



INTERNATIONAL

Ambition, Challenges Shape S&T in Middle East, Northern Africa

Across the Middle East and North Africa, nations are embracing science as a way to drive economic development and improve the lives of their citizens. Some are investing heavily in universities and research centers, and several have space programs. Others are making strong commitments to science diplomacy.

But the region's researchers say they still face substantial challenges as they work to expand scientific capacity and pursue international partnerships. In a recent series of workshops cosponsored by AAAS and held in Jordan, Kuwait, Tunisia, and Dubai in the

The workshops, organized by the AAAS Center for Science, Technology and Security Policy with institutions in the four host countries, focused on best practices in international bioscience. Gwenaële Coat, a senior program associate at the AAAS center, said some participants attended all the meetings to encourage region-wide representation in these research fields and ensure "the impact of the meetings will last for many years."

At the first meeting in October 2010 in Jordan, the participants realized that the workshops also were an excellent place to discuss broader challenges for the region's

ing [these] issues in their own communities," Almodhaf said, "and think that the decision-makers will approach them first."

The workshops were especially valuable in highlighting some of these priorities, from clean water to infectious disease, which would benefit from stronger regional ties among researchers. "I think that there are a lot of learning opportunities between countries that have similar socioeconomic backgrounds and similar challenges," said Ayesha Abdullah, the managing director of Dubai Healthcare City. "But we don't yet have enough conferences and opportunities for networking."

Early career scientists who attended the last two workshops, held in Tunisia in November 2011 and in Dubai last March, spoke passionately about the need for more networking and mentorship.

"With young researchers, collaboration is easy to establish by Internet, but it's often limited to exchanging information," said Amel Benammar-Elgaaied, head of the genetics laboratory at the Faculty of Sciences of Tunis. Younger scientists, she said, need new ways to build relationships with established researchers in the region who are more likely to have financial and administrative support.

The researchers also have different needs depending on which country in the diverse area they come from, said Almodhaf. "The oil-rich countries in the Gulf might need more human resources" like mentors, she explained, "while in other parts of the region, funding is a critical factor."

These differences make it difficult to predict the Arab Spring's impact on young scientists, said Mona Mostafa Mohamed, the head of Cairo University's Cancer Biology Research Laboratory. In the North African countries at the epicenter of the uprising, she suggested, researchers who study abroad "for the time being might prefer to go and not to come back. They don't know how it's going to be yet."

Despite the uncertainties, the workshop participants pledged at the close of the Dubai workshop to write a collaborative article about their experiences and hold another regional conference in 2013. "I think with time, people will understand the importance of science and technology as a growth engine in developing countries," Abdullah said. "Science could be an answer to a lot of the challenges that the region faces."
—Becky Ham



Future vision. SESAME—Synchrotron-light for Experimental Science and Applications in the Middle East—represents the potential future of science and technology in the region. Now under construction in Jordan, the particle accelerator will foster ambitious, multidisciplinary research and build relationships across borders.

United Arab Emirates, the scientists said that young researchers in particular need better access to mentors, more opportunities to work with regional colleagues, and in some cases more funding and equipment. At the same time, they suggested, researchers must work closely with policy-makers to develop national scientific priorities.

"We can already see that governments and leaders in this part of the world are realizing that one of their best investments is to get younger people into science and technology," said Hayfaa Almodhaf, senior adviser to the director general of the Kuwait Institute for Scientific Research.

Two months later, however, popular protests in Tunisia marked the start of the Arab Spring movement. Revolutionary demonstrations spread throughout the region, and by the time the second workshop was held in Kuwait in March 2011, the upheaval had added a new layer of uncertainty to the region's prospects in science and technology.

The researchers were hopeful that new governments would support a higher profile for science. But their discussions had a different focus: Apart from any political change, how should scientists become more active in aligning research goals with national priorities? "Scientists keep discuss-

Science

AAAS News and Notes

Science **336** (6089), 1656.
DOI: 10.1126/science.336.6089.1656

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