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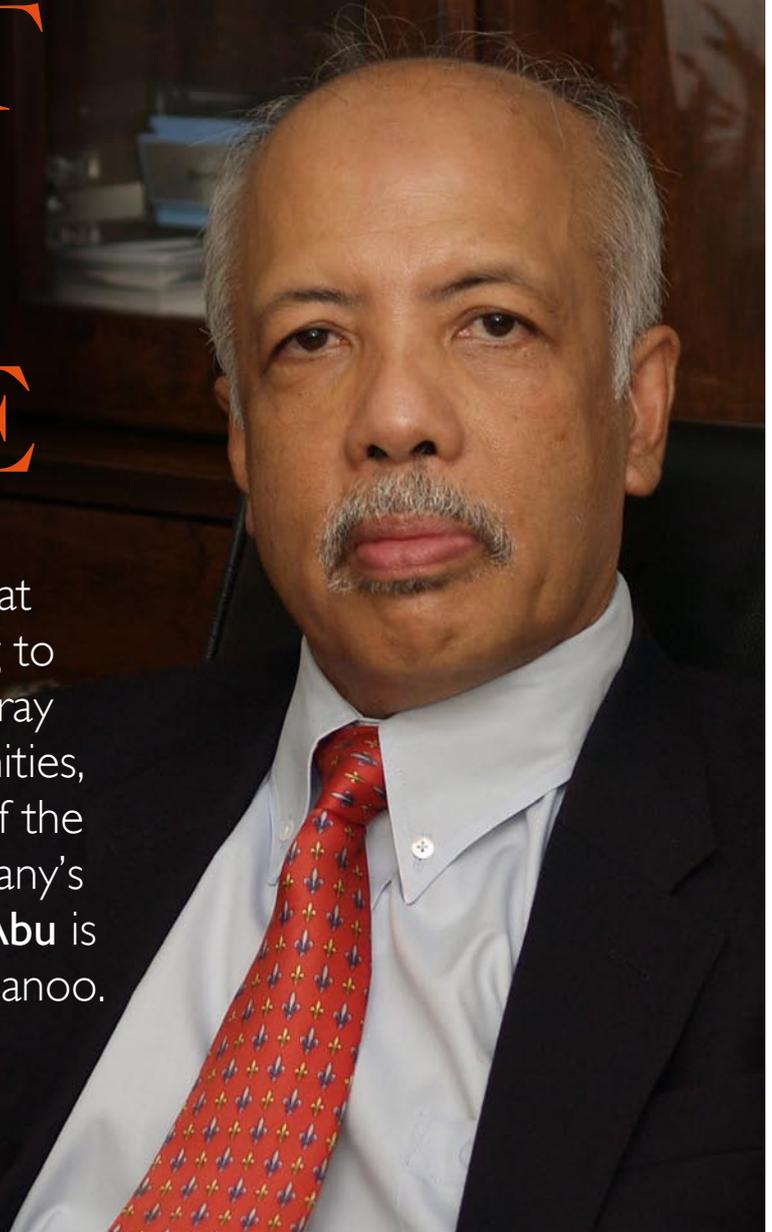
RESOURCE

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AT THE RIGHT TIME AND PLACE

Not everyone can say that they had a hand in helping to spearhead a company's foray into new business opportunities, but as a pioneer member of the Malaysian national oil company's petrochemical team, **Sobri Abu** is an exception. By Sreerema Banoo.



If Sobri Abu had to pick a time when he was the happiest in his more than three-decade-old career in the oil and gas industry, it would be the 10 years he spent at PETRONAS, as part of the pioneering team that helped propel the national oil corporation's foray into the petrochemical business. "We started with a blank sheet of paper. And when you grow from almost nothing, and you were there to play a role in charting the course for PETRONAS' entry into the petrochemical industry, it was an experience of a lifetime," says the 57-year-old.

And while Sobri was not there to witness the expansion of the Keroh and Gebeng plants into integrated petrochemical

complexes, having left the company by then, he looks back at the decade spent at PETRONAS with a measure of fondness and satisfaction. Sobri, who pursued chemical engineering at the University of Bradford, England, began his career in the oil and gas industry in 1977, when as a fresh graduate he joined Esso's Port Dickson Refinery as a process engineer. After a two-year stint, he left to pursue a postgraduate degree in chemical engineering at Loughborough University, England. Armed with a master's degree, Sobri then took up lecturing at Universiti Kebangsaan Malaysia. But it was not long before he returned to the oil and gas industry, joining PETRONAS in 1982. He describes the move as one of the best decisions he has ever made.

“I was there at the right time and place; it was the mid-1980s, when real growth of the petrochemical industry began,” he says.

As a process engineer for PETRONAS, Sobri's first assignment was at the Kerteh refinery project, the oil corporation's maiden refinery. Having cut his teeth as a pioneer member of the refinery project, Sobri was then given more challenging jobs, none more so than supporting a team to chart the course for the oil and gas corporation's entry into the petrochemical industry. The enormity of the task was not lost on Sobri: “I was a young, 30-something chemical engineer entrusted with a major undertaking. It was an opportunity that was cherished and it truly was a rare experience.”

Challenging Times

The endeavour was not without challenges. “We were on our own, at times groping in the dark. A lot of our knowledge was gained from textbooks and published literature,” he says of the situation the 20-member team he was put into.

Sobri points out that the petrochemical industry involves highly complex technology. In petrochemical manufacturing, one has to first reconfigure the hydrocarbon molecules by surgically breaking up or dislodging (through a process called cracking) the hydrogen atom from the hydrocarbon molecule and then replacing it with another atom. “We modify the properties of the hydrocarbon molecule so that it can then be made into products that are useful to everyday life,” he explains. Given the complexities of the process, technical experience and knowledge were crucial.

As if the technical demands were not enough, Sobri also faced the dimension of business challenges, “As most technology associated with petrochemical production is proprietary, we had to acquire that technology, and with that came a set of challenges, in particular the negotiation aspect. It was also tough because we didn't have anyone whom we could turn to for help.”

Another challenge at the time was to overcome the limited size of the domestic market for petrochemical products. “Our planning, therefore, was based on exporting our products and we were up against well-known competitors like BASF and Dow Chemical as well as oil and gas companies like Exxon Chemical, Shell Chemical and BP Chemical. It wasn't something to be taken lightly,” says Sobri. “Plus we were going in at the same time as the Saudis who were at that time building mega petrochemical plants based on the abundant supply and very cheap indigenous hydrocarbon resources.”

However, Sobri and the other members of the pioneer team did not let these challenges dent their confidence or morale. “We took it in our stride. We were not frightened of the challenges,” says Sobri. What the team had was passion, and the foresight to cleverly develop the country's indigenous resources to successfully grow the petrochemical industry that was at the time in its infancy.

Earning Trust and Credibility

Sobri's involvement began in 1988, when he was given the task of heading a team to study the feasibility of the MTBE/polypropylene project to be located at Gebeng, Pahang. The plant could produce isobutylene and propylene from butane and propane. The former, Sobri explains, is used to produce MTBE in a reaction with methanol, while the latter is used for the production of polypropylene.

“The challenge was bigger at that time. MTBE was not a widely used and accepted product. It is now extensively used by the refineries for the production of lead-free gasoline. The other major challenge was our proposition to produce MTBE starting from butane using the dehydrogenation process which at that time was a rather revolutionary idea,” he says.

When asked about his contribution, Sobri says: “The project was implemented. Not many feasibility studies have happy endings, as most end up in the archives. Convincing the

Polyethylene plant, Kerteh



PETRONAS Management Committee and the Board to approve the multi-million dollar project to produce a relatively new product using a rather unconventional process configuration was never easy. I was just a 30-something-year-old engineer and I had to deal with the scrutiny of the Management Committee and, later, the Board before they approved the project... Standing before them was a daunting experience.”

Laying the Foundation

Sobri's next major role was when his boss, the head of Petrochemical Business at the time, M B Hashim, asked him to lead the feasibility study of an ethane cracker project. PETRONAS had just completed the first module of the gas processing plant in Kerteh that was designed to only extract propane and butane and was in the midst of building three other similar modules of the gas processing plants.

“One morning, my boss walks in and says: ‘Sobri, I want you to start on an ethane cracker project’. So the next step was to talk to Hashim Salleh, General Manager of Special Projects Department, to have him agree to modify the plant design to allow for ethane extraction,” he says. He describes the move as a “timely intervention” because the contract for the building of the new gas processing plants had just been awarded – detailed engineering had just commenced and any changes to the design would have meant a major variation order. “Fortunately, it did not take a lot of convincing to get Hashim Salleh to agree to the design changes. If we had left it too late, that is to make the changes after the plant was built, it would've been too expensive; making ethane extraction uneconomical. It appeared to be a minor decision, but it had a far-reaching impact on the growth and development of the petrochemical industry in Malaysia.”

Expanding on the significance of ethane extraction, Sobri explains: “Without ethane, there will be no petrochemical industry in Kerteh. It's from ethane that Kerteh today is capable of producing some one million tonnes of ethylene a year.” He describes this production as “among the biggest in the region from a single site”. Ethylene is a basic building block in the manufacture of petrochemicals; for instance polyethylene is an ethylene derivative, which is used extensively in the production of plastic products.

Sobri's role in materialising the opportunity for PETRONAS to produce ethylene impacted the landscape of the petrochemical industry in Malaysia and laid the foundation for PETRONAS' growth in the industry. “It was a turning point and as a result, it was possible to produce ethylene derivatives like polyethylene, ethylene oxide/glycol and vinyl chloride monomer,” he adds.

Apart from the production capacity of one million tonnes of ethylene a year, the Kerteh integrated petrochemical complex (IPC) is today also a major producer of benzene

and paraxylene, which are also important building blocks for petrochemical manufacturing. In addition, the Gebeng IPC today is one of the biggest producers of propylene in the region at a single site, says Sobri.

Further Expansion

Sobri lauds the leaders of the organisation for their strategic planning efforts, which have resulted in the transformation of Kerteh and Kuantan into major petrochemical hubs in the region. One of these leaders is the then vice president of petrochemical business, Dato' Shamsul Azhar Abbas, who has recently taken the helm of PETRONAS as President and Chief Executive Officer. “He led the company's petrochemical expansion and was instrumental in bringing in BP Chemical, Dow Chemical (then Union Carbide), Mitsubishi and Sasol to invest in petrochemical manufacturing in Kerteh in joint ventures with PETRONAS. He also convinced BASF to invest in Gebeng,” says Sobri.



An aerial view of Kerteh Oil, Gas and Petrochemical Complex

And while Sobri had by that time already left PETRONAS, he is nonetheless proud of the national oil corporation's later achievements. “I never got to finish the project, but I am happy that I was there in the beginning.” It was with immense satisfaction that Sobri made a return trip to Kerteh for the official opening of the Kerteh IPC by then Prime Minister Tun Dr Mahathir Mohamad in 2002. Spread over 4,000 hectares, the Kerteh IPC houses 41 oil and gas plants, including an oil refinery, six gas-processing plants and 11 petrochemical plants.

“When I first visited Kerteh in 1983, it was just a fishing village. To see it later was a big surprise to me. I couldn't help but feel proud,” he says. And while he has remained in the oil and gas industry, it is that decade spent as a pioneer that remains the highlight of Sobri's career. With all that he has accomplished, it is easy to see why. ■

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