World's Largest Radio Telescope Abandoned by Germany

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Germany's science funding may look healthy to outsiders, but its research ministry seems to have stretched its cash too thinly. Last week, it decided that helping to fund the world's biggest radio telescope — to be built in South Africa and Australia by 2024 at a cost of more than €1.5 billion (US$2 billion) — was one international mega-project too many. On June 5, it said it would pull out of the Square Kilometer Array (SKA), to the dismay of German astronomers, who say that they were not consulted and are hoping to reverse the move.

"It looks like Germany is in danger of derailing one of Africa's first really big science projects," says Michael Kramer, the director of the Max Planck Institute for radioastronomy in Bonn. From the SKA's point of view, however, a loss of German support (which might have amounted to tens of millions of euros to an estimated €650-million first construction phase) would be "disappointing, but not catastrophic", says Philip Diamond, director-general of the SKA Organization, headquartered in Manchester, UK, which coordinates the efforts of ten supporting nations. Nonetheless, says Diamond, "I and my German colleagues are working hard to do what we can to overturn this decision".

The SKA is named for the total collecting area of its 3,000 15-meter-wide radio dishes, most of them to be built in South Africa, with some dishes and hundreds of thousands more simple antennas in Australia. Astronomers are meeting in Sicily, Italy, this week to discuss research plans for the mega-project, which would capture radiowave emissions from the Universe going back to when the first stars were born, a few hundred million years after the Big Bang. The organizers boast that the telescope will be able to detect a television signal from a planet circling a star tens of light years away, should any aliens be broadcasting.

From the science perspective, Germany is a major player in the project, says Kramer. At this week's meeting, an updated SKA 'science book' — a comprehensive discussion of key science projects — was released; and in the tally of the national affiliations of lead authors contributing to each chapter, Germany comes in third. "We estimate a community of about 400 people actively interested in supporting the SKA," Kramer says. Kramer himself leads an effort to detect gravitational waves from radio observations of pulsars, a project that he says has in part driven the design of the telescope.

But in funding terms, it was a lesser light. Germany had not yet negotiated its share of the €650 million first construction phase of the SKA beginning in 2017–18, which would involve adding more than 100 dishes to existing facilities — MeerKAT in South Africa, and the SKA Pathfinder in Australia. South Africa and Australia have already put hundreds of millions of euros into these precursor telescopes, but only the United Kingdom has so far definitely pledged future cash, of £100 million (US$168 million). Germany would have been expected to pay in a little less than that, says Diamond.

“The withdrawal is not such a huge reversal as you might think,” adds John Womersley, a particle physicist who chaired the now disbanded founding board of the SKA. Germany’s science ministry (the BMBF) is trying hard to stretch its budget across a number of large European projects expected to open in the next few years, he notes, including the European X-ray free-electron laser (XFEL) project in Hamburg (to produce X-rays from 2017), an international accelerator for antiprotons and ions (FAIR) in Darmstadt (providing beams of ions from 2018), and the European Spallation Source in Lund, Sweden (shooting out powerful neutrons from 2019). “The impact of finite budgets is being felt in those projects,” he says.

In Germany, however, astronomers are unhappy. “The decision has apparently been made internally in the ministry, without any consultation with the astronomy community,” says Kramer, who was talking to *Nature*from the sidelines of the Italian conference. If Germany did pull out, then its scientists would lose most of their time with the telescope, he says, because only a very small percentage of international time will be allowed for research from nations who didn’t contribute to funding. German industry would also lose out, since it would not be able to win contracts for the telescope’s construction. “I have heard from colleagues that other ministries are also shocked and surprised by the decision, and some are hesitating about what to do,” he adds.

Still, none of this indicates an international loss of confidence in the SKA project, emphasize Kramer, Diamond and Womersley. In a statement on its website, the SKA Organization said that it understood the pull-out was “driven by difficult national financial circumstances around the funding of large research infrastructures in Germany and Europe and that it by no means reflects a lack of confidence in the SKA project” — a statement South African science minister Naledi Pandor emphasized in her response to the announcement. Pandor, who called the decision “regrettable”, will set up a meeting with her German counterpart to discuss the issue in the next few weeks, according to a statement from the South African science ministry.

There is still time to change the German ministry’s mind: its commitments run out on June 30, 2015, under current legal agreements. But “they present this as a pretty final decision,” Womersley says.

The ministry did not yet reply to requests for comments (today is a national holiday in Germany).

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