

ARCHAEOLOGY

Dams Along Sudanese Nile Threaten Ancient Sites

LONDON—Sudanese officials said last week that their government intends to move ahead with three massive dams along the Nile River and its tributaries, threatening hundreds of largely unexplored ancient sites. Archaeologists are gearing up to record and save what they can, but they fear being drawn into a political dispute over the controversial multibillion-dollar projects, which aim to generate electricity and expand agriculture in struggling Sudan.

Engineers and archaeologists gathered at the British Museum here for a sometimes-stormy emergency meeting designed to alert scientists to the impending cultural-heritage crisis.* “We’re appealing to the scientific community to come to Sudan” to help document sites that face inundation, said Abdel Rahman Ali, director general of Sudan’s National Corporation for Antiquities and Museums (NCAM). “We need to work together to minimize the loss.” Countless Neolithic villages, ancient Egyptian temples, early Christian churches, elaborate rock carvings, and medieval forts may be affected. “There is much wonderful and fantastic stuff there,” said David Edwards, an archaeologist at the University of Leicester in the United Kingdom, who has long experience in Sudan.

The Upper Nile in northern Sudan

*Sudan Dams Appeal, The British Museum, London, 15 May 2012; see <http://preservethemiddle Nile.files.wordpress.com/2012/02/ncam-dams-appeal2.jpg>.

served as the major transportation corridor between sub-Saharan Africa and Egypt for thousands of years and includes part of the region known as Nubia, which has a rich prehistory. Africa’s first civilization and writing south of Egypt also emerged there. In 2009, the \$2 billion Merowe Dam on the Nile’s fourth cataract in Sudan flooded a vast area after limited archaeological investigations. “The lesson from that is we need to get into these areas as soon as possible,” said Neal Spencer, an archaeologist with the British Museum.

Work is already under way on the first of the three dams, on the Upper Atbara tributary of the Nile, about 400 kilometers southeast of the Sudanese capital of Khartoum. The 500,000 hectares that will be flooded by 2015 include hundreds of Neolithic settlements and cemeteries, says NCAM’s El-Hassan Ahmed Mohammed, who surveyed the area in 2010.

Two other dams are in the works. Contracts have been signed to build the Kajbar and Sherei q dams on the Nile itself; these will take 6 years to complete once the government gives a final green light, said Muawia Mohamed Salih of Sudan’s dam-implementation unit. Both dams threaten an enormous spread of sites

Damned village. The proposed Kajbar dam would flood the medieval settlement of Nauri on the Nile.

from the Neolithic to more recent times. The Kajbar region, south of the Egyptian border, was at the frontier of Egypt’s New Kingdom around 1600 B.C.E. and at the southern fringe of the 16th century C.E. Ottoman Empire. In preliminary surveys, Edwards counted more than 700 sites spanning 5000 years, including a rare settlement predating the Kerma civilization, the first Nubian kingdom, which flourished starting about 2500 B.C.E. Because so little is known about the origins of Kerma, excavating that settlement is “an absolute priority,” Edwards says. He also cataloged a “massive and classic Kerma site” as well as New Kingdom Egyptian sites. Medieval churches and forts dot the area, as do later traditional Nubian fortified tower houses and rock carvings. Farther south, the Sherei q Dam would inundate forts from several periods, added Mariusz Drzewieki of Adam Mickiewicz University in Poznań, Poland.

NCAM’s Ali pledged logistical support for foreign archaeology teams to conduct salvage excavations before the waters rise and said teams would be allowed to take home a portion of the artifacts. Some monuments threatened by the Kajbar dam—from rock art to Christian frescoes—may be important enough to require moving them to higher ground. This would require new roads,



Ships underwater? These rare, 4000-year-old boat drawings on rock would be difficult to rescue from rising waters.

heavy trucks, and an enormous amount of expertise and money—“vast amounts of work,” said British Museum archaeologist Derek Welsby, who has studied the monuments most likely to be affected.

These Nile sites are important in under-

standing interactions between Egypt and Nubia, tracing the impact of climate change, and preserving the region's complex religious and cultural heritage, the archaeologists agreed. But a few recalled that protests by villagers against the Merowe Dam led to violent clashes with the government, sometimes putting archaeologists in difficult and dangerous situations. Some worry that salvage work for the new dams might imply support for the projects. "Can we conduct a research program without being part of building dams?" asked Bruce Williams, an archaeologist at the University of Chicago in Illinois, to scattered

applause. But Spencer countered that "we can't be debating ethics while dams are built."

Despite the signed contracts, exactly when—or whether—the Kajbar and Shereiq dams will be built remains unclear. Rising inflation, a continued embargo imposed by the United States, and the loss of oil revenues with the creation last year of South Sudan threaten Khartoum's plans. "The pace of construction may be affected," admits Khalid al-Mubarak, media counselor at Sudan's embassy in London. And locals most affected by the projects are organizing to stop them. "There will be no compromise; we Nubians will fight to the

end," promised Halim Sabba, a member of an organization that distributed leaflets at the meeting decrying the dams as a threat to their cultural survival.

Sabba and archaeologists are heartened by the Sudanese government's informal decision to put on hold plans for the Dal Dam between Kajbar and Egypt's High Aswan Dam to the north. That structure would drown important Egyptian and Nubian temples and settlements, requiring a huge multibillion-dollar rescue effort, and Sudanese officials said privately that the plans for that dam have quietly been shelved.

—ANDREW LAWLER

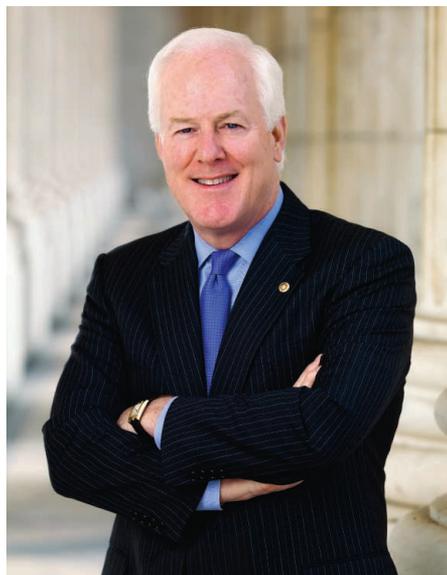
IMMIGRATION REFORM

Senate Bills Would Make Room for More STEM Graduates

The U.S. Senate has waded into the debate over whether to permit more foreign-born scientists trained at U.S. universities to stay in the country. Although prospects are uncertain for two bills introduced last week, one of which is bipartisan, the legislation is seen as a sign that Congress is finally thinking seriously about how to tweak immigration laws to retain technical talent without triggering a political free-for-all on the more contentious issue of illegal immigration.

"Short of comprehensive immigration reform, which we'd love for Congress to tackle, we're happy to see these bills," says Barry Toiv of the Association of American Universities, a group of 61 prominent research universities. "These immigrants are job creators," notes Kasey Pipes, a spokesman for a coalition called Compete America that has marshaled high-tech companies, professional societies, and other higher-education organizations in urging Congress to act. "And while we're not taking sides, both bills are asking the right question: How do we keep more skilled foreign students in the country after they graduate?"

Both bills—one from Senator John Cornyn (R-TX), and the second from senators Chris Coons (D-DE) and Lamar Alexander (R-TN)—argue that the U.S. economy is weakened by current barriers facing foreign students who receive graduate degrees in science, technology, engineering, and math (STEM) fields and want to put down roots in the United States. Cornyn's plan, called the STAR Act, would allow STEM graduates from institutions receiving at least \$5 million in federal research grants to lay claim to permanent residency without increasing the overall number of so-called green cards issued each year. It would do so by ending a program



STEM-winder. John Cornyn says his plan would create more jobs.

that awards 55,000 green cards to all manner of applicants via a lottery; those slots would go to STEM graduates. "This is about better targeting the visas we currently have," says one Cornyn aide.

The second bill, dubbed the SMART Jobs Act, would create a new visa category for students pursuing graduate STEM degrees and provide them with a direct route to a green card once they have found a job. They would not count against the current immigration ceiling.

Both bills would, in effect, remove the need for foreign graduates to temporarily extend their right to remain in the country by having employers certify that they are uniquely qualified for the job. That certification earns them an H-1B visa. (Cornyn's bill excludes post-

docs, while Coons and Alexander would consider them to be eligible.) But holders of H-1B visas often fail to obtain permanent residency because caps on the number of green cards can mean long waits for immigrants from particular countries.

"American universities are educating the world's leading STEM graduate students—only to export this talent to our competitors overseas," Cornyn declared in a statement accompanying the release of his bill. The next day, Coons offered a historical perspective on why changes to the current law are needed. "Fifty years ago, if you came here from another country and got a doctorate, ... your chances of applying your skills and strengths to create jobs in your home country were dramatically less than here. But times have changed, ... and it's time for us to modernize."

Last year, representatives Zoe Lofgren (D-CA) and Raúl Labrador (R-ID) introduced bills in the U.S. House of Representatives that, using very similar language, would give foreign STEM graduates a clear path to permanent residency as well as strengthening STEM education programs for U.S. citizens. But neither bill has made it out of committee. Supporters of STEM immigration reform think a bill being readied by Representative Tim Griffin (R-AR) may stand a better chance. Representative Lamar Smith (R-TX), chair of the House Judiciary Committee, is believed to be the pivotal player in any decision to move a reform bill before the current Congress adjourns in December. And he's holding his cards close to the vest.

That uncertainty doesn't bother reform advocates, however. "What's important right now is less the details than that Congress may finally be trying to address the issue," Toiv says.

—JEFFREY MERVIS