

THE EVOLUTION OF NATIONAL WATER REGIMES IN EUROPE  
Transitions in Water Rights and Water Policies

# ENVIRONMENT & POLICY

---

VOLUME 40

---

*The titles published in this series are listed at the end of this volume.*

# The Evolution of National Water Regimes in Europe

## Transitions in Water Rights and Water Policies

Edited by

**Ingrid Kissling-Näf**

*Swiss Academy of Sciences,  
Bern, Switzerland*

and

**Stefan Kuks**

*University of Twente,  
Enschede, The Netherlands*

The EUWARENESS research project, "European Water Regimes and the Notion of a Sustainable Status", has been funded by:



EUROPEAN COMMISSION  
RESEARCH DIRECTORATE-GENERAL

5<sup>th</sup> Framework Programme

Under contract-number EVK1-CT-1999-0038



SPRINGER SCIENCE+BUSINESS MEDIA, B.V.

A C.I.P. Catalogue record for this book is available from the Library of Congress.

ISBN 978-90-481-6667-1

ISBN 978-1-4020-2484-9 (eBook)

DOI 10.1007/978-1-4020-2484-9

---

*Printed on acid-free paper*

All Rights Reserved

© 2004 Springer Science+Business Media Dordrecht

Originally published by Kluwer Academic Publishers in 2004

Softcover reprint of the hardcover 1st edition 2004

No part of this work may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission from the Publisher, with the exception of any material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work.

# Contents

<b>Preface</b>	<b>xi</b>
<b>List of contributors</b>	<b>xiii</b>
<b>1 Introduction to Institutional Resource Regimes</b> Comparative framework and theoretical background <i>Ingrid Kissling-Näf and Stefan Kuks</i>	
1.1 Introduction	1
1.2 The resource as starting point and institutional incentives as the main steering dimension	3
1.3 Institutional regime (IR) and the two components	5
1.3.1 Property Rights (PR)	6
1.3.2 Public Policy (PP)	9
1.3.3 Regime	11
1.4 Framework for the international comparison and assessment criteria	12
1.4.1 The framework components and the main links	12
1.4.2 Institutional sustainability	16
1.5 Procedure and structure of country chapters	20
<b>2 The Sustainability Performance of National Resource Regimes</b> <i>Stefan Kuks</i>	
2.1 Introduction	25
2.2 Surface water pollution and waste water treatment	26
2.3 Drinking water supply, ground water quality and diffuse pollution	31
2.4 Water overuse and water depletion	36
2.5 Flooding and climate change	42
2.6 Conclusion: rivalries between property rights holders	44
<b>3 The Evolution of European Water Policy</b> Towards integrated resource management at EU level <i>David Aubin and Frédéric Varone</i>	
3.1 Introduction	49
3.2 Steps of the EU water policy	51

3.2.1	International premises: drawing lessons from conventions on transboundary river basins	52
3.2.2	Environment and water: agenda-setting at the EC/EU level	54
3.2.3	Two generations of water directives	56
3.2.3.1	First generation: Water Quality Standards	57
3.2.3.2	Second generation: Emission Limit Values	59
3.3	Designing a new water management framework	66
3.3.1	Elaboration and adoption of the WFD project	66
3.3.2	Principles and content of the WFD	71
3.3.2.1	'Good status' of all waters	72
3.3.2.2	River district and basin authority	73
3.3.2.3	Integrated management and programmes of measures	74
3.3.2.4	Full-cost pricing	75
3.3.2.5	Open questions	76
3.3.3	Upcoming implementation of the WFD	78
3.3.3.1	Challenges for the Member States	78
3.3.3.2	Pro-active support by the Commission	81
3.4	Prospects	83
<b>4</b>	<b>The Evolution of the Water Regime in the Netherlands</b>	
	<i>Stefan Kuks</i>	
4.1	Introduction: the context of the Dutch regime	87
4.1.1	The administrative-political structure of the Netherlands	88
4.1.1.1	Central and decentral levels of administration	88
4.1.1.2	Consensus-based and planning-based decision-making	90
4.1.1.3	International commitments	91
4.1.2	Physical conditions and main water bodies in the Netherlands	91
4.1.3	Actual problem pressures in the Netherlands	93
4.1.4	Human pressures (water uses) and main rivalries in the Netherlands	95
4.2	The evolution of water rights in the Netherlands	97
4.2.1	Constitution of the public domain (1814-1841)	97
4.2.2	Expropriation and compensation for national water works (1891-1908)	99
4.2.3	Controlled use expansion, deliberation of interests, and redistribution of rights (1954-1967)	101
4.2.4	Limitation of discharge rights to prevent water pollution (1969-1975)	102
4.2.5	Towards integrated public control over water use rights (1981-1992)	103
4.2.6	Considering limitation of land use rights to prevent flooding (after 1992)	106
4.3	The evolution of water policies in the Netherlands	106

4.3.1	Centralisation of water governance from 1798 until the 1950s	106
4.3.2	Integration attempts around 1968 and 1969	111
4.3.3	Integration attempts around 1985	115
4.3.4	Integration attempts around 1995	118
4.4.	Main regime phases and transitions in the Netherlands	122
4.5	Concluding analysis of regime transitions in the Netherlands	125
4.5.1	Evolution of extent	125
4.5.2	Evolution of the internal coherence of property rights	126
4.5.3	Evolution of the internal coherence of water policies	127
4.5.4	Evolution of the regime in general and conditions for regime change	134
<b>5</b>	<b>The Evolution of the Water Regimes in Belgium</b>	
	<i>David Aubin and Frédéric Varone</i>	
5.1	The Belgian context of water management	143
5.1.1	Administrative-political structure of Belgium: towards a Federal State	143
5.1.2	Water resources and uses: regional disparities and rivalries	144
5.2	Property rights on water	148
5.2.1	Diachronic evolution of the property rights	148
5.2.2	A strong and complex property rights structure	152
5.3	Public policies on water	155
5.3.1	Diachronic evolution of public policies	156
5.3.2	A more complex policy design tempered by co-ordination attempts	163
5.4	Water regimes	166
5.4.1	Regime evolution as a combination of property rights and policy design	167
5.4.2	Analysis of regime transitions towards integration	172
5.5	Conclusion	178
<b>6</b>	<b>The Evolution of the Water Regime in France</b>	
	<i>I. Sangaré and C. Larrue</i>	
6.1	Introduction: the national context	187
6.1.1	Administrative political structure	187
6.1.2	Water resources and uses	188
6.2	Property rights over water	193
6.2.1	Evolution of property rights	193
6.2.2	Characteristics of a legal water regime: ownerships and user rights	200
6.2.2.1	The right of ownership and its limitations	201
6.2.2.2	Watercourses and riparian rights	205
6.2.3	A complex property rights structure	208

6.3	Public policies on water	211
6.3.1	Evolution of public policies	211
6.3.2	Development of the French water regime towards integrated management	218
6.4	Water regime phases and their sustainability performance	221
6.4.1	Regime evolution in terms of co-ordination between property rights and public policy	222
6.4.2	Identification and explanation of regime transitions: factors explaining the transformations in water management	222
6.5	Conclusion	232
<b>7</b>	<b>The Evolution of the Water Regime in Spain</b> <i>Meritxell Costejà, Nuria Font, Anna Rigol, Joan Subirats</i>	
7.1	Introduction	235
7.2	Political and administrative structure	236
7.3	Water resources and uses	237
7.3.1	Water demands and water uses	239
7.4	Development of the water regime	242
7.4.1	Property rights and regulation of uses	243
7.4.1.1	Property rights on water	243
7.4.1.2	Regulation of uses	248
7.4.2	Policy design and policy changes	252
7.4.2.1	Policy design	252
7.4.2.2	Policy changes	256
7.5	Concluding remarks: moves towards integration?	258
<b>8</b>	<b>The Evolution of the Water Regime in Italy</b> <i>Alessandra Gorla, Nicola Lugaresi</i>	
8.1	Introduction	265
8.1.1	Research framework	265
8.1.2	The national context: water resources and uses	266
8.2	The evolution of the national water regime	271
8.2.1	Evolution of water policies	271
8.2.2	Evolution of water rights: a juridical perspective	279
8.3	Identification of regime changes towards integration	285
8.3.1	Identification of the phases of change	285
8.3.2	Sustainability dimension of regime changes	287
8.3.3	Co-ordination between water rights and water policies	287
8.3.4	Forces underlying regime transitions	288
8.4	Conclusions	289

## **9 The Evolution of the Water Regime in Switzerland**

*Corine Mauch and Emmanuel Reynard*

9.1	Introduction: the national context	293
9.1.1	Administrative-political structure	293
9.1.2	Water resources and uses	295
9.1.2.1	Switzerland as the ‘water tower’ of Europe	295
9.1.2.2	Water uses in Switzerland	296
9.2	Property rights to water	300
9.2.1	Evolution of property rights	300
9.2.1.1	Private property and state sovereignty	300
9.2.1.2	Legal basis of the ownership of water	301
9.2.1.3	Historical evolution of the constitutional and legal basis	303
9.2.2	Comments on the scope, complexity and co-ordination of use rights	306
9.3	Public policies on water	307
9.3.1	Evolution of public policies	307
9.3.2	Comments on the scope, complexity and co-ordination of the public policy system	314
9.4	Water regime phases	316
9.4.1	Regime evolution in terms of co-ordination between regulatory system and public policy	316
9.4.2	Identification and explanation of regime transition	321
9.5	Conclusion	324

## **10 Comparative Review and Analysis of Regime Changes in Europe**

*Stefan Kuks*

10.1	Introduction	329
10.2	General comparison of countries in terms of regime development	330
10.3	Regime transitions and change triggers in the Netherlands	335
10.4	Regime transitions and change triggers in Belgium	340
10.5	Regime transitions and change triggers in France	344
10.6	Regime transitions and change triggers in Spain	348
10.7	Regime transitions and change triggers in Italy	351
10.8	Regime transitions and change triggers in Switzerland	353
10.9	Conclusions	357
10.9.1	Assessment of regime integration	357
10.9.2	Triggers for regime change	361
10.9.3	Restraints on regime change	364
10.9.4	Highly complex institutional regimes struggling with fragmentation	365

## **Preface**

The arrival of the new millennium saw us embark with great enthusiasm on this study of the institutional and national framework conditions for the use and protection of water in six European countries. We were particularly interested in revealing how national use and protection policies, combined with the property and use rights that have developed over the centuries, create incentives and, hence, an institutional framework that facilitates a more or less sustainable use of the resource. The comparison of national resource regimes helps us to understand the interaction between institutional dimensions and sustainable use. It also shows us, however, how complex this interaction is and how unlikely it is that we shall be able to understand it fully at our first attempt. Nevertheless, this book provides a satisfactory survey of the national resource regimes in the Netherlands, Belgium, France, Spain, Italy and Switzerland. Furthermore, the diachronic perspective enables us to analyse the conditions under which transformation and paradigm change are made possible.

This analysis and comparison of national resource regimes is a product of the research project EUWARENESS: European Water Regimes and the Notion of a Sustainable Status (EVK1-CT-1999-0038). The project was financially supported by the European Commission under the 5th Framework Programme, and coordinated by the University of Twente in the Netherlands (see also [www.euwareness.nl](http://www.euwareness.nl)). The EUWARENESS project aimed to develop a better understanding of the dynamic relationships between various conflicting uses of water resources, the regimes under which these uses of water resources are managed, and conditions generating regime shifts towards sustainability. Important questions in this regard have been: Do integrated water regimes lead to more sustainable water use? What are important indicators for integrated water regimes? Under what conditions can integrated water regimes be achieved? What might be the influence of European and national conditions, to achieve regime transitions at water basin scale? The EUWARENESS project started to study the long-term

evolution of national regimes. The national studies, produced by research teams in six European countries, are published in this book, together with a review of the evolution of European Water Policy. These long-term regime studies were followed by two case studies per country, which analyzed and described in greater depth the specific regime transitions at water basin level during the last decades. In another book, also published by Kluwer, these twelve case studies are discussed within their national context and compared in relation to conditions that are significant for regime change towards sustainability.<sup>1</sup>

The European comparison in this book would not have been possible without the extensive work carried out by our colleagues in the six European countries studied. They conducted the detailed empirical work on which this book is based and we would like to express our gratitude for this. We also wish to thank the European Commission for funding this project and the preparation of this book, the content of which, however, does not represent its views and in no way anticipates the Commission's future policy in the field of water management.

While being fully aware that much research work remains to be done in this area, we hope that this book will make an interesting contribution to the debate surrounding the governance and sustainable use of water as a resource.

Ingrid Kissling-Näf and Stefan Kuks

<sup>1</sup> See: Bressers, Hans Th.A.; Kuks, Stefan M.M. (eds.) (2004), *Integrated Governance and Water Basin Management. Conditions for Regime Change towards Sustainability*. Dordrecht-Boston-London: Kluwer Academic Publishers.

## List of Contributors

**David Aubin** is researcher in environmental policy analysis at the Department of Political and Social Sciences, Université catholique de Louvain (Belgium). Web-site: [www.aurap.ucl.ac.be](http://www.aurap.ucl.ac.be), E-mail: [aubin@spri.ucl.ac.be](mailto:aubin@spri.ucl.ac.be)

**Meritxell Costejà** is a PhD researcher at the Universitat Autònoma de Barcelona. She has participated in several international and national research projects on environmental policy and natural resource management.

**Nuria Font** is professor of political science at the Department of Political Science and Public Law at the Universitat Autònoma de Barcelona, Spain. E-mail: [nuria.font@uab.es](mailto:nuria.font@uab.es)

**Alessandra Gorìa** is senior researcher in energy and environmental economics at Fondazione Eni Enrico Mattei (FEEM) in Milano. She was affiliated as researcher with the Istituto per la Ricerca Sociale (IRS) in Milano, Italy. Web-site: [www.feem.it](http://www.feem.it), E-mail: [alessandra.goria@feem.it](mailto:alessandra.goria@feem.it)

**Ingrid Kissling-Näf** is by training economist and political scientist. She is now working as Secretary General of the Swiss Academy of Sciences (SANW). She is lecturer in Resource Policy at the Swiss Federal Institute of Technology in Zurich. E-mail: [kissling@sanw.unibe.ch](mailto:kissling@sanw.unibe.ch)

**Stefan Kuks** is senior research associate in comparative water policy studies at the University of Twente (Center for Clean Technology and Environmental Policy) in the Netherlands. He is also executive committee member of the regional water authority “Waterschap Regge en Dinkel”. Web-site: [www.utwente.nl/cstm](http://www.utwente.nl/cstm), E-mail: [s.m.m.kuks@utwente.nl](mailto:s.m.m.kuks@utwente.nl)

**Corinne Larrue** is professor in environmental public policies and spatial planning at the Université François-Rabelais, Tours (France). Web-site: [www.univ-tours.fr/recherche/lab14.htm](http://www.univ-tours.fr/recherche/lab14.htm), E-mail: [corinne.larrue@univ-tours.fr](mailto:corinne.larrue@univ-tours.fr)

**Nicola Lugaresi** is professor in administrative law at the University of Trento Law School, Trento, Italy. He is also a lawyer. Web-site: [www.jus.unitn.it/users/lugaresi/](http://www.jus.unitn.it/users/lugaresi/), E-mail: [lugaresi@jus.unitn.it](mailto:lugaresi@jus.unitn.it)

**Corine Mauch** is researcher and consultant in environmental policy issues at Interface Institute for Policy Studies in Lucerne (Switzerland). She is also affiliated as a researcher in a doctoral thesis with the Institut de hautes études en administration public (IDHEAP) in Lausanne. Web-site: [www.interface-politikstudien.ch](http://www.interface-politikstudien.ch), E-mail: [mauch@interface-politikstudien.ch](mailto:mauch@interface-politikstudien.ch)

**Emmanuel Reynard** is assistant professor in physical geography at the Institute of Geography of the University of Lausanne (Switzerland). Web-site: [www.unil.ch/igul](http://www.unil.ch/igul), E-mail: [Emmanuel.Reynard@igul.unil.ch](mailto:Emmanuel.Reynard@igul.unil.ch)

**Anna Rigol** is a lawyer specialised in environmental law. She has collaborated as a research assistant in some research projects conducted at the Universitat Autònoma de Barcelona (Spain).

**Issa Sangaré** holds a PhD in spatial planning and works currently at the Maison des Sciences de l'homme at the Université François-Rabelais, Tours (France). E-mail: [issa.sangare@m6net.fr](mailto:issa.sangare@m6net.fr)

**Joan Subirats** is professor of political science at the Universitat Autònoma de Barcelona (Spain), and director of the Institute of Government and Public Policy at the same university. E-mail: [joan.subirats@uab.es](mailto:joan.subirats@uab.es)

**Frédéric Varone** is professor in comparative policy analysis at the Department of Political and Social Sciences, Université catholique de Louvain (Belgium). Web-site: [www.aurap.ucl.ac.be](http://www.aurap.ucl.ac.be), E-mail: [varone@spri.ucl.ac.be](mailto:varone@spri.ucl.ac.be)