
Water, Agriculture and the Environment in Spain: can we square the circle?



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Editors

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Foreword

The book now presented here is preceded by about twenty books and many other scientific and working papers on water resources that the Botín Foundation (BF) has produced since 1998. A detailed description of all of them can be found and downloaded from the website of the BF [<http://www.fundacionbotin.org/agua.htm>]. A brief history of the interest and activities of the Botín Foundation on water follows.

In 1998 the BF, in response to the proposal of its board member Emilio Botín O'Shea, initiated a multidisciplinary analysis of the problems of groundwater in Spain. The study, led by Academician Prof. M.R. Llamas, culminated four years of intensive work with a presentation at the Third World Water Forum (Kyoto, March 2003). The monograph PAS no. 13¹ is a summary of that project, which had, among other relevant outputs, a clear impact on the regulations related to groundwater management in the Spanish National Hydrological Plan, approved by the Government in 2001. In the history of Spanish research on groundwater problems, the project carried out by the BF is perhaps the most influential landmark.

During the years 2004 to 2008, the research programs of the BF related to water resources focused mainly on the organization of the Second and Third International Water Workshops held in Santander (Spain) in 2005 and 2007. The papers presented in these Workshops were published in two books: *Water Crisis: Myth or Reality?*² and *Water Ethics*³, which can be freely downloaded from the website of the BF. The book *Water Ethics* was presented at the Fifth World Water Forum (Istanbul, March 2009).

At the end of 2005, Prof. Llamas delivered a speech in the opening session of the academic year of the Royal Academy of Sciences about the new concepts concerning the colours of water and virtual water⁴. The BF resumed investigations into water resources, in order to disseminate these new ideas in Spain. This decision crystallized in the formal constitution of the Water Observatory of the Botín Foundation

1 Llamas, M.R. (2003). *El Proyecto Aguas Subterráneas: resumen, resultados y conclusiones*. Papeles del Proyecto Aguas Subterráneas (PAS, no. 13). Mundi-Prensa Ed. and Marcelino Botín Foundation. Madrid, Spain.

2 Rogers, P.; Llamas, M.R. & Martínez-Cortina, L. (eds.) (2006). *Water Crisis: Myth or Reality?* Taylor & Francis Group. London, UK.

3 Llamas, M.R.; Martínez-Cortina, L. & Mukherji, A. (eds.) (2009). *Water Ethics*. CRC Press.

4 Llamas, M.R. (2005). Los Colores del Agua, el Agua Virtual y los Conflictos Hídricos. [Water Colours, Virtual Water and Water Conflicts] Opening lecture of Academic Year 2005–2006. *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales*, 99(2): 369–389.

(BF-WO), which became a program attached to the Observatory of Trends of the BF. Unlike the previous project on groundwater, which was performed in an office of the BF and with BF staff, in this case it was decided to establish two separate agreements with the University Complutense of Madrid (UCM) and the Technical University of Madrid (UPM), both located in the International Moncloa Campus of Excellence, a strategic alliance of both Universities launched in 2010. All research staff of the BF-WO is recruited through these universities, which are also the venue for the Secretariat and offices of the researchers. The Director of the BF-WO is Professor Llamas, Emeritus Professor of UCM, and the Deputy Director is Professor Garrido, Professor of Agricultural Economics and Natural Resources of UPM, and Director of the CEIGRAM, UPM Research and Development Centre. Initially, the research of the recently established Water Observatory was primarily to apply and disseminate the methodology of the water footprint, involving also estimates of the virtual water trade in Spain. The activities of the BF-WO broadened soon, currently including three main lines: 1) a think-tank for innovation in water resources management; 2) an exchange place for relevant experts in this field; and 3) the transfer of new knowledge to society at large, mainly to water decision-makers.

The activities of the BF-WO had an outstanding policy impact, which resulted in the decision of the Ministry of Environment to include the use of the water footprint method in its regulation for preparing the River Basin Management Plans (BOE, no. 229, September 22nd 2008), in line with the European Union (EU) Water Framework Directive (WFD) (2000/60/EC). Since 2008 the BF-WO has published eight monographs (PAV papers), four monographs called SHAN papers, and a book with the title *Water Footprint and Virtual Water Trade in Spain*⁵. In a certain way, the present book is a continuation of that one. By the time it was completed it was not possible to take into account some important data, especially on the role of groundwater, due to delays in the elaboration of River Basin Management Plans required by the EU Water Framework Directive.

At the same time, the Observatory continued its international relations and activities. In 2008, the Fourth Botín Foundation Water Workshop on *Re-thinking Water and Food Security* took place in Santander, at the BF headquarters. The book *Re-thinking Water and Food Security*⁶ was presented at the 2010 Stockholm Water Week. Afterwards, in 2010, the Fifth Botín Foundation Water Workshop entitled *Water and Food Security in a Globalized World: Cooperation vs. Confrontation*, was held in Santander. In this case, the contributions to that Workshop led to the elaboration of a Special Issue in the scientific journal *Water Policy* (Volume 14, Supplement 1, 2012), presented at the Sixth World Water Forum in Marseilles (March 2012).

This book is the result of the joint effort of the BF-WO and several other water experts. The Water Observatory is a small think-tank made up of 14 people, including six postdoctoral researchers, three university professors who are advisors, and five doctoral students. The aim of this group is to analyse problems related to water

5 Garrido, A.; Llamas, M.R.; Varela-Ortega, C.; Novo, P.; Rodríguez-Casado, R. & Aldaya, M.M. (2010). *Water Footprint and Virtual Water Trade in Spain: Policy Implications*. Springer, New York, USA.

6 Martínez-Cortina, L.; Garrido, A. & López-Gunn, E. (eds.) (2010). *Re-thinking Water and Food Security*. Taylor & Francis Group, London, UK.

resources with independence of thought and following an interdisciplinary approach. The main and initial focus has been on the Spanish case. However, in this globalized world water issues in Spain are not detached from world problems. Therefore, from the early work in 1998, the BF-WO has always considered the Spanish case with an international perspective and since 2011 has expanded its work in Latin America in partnership with national research institutions. The six countries participating in the project are Argentina, Brazil, Chile, Costa Rica, Mexico and Peru. This research project was presented the first time in Stockholm at the 2010 World Water Week. A side-event on the preliminary results of the project took place at the Sixth World Water Forum in Marseilles (March 2012). It is expected that each country will complete its analysis in 2013. The BF-WO will produce a report summarizing the main findings for the whole project.

Since the early stages of the BF water programs, with freedom of thought and without submission to the *politically correct*, the BF-WO has demanded high professionalism, scientific rigor and a concerted effort to find solutions for Spanish society in the first place, but also for the *global village*, which today is this blue planet. This book shows how these objectives are being achieved so far.

In order to achieve scientific rigor this book and the previous one (*Water Footprint and Virtual Water Trade in Spain*) were submitted for peer review to a group of well-known experts: Prof. A. Allan, Prof. A. Hoekstra and Prof. M. Shechter for the first book; and Dr. J. Bogardi, Mr. J. Corominas, Dr. T. Estrela, Prof. E. Fereres and Prof. J. Lundqvist for the second book. The authors of this book are very grateful to the comments and suggestions received from the last five reviewers. The editors also thank Dr. L. Martínez Cortina for his help and advice throughout the editorial process.

Madrid, May 2012

The Botín Foundation Water Observatory



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