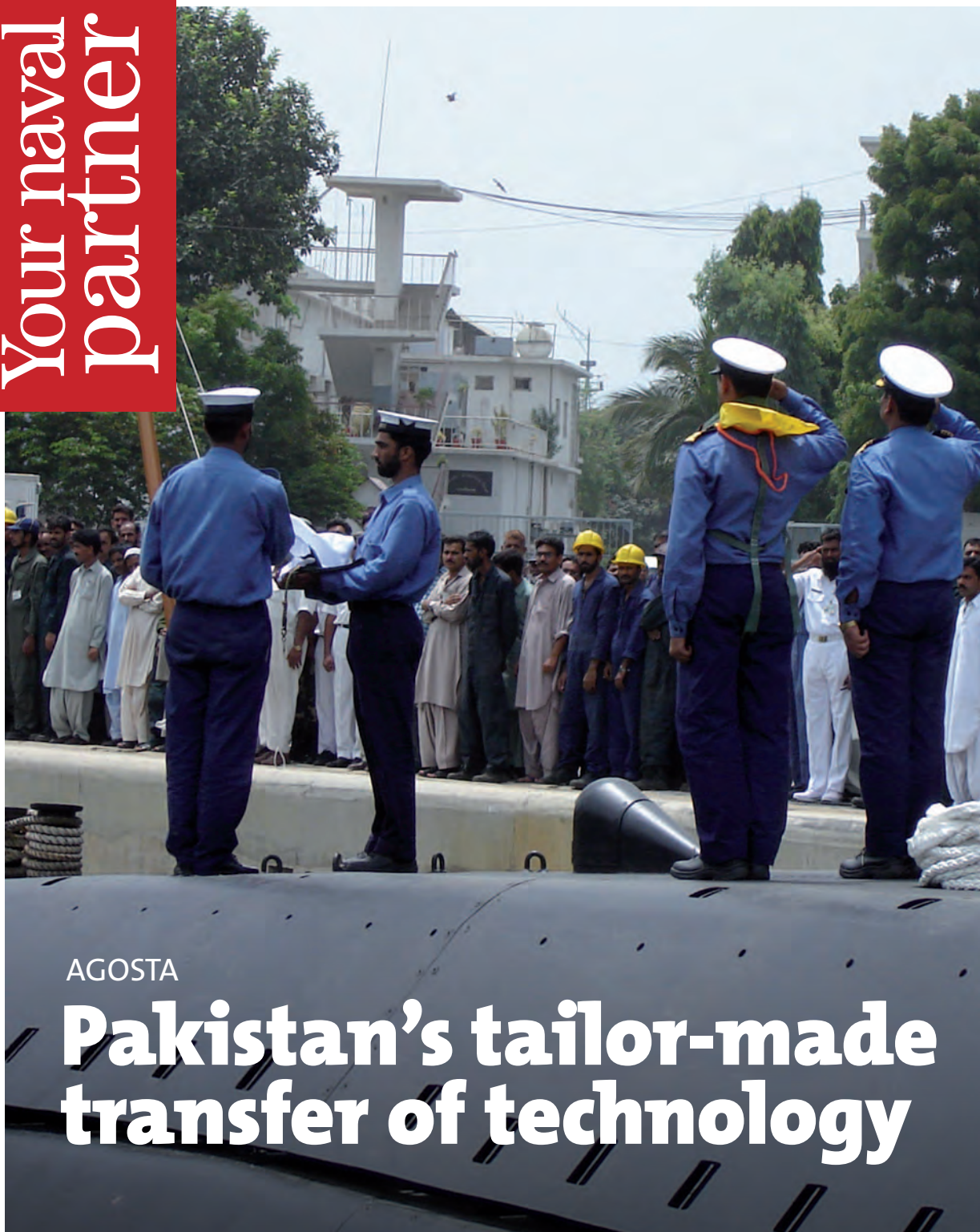


Your naval
partner



AGOSTA

Pakistan's tailor-made transfer of technology

STRENGTH at sea

DCNS

Equipping Pakistan with a strategic naval asset

Asserting its sovereignty and protecting its interest from any potential threats are the main reasons why Pakistan decided to upgrade its submarine power. In addition to supplying three Agosta 90B conventional submarines, the new agreement signed in 1994 with DCNS is based on a progressive transfer of technology culminating with the full building of the 3rd Agosta, fitted with Mesma[®] AIP system, in Pakistan's Karachi shipyards.

When Pakistan, already equipped with French Daphné and Agosta 70 submarines, started looking for a powerful multipurpose dissuasion weapon for both blue-water and littoral operations, it opted for a sea-proven design improved with an up-to-date SUBTICS[®] combat system.

In parallel, the MESMA[®] Air Independent Propulsion (AIP) system was at its final development stage, opening a new era in conventional submarine endurance (up to four times higher than other conventional submarines) and boosting the resulting capacity for the boat to go undetected.

A leap into the 21st century

Pakistan opted for the solution capable of best projecting its navy into the 21st century: the three boats will ultimately be equipped with MESMA[®] AIP systems, starting with Hamza, the

third Agosta being totally constructed in Karachi. The system will then be fitted to Khalid and Saad, respectively first and second boats under the 1994 agreement and already operational within Pakistan's Navy. The Agosta solution will be a key asset in the decision-making process in times

of crisis by collecting and processing day-to-day surveillance data.

Once equipped with the MESMA[®] AIP system, the Agosta 90B is a comprehensive and powerful

conventional dissuasion weapon. Fast and silent, it is capable of providing Pakistan with the strategic asset it needs and will contribute to significantly upgrade the country's naval capacity.

A successful transfer of technology

DCNS' comprehensive training programme allowed not only to operate

and maintain the ships but also to build and test them locally. While the first Agosta was being constructed in Cherbourg, France, the second was delivered as a kit in Karachi's shipyards to be assembled on site. The third Agosta was fully built and tested in Karachi. The sea trials results are the dazzling proof that the transfer of technology challenge has been successfully taken up. Only the two countries' strong and durable commitment could turn Pakistan's ambitious objectives into reality: to become a submarine builder, fully capable of strengthening its own submarine force.





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DCNS' sub-dedicated shipyard

500

workers trained to French technologies

FOCUS ON



A modular ship

MESMA® Air Independent Propulsion (AIP) system is housed in a weight-balanced independent section. Because this amazing feature allows customisation at any time, either at purchasing stage or later, Pakistan has first equipped its third Agosta (Hamza), fully constructed in Karachi, and commissioned in September 2008.

Khalid and Saad will be fitted with their own MESMA® sections, which are nearly ready to be delivered by DCNS. Just in time for the next major overhaul of these submarines.

Turning Pakistan into a self-reliant shipbuilder

THE DEVELOPMENT OF TECHNOLOGY TRANSFER WENT ON AS PLANNED. ABOUT 500 PAKISTANI PERSONNEL GOT TRAINED IN CHERBOURG, ABSORBING STATE-OF-THE-ART TRAINING INTO ALL FIELDS OF SUBMARINE CONSTRUCTION, PARTICIPATING INTO THE BUILDING OF SUBMARINE N°1 SIDE BY SIDE WITH THEIR FRENCH COLLEAGUES AND UNDER SUPERVISION OF CHERBOURG SHIPYARD FOREMEN. PRESENCE OF PAKISTANI PEOPLE BECAME A FEATURE OF THE DAY-TO-DAY LIFE IN CHERBOURG FOR YEARS. THEY DEVELOPED FRIENDLY RELATIONSHIPS WITH CHERBOURG DWELLERS, BEING INVITED TO SOCIAL GATHERINGS WHILE THEIR CHILDREN WENT TO SCHOOL SIDE BY SIDE WITH FRENCH PUPILS.

At the same time, the upgrading of Karachi ship-building facilities went on ; the steel cutting and welding shops were re-equipped with new machines specified and supplied by DCNS together with the production softwares, while a new assembly shop was constructed from scratch at Pakistan Navy Dockyard under DCNS' design and supervision. It was further to be named "Cherbourg hall" during a ceremony chaired by DCNS Chairman, in recognition of May 8th, 2002 terrorist attack victims, since cooperation kept on undeterred by these trying circumstances.

Thanks to the efficiency and quality of the technology transfer, Pakistani trained personnel were able to complete the integration and testing of submarine n°2 in full autonomy. Further more, Pakistan Navy Dockyard was able to integrate the MESMA® section into submarine n°3 by its own, to manage the integration schedule and to design and build the MESMA® support shore infrastructures by itself.

Submarine n°2 was commissioned on December 13th, 2003 having passed all tests with flying colours. The French director of sea trials, coming out of the ship after the first successful P-Dive, just laid out this very matter-of-fact comment "normal dive" and a participating French admiral praised the quality of the sub construction and the very professional behaviour of the Pakistani crew. She has been performing satisfactorily in the Pakistani fleet ever since, participating into several exercises jointly with regional friendly navies.

Sub N°3 successful P-dive was performed on March 16th, 2007, and commissioning with Mesma® propulsion completed in 2008 to the full satisfaction of the Pakistan Navy. Since then, Pakistan is proud to operate the only AIP submarine in the area.





By sustaining Pakistan's previous naval investment and by keeping benefit of a well-known platform already in service in the Navy, fully maintained by Karachi shipyard, DCNS developed the Agosta 90B from the Agosta 70-class, improving them in reaching up-to-date performances.

DCNS, a reliable partner for Pakistan

Already supplier of Daphné and Agosta 70 submarines, DCNS proposed to Pakistan Navy the best solution adapted to its goals: the increase of submarine fleet along with the creation of a strong submarine building capacity.

As underlined by the PN dockyard during the Hamza commissioning: «It has provided the nation a highly skilled and experienced manpower. Agosta 90B construction team available at PN dockyard is the custodian of the previous skills acquired through transfer of technology and is capable of meeting all the submarines constructions needs of Pakistan Navy to fulfil its self reliance endeavours». More than a contract, a cost-effective investment for the future.



STRENGTH at sea

DCNS is Europe's key global player providing high-value-added naval defence systems. The Group offers the world's navies a turnkey approach to warships, including all related equipment and services. As prime contractor, designer, builder, and integrator, the Group masters the overall value chain and life-cycle of naval systems, from initial design to full operational maintenance.

An international player

DCNS' capacity for innovation allows it to respond to the complex challenges of navies around the world by proposing cost-efficient integrated solutions, which are both interoperable (air/naval/land) and applicable to inter-allied operations.

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