

# Advanced dredging system for Sri Lankan hopper dredger HANSAKAWA

*In 2001, IHC delivered the 1,200m<sup>3</sup> trailing suction hopper dredger HANSAKAWA to the Sri Lanka Ports Authority (SLPA).*



## The HANSAKAWA

Since it was delivered, the HANSAKAWA has mainly been deployed for maintenance dredging in the port of Colombo.

In 2005, the HANSAKAWA also intervened to assist in the recovery of the SLPA's other dredger, the DIYA KOWULLA, which had become stranded on the quayside at the port of Galle in southern Sri Lanka, during the tsunami on 26 December 2004. During that same operation, the HANSAKAWA deepened the access channel to this small port, to allow the super-heavy lift vessel 'Jumbo Javelin' (1,600-tonne lift capacity) to reach the location where the DIYA KOWULLA had run aground.

For five years now, the HANSAKAWA has performed its dredging tasks to the total satisfaction of its owners, despite the fact that the vessel was originally only equipped with a very basic monitoring system. During the construction process in 2001, simple

## Sri Lanka Ports Authority and the ports of Sri Lanka

The SLPA is the organisation responsible for administration and operation of the main commercial ports in Sri Lanka, currently Colombo, Galle, Trincomalee, Kankasanturai and Point Pedru.

New ports are scheduled to be developed at Hambantota and Oluvil, and both will also be administered and operated by the SLPA.

Sri Lanka's largest major port is located in the capital city, Colombo. It, and serves as an international hub for container traffic, with a monthly average handling volume in excess of 200,000 TEU.

There are plans for major expansion of the port in the near future; this expansion will be known as 'Colombo South Harbour'. The new harbour is planned to have four terminals, each with a length of more than 1,200m, to accommodate three berths. The depth in the new harbour will initially be 18m, but provisions will be made to allow future deepening to 23m.

The majority of other SLPA-run ports have mainly regional interests, although the port of Galle is currently also

considered an auxiliary port, for the port of Colombo. In view of the development of Sri Lanka as a tourist destination, the other ports are also of considerable importance.



*Mounting sensors at the intermediate*



devices were installed for, to monitoring the position of the suction pipe, the draught of the vessel and the production levels. However, to gain more insight into the performance of the vessel, and to see if a higher efficiency could be achieved in its performance, the SLPA expressed the wish to fit a more advanced and extended monitoring system.

### **New monitoring system for the HANSAKAWA**

Whenever 'efficient dredging' becomes an issue, IHC Systems is the partner par

excellence, and by the end of 2005, the specialist business unit of IHC Holland Merwede was granted the contract to develop, build and install a new and more elaborate monitoring system for the HANSAKAWA. The new system will enable the HANSAKAWA to dredge more accurately, and to monitor the dredging process more carefully.

The new system had to include a number of new features, principally an accurate monitoring system for the horizontal position of the ship, and the vertical position of the suction pipe. The SLPA also requested the ability to have all the data monitored on board the vessel presented at a desk in the shore-based office in Colombo.

The system now delivered to the SLPA consists of four main elements:

1. a Real Time Kinematic (RTK) DGPS positioning system
2. a Suction Tube Position Monitor (STPM)
3. two Dredge Track Presentation System (DTPS) packages
4. update interfaces for existing instrumentation systems.

RTK is a special side-programme of DGPS (Differential Global Positioning System) that offers highly-enhanced accuracy. By using RTK, the position of the ship can be determined with an accuracy of a few centimetres.

As part of the HANSAKAWA project, the product supplied by IHC included a dual RTK DGPS receiver on board the ship, plus an RTK DGPS base to serve as a shore reference station.

The pneumatic indicator system on HANSAKAWA was replaced by the electronic STPM system, which allows the monitored data to being digitised, and used in combination with other recorded data on the dredger's new monitoring system.

Two Dredge Track Presentation System (DTPS) packages were delivered, one to be installed on board the dredger and the second one at the SLPA offices, onshore. This second package is vital to facilitate the production of a real-time presentation of the dredger's activities, at the office monitor. The shore-based DTPS system interfaces with the HANSAKAWA using a full-duplex radio link. An interface was also created between the DTPS and the dredger's 'production calculator', permitting online presentation of production both on board and at the SLPA offices. As part of this same project, IHC also provided extensive training to SLPA staff.

### **HANSAKAWA operational**

In July 2006, the new system was fully operational, and from that moment onwards, the HANSAKAWA was ready to perform its dredging tasks with even greater efficiency than ever in the past. The importance of the port of Colombo is expected to increase significantly in the future. The intended extensions will without doubt assist the HANSAKAWA in coping with any future challenges.



Mounting additional presentation hardware