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Drilling and Completion Fluids

Badrul Mohamed Jan, SPE, Researcher and Academic Lecturer, Department of Chemical Engineering, University of Malaya

This year marked the third year after completing my tenure as the deputy director of the University of Malaya Center of Innovation and Commercialization (UMCIC). UMCIC is the technology transfer office at the University of Malaya (UM), which is responsible for protecting UM’s inventions through intellectual-property registration such as patents, copyrights, and trade secrets. Despite that, this year remained a busy and challenging year for most academics and researchers, specifically in Malaysia. Unstable oil price has a great effect on Malaysia, where the economy largely relies on the petroleum industry, reducing the research-funding assistance from the government. In fact, research funding has been slashed, and the university is expected to generate its own income. Apparently, it is time for the university to re-strategize its research endeavors.

Many of us were surprised by the collapse of crude-oil prices in 2014. Even though oil price currently seems stable at almost USD 50/bbl, it is still volatile.

Maria Gallucci highlighted in her business column in International Business Times magazine the fact that scientists at Louisiana State University (LSU) were working on the Tuscaloosa Marine Shale when oil was approximately USD 100/bbl. The Tuscaloosa Marine Shale is a large rock formation in the middle of the state believed to hold billions of barrels of crude. Many oil and gas companies were keen to embark on the research study, which mainly focused on the shale’s geological nature and potential drilling prospects. However, today tells a different tale. According to David Dismukes, executive director of LSU’s Center for Energy Studies in Baton Rouge, the interest has dissipated before eventually vanishing. The outlook in getting new projects in the private sector is slim to none. There is a similar outlook in other parts of the US, where research funding is severely battered by the low oil price. It is part of the long-term and broader initiative to slash costs. In most academic settings, innovation and exploration activities are shrinking if not halted.

As they say, we not only need to work hard, but also, and most importantly, we need to work smart, especially during this trying time. With shrinking budgets and limited resources, partnerships and collaboration are considered the best options. It is no secret that universities and industry have a special platform to work hand-in-hand. Successful partnerships between universities and industry can be realized only through innovation, knowledge, and technological findings. In Malaysia, for example, for the past 3 years, the government has initiated a specific program called Incubator Industry-University, or I2U. Under the I2U program, special funding was allocated to two research universities to build an incubator that provides special spaces with sufficient supports for researchers to develop their prototype before entering the real market. UM has been selected as one of the pioneers of the program. Some of the incubator spaces are also reserved for real industry players to create real industry working environments within the incubator. A specific space is also reserved for service incubators, which refers to space meant for industry to provide its upstream oil and gas-specific services, such as pressure/volume/temperature fluid testing, core-test analysis, and material-testing studies. Such an arrangement would bring industry and the university closer than ever before, and both parties will benefit. Industry, specifically the small-medium industry and the small-medium enterprise with a very limited budget, will have the opportunity to access much specialized and state-of-the-art equipment available at the university. In short, it is an ideal route for a win/win collaboration.

Badrul Mohamed Jan, SPE, is a researcher and academic lecturer attached to the Department of Chemical Engineering, University of Malaya (UM), Malaysia. He holds BS, MS, and PhD degrees in petroleum engineering from the New Mexico Institute of Mining and Technology. Jan’s research areas and interests include the development of superlightweight completion fluids for underbalanced perforation and ultra/low-interfacial-tension microemulsion for enhanced oil recovery. He is the recipient of the 2016 SPE Distinguished Achievement Award for Petroleum Engineering Faculty for the Northern Asia Pacific Region. Jan is a member of the JPT Editorial Committee and can be reached at badrules@um.edu.my.

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