Fundación Nueva Cultura del Agua

THE EBRO WATER TRANSFER, A WASTE OF MONEY
The water quality of the Ebro river

The Spanish National Hydrological Plan (SNHP) proposes a water transfer of 1050 hm^3 per year from the Ebro river in the north to the "dry" southeast region of Spain. Of the transferred water 40% is earmarked for drinking water. Data shows however, that the transferred water will not have the quality needed to be used as drinking water. This means that the water can only be used for irrigation. **WWF and the New Water Culture Foundation (FNCA) conclude that the poor water quality of the Ebro water is strong evidence that the water transfer is not the best solution for the water problems in the southeast region of Spain.**

The Ebro water is not of a high enough quality to be used in drinking water preparation

To determine the water quality of the Ebro river two parameters are used (at the monitoring station of the Ministry of Environment in Xerta[1]):

1. The conductivity of the water, which is the same as the salinity of the water.
2. The amount of sulphates in the water, which is one of the salts contributing to the salinity.

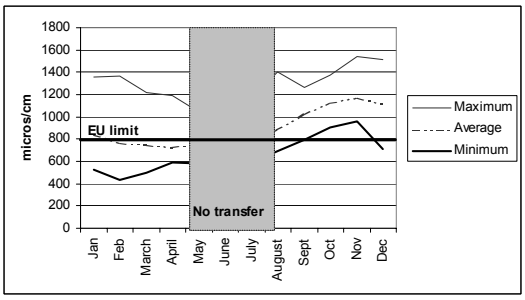

Illustration 1. Conductivity Ebro water

The EU uses a guide value for the **conductivity** of water to be used in the preparation of drinking water, which is 1000 µs/cm. Illustration 1 shows that as an average this norm is crossed in autumn. The autumn months are included in the months that water will be transferred. In a bad year, the water quality is above this limit for the whole year. The transport will worsen the conductivity of the water, which means that according to the EU norm it is better to not use the water as drinking water. The high salinity isn't only bad for human health, but also for pipelines and domestic and industrial equipment, as it erodes them more quickly.

However, the main problem with the Ebro water quality is not the current situation, but the expected future statistics. During previously measured periods (1981-1986 and 1994-2002) the conductivity has risen by 17,6%. Moreover, the Spanish government expects that the salinity will increase by 20-50%, which will result in an average salinity of 1600 µs/cm. Taking into account the high seasonal variations, this can lead to conductivity levels of above 2000 µs/cm in autumn.

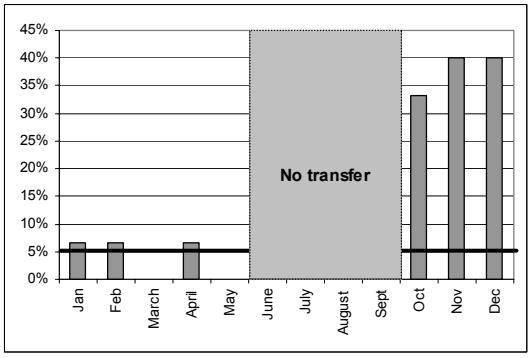

Illustration 2. The percentage of sulphate levels above the EU norm in the Ebro river

Regarding **sulphates**, the EU uses two types of norms:

- An obligatory norm of 250 mg/l
- A guide value of 150 mg/l

The EU Directive is violated, if water crosses the limit of 250 mg/l in more than 5% of cases. As shown in illustration 2, in nearly all months this norm is crossed. In autumn, in nearly 40% of the cases, the sulphate norm is not reached. This means that in this period, the water cannot be used in drinking water preparation.

The future trend can be compared with the predictions on conductivity, so an increase of the sulphate level by 50% is possible.

[1] At the moment of measurement, the Spanish government had determined Xerta as the place to start the transfer. Further downstream will result in worse data on both parameters.

Water quality in the receiving river basins will worsen

The high conductivity and sulphate levels will increase during the water transport for the transfer. This will negatively affect the water quality in the receiving river basins:

- The actual average conductivity in the Ebro water is 20 to 50% higher than in the Mijares river.
- The conductivity of the water near Tous (major drinking water reservoir for Valencia) will cross the drinking water norms, because of the Ebro water transfer.
- The Ebro water transfer will worsen the already existing water quality problems in the Segura river basin. The construction of the Tagus-Segura water transfer should be viewed as a lesson, as it has already led to an increase of water use in agriculture resulting in a higher use of pesticides and fertilizers. The higher amount of fertilizers has directly led to a jellyfish plague in the wetland Mar Menor.

The Zebra mussel can cause problems in the distribution network

In July 2001 the presence of the Zebra mussel (*Dreissana polymorpha*) was detected in several parts of the Ebro river. In some places the density reaches more than 500 mussels per square meter. The Zebra mussel drastically reduces the amount of phytoplankton in the water. This can lead to the extinction of various other water dependent species.

Next to the ecological impacts, the Zebra mussel also has negative economic impacts. The mussel enters pipelines or water intakes, resulting in blockages and problems with industrial equipment.

It will be unavoidable that the Zebra mussel will be transported via the water transfer to the receiving areas, spreading the problem over the whole of Spain.

Illustration 3. The Tous dam

There are good alternatives for the Ebro water transfer

WWF and FNCA propose a new water culture, which emphasises water demand management. Alternatives for the Ebro water transfer are therefore:

- Control and planning of the water use.
- Application of water saving technologies.
- Implementation of water markets under strict public control.
- Re-use of waste water.
- Desalinization of sea or brackish water.

These alternatives are cheaper and deliver water of a better quality faster than the Ebro water transfer.

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The full text of this report is available at the following website: www.panda.org/dams
The text on the Zebra mussel is based on the report "Localización y evaluación de una nueva invasión biológica: el mejillón cebra (*Dreissena polymorpha*) en el Ebro"; *Published by Ministerio de Medio Ambiente and Grupo Natura Freixe in 2002*