

HUNGARY AND THE MEMORY OF DOÑANA

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The [accident that took place in Hungary last Monday](#) reminded us of the ecological disaster that occurred on [April 25, 1998 in the province of Seville](#), when the containment dam of the decantation pond of a pyrite mine broke. Although on that occasion there were no human losses to be regretted, there were very serious environmental impacts and large economic losses.

The 5 million cubic meters of acid water and toxic sludge dumped into the rivers [Agrio](#) and [Guadamar](#), caused the death of multitude of aquatic species that inhabited the Agrio and Guadamar rivers (between April 25 and May 27, about 38 tons of dead fish were collected from the rivers and their battered banks). The flooding of the riverbanks also killed some terrestrial vertebrates of different species (1 stork, 11 mallards, 8 coots and 8 rabbits) and destroyed 4,630 hectares of agricultural and livestock land in 9 Seville municipalities. Another 2,300 hectares were indirectly affected by causes directly related to the accident, such as contamination of irrigation water.

In those years I was working at [a British research center](#) concerned, among other things issues, to know the mining sector and its relations with its environment. In the first half of 1999, we analyzed the economic effects associated with the ecological disaster caused by the spillage from the Aznalcóllar mine. The conclusion was clear: the physical impacts of the spill caused considerable economic losses in the region. Crops were lost on the land affected by the spill and income was no longer received because ranchers were forced to reduce the number of cattle raised in the area. The death of fauna reduced the benefits derived from the sale of fish and terrestrial vertebrates suitable for human consumption.

The [Agrarian Association of Young Farmers](#) (ASAJA) and [Crawford THG](#) estimated the annual value of present agricultural losses, taking into account Consider the price that the different products would have reached in the market (lemons, cotton, olives, rice and cereals among others) in the year of the accident and multiplying it by the lost production/crops. Its calculation yielded a result of 1,446 million pesetas (8.7 million euros) of present losses. But in their calculation they did not take into account future (but real) income losses, associated with the fact that farmers in the area would never again be able to use those lands for productive purposes. Assuming a discount period of 20 years (although the period will be longer) and considering a discount rate of 10%, the present value of future losses (foregone income) amounted to 13,700 million pesetas (82.7 million euro). For a discount rate of 3%, the losses were 23,000 million pesetas (138 million euros). The [company that owns the mine](#) compensated the farmers for the annual value of current losses (that is, 8.7 million euros), but not for the expected value of future losses or for the value of other issues that are more difficult to quantify, such as sentimental value.

The economic damage associated with the flooding of 457 hectares of prairie and the consequent loss of pasture for cattle in the area were also estimated. To estimate livestock damage, it was considered that the disappearance of pastures reduced the availability of food for livestock in the area and forced farmers to reduce the number of heads raised. Annual losses for the year of the accident amounted to 3.5 million pesetas (21,000 euros). Assuming a discount period of 20 years and a discount rate of 10%, the present value of the income not received by the farmers amounted to 33.3 million pesetas (200,400 euros). For a discount rate of 3%, the losses were 55.6 million pesetas (334,400 euros).

Finally, the economic consequences associated with the impact of the spill on the fauna of the affected area were estimated. Terrestrial and aquatic species found dead in the days following the spill would also have had a market value. In this sense, the spill also caused economic damage to

the area, although of a lesser magnitude than those associated with the agricultural impact. Assuming that the market price of the species is a good indicator of its opportunity cost, the losses associated with the death of species were calculated by multiplying the number/amount of "victims" collected up to May 27 by their market price. . For commercial aquatic species (2.2 tons of whitefish; 1.5 tons of eels; and 2.2 tons of crabs), the current losses amounted to 2.2 million pesetas (13,500 euros). For terrestrial species with market value (the [Decree 4/1986](#) and the [Order of June 25, 1991](#) establishing the market value of storks, mallards, coots and rabbits), the present losses amounted to 677,000 pesetas (4,000 euros).

The magnitude of the consequences of the terrible accident in Hungary will surely be very different from that of the Aznalcóllar mine spill. In Andalusia, the authorities acted quickly and in coordination to prevent much greater damage to people and ecosystems. They decided to retain the water in the Doñana Pre-park and thus prevent the sludge from reaching the [National Park](#), which would probably have had dramatic consequences for that rich ecosystem. They adopted a series of resolutions to safeguard people's health: on April 28, fishing was prohibited in several areas, and on May 5, the procedures for the implementation of the Plan for the Conservation and Protection of Soil were ordered. In the affected areas and the adoption of provisional measures related to agricultural activities, a collection system for the destruction of crops in the flooded area was established on May 13. The magnitude of the environmental and economic impact of what happened in Hungary will depend a lot on the toxicity of the substances dumped, but also on the emergency measures that the authorities of that country are capable of adopting. What happened in Andalusia on April 25, 1998 and the decisions taken in the following days should serve to better manage the environmental catastrophe in Hungary.

There are no comments yet.