

NEWS

Arab state pours oil profits into science

How would you spend the profits from an oil well? That question was on the mind of about 200 Arab scientists who gathered in Doha, Qatar, late last month.

The country's head of state, Emir Hammad bin Khalifa Al-Thani, has devoted a chunk of Qatar's fossil-fuel profits to research, and the region's expatriate scientists were brought together to advise how best to invest it. Get it right, said attendees, and the money could help create an internationally respected science base for the Arab world.

"If it succeeds, it will change the whole region," says Hilal Lashuel, a Yemeni neuroscientist at the Swiss Federal Institute of Technology (ETH) in Lausanne. "Arabs will compete for the first time."

Qatar is already gaining scientists' attention in part because the country has recently transformed its university system. The tiny Gulf state, which has a population of less than 900,000, supports Western standards of living thanks to its substantial oil and gas fields. But those reserves are limited.

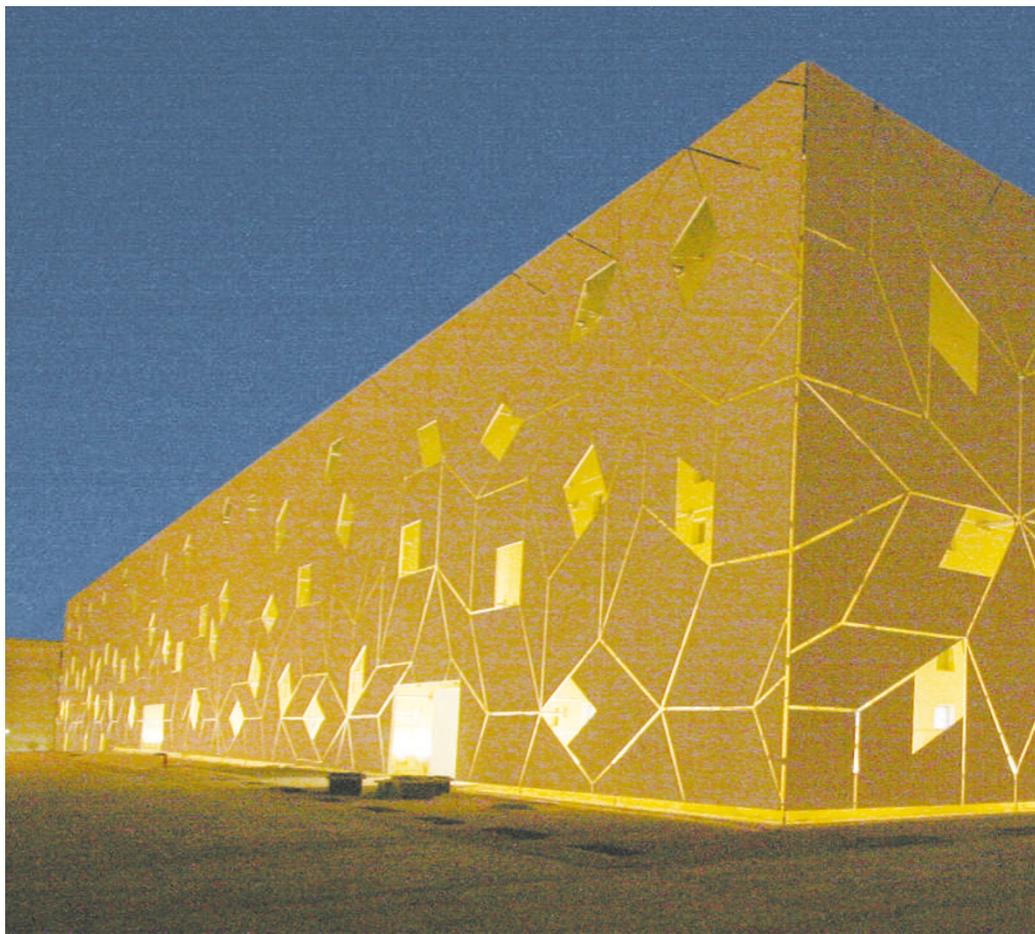
Hence Qatar's decision to jump on the knowledge-economy bandwagon and create Education City. The 2,500-acre campus on the outskirts of Doha hosts undergraduate teaching branches of several well-known US universities, such as Texas A&M. By replicating Western academic culture in the Gulf, the country's leaders hope to eventually attract 2,000 students annually to what could become the region's premier teaching facility. Several hundred students are already enrolled.

Education City has been bankrolled by the Qatar Foundation for Education, Science and Community Development. This is funded by an endowment from Al-Thani that officials say runs to billions of dollars. With this education centre up and running, the foundation is now turning its attention to applied research and the income-generating technologies that flow from it.

The emir has set aside profits from one of the country's oil wells for the purpose. Combined with a contribution from the foundation's endowment, Qatar will have a dedicated research fund worth hundreds of millions of dollars a year.

That may be small change in international terms, but Arab scientists say that the other components of Qatar's research vision show that the country means business. Foreign labs are being enticed to a science park on the Education City site, for example, by offers of state-of-the-art research

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Qatar's recently launched teaching centre, Education City, is helping to attract researchers from overseas.

facilities and liberal intellectual-property agreements. All the labs have to do is provide the staff. It is a deal that has attracted interest from research institutions such as Imperial College London and Tokyo University.

Tempting talent

Tidu Maini, Imperial's pro-rector, says his university is working with the foundation on plans for a diabetes genome centre. The Gulf region has one of the highest rates of diabetes in the world, making it the ideal place to probe the genetics of the disease. Although plans are at an early stage, Maini says research groups could be set up this year at Imperial and the Hamad General Hospital in Qatar. The researchers would eventually move to the new genome centre, which Maini says could open in about three years. He would like every newborn child in Qatar,

and their parents, to be genotyped in order to build up a database that could be probed for diabetes studies.

Qatar is importing Western practices as well as personnel. The country's research fund, for example, will be administered by independent peer-review panels. These will be composed of researchers from home and abroad, and modelled on processes followed by organizations such as the US National Institutes of Health. Fathy Saoud, a parasitologist who sits on the Qatar foundation's board of directors, says that grant applications for biomedical, environmental and computing projects will be considered in about a year's time.

At last month's conference, held from 24 to 26 April, expatriate Arab researchers talked about how the Qatar project could boost science investment across the region. Researchers say that if the initiative takes off, it could force neighbouring countries to launch similar



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Arctic stations need human touch



projects and ultimately reverse the current exodus of bright students from the region to Europe and the United States.

"It's an idea whose time has come," says Abdelwahab El-Affendi, a political scientist at the University of Westminster in London who attended the Doha meeting. "There are large numbers of Arab expatriate scholars, who are good in their own areas, but their talents are not being used to advance research in the Arab world."

One potentially divisive issue concerns the involvement of the region's research powerhouse: Israel. Delegates at the meeting said that they were keen to collaborate with Israeli colleagues, but that they did not know whether that could happen before peace was reached with the Palestinians. "I don't think that Israelis can be involved at this juncture," says El-Affendi. "We have to wait for a genuine peace process." ■

Jim Giles

Arctic climate research is suffering as manned weather stations are being closed in Canada, Russia and the United States, some meteorologists complain.

Since 1990, around a quarter of the 500-odd manned meteorological stations in North America and Siberia have been shut in order to save money. Some have been replaced with automated monitoring stations, but other closures have completely halted data flow from those sites.

Among other variables, these stations measure winter precipitation and snow depth — key factors for assessing climatic and hydrological changes in the Arctic, where warming is more pronounced than at lower latitudes (see page 146).

"Each station less means we have one important grid point less for validating our models," says Konrad Steffen, an ice specialist at the University of Colorado in Boulder.

The reasons for the closures vary, but essentially come down to cost. A manned weather station can cost more than US\$100,000 a year to operate. Automated stations, around 3,000 of which are scattered across the Arctic, cost approximately \$30,000 a year, but can fall short in terms of data quality and reliability, many scientists say.

"It's just a terrible mess if there is no human around who can go out and check the equipment," says Jessie Cherry, a hydrologist at the University of Alaska in Fairbanks. "The main problems are mechanical failures, frozen gauges and under-catch of snowfall."

National weather services are required to report all weather observations to the World Meteorological

Organization (WMO), a UN agency based in Geneva, Switzerland. But the WMO cannot stop governments from closing stations.

In Canada's far north, a switch to automated measurements and the closure of several manned stations has reduced by 50% the number of stations with records suitable for monitoring snow cover.

But Thomas Nichols, director-general of weather and environmental monitoring at the government agency Environment Canada, argues that the country is still collecting plenty of data. Canada has installed 45 automated Arctic stations over the past four years; some

"It's just a terrible mess if there is no human around who can go out and check the equipment."

of these have been built at new locations, and others have replaced manned stations or ageing automated stations.

But hydrologists say data from the automated stations can be suspect. "It is difficult to believe what you are seeing," says Cherry, who has just completed a hydrologic study in Siberia based on the 60-year record of seven Russian weather stations (see doi:10.1038/news060403-9). "Given the number of possible biases out there, we just don't trust the raw gauge data."

Decreasing monitoring ability on the ground is also limiting the value of satellite-based snow and ice observations, which need to be calibrated against ground measurements.

The situation is similar in Antarctica. Russia and South

Africa have recently closed three manned stations there, which they plan to replace with automatic stations. Around 20 manned stations remain on the continent, along with 25 automatic ones.

Getting real-time data is a problem for the WMO's entire Global Climate Observing System (GCOS), says Phil Jones, a climate researcher at the University of East Anglia, UK. The GCOS collects data from about 1,000 terrestrial stations worldwide, 10% of which are in polar regions.

But each month, 30% of the stations don't send data, or send them late. "Data flow is alarmingly bad," says Jones. "It wouldn't take much effort to improve it, but some countries just don't seem to be concerned about data quality."

The lack of good data also troubles the Greenland research community. In northern Greenland, where glacier movement may be speeding up substantially, the scarcity of data is limiting scientists' ability to accurately model the phenomenon, says Eric Rignot, a glaciologist at NASA's Jet Propulsion Laboratory at the California Institute of Technology in Pasadena. "There are too many unobserved variables, such as glacier thickness close to the coast and meltwater movement," he says.

Scientists hope that the governments of Arctic countries will set up new manned monitoring facilities as a contribution to the International Polar Year, in 2007-2008.

The United States, Canada, Sweden and Russia have promised to support a number of projects aimed at improving Arctic monitoring (see page 127). ■

Quirin Schiermeier