

Case Study for the 2006 HDR

WATER TRANSFER FROM THE EBRO RIVER

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The transfer of water from the Lower Ebro River was approved by the Spanish Parliament on 5th July 2001, under the Law 10/2001, on the National Hydrological Plan.

The main objectives of the National Hydrological Plan were the following:

- To improve the status of water in the public domain.
- To manage water supply and to meet present and future water demands through rational, sustainable, balanced and fair exploitation of water which will ensure a guaranteed sufficiency and quality of the resource for all uses, as well as long term protection of available water resources;
- To bring the availability of the resource into balance by protecting its quality and economising its use, in harmony with environment and other natural resources consideration.

Regarding the last objective, the Plan proposed to solve the existing imbalances in water availability within the country through water transfers between different basins at an estimated cost of 6,000 million euros (Melgarejo-Moreno, J., 2002).

The article 13 of the Law authorised a transfer of up to a total of 1,050 cubic hectometres (hm^3) per year from the Lower Ebro River Basin as follows:

- a) transfer of up to 190 hm^3 to the territory considered in the Catalonia Inland Basins Plan;
- b) transfer of up to 315 hm^3 to the territory considered in the Júcar Basin Plan;
- c) transfer of up to 450 hm^3 to the territory considered in the Segura Basin Plan; and,
- d) transfer of up to 95 hm^3 to the territory considered in the southern Basin Plan.

Out of the $1,050 \text{ hm}^3$ of water that could be transferred, 440 hm^3 would account for future urban and industrial uses, 340 hm^3 would eliminate the existing overdraft of groundwater by agricultural users, and 220 hm^3 would guarantee the supply for existing agricultural users (Melgarejo-Moreno, J., 2002).

¹ The comments of Prof. Antonio Embid, University of Zaragoza, and Dr. José Albiac, Agrifood Research and Technology Centre, Zaragoza, Spain, are gratefully acknowledged.

The National Hydrological Plan stipulated that in addition to the transfer of water, it would also consider additional measures “for rationalising and optimising use of water resources.” A main requirement was that the donor basin should never be put to a disadvantage, and that the ecological considerations should receive priority attention. It also noted that transferred water should not be used to develop new irrigated areas, or extend existing ones, but to cover urban needs in the receiving areas. Water could be used to support irrigation schemes in precarious conditions, provided rational and effective water management practices were being used, and also to restore the environmental sustainability of the receiving basins.

The Plan claimed to comply with the requirements of the European Water Framework Directive in terms of sustainable water use, environmental protection, reduction of pollution through efficient water planning, use of economic analyses and instruments, approval and action programmes and cost recovery principles. However, extensive analyses indicated that the Plan was not compatible with the Water Directive, mainly in economic and environmental terms (see for example Albiac et al., 2006; Albiac et al., 2003; Biswas and Tortajada, 2003; Embid, 2003; Garrido, 2003; Getches, 2003; Hanemann, 2003; Howitt, 2003)².

Aragón and Cataluña, two regions of the basin from which water was to be transferred, strongly opposed the Plan. While Aragón opposed it from the very beginning, Cataluña voted in favour of it in 2001, but later on, in 2003, joined Aragón against the Plan after the then regional political party in power was defeated.

Aragón argued that the National Hydrological Plan was conventional, supply-oriented and could not be justified on economic, environmental or social grounds. Furthermore, the water transfer was considered to be unnecessary if proper demand management practices were implemented in the water-importing regions. In terms of sustainability, numerous analyses indicated that the environmental and the economic principles were mostly ignored (DGA, 2001). Several authors also questioned the Plan because of its lack of assessment of social issues (see for example, Mairal-Buil, 2001; Moral Ituarte, 2001; Sáez-Olivito, 2001; Sumpsi-Viñas, J.M., 2001). The Plan merely stated that the transfer would not have any impacts on the economic activities of the donor basin, nor would it have any negative consequences on population distribution in the regions within the donor basins (PHN, 2002, in Mairal 2001, p. 329).

From an environmental viewpoint, studies carried out on the downstream areas from the diversion point (for example, see Ibáñez and Prat, 2003; Arrojo Agudo, 2001) concluded that the current ecological problems of the Ebro Delta and estuary (protected by international agreement under the Ramsar Convention) would further deteriorate by the implementation of the Plan. One of the main criticisms was that the National Hydrological Plan was approved even before a comprehensive environmental impact assessment was carried out. The Plan also did not consider any of the impacts that such a large water

² Numerous position papers and analyses from Spanish experts on the National Hydrological Plan are available at www.mma.es/agua/informes.htm

transfer would have on the Ebro Delta in terms of biodiversity, wetlands, ecological flow, and expected changes in land use, and in social and economic activities such as fisheries, rice production, etc. Furthermore, the Plan did not analyse what would be the impacts of the low quality of the transferred waters on the importing areas.

In economic terms, it was considered that there were serious inaccuracies in cost-benefit estimates in the Plan and its strategic environmental assessment (Hanemann, 2003). One example was the cost per cubic metre of water exported which was expected to compensate the negative environmental impacts in the Ebro River basin because of the transfer. This cost of Euros 0.03/m³ of water exported was not based on economic analyses, but was more of an administrative charge. The compensation was insufficient to mitigate the expected adverse impacts of the water transfer in the exporting region. Accordingly, a non-market valuation study should have been carried out to reliably quantify the mitigation costs, which then should have been incorporated in the economic analysis.

The analytical approaches used to formulate such a complex Plan were considered to be inadequate. Additional studies were needed for a proper economic evaluation of the impacts of the water transfer (Hanemann, 2003). These included economic analysis of the long-run elasticity of demand for water for urban and industrial uses in the project area; a marketing study to measure the marginal willingness of the farmers to pay for the water to ensure that the planned sale of imported water was financially feasible; and an economic analysis which implicitly identified the marginal losses of the farmers on their net income for those years when they faced uncertainty of support, taking into account the alternatives available to them, and the frequency with which these years would occur. A study was also necessary to estimate both the existing cost of water supply, and the anticipated future cost when the farmers received the water.

If the principles of cost recovery were to be implemented along with the water transfer, water prices for the urban and industrial consumers would have increased substantially, which in turn would have reduced the present and future total water requirements to a significant extent. Cost recovery for the agricultural sector would have also meant that agricultural water rates would have increased substantially, which would have reduced water requirements significantly because marginal and uneconomic agricultural production would have disappeared. Transferred water would not have been economically attractive for many farmers because its cost would have been higher than the marginal value of water in agriculture, and crop profitability would have been insufficient to pay for the transferred water.

Since the construction of infrastructure for the water transfer would not have been completed until 2015 at the earliest, it would have been necessary that the Plan had included the cost of economic, social and environmental externalities, which would have further increased the price of water for all uses substantially.

The main rationale for the water transfer project was that the coastal areas of the south required additional water from the north, essentially from the Ebro River. However, this need was questionable because of some fundamental reasons. First, forecasts of water demands for the future were likely to be significantly less if demand management practices

like full cost recovery, proper levels of water tariffs, more efficient water management in the urban, industrial and agricultural sectors, treatment and reuse of wastewaters, etc., were considered. Second, consideration of cost-effective options already available, especially when the cost of transferred water exceeded Euros 0.45/m³, was ignored. This includes desalination of seawater and saline groundwater along the coastal areas, which could be provided to the users more economically when the cost per cubic metre of imported water exceeded Euros 0.45/m³. Furthermore, the desalination option could provide water in about 2-4 years, while the water transfer would not have delivered water to the imported region for at least 10 years, if not more.

Another very important aspect was that the National Hydrological Plan did not comply with “principles and articles established in the following Community texts: 1) Treaty of the European Community in the content and numbering arising from the 1997 Treaty of Amsterdam; 2) European Parliament and Council Directive 2000/60/EC of 23rd October 2000, establishing a Community framework of action in the field of water policy; 3) Council Directive 79/409/EEC, of 2nd April 1979, regarding the conservation of wild birds; and 4) Council Directive 92/43/EEC, of 21st May 1992, regarding the conservation of natural habitats and wild fauna and flora” (DGA, 2001, p.13).

Because funding from the European Commission was necessary for the construction of the infrastructure considered within the Plan, the Government of Aragon and several environmental groups complained formally to the European Commission on the magnitudes and distributions of the various negative impacts of the Plan.³ There was a hearing before the European Parliament, and later on, a Seminar in October 2003 where the Plan and its impacts were discussed in detail. This Seminar was organised by the European Community in order to promote dialogue between the Governments of Spain and that of Aragon and the environmental groups. In the light of the discussions and the results of the different technical studies, and after considering that the Plan did not address properly economic and environmental concerns, there were several reports within the European Commission which did not recommend the financial support for the implementation of the National Hydrological Plan. However, before the European Commission could take a final decision, the 2004 elections in Spain resulted in the change of the ruling political party and the cancellation of the 2001 National Hydrological Plan. Later on, the Law 11/2005 of 22 June was enacted. This law proposed the Programme on “Actions for the Management and Use of Water” which objective was to develop and implement appropriate water policies in full consideration of water quantity and quality issues.

Irrespective of the technical, economic, social and/or environmental issues related to the Plan, the role the different stakeholders played was crucial in the final outcome. On the analysis of the underlying political and economic forces supporting and challenging the transfer, initially, the main stakeholders levelling forces were the previous political party in power at the central level who, with an absolute majority in the Parliament approved the Plan even with a very strong opposition in early 2001; other actors included the

³ The legal arguments regarding the Complaint of Breach of Community Law in the act 10/2001 presented by the Government of Aragon, can be found in detailed in DGA, 2001.

governments of Aragon, Catalonia, Valencia and Murcia, as well as the European Union. Non-governmental actors included national and international environmental groups, and the populations from the donor and receiving regions who always demonstrated publicly their views. However, after the 2004 elections, it was the new political party who took the decision to cancel the water transfer, receiving overwhelming support by the regions of the donor basin Díaz-Plaja (2005).

Even though the Law authorising the water transfer has now been cancelled, the arguments for the water transfer are far from over. The Levante basins claim that the water from the Lower Ebro basin is the only alternative available for the further economic development of their region, which is not necessarily correct. Experience has shown that no water is ever enough without strict implementation of water demand management, which so far, does not seem to have been practised in this region. In fact, the latest development in the Levante basin has been an explosive urban development of the coastal areas. This urban development is resulting in considerable ecological damages and will clearly increase the demand for already scarce water for the various purposes. The result has been that the European Parliament has already requested the construction of 150,000 houses be stopped. In addition, the European Commission is asking for the modification of the Law on Urban Development of Valencia, threatening to bring this law before the Court of Justice of the European Union (Albiac et al., 2006).

On the other hand, a much-needed integrated management plan for the Ebro Delta is now under preparation by the exporting regions. This plan is expected to consider long-term water needs for all uses and users in the area (including the environment), and recommend policies, programmes and trade-offs for the survival and continued benefit of the delta and the population and the ecosystem that depend on it.

Additionally, the Water Commission of Aragon is promoting an exemplary, although slow, dialogue between all stakeholders to reach agreements for each development activity to ensure that it will benefit the society as a whole. Policies for wastewater management are also being implemented to assure a better quality of life for the population and better conditions for the environment.

The Plan assumed that water transfers should go from water-surplus and developed regions, towards water-scarce and developing regions. However, had the Plan been implemented as proposed, it would have been against any concept of sustainability and equity, since the water exporting areas are now far less developed than the importing areas.⁴ Furthermore, the Plan did not propose development alternatives for the donor regions of Spain. These inland areas, which would have been affected negatively by the water transfer, have not been benefited before by national development policies, contrary to what has been the situation in the southern more developed regions (Sáez-Olivito, 2001).

Clearly, the main contributions of the Water Hydrological Plan focused included the potential benefits for the receiving regions. Unfortunately, however, these benefits would have resulted in potential irreversible economic, social and environmental negative impacts

⁴ Statement by the President of Aragón, *The Economist*, 9 January 2004, In: Díaz-Plaja, 2005, p.8.

in the donor regions. As noted by Sanz-Blanco (1993, in Moral-Ituarte, 2001, p. 377): “water transfers... transfer together with the water, the economic development, economic power and hence, political power, which will most likely also result into a more acute unbalance development of the regions

References

Albiac, J., M. Hanemann, J. Calatrava, J. Uche and J. Tapia, 2006, The rise and fall of the Ebro water transfer. Accepted to be published in Natural Resources Journal.

Albiac, J., J. Uche, A. Valero, L. Serra, A. Meyer and J. Tapia, 2003, The economic unsustainability of the Spanish National Hydrological Plan. *Water Resources Development*, Vol. 19, No. 3, 437-458.

Arrojo Agudo, P. (Coordinator) 2001, The debate on the National Hydrological Plan. Fundación Nueva Cultura del Agua, Bakeaz, Bilbao. (In Spanish)

Biswas, A.K., and C. Tortajada, 2003, An assessment of the Spanish National Hydrological Plan. *Water Resources Development*, Vol. 19, No. 3, 377-397.

Boné, A., 2003, Reasons for the autonomous community of Aragon's position against the Ebro transfer as envisaged in the National Hydrological Plan. *Water Resources Development*, Vol. 19, No. 3, 413-436.

Díaz-Plaja, R., 2005, The Spanish “Plan Hidrológico Nacional” and the Ebro transfer: stakeholders, interests and policy outcomes. The Paul H. Nitze School of Advanced International Studies, Johns Hopkins University, Washington, DC.

del Moral-Ituarte, L., 2001, Regional impacts of the National Hydrological Plan: a perspective from Andalucía. In: The debate on the National Hydrological Plan. Fundación Nueva Cultura del Agua, Bakeaz, Bilbao, pp. 377-388. (In Spanish)

Embid, A., 2003, The transfer from the Ebro Basin to the Mediterranean basins as a decision of the 2001 National Hydrological Plan: the main problems posed. *Water Resources Development*, Vol. 19, No. 3, 399-411.

Embid, I., 2001, Legal considerations on the transfer of water between river basins. Reflections on the National Hydrological Plan 2001. *Revista Andaluza de Administración Pública* 41/2001, enero-febrero-marzo, pp. 27-51. (In Spanish).

Garrido, A., 2003, An economic appraisal of the Spanish National Hydrological Plan. *Water Resources Development*, Vol. 19, No. 3, 459-480.

Getches, D., 2003, Spain's Ebro River transfers: test case for water policy in the European Union. *Water Resources Development*, Vol. 19, No. 3, 501-512.

Government of Aragon, 2001, Arguments on the National Hydrological Plan of 2000. CIVITAS, Madrid. (In Spanish).

Government of Aragon, 2001, Complaint of Breach of Community Law in Act 10/2001 of 5th July, concerning the National Hydrological Plan, presented by the Government of the Autonomous Community of Aragon, Spain. Government of Aragón, Zaragoza.

Hanemann, M., 2003, Appedix C: Economics *in* A technical review of the Spanish National Hydrological Plan (Ebro River out-of-basin diversion). Fundación Universidad Politécnica de Cartagena, Murcia, pp. 41-51. (Available at www.mcguireinc.com/papers/erbo.pdf)

Howitt, R., 2003, Some economic lessons from past hydrological projects and applications to the Ebro River transfer proposal. *Water Resources Development*, Vol. 19, No. 3, 471-484.

Ibáñez, C., and N. Prat, 2003, The environmental impact of the Spanish National Hydrological Plan on the lower Ebro River and Delta. *Water Resources Development*, Vol. 19, No. 3, 485-500.

Ibáñez, C., N. Prat, A. Canicio and A. Curcó, 1999, The Ebro Delta, a threatened system. Bakeaz, Coagret, Bilbao. (In Spanish).

Mairal-Bruil, G., The National Hydrological Plan, or how to ignore social impacts. In: *The debate on the National Hydrological Plan*. Fundación Nueva Cultura del Agua, Bakeaz, Bilbao, pp. 327-338. (In Spanish)

Melgarejo -Moreno, J., 2002, Economic considerations of the National Hydrological Plan *in* A. Gil-Olcina and A. Morales-Gil (eds.), *Water scarcity and the National Hydrological Plan*. Cajas de Ahorro del Mediterráneo and Instituto Universitario de Geografía, Universidad de Alicante, España, pp. 131-148. (In Spanish).

MMA, 2004, AGUA Programme. Ministry of Environment, Madrid. (In Spanish)

Sáez-Olivito, 2001, Incompatibility between sustainable rural development and the Hydrological Water Plan. In: *The debate on the National Hydrological Plan*. Fundación Nueva Cultura del Agua, Bakeaz, Bilbao, pp. 445-452. (In Spanish)

Sumpsi-Viñas, J.M., 2001, Analysis of the National Hydrological Plan from the efficiency and equity viewpoints. In: *The debate on the National Hydrological Plan*. Fundación Nueva Cultura del Agua, Bakeaz, Bilbao, pp. 469-477. (In Spanish)