

Contents

1	Introduction	1
	Nanny Bressers, Hans Bressers and Corinne Larrue	
1.1	Introduction: Why Governance for Drought Resilience?	2
1.2	Defining Governance.	3
1.3	A Short Overview on Existing Governance Assessment Methods and How We Relate to Them	6
1.4	Towards Constructing Our Own Governance Assessment Model	8
1.5	Outlook and Reader Guidance	11
	References.	14
2	European Drought and Water Scarcity Policies	17
	Ulf Stein, Gül Özerol, Jenny Tröltzsch, Ruta Landgrebe, Anna Szendrenyi and Rodrigo Vidaurre	
2.1	Introduction: Drought Events and the Importance of Policy Responses on the European Level	17
2.2	Policy Frameworks for the European Governance Structure . . .	21
2.2.1	Drought Policy Context	21
2.2.2	EU Drought Policy Objectives	23
2.2.3	Policy Instrument, Measures and Strategies	23
2.3	European Drought Policy: Policy Relations Between Flooding, Drought, Agriculture and Nature	25
2.3.1	EC Communication on Water Scarcity and Drought.	26
2.3.2	EC Communication ‘Blueprint to Safeguard Europe’s Water Resources’	28
2.3.3	EU Water Framework Directive	29
2.3.4	EU Floods Directive	32
2.3.5	EU Habitats Directive and EU Birds Directive	33

2.3.6	EU Groundwater Directive	34
2.3.7	European Common Agricultural Policy	35
2.4	Where to Go: A Conclusion on the Development of the European Perspective on Drought	38
	References.	40
3	The Governance Assessment Tool and Its Use	45
	Hans Bressers, Nanny Bressers, Stefan Kuks and Corinne Larrue	
3.1	Introduction: The Implementation Challenge.	45
3.2	Understanding Policy Implementation as Multi-actor Interaction Process: Contextual Interaction Theory	46
3.3	The Governance Assessment Tool.	52
3.4	Using the Governance Assessment Tool	57
3.4.1	Diagnosing with the Governance Assessment Tool in a Short Period and with a Limited Number of People.	58
3.4.2	Diagnosing with the Governance Assessment Tool in the DROP Project	59
3.5	Summary and Conclusion	63
	References.	63
4	Eifel-Rur: Old Water Rights and Fixed Frameworks for Action.	67
	Rodrigo Vidaurre, Ulf Stein, Alison Browne, Maia Lordkipanidze, Carina Furusho, Antje Goedecking, Herbert Polczyk and Christof Homann	
4.1	Introduction	67
4.2	The Who, What and When of Drought Governance in the Eifel-Rur Region	68
4.2.1	Water Management in North Rhine-Westphalia.	68
4.2.2	The Eifel-Rur Waterboard (WVER)	69
4.2.3	The Role of Municipalities and Lower Water Authorities in Water Management.	70
4.2.4	Historical Approach to Droughts and Their Effects on Drinking Water and Water Quality	70
4.3	Measures Taken: Addressing Drought in the Eifel.	71
4.4	Governance Assessment: From High Coherence to Low Flexibility.	73
4.4.1	Extent	74
4.4.2	Coherence	75
4.4.3	Flexibility	76
4.4.4	Intensity	77

4.5	Improving Drought Governance in the Eifel: Conclusions and Recommendations	78
4.5.1	Conclusions	78
4.5.2	Recommendations	79
5	Governing for Drought and Water Scarcity in the Context of Flood Disaster Recovery: The Curious Case of Somerset, United Kingdom	83
	Alison L. Browne, Steve Dury, Cheryl de Boer, Isabelle la Jeunesse and Ulf Stein	
5.1	Introduction to Somerset, UK: The Land of the Summer People	83
5.2	National and Regional Climate Change, Water Management and Drought Governance Contexts	85
5.2.1	The Geo-Hydro Context of Somerset Water System and Future Climate Impacts	85
5.2.2	Regulatory and Governance Context of English Water Management	86
5.2.3	Drought Governance Context: Managing Water During Normal and Crisis Periods.	88
5.2.4	Flood Policy Developments in Somerset Since the Floods of 2013/2014	91
5.3	Drought Measures Taken Within Somerset in the Context of Flooding Recovery	92
5.3.1	Agriculture and Drought Resilience	92
5.3.2	Nature and Drought Resilience	95
5.4	Assessment of Drought Governance in Somerset	96
5.4.1	Extent	97
5.4.2	Coherence	98
5.4.3	Flexibility	99
5.4.4	Intensity	100
5.5	Conclusions: Planning for Adaptation in the Context of Contested Material Water Histories and Meta-Governance Failures Within the Broader Water Sector	101
	References	105
6	The Governance Context of Drought Policy and Pilot Measures for the Arzal Dam and Reservoir, Vilaine Catchment, Brittany, France	109
	Isabelle La Jeunesse, Corinne Larrue, Carina Furusho, Maria-Helena Ramos, Alison Browne, Cheryl de Boer, Rodrigo Vidaurre, Louise Crochemore, Jean-Pierre Arrondeau and Aldo Penasso	

6.1	Introduction	109
6.2	National Drought Governance Context.	110
6.2.1	Some Past Drought Events and Consequences on Water Policy	110
6.2.2	Water Management in France.	113
6.2.3	Drought Adaptation in France	115
6.3	Geo-Hydro Context, Drought Policy Focus and Measures Taken in the Vilaine	117
6.3.1	The Vilaine River	117
6.3.2	The Arzal Dam.	118
6.3.3	Water Management in the Vilaine Catchment.	123
6.4	Assessment of Drought Governance Qualities.	124
6.4.1	Extent: Large for Water Management and Limited for Drought Management.	124
6.4.2	Coherence: Agreement on the Priority to Give to Drinking Water.	126
6.4.3	Flexibility: Limited by the Emergence of Multiple Structures Partly Compensated by the Number of Instruments	127
6.4.4	Intensity: Awareness of Drought Issues Induced by Climate Change Is Low	129
6.5	Overview and Visualization of the Results of the Analysis.	130
6.5.1	The Priority Devoted to Drinking Water Production	130
6.5.2	The Interplay of Stakeholders and Their Motivations, Cognitions and Resources	131
6.6	Conclusions and Case-Specific Recommendations.	133
6.6.1	Create a Task Force Dedicated to Climate Change Impacts on the Territory, Within the Existing Water Management Network, to Raise Awareness About Drought	134
6.6.2	Enhance the Knowledge of the Water-Related Impacts of Climate Change in the Specific Vilaine Catchment	135
6.6.3	Develop a Strategic Foresight Analysis to Identify the Potential Types of Drought Situations in the Basin and the Means to Better Prepare Local Stakeholders to These Situations	135
6.6.4	Support the Development of Integrated Drought and Water Scarcity Management.	136
6.6.5	Sharing Low-Flow Forecasts with Reservoir Management Interested Parties	137
	References.	137

7	Flanders: Regional Organization of Water and Drought and Using Data as Driver for Change	139
	Jenny Tröltzsch, Rodrigo Vidaurre, Hans Bressers, Alison Browne, Isabelle La Jeunesse, Maia Lordkipanidze, Willem Defloor, Willem Maetens and Kris Cauwenberghs	
7.1	Introduction	139
7.2	The Regional Organization of Drought Management: Flemish Water Management	141
7.2.1	Water Management in Flanders	141
7.2.2	Evolution of Flanders' Water Policy	142
7.3	The Flemish Geo-hydrological Context: Using Data for Cooperation	144
7.3.1	Drought in the Context of Water Management in Flanders.	144
7.3.2	To Measure Is to Know: A Framework for Drought Monitoring and Modelling	145
7.3.3	Turning Data into Information and Cooperation	148
7.4	Governance Assessment: Improvements in Drought Awareness but not There yet	148
7.4.1	Extent	148
7.4.2	Coherence	150
7.4.3	Flexibility	151
7.4.4	Intensity	152
7.4.5	Summary.	153
7.5	Improving Drought Governance in Flanders: Conclusions and Recommendations.	154
7.5.1	Overall Conclusions	154
7.5.2	Increasing Awareness for Droughts	155
7.5.3	Mainstreaming Drought Risks and Preparedness	156
7.5.4	Engagement with Other Public Actors	156
7.5.5	Evaluate the Importance of Data Availability Gaps and Prioritize Which to Address	157
	References.	157
8	Drought Awareness Through Agricultural Policy: Multi-level Action in Salland, The Netherlands	159
	Gül Özerol, Jenny Troeltzsch, Corinne Larrue, Maia Lordkipanidze, Alison L. Browne, Cheryl de Boer and Pieter Lems	
8.1	Introduction	160
8.2	Water Management in the Netherlands	160

8.3	From National Mechanisms to Regional Policies: Agricultural Needs and the Effects on Drought	161
8.3.1	National Policies and Mechanisms Related to Drought Adaptation	161
8.3.2	Development of the Regional Irrigation Policy in the Eastern Netherlands	163
8.4	Too Wet and Too Dry: The Double Needs of the Salland Water System and Measures to Address This	165
8.4.1	Water System of the Salland Region	165
8.4.2	Pilot Measures Implemented Within the DROP Project	167
8.5	Governance Assessment: After Acknowledgement of Drought Comes Integration of Drought	167
8.5.1	Extent	168
8.5.2	Coherence	169
8.5.3	Flexibility	171
8.5.4	Intensity	172
8.5.5	Overview of the Assessment Results	174
8.6	Conclusions and Recommendations for Salland: Seeking More Horizontal Integration and Awareness	176
8.6.1	Influence of the Governance Context on Actor Characteristics	176
8.6.2	Develop an Integrated Understanding and Approach to Managing Drought	177
8.6.3	Raise Farmers' Drought Awareness Towards Creating Ownership and Drought-Sensitive Water Use	177
8.6.4	Enable the Active Involvement of Non-governmental Organizations Towards Creating Shared Responsibilities	178
	References	179
9	The Fragmentation-Coherence Paradox in Twente	181
	Hans Bressers, Koen Bleumink, Nanny Bressers, Alison Browne, Corinne Larrue, Susan Lijzenga, Maia Lordkipanidze, Gül Özerol and Ulf Stein	
9.1	Introduction	181
9.2	Dutch Drought Policy and the Needs of the "High and Sandy" Eastern Netherlands	182
9.3	Dry Creeks and Measures Taken in the Twente Region	185
9.3.1	Twente's Drought and Water Scarcity Situation	185
9.3.2	Implementation and Research Projects and Farm Water Management Plans Under DROP	186

9.3.3	Drought Resilience Projects as Social Interaction Processes	190
9.4	Governance Assessment: Actor Coherence Saves the Day	191
9.4.1	Extent: Are All Elements in the Five Dimensions that Are Relevant for the Sector or Project that Is Focused on Taken into Account?	191
9.4.2	Coherence: Are the Elements in the Dimensions of Governance Reinforcing Rather than Contradicting Each Other?	193
9.4.3	Flexibility: Are Multiple Roads to the Goals, Depending on Opportunities and Threats as they Arise, Permitted and Supported?	194
9.4.4	Intensity: How Strongly Do the Elements in the Dimensions of Governance Urge Changes in the Status Quo or in Current Developments?	195
9.4.5	Overview and Visualization of the Results of the Analysis	197
9.5	A Tale of Preserving Voluntary Action and Upscaling Nonetheless: Conclusions and Recommendations for the Region Twente	199
9.5.1	Overall Conclusion	199
9.5.2	Awareness and Public Agenda	199
9.5.3	Inter-collegial Exchange and Learning	200
9.5.4	From Farm Level Approach to Full Area Level Approach	200
9.5.5	Creating a Long-Term Outlook and a Vision for Each Area	201
	References	201
10	Cross-cutting Perspective on Agriculture	203
	Gül Özerol and Jenny Troeltzsch	
10.1	Introduction	203
10.2	Drought and Water Scarcity Problems Related to Agriculture	204
10.3	Drought Issues and Competing Sectors' Risks for Agriculture	207
10.4	Multilevel Interactions Regarding Agricultural Measures	209
10.5	Public and Political Awareness on Agricultural Effects of Drought	212
10.6	Conclusions	214
	References	215

11 Cross-cutting Perspective Freshwater	217
Carina Furusho, Rodrigo Vidaurre, Isabelle La Jeunesse and Maria-Helena Ramos	
11.1 Introduction	217
11.2 Drinking Water Scarcity Risks	218
11.2.1 Relationship between Water Quality and Water Quantity for Freshwater Uses	218
11.2.2 The Diversity of Water Consumption Monitoring Situations.	220
11.3 Different Priority Settings and Potential Tensions	221
11.4 Multilevel and Multiscale Issues and Measures	223
11.4.1 Coordination Above Local Level for Increased Resilience	224
11.4.2 Larger Scales for Long-Term Strategies	226
11.5 Awareness and the Public and Political Agenda	227
11.6 Conclusion: Diagnosis and Scenarios.	228
References.	230
12 Cross-cutting Perspective on Nature	231
Hans Bressers and Ulf Stein	
12.1 Introduction	231
12.2 Drought and Water Scarcity Problems Related to Nature	231
12.3 Drought Issues and Other Climate Change and Competing Sectors' Risks for Nature.	235
12.4 Multilevel and Multiscale Issues and Nature Measures.	237
12.5 Awareness on Nature Effects of Drought and the Public and Political Agenda	240
12.6 Conclusion: Highlighting the Main Issues and Their Prospects.	242
12.6.1 Motivation	242
12.6.2 Cognitions	243
12.6.3 Resources	243
Reference	244
13 Towards a Drought Policy in North-West European Regions? . . .	245
Corinne Larrue, Nanny Bressers and Hans Bressers	
13.1 Introduction	245
13.2 How Governance Can Be Characterized in Each Region?	246
13.2.1 A Low Level of Awareness as Regards the Drought Issue	247
13.2.2 Effective Water Governance as Regards Actors and Their Networks in All of the Regions	248

13.2.3	Although Variable According to the Region, There Is a Low Level of Flexibility of the Governance Context.	249
13.3	Outcome of the Analysis: A Cross-cutting Perspective.	250
13.3.1	Water Governance Gives More Weight to Representatives of Economic Interests Than to Environmental Ones	251
13.3.2	A Hierarchy as Regards Water Uses in Case of Water Scarcity that Favours Water Supplies	252
13.3.3	Contrasting Initiatives Which Try to Better Take into Account Drought in All Sectors	252
13.4	Conclusions and Recommendations Stemming from the Implementation of the GAT	253
13.4.1	Continuous Focus on Realizing Awareness Is Needed	253
13.4.2	Preparation and Implementation of Water Demand Management	254
13.4.3	The Need for an Increased Integration of Flood and Drought Management	255
13.4.4	Variety Requires Tailored Action	255

Governance for Drought Resilience

Land and Water Drought Management in Europe

Bressers, H.; Bressers, N.; Larrue, C. (Eds.)

2016, XVII, 256 p. 49 illus., 47 illus. in color., Hardcover

ISBN: 978-3-319-29669-2