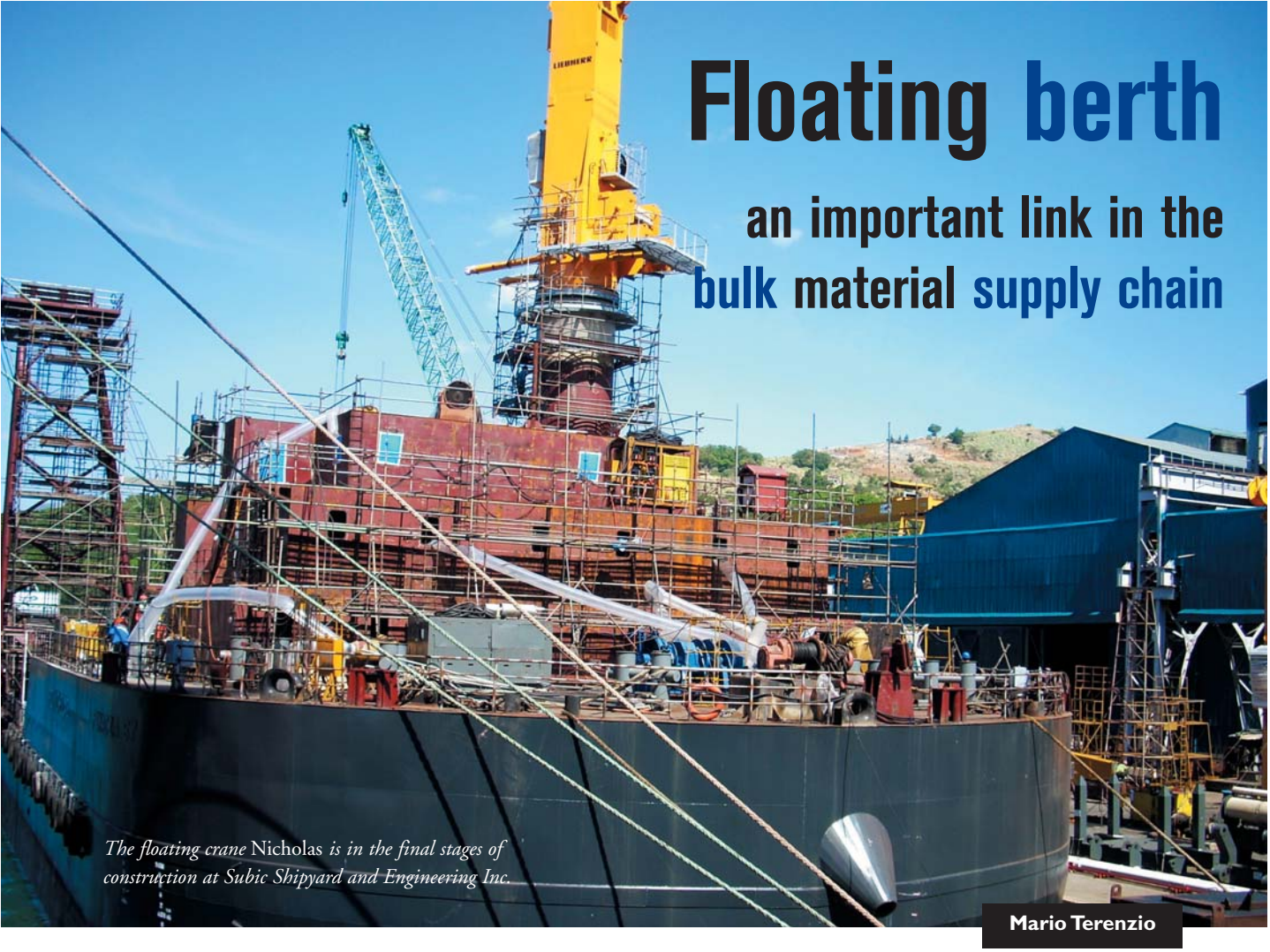
Floating berth

an important link in the bulk material supply chain



The floating crane Nicholas *is in the final stages of construction at Subic Shipyard and Engineering Inc.*

Mario Terenzio

Most traditional ports still have to rely on old, last-generation shipment systems and are subject to draught restrictions, preventing the industry from benefiting from the use of the modern fleet of larger vessels.

Building new, depwater ports is expensive, and takes time. Open land next to deep water is not easily available and dredging, by its very nature, is an environmentally sensitive issue that causes concerns within local communities.

There are many cases in coal, iron ore, copper and bauxite markets where commodities are moved solely thanks to the introduction of floating terminals as effective alternatives to shore-based infrastructures.

The Indonesian coal logistics supply chain involves various activities such as mining, stockpile management, in-land transportation, shore terminal operations, barging, transshipment and ocean transportation.

There are only few companies that can provide reliable integrated services, offering coal suppliers the opportunity to deal with only one partner, sparing them the complications of having to deal with a number of different organizations thus avoiding all the potential problems that can result.

Tirelessly and step by step, PT Mitra Bahtera Segarasejati (MBSS) has grown to achieve a leading position in the Indonesia coal supply chain logistics activity.

MBSS entered the Indonesian logistics market as a family company led by Ibu Francesca Hadinata and Pak Bing Prasatya, in 1993. Nowadays MBSS operate a fleet of 86 sets of tug and barges with capacities ranging from 4,000dwt to 11,000dwt.

Over 20mt (millions tonnes) of coal were transported by MBSS units on behalf of the largest coal producers in 2007 (MBSS's client portfolio includes PT. Arutmin, PT. Adaro, PT. Bahari Cakrawala Sebuku, PT. Kaltim Prima Coal, and others).

In 2004 MBSS extended its logistics capability to shore materials handling with the Bengalon Coal Port (on behalf of PT Kaltim Prima Coal) on a build, own, operate and transfer basis.

Planned coal production for 2008 is 8mt.

The MBSS workforce is close to about 1,000 people spread across the Indonesian archipelago in various maritime and shore-based operations.

Patricia Prasatya, with the support of Jon Vassella, is in charge of the day-to-day running of the company and business development.

MBSS is progressing in its the challenging plan of becoming a fully integrated logistics supplier of dry bulk material, from the mine to the end user, including ocean transport.

MBSS's policy is focused on establishing long-lasting relationships with end users and raw material producers by offering, whenever possible, a fully integrated logistics service, giving clients a key-in-hands service.

Logmarin Advisors — external independent consultant

MBSS avails itself of the support of Logmarin Advisors for its seaborne logistics projects and to oversee project implementation.

The Genoa-based Logmarin Advisors' scope of business is to provide an integrated and comprehensive consultation and advisory logistics service, both off-shore and on-shore. Logmarin is a reputed company specializing in shipping logistics. It has vast experience in several consultations and project feasibility studies for commodities such as coal, iron ore, liquefied natural gas, steel products, in India, Indonesia, Italy, Russia and in the Arabian Gulf. It provies, among other services, advice for ships handling, port facility requirements, ship conversions, floating terminal solutions, self unloading vessels and barge design.

The new MBSS/Logmarin floating terminal facility

The floating crane *Nicholas* is in the final stages of construction at Subic Shipyard and Engineering Inc., the largest ship repair facility in the Philippines. The yard is located in the north of Subic Bay, approximately 145km by land from Manila.

The FC *Nicholas* is expected to be delivered from the yard in May 2008 when it will be towed to South Kalimantan to be deployed at the Taboneo anchorage for coal transshipment operations on behalf of PT Adaro.

Flat-top towed barges (some of them operated by MBSS), will take Adaro coal from the up-river barge terminal to the FC *Nicholas*, to load export vessels.

The FC *Nicholas* is capable of loading about 500,000 tonnes of coal per month, at an average daily rate exceeding 22,000 tonnes.

This floating crane concept, based on Logmarin's experience of designing and operating floating cranes and other transshipment units, is conceived for both harbour and open water operations. It is equipped with combined 'roll damping systems' to offset pontoon rolling motions (amplitude, period and acceleration) so it is less sensitive to adverse weather conditions compared with standard floating cranes.

Maintenance costs and spare parts availability are optimized through the Liebherr and MBSS local service networks, thus ensuring highest reliability .

Liebherr's dedicated heavy-duty high-performance CBG four-rope grab crane ensures efficient and effortless unloading from most types of vessels up to Capesizes and can be used either in harbour or open water conditions. The optimized combination of powerful, hydrostatic drive technology and highly developed Liebherr electronics ensure high performance in coal handling.

The four-rope grab configuration ensures high turnover and the crane is designed for continuous heavy duty operation in open water.

All three motions (hoisting-slewing-luffing) can be operated simultaneously at full speed.

Litronic — Liebherr's own crane control and management system, controls the simultaneous operation of crane motions ensuring the best performance and protection for the crane.

The crane's control system records data about all individual components in load collectives, all alarm signals and failures as well as peak values. The lifetime of components can thus be analyzed and plans for preventative maintenance and spare parts supply can be established.

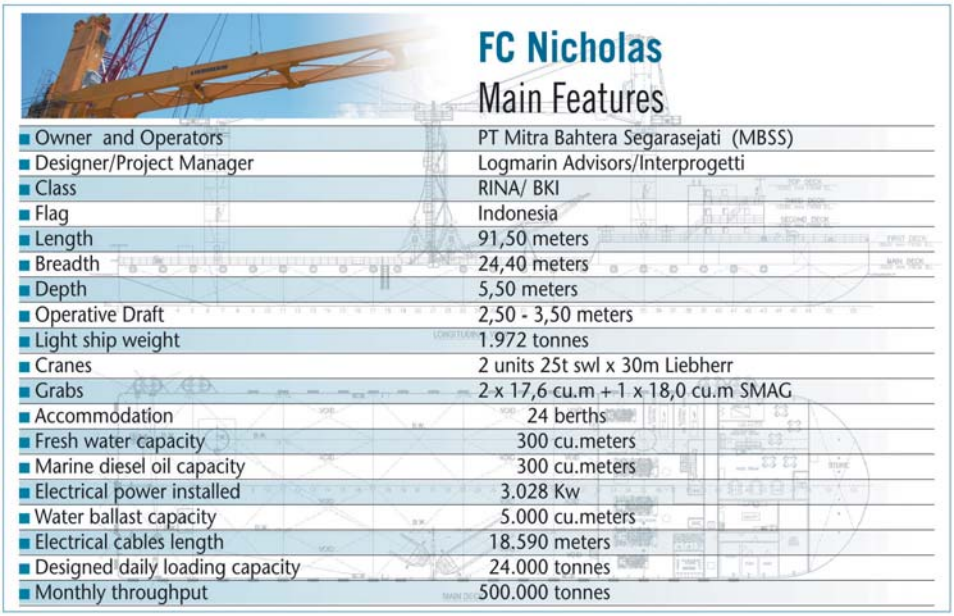
Specific features for open water conditions include specially designed heavy duty hoisting winches, a strengthened boom, heel trim alarm systems and emergency operation functions.

Liebherr's CBG grab crane ensures efficient and effortless unloading.

Nowadays, floating terminal technology has matured and there is a wealth of knowledge from many examples of floating terminals in operation for dry-bulk, oil and gas all over the world, and the trend towards utilization of this alternative is still growing.

Prospective clients who are considering a transloading operation should seriously consider engaging a consulting engineering firm with actual experience in this specific offshore field, to determine the most favourable system to suit their specific needs, both technically and commercially to oversee project implementation from beginning to commissioning.

Part of Logmarin's role is to make its customers more aware of the advantages arising from a global view of the supply chain.



FC Nicholas
Main Features

Owner and Operators	PT Mitra Bahtera Segarasejati (MBSS)
Designer/Project Manager	Logmarin Advisors/Interprogetti
Class	RINA/ BKI
Flag	Indonesia
Length	91,50 meters
Breadth	24,40 meters
Depth	5,50 meters
Operative Draft	2,50 - 3,50 meters
Light ship weight	1.972 tonnes
Cranes	2 units 25t swl x 30m Liebherr
Grabs	2 x 17,6 cu.m + 1 x 18,0 cu.m SMAG
Accommodation	24 berths
Fresh water capacity	300 cu.meters
Marine diesel oil capacity	300 cu.meters
Electrical power installed	3.028 Kw
Water ballast capacity	5.000 cu.meters
Electrical cables length	18.590 meters
Designed daily loading capacity	24.000 tonnes
Monthly throughput	500.000 tonnes