

Climate Change Fuels Demand for Chemical Engineers

By

**Professor Dato' Dr Ahmad Ibrahim
Fellow Academy of Sciences**

Students always find difficulty deciding the right course after high school. Some are guided by their career dream. Most want to avoid ending up with the wrong skills. A popular approach is looking at the emerging job markets. Parents sometime influence their choice. Engineering and medicine are often the popular choice among science students. Whilst among the arts students, law and accountancy are largely preferred. There are situations where even science students eventually opt for a course in finance. Admittedly graduates in finance have a wider career choice. This is because literally everything involves money, be it in business or government.

One way to look at the emerging job opportunities is to look at where business is heading. Few would disagree that we are now into an era where technologies literally rule all levels of business. Thanks to the global plunge into the digital economy, small businesses are more empowered. If at one time large supermarket chains call the shots, with the advent of e-commerce, the situation has changed. Now everyone, with a bit of entrepreneurship, can compete with the big players and sell to the world. With the emergence of the many social media platforms, promoting the products to the world is no longer costly. It is true as predicted before that the internet's disruptive force in the business world is simply mind boggling. Even the big chain stores are shifting into digital mode.

If digitisation is one important trend in business and industry today, climate change is the other candidate that is increasingly influencing business. Yes, there is resistance by some to acknowledge that climate change is real. But this is changing. The days of ignoring all the evidences presented by scientists are numbered. More and more are convinced that global warming is indeed happening. Even Australia, now a victim of intense forest burning, is revisiting her policy on decarbonising. Unless the world wakes up and does something to rein in the greenhouse gas emissions, the critical two degrees global temperature rise is not far off. Achieving consensus to take actions is still a struggle. This became clear at the recent UN-IPCC meeting in Madrid. Notwithstanding the lack of consensus, the global shift to the low carbon green economy is already being felt worldwide.

Efforts to embrace non-fossil energy sources are on the rise. Topping the list of renewables are solar and wind. Increasingly, biomass also features as a viable candidate to replace fossil fuels. Here at home, the massive amounts of oil palm biomass are being actively developed for commercial use in energy generation. Energy is only one aspect of the growing preference for green sources. The other aspect is the production of renewable chemicals to replace petrochemicals. In Germany, the production of chemicals from renewable sources is already on the verge of commercialisation. The other expanding technology sector which is impinging on business is advanced biotechnology. This involves biochemical processes to not only produce greener products, but also impart better economic value to wastes. The processing of wastes to reduce their negative environmental consequences is also an area of commercial interest.

The expanding green economy, as part of the response to mitigate climate change, is inadvertently giving rise to the growing demand for chemical engineers. This is because the production of green products, including the renewable fuels, involves a lot of chemical processing. Whilst the deployment of advanced biotechnology in wastes management and the pharmaceutical sector involves knowledge in chemical process design and operation. Chemical engineers are best suited to handle such job demands. It is no wonder that the number of universities offering chemical engineering courses are also on the rise. At many of the private universities, most engineering students take chemical engineering. Many international students are also opting for chemical engineering. UCSI university which is the nation's top private university has become popular among students pursuing chemical engineering. This is set to rise.

Admittedly, chemical engineering is the most versatile among the engineering courses. Graduates in chemical engineering can work well in many industries. Though in the past, the oil and gas sector had absorbed most of the chemical engineers, in the coming years, with the advent of climate change, the demand for chemical engineers in the green economy is destined to rise.