



Mutual benefits

Shell and Chinese academia gain from international cooperation

The growth in the economies of countries in Asia-Pacific will undoubtedly impact on energy demand in the region. China, in particular, has a projected annual growth rate of 6.4% to 2030, which is expected to result in an almost three-fold increase in energy demand in the same period.¹ Many of China's academic institutes are focusing on this challenge and studying how to make the best use of the country's energy resources.

To understand better the challenges facing China, Shell was keen to establish relationships with academic institutes, and in 2004, Shell Research funded a small team to work in the country. Alexander van der Made, Manager, Group External Research Programmes, Shell Global Solutions International BV, is a team member. "We started with two institutions," he says, "Tsinghua University in Beijing and the State Key Laboratory of Coal Conversion in Taiyuan. The topics they are working on are extremely interesting to Shell. China is unusual because it does not have crude oil or natural gas in substantial quantities; however, it has a lot of coal. It is thought-provoking from an energy perspective to see how China will use that resource," says van der Made.

Professor Yizhou Han of the State Key Laboratory of Coal Conversion says, "We enjoy working with Shell because both of our organisations have benefited from the joint research projects. Some of the projects, such as carbon dioxide mineralisation, have become new research areas for our institution. We are looking forward to the continuing success of our collaboration in the future."

The Shell research team has identified several projects potentially suitable for collaboration, including carbon dioxide mineralisation

and enhanced coal-bed methane recovery. Some of the projects aim to identify the best use for coal, for example, whether to burn it to produce electricity or use a coal-to-liquids process to convert it into transportation fuels.

For most of these projects, Shell is sponsoring doctoral or post-doctoral research and promoting personnel exchanges with the institutes: Chinese researchers are working in Shell's laboratories in Amsterdam, the Netherlands, and Shell staff are working in the Chinese facilities. "In this way, Shell can tap into research being undertaken in China, and we are seeing it trickling down into business applications," says van der Made. "For example, Tsinghua University was studying a distillation column internal. Shell Global Solutions is now evaluating this internal to assess its use on a commercial scale.

"China is an excellent resource for potential R&D projects. The country has an abundance of talent, with around 100,000 people graduating in technical disciplines from its universities every year. The relationships we are building with the institutes are the key to our successful collaboration. The next step is to look at larger investment in one or two key Chinese institutes to build up strategic relations like those we already have with Delft University of Technology in the Netherlands, Massachusetts Institute of Technology in the USA and Imperial College London in the UK," concludes van der Made.



• Contact: Alexander van der Made Email: alexander.vandermade@shell.com

¹Asia Pacific Energy Research Centre