



IHC China Training launched

Strategic considerations

During the last few years an enormous growth of dredging activity in China has a great impact on investment in dredgers. Simultaneously dredge volumes increase, and consequently a large number of new dredgers is to be deployed. Dredgers also tend to grow larger in output and size: dredging depth increases from average 16m to 25m and discharge lengths tend to increase because of the larger surfaces of land to be reclaimed.

All aspects together make dredging more complicated. Under pressure by investors, production performance is to increase and at the same time production no longer is based on 12-hours shifts. Full-continuous operations and high output requests put stress on the capabilities of dredge operators. Times have changed and the increase of skilled operators could not meet the demand for them.

Now the situation occurs that the increased complexity also endangers safety of operations, and with the increased size of dredgers damage risks also increase. Profitability can easily be jeopardized by long idle times, damage to the dredger, or accidents due to lack of qualified operators.

Considering this situation, IHC recognizes the great importance of bringing their experience with the Training Institute of Dredging to China. Thanks to the immense co-operation of Guangzhou Dredging and their foreseeing awareness of the need for training, the establishment of a training centre for dredger operators in China could already be realized.

Estimating that 4 dredge operators will be needed per dredger, and with the prospect of a Cutter Suction Dredger demand of approximate 40 within the coming 5 years, added to 22 IHC dredgers in the process of delivery, at least roughly 400 persons need to

be trained within 2 years from now. A similar story can be told for the operation of Trailing Suction Hopper Dredgers. These examples show how important training and education will be in the coming years.

During the courses an IHC Systems-built Cutter Dredger Simulator is used. It can be upgraded anytime in order to keep it in top shape and matching with rapidly changing automation systems on board of the dredgers.

Besides trainees one needs trainers, and in order to make courses understandable for everybody, they should be given in the Chinese language. For this purpose, Chinese trainers should be trained first.. Then it is necessary to discover the right match of the level of offered courses with the level of education and experience of the trainees. This state of the facts requires a lot of pioneering in the first stage. After this stage, more trainers can be educated and start working. So rapid development is somewhat hampered by the availability of good trainers. Thus IHC China Training has to pass its own learning curve, but in mutual effort with their clients IHC is on their way to offer the market a great learning tool.

Quickly after the success in Guangzhou IHC planned to position IHC China Training in their service centre, close to the centre of dredging in China.

1 Mr Luo Ri Jia, chief mechanical engineer and Mr Zhou Jinglin, President Guangzhou Dredging during the opening ceremony of the training program with Guangzhou Dredging Company on 21st September 2007

2 The more theoretical directed lectures are essential to provide trainees with more background and knowledge on dredging and dredging processes



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Evaluation of the training course

During the first training courses, IHC people met enthusiastic trainees from GDC. They were very curious what kind of course they would be taught and very eager to learn. Every morning started with a lecture: sometimes a theoretical lecture on pumps and slurry, on other occasions a lecture on the main components of a cutter suction dredger. Especially during the more practical lectures the trainees raised a great deal of questions, giving the trainers confidence that the program appeals to daily practice. The more theoretical directed lectures are essential to provide trainees with more background and knowledge on dredging and dredging processes. Normally the effect of such courses will take some longer time because trainees will have to see theory happen in practice. Here we really see the advantage of a simulator. It can be used to instantly observing the differences between – for example – weak rock and hard packed sand, long distance discharging and short distance pipelines. Working with the simulator actually allows practice meeting theory. This method of training makes the theoretical classes much more effective than classroom training only. It is the unique benefit of simulator training.

Evaluation of trainees

The first group of trainees impressed IHC trainers with their great practical experience in dredging and operation of dredgers. Their theoretical knowledge on dredging processes, soil types and soil mechanics meets the level one expects with operators who have been trained and educated on board. Because their high practical knowledge, theoretical lectures almost naturally explain situations with which they are accustomed. These lectures also allow the trainees to extend their knowledge on *how* to solve a situation to knowledge on *why* to do just so, which is a satisfying thing for trainees as well as for trainers. After the course trainees had improved both theoretical knowledge and operational skills. To test these enhancements, the trainees were submitted to a theoretical examination first. After that, they had to run tests on the simulator, whereby their attention to indicators, adaptability on trainer- or process-initiated changes, and ability to explain what had happened during the test-runs were observed and recorded. The impressive results again demonstrate that proper training is a very important factor in dredger exploitation. To begin at the beginning: the investment in these trainees will return itself within weeks, thanks to increased production figures!

3 Working with the training simulator actually allows practice meeting theory



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Training concept

Especially for the 7025MP, the cutter suction dredger IHC designed for the Chinese market and Chinese needs in particular, IHC China Training has developed a total program for building an operator's capacities. In this program one is trained over a long period of time to become a qualified dredge master.

The program consists of a series of trainings on a cutter suction simulator and trainings on the job.

The program is built in several levels based upon the Wisdom Path (described by Russel Ackroff). As depicted in the adjacent figure, this path begins with information provision, so that a trainee really knows *what* it is, that he has to cope with.

Then there is progress to knowledge about *why* situations should be solved in this way or another, followed by *understanding* on this why. In the last – wisdom – stage the trainee is fully capable to autonomously judge what are the right things to do in a specific situation, a state of personality on which famous Chinese thinker and philosopher Confucius (551-479 BCE) would without doubt smile with appreciation.

On September 21st 2007 the IHC China Training and the training program with Guangzhou Dredging Company in China were opened officially. The adjacent photographs give an impression of this festive day (Figure 4).



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