

ACOUSTICAL SCIENCE

Major European Cities Are Quietly Missing Antinoise Deadline

PARIS—The Europeans have many words for noise—bruit, Lärm, fracasso—but few plans for reducing it. At a conference* here in France's noisy capital last week, European acoustical scientists admitted that they and most policymakers are not close to meeting an 18 July deadline to develop action plans to shush the European Union's (E.U.'s) largest cities.

Chronic noise has increasingly been linked to sleep problems, poor education, and even serious heart disease. Yet urban noise reduction is a daunting—and expensive—task; most scientists are still struggling just to locate noise hot spots.

The action plan deadline stems from a 2002 E.U. antinoise directive. "Europe has a bigger noise problem than the United States," says Gaetano Licitra, an environmental acoustics consultant helping the Italian region of Tuscany muffle its noise. "Instead of spreading out in suburbs, we tend to both live and work in the same area, and our cities more often have railroads going right through the center and nearby airports."

The first stage of the E.U. directive required mapping noise levels in all cities with at least 250,000 people. This is largely done with virtual models of cities that estimate people's average exposure to loud sound sources such as automobile, railroad, and airplane traffic and industry. One problem is that an urban noise map is a moving target, with infrastructure and traffic patterns constantly changing. Another is that "noise is not the same thing as loudness," says Brigitte Schulte-Fortkamp, an environmental acoustician at the Technical University in Berlin. "Loudness is physical and can be measured in decibels with a sound meter, but noise is a psychological phenomenon."

People are far more tolerant of sound levels depending on the context and source,

researchers noted at the meeting. Relatively loud natural sounds from birds and water, for example, can put people at ease, whereas quieter sources, such as an electrical buzz, cause stress. Surveys have also found large variation in noise tolerance among people and even between whole communities.

So far, despite a June 2007 deadline for the noise maps, only a handful of major European cities have charted their soundscapes. Even fewer are close to proposing an antinoise action plan. "Most realize they will miss the deadline," says Schulte-Fortkamp. "Now there is a scramble to finish" because failure to comply will result in stiff fines in a few years. An exception is Berlin. Not only has the city mapped its noise, but an action plan is already in public consultation.

Most of the noise reduction in cities will come from changing transportation infrastructure, strictly regulating where trucks can travel, and relocating speed bumps and traffic lights, for example. One high-tech solution discussed at the meeting is to make the noise sources quieter. Nils-Åke Nilsson, an acoustic engineer based in Täby, Sweden, reported that asphalt containing grains of rubber hushed traffic significantly in sections of the Swedish city of Göteborg. Another strategy noted is insulating buildings better from outside noise. Pierre Leroy, a materials scientist at the French National Center for Scientific Research in Marseille, introduced a

"smart foam" that efficiently dampens not only high-frequency sounds, such as the screech of brakes, but also the more difficult low-frequency sounds made by truck engines and underground trains. The foam could be incorporated into walls and road barriers.

The complexity of dealing with noise is daunting, but E.U. cities are also dragging their feet, says Licitra, because "once you have an action plan, then you have to start spending real money to address the problem, and that will cost billions."

—JOHN BOHANNON



Taking action. Berlin (above) has a plan to reduce urban noise from sources such as traffic.

Academic Hackers in Court

A Dutch court is set to decide whether academic researchers can reveal how they cracked one of the most widely used security cards in the world. Chip producer NXP of the Netherlands has sued to prevent computer scientists from Radboud University in Nijmegen from discussing the topic at an October symposium in Spain. As part of a program to identify security weaknesses, the researchers announced in March that they had figured out how to "clone" MIFARE Classic, a chip used in hundreds of millions of building security and transit cards. Bart Jacobs, who led the work, says that academic freedom is at stake; NXP is "trying to kill the messenger," he says. A company spokesperson declined to comment. A verdict is expected before 14 July, the deadline to submit final papers for the Málaga meeting.

—MARTIN ENSERINK

Postdocs Unionize

The 5000-odd postdocs at the University of California (UC) may be on the verge of forming the biggest postdoc union in the United States. More than 3000 UC postdocs have signed cards to be represented by the United Automobile, Aerospace and Agricultural Implement Workers of America (UAW), according to Matthew O'Connor, a bioengineering postdoc at UC Berkeley who helped collect the signatures. "Many of us realized that [popular] postdoctoral associations are great for professional networking and career development but are not as well equipped to deal with issues like wages and benefits," says O'Connor. Previous attempts to unionize have failed to gain state certification (*Science*, 10 November 2006, p. 909). If the postdocs clear that hurdle, the next step is collective bargaining with UC officials.

—YUDHIJIT BHATTACHARJEE

CNRS Reforms Adopted

PARIS—A controversial plan to create a series of new institutes within France's National Center for Scientific Research (CNRS) was approved by the center's board on 1 July. Scientist labor unions gave up their resistance after last-minute concessions from the French government, including dropping the idea to give some of the new institutes a privileged "national" status. The plan is a general outline, however; Jean-Luc Mazet of union SNCS-FSU predicts that "the battle will resume" when details are hammered out in a contract between CNRS and the government this fall.

—MARTIN ENSERINK

*Acoustics'08, Paris, 29 June to 4 July.