

## French ministries seek way out of lab supplies crisis

[PARIS] The French science ministry is engaging in administrative juggling with the finance ministry in a bid to overcome a crisis in the supply of laboratory reagents to research agencies.

The problems stem from the agencies' difficulty in meeting new procurement rules for public markets. The law now requires all orders above FF300,000 (US\$50,000) to be put out to competitive tender.

This sum is quickly reached by the big national agencies, which buy many items such as animals, scientific apparatus, biological reagents and journals in bulk. Companies submitting the winning bid become the sole source of supply to that institution for the year-long contract.

The finance ministry last year ended an exemption from these rules for researchers (see *Nature* 396, 297; 1998). As a result, agencies must now buy most supplies in competitive tenders at the start of the year; a delay in doing so at the biomedical agency Inserm has led to its established orders drying up before the new ones have come into effect.

The problem is less acute at the basic research agency, the Centre National de la Recherche Scientifique, which, according to one official at the science ministry, anticipated the difficulties better. As an emergency measure, the ministry last week negotiated bridging funding for orders from Inserm.

But the ministry is also pressing the finance ministry to take into account the specific needs of research agencies. It argues that the law is badly suited to research, as it is difficult to predict so far in advance the reagents that are needed.

The finance ministry also ruled that orders should specify the 'product' and not the 'supplier' — although any scientist knows that supposedly identical reagents can behave differently. One official at the finance ministry is unsympathetic to this claim. "If the products are different, researchers can buy from different suppliers, but it is up to them to show a technical imperative," he argues. "If one product works better than another, then they must be different."

One administrative manoeuvre under consideration — and which the science ministry hopes to have accepted within six months — would allow agencies to pass 'virtual contracts' with several suppliers for a particular product, with orders for specific products only being made as needed.

"The agencies would act like a super-market," explains a science ministry official. "They would order all the varieties of pasta on the market — and then allow scientists to choose between the brands." **Declan Butler**



Murky waters: millions of cubic metres of acidic water were pumped from the area affected by the spill.

## Doñana clean-up 'left half the soil still contaminated'

[BARCELONA] The Spanish government was overoptimistic when it initially evaluated the consequences of a toxic spill from the Swedish company Boliden's pyrite mines into the Guadiamar River and a small part of the Doñana National Park last April, according to the latest analysis.

The Higher Council of Scientific Research (CSIC), which was asked, in collaboration with universities, to monitor the clean-up operation, produced a map last week showing the current level of contamination in the 4,000 hectares of agricultural land that was covered by toxic sludge.

CSIC researchers estimate that, even after an intensive clean-up, half the soil contains acidity or heavy metals — especially arsenic and zinc — at concentrations that César Nombela, head of the CSIC, says "should still be called contaminated". Average pollution levels have been found to exceed 50 to 100 parts per million (p.p.m.) of arsenic, and 15 per cent of the area may contain more than 275 p.p.m. of arsenic. International standards suggest a maximum of 50 p.p.m.

CSIC's report conflicts with an announcement in February by the Ministry of Agriculture that 84 per cent of the agricultural soil affected by the toxic spill is now suitable for cultivation. According to CSIC, government scientists appear to have based their study on only three elements — zinc, copper and lead — and to have ignored arsenic.

The accident led to the removal of 4 million tons of waste, in the form of sludge, and 4 million cubic metres of acidic water.

The clean-up work ended in January, having cost US\$100 million. During the five months of intensive work, however, it was not possible to prevent the drying up and chemical oxidation of the sludge covering the river bed and 4,000 hectares of agricultural soils.

The oxidation increased the acidity of the soil, which was also penetrated by pyrite-

containing metals. The challenge now is to find ways of cleaning up the soil. Some chemical procedures are already being applied to reduce the acidity and to immobilize metals in an attempt to prevent them from penetrating into the groundwater.

CSIC's researchers are also considering using the technique of phytoremediation to remove arsenic from the soil. This involves the use of certain plants, including *Brassica* species indigenous to Spain, that can take up arsenic in large quantities through the roots.

Despite the lack of experimental data on the usefulness of such methods, Nombela says CSIC's scientists "have demonstrated the absorptive capacity of arsenic by indigenous plants" and argues that this will "soon lead to field tests to evaluate practical applications". Work on achieving this by developing genetically modified plants, containing a bacterial gene, is said to be in its preliminary stages.

An international meeting in January in Seville discussed remediation schemes. But, rather than agreeing on the use of phytoremediation, it was concluded that, partly as a result of the high concentrations of arsenic, there is no short- or medium-term solution to the pollution in Doñana's wetlands. Participants agreed that the only feasible strategy was to immobilize the toxic metals as an interim measure.

CSIC's strategy is controversial. Luis E. Santamaria-Galdón, an ecologist at the Netherlands Institute of Ecology, says he cannot understand why CSIC insists on using transgenic plants and microorganisms: "The problem is too urgent to start developing previously unknown techniques."

But Nombela argues that "the molecular analysis of genes and biochemical mechanisms of absorption of pollutants offers an obvious path for scientific exploration that may also contribute to the development of new technologies." **Xavier Bosch**