

Nine months after toxic waste devastated marshlands in southern Spain

## **World scientists meet to discuss Coto de Doñana disaster**

**Vicky Short**  
**19 January 1999**

Nine months after the ecological disaster that hit Europe's biggest natural park, the Coto de Doñana in the south of Spain, 60 scientists from Europe, the US, Chile and South Africa met to discuss how to treat the heavy metals remaining in the area. Sponsored by the European Foundation for Science and the Scientific Investigations High Council--Consejo Superior de Investigaciones Científicas (CSIC)--they held a four-day conference in a Seville hotel.

On April 2, 1998, a dyke wall gave way at a reservoir used for dumping poisonous chemicals, owned by the mining company Boliden Ltd. Seven million tonnes of toxic sludge poured into the Aznalcóllar mines' surrounding area, which adjoins Coto de Doñana. The 50-metre breach released a massive wave of toxic waste, with a front 500 metres long. It flattened and killed everything in its path as it flowed into the River Guadalquivir at a speed of 1 km per hour. The wave moved downstream in rivers and man-made channels to the Gulf of Cadiz. Nothing survived because of the high acidity of the waste, which contained a mixture of lead, copper, zinc, cadmium and other metals, along with sulphides.

In its first year of operation in 1997, Boliden Ltd, a Toronto-based company that moved to Canada from Sweden two years ago, produced 180,000 tonnes of zinc, lead, copper and silver from 4 million tonnes of ore.

In their conclusions, the scientists warn of the difficulties of applying any treatment to a 25-mile area due to diverse soils, air exposure and concentration of the contaminants. Victor Lorenzo, one of the CSIC investigators, said, "We have never dealt with a problem of this magnitude." He added that the problem of eliminating the heavy metals remaining in the banks and the riverbed of the Guadalquivir has no immediate solution,

although it is feasible in the coming years.

The scientists identified the biggest nightmare as the treatment of arsenic, for which there is presently no means of extraction. To overcome this problem they intend to experiment with genetically modified plants, converting the River Guadalquivir valley into a natural laboratory, where the best experts in soil decontamination will apply biotechnological innovations.

The usual treatment for soil contamination is a combination of bacteria and plants which "suck up" the contaminants. One of the CSIC reports recommended the sowing of different types of 'brassica', a plant characterised by its capacity to extract several of the metals from the sludge such as lead, zinc, copper and cadmium. These and other similar plants used, however, are incapable of extracting arsenic.

Arsenic can appear in as many as seven highly toxic chemical combinations. The scientists' report makes clear that "there is an urgent need to develop technologies which don't yet exist but which can be possible to develop". In the past few years, new genetic techniques have been developed that have aided soil decontamination specialists. Optimism exists, after a gene was implanted in the poplar tree which has succeeded in enabling it to extract from the soil a highly toxic chemical type of mercury and transforming it into another inoffensive type, which then dissolves in the air.

The scientists expressed their hope that if the investigation in the Guadalquivir valley is channelled in this direction, they will be able to develop genetically modified plants specialised in the extraction of arsenic within the next three years. However, Gijs Kuenen, professor at the University of Delft (Holland), warned at a press conference that the extraction of arsenic is a "long-

term question which has no 100 percent solution".

The full extent of the arsenic contamination is not yet known. According to the data given by the Boliden company, it is calculated that around 40,000 tonnes of arsenic reached the Guadimar riverbed. While 10 million tonnes of sludge have been excavated so far, experts warn that environmental exposure has accelerated the filtering of the heavy metals deep into the subsoil, making it impossible to dig out. As well as this, nine months later a percentage of the arsenic, zinc and lead embedded in the river will now have a different structure. Exposure to the air produces chemical reactions, in which the intervention of oxygen in an acidic environment converts sulphides into sulphates, making them more soluble and mobile.

This poses the problem of where to put the "sucking" plants, taking into consideration the mobility of the metals, the rate of mobility, and natural elements such as heavy rains, etc. In order to measure this the experts will use another invention of molecular biology: a bacteria whose DNA has been reconstructed to enable it to emit light when it enters into contact with the heavy metals. Greater brightness will indicate a larger mobility.

"This is all part of a grand experiment," said Kuenen. The scientists will be meeting again in a year's time to discuss the implications of advances in the application of biogenetic techniques in their task of decontaminating the Guadimar valley.

While the Spanish press marvels at these undoubtedly amazing scientific experiments and discoveries, scores of people involved in mining, fishing and agriculture have lost their means of subsistence and are exposed daily to terrible health hazards as a result of this disaster. The consequences of eating, drinking and breathing these toxic metals for future generations are incalculable. A major natural park has been all but destroyed. Many parts of this area of natural beauty will never be regenerated. Birds, rare anywhere else in Europe, and other valuable animals have either died, or migrated.

Economic considerations and profit motives gave rise to this catastrophe. For years the owners ignored repeated warnings that the dam was unsafe and continued to pour toxic waste into it.

Even today Boliden Ltd are making every effort to recommence operations, bypassing safety considerations. January 12 the Doñana National Park Trust (Patronato del Parque Nacional de Doñana) unanimously rejected an application by the company to reopen the Aznalcóllar mines, which have been closed since the disaster. The company project proposed sealing the damaged reservoir,

which still contains 80 percent of the water and toxic waste held before the dams breach, and reopening an open-cast mine 1 kilometre away to damp the mine's future toxic waste. Currently, this area is acting as the depository for all the sludge removed from the river.

In turning down the project, the trust stated that it did "not guarantee that a similar accident may not occur in the future". They objected to the lack of assurances as to the impermeability of the new reservoir, the lack of information on fundamental aspects of air and water safety and the absence of any plan for dealing with emergencies and catastrophes. The trust also said that the company had failed to produce documents relating to emergency work carried out on the dyke and further cited the lack of any plans to continuously monitor the sealed reservoir over the required 100-year minimum period.

The Swedish-Canadian multinational arrogantly responded that if it is not given an alternative to the use of the open cast mine, its operations "will be closed 100 percent", stating that no "economically and physically viable" alternatives were available. It also ruled out the possibility of constructing a new reservoir elsewhere.

For its part, the Socialist Party's immediate concern, as expressed by its mayor, Francisco Márquez, is to push for the reopening of the mining operation--apparently at any cost. He announced that he would seek to mobilise the people of Aznalcóllar, the majority of whom worked for the mine, behind this demand.



To contact the WSWS and the  
Socialist Equality Party visit:

**[wsws.org/contact](https://wsws.org/contact)**