

INTRODUCTION

PROFESSOR DR MARLEEN VAN RIJSWICK

Director, Utrecht Centre for Water, Oceans and Sustainability Law, Utrecht University

PROFESSOR DR PATRICIA WOUTERS

Founding Director, China International Water Law, Xiamen International Water Law Research Group, Xiamen University

China and Europe face serious water challenges. Europe has developed a comprehensive and adaptive legal framework for addressing water-related management issues. China continues to go forward with its water management schemes. While China and Europe may seem unlikely comparative settings, this special issue, a result of the cooperation between China International Water Law Programme (CIWL) of Xiamen University Law School and the Utrecht University Centre of Water, Oceans and Sustainability Law (UCWOSL), explores possible synergies and lessons learned.

DEVISING AN ANALYTICAL LEGAL APPROACH TO THE COMPARISON OF EUROPEAN, CHINESE AND DUTCH WATER LAW

Legal approaches to water resources management across Europe and China have shared issues to address. In the first instance, at the international level, transboundary water resources must be managed in accordance with the rules of international law that govern this field. Secondly, domestic legislation needs to address main challenges regarding water quality, water scarcity and flood risks in what is frequently a multi-actor, multi-level and multi-sector setting.¹ For those countries that are Members of the European Union their national legislation should not only be in conformity with their duties following from international law, but also has to comply with the complex legislative framework developed by the European Union. At the moment the European Union is taking a new perspective on its regulatory work, leading to fewer rules, more flexibility and more policy freedom for its Member States. This brings the need not only to look at European legislation but to have a closer look at national or domestic legislation as well. This has always been the case for a proper understanding of the way Member States design their governmental institutions, the organization of jurisdiction and access to justice but is now also important (again) for substantive water and environmental law. At the national level water law also has to be in conformity with national constitutional requirements, often (but not in all States) with the rule of law and finally it should be legitimate and effective in the way it addresses and regulates the main water challenges.

¹ OECD *Water Governance in OECD Countries: a Multi-level Approach* (OECD Publishing Paris 2011).

A fundamental preliminary question

As water management and governance are fundamental to life so other fundamental questions play an important role when framing research and legislation. The main challenges for water currently are an increased risk of flooding, water pollution, water scarcity and an unsustainable and inequitable use of water resources. Are these important challenges exceptional and should we return to a former state of play or do we have to find a new equilibrium that will provide new governance arrangements, dealing with the institutional and organizational design, the role of public and private actors and cooperation at the international, regional, national as well as local level? Which policy instruments are most appropriate for effective and legitimate water management in the near future and can we learn from innovative regulatory approaches around the world?

A changing role for governments

Because water management is frequently closely related to adjacent sectors such as urban development, agriculture, infrastructure, environmental and climate policies many governmental bodies will be involved. Modern water management can be characterized by its multi-level, multi-actor and multi-sector design and this will become even more important in the future. Of course, it depends on the national context whether water management is a task of a general public authority such as municipalities, provinces or the central government or whether a specific governmental body or authority has been created, for example, a central governmental institution or agency, or regional river basin authorities. Appropriate and legitimate elements of institutional design can be derived from multiple disciplines, all aiming at sustainable water resource management.² However, whatever institutional design will apply, in all cases close cooperation is necessary with competent authorities in other policy fields or neighbouring areas or sub river basins, be it within the national territory or abroad. This cooperation might be horizontal or vertical. Institutional design, cooperation between governmental bodies and non-governmental

² H F M W van Rijswick, I M Tappeiner 'Developing an institutional legal framework for sustainable regional water management in times of climate change' in M Kidd et al (eds) *Water and the Law, Towards Sustainability* (The IUCN Academy of Environmental Law Series, Edward Elgar Publishing Cheltenham, UK, Northampton, MA, USA 2014) pp 274–304.

stakeholders are therefore important topics and will be discussed in this special issue.

An increasing role for civil society

It is generally recognized that civil society also has an important role to play when it comes to legitimate water governance and again, it depends on the national context how the role of civil society in water management is performed. This may range from democratic representation (in a one- or multi-party state) to information-sharing, to active participation in all kind of ways and to the way the responsibilities for water management are divided between public and private parties.³ It is clear that there is no one size fits all arrangement and therefore good practices may be inspiring for other countries that face the same challenges.

Why sustainable and adaptive water management and law?

The topics examined here relate to the sustainable and adaptive water management regimes aimed at protecting water resources in such a way that mankind and ecosystems have sufficient clean water now and in the future and are protected against floods. It has been recognized that the global water crisis not only needs technical solutions but is also a governance crisis which demands innovative solutions.⁴ An integrated approach is necessary to solve the water problems of our time and to make a shift towards sustainable water management in the future on the basis of mutual responsibilities and the pursuit of an equitable distribution of associated risks and natural resources. What role can law play in achieving these goals? Are there legal approaches that can contribute to achieving these policy aims in countries as diverse as those across Europe and for China? Diverse legal issues arise in each context.

SETTING THE SCENE: CONTEMPORARY WATER MANAGEMENT CHALLENGES AT THE INTERNATIONAL, EUROPEAN AND CHINESE LEVEL

Contemporary water management challenges are complex, interconnected and constantly changing. Water scarcity, water pollution, the risk of floods and increased and uncertain risks caused by climate change coupled with financial instability and other externalities all complicate regulatory and policy approaches to water resources management. Recent news, literature and research all lead to the same conclusion: water-related risks affect economic, social, environmental security and well-being. Tackling this 'wicked' problem requires new approaches. New theoretical and practical solutions must be pursued to address regional, national and international legal and policy issues.

3 H F M W van Rijswick 'The Status of Consumers in European Water Regulation' in Ch Verdure (ed) 'Environmental Law and Consumer Protection' (Larcier Brussels 2011) pp 115–48.

4 OECD world water forum M van Rijswick, J Edelenbos, P Hellegers, M Kok and S Kuks 'Ten building blocks for sustainable water governance: an integrated method to assess the governance of water' *Water International* (2014) DOI: 10.1080/02508060.2014.951828.

The level of the European Union

In recent decades the European Union has faced a need for new regulatory approaches due to a changing climate,⁵ changing and new kinds of pollution that had to be addressed⁶ and a new role of the EU itself.⁷ The classical form of regulation of setting goals and standards and describing in a detailed way which policy instruments the Member States had to apply came to be seen as not suitable for managing water in the 21st century. Many Member States now put more emphasis on subsidiarity, leading to increasing policy discretion for Member States over *how* they want to tackle water problems and to enable them to take regional differences into account.⁸ This new direction also increases the role of economic instruments.⁹ Besides, the design of the legislation has been changed: the use of framework directives has been increased. This new legislation focuses on a planning and programmatic approach thus not only giving Member States more flexibility¹⁰ but also enabling them to insert policy instruments from different policy fields into a programme of measures. This may make water law more effective because, depending on the causes of specific water problems, the most effective policy instrument can be chosen, even if it stems from sectors other than water legislation. So – in theory – a truly integrated approach can be realized.

The approach is based on an adaptive six-year policy cycle starting with 1) an analysis of human and natural impacts on current river basins, followed by 2) setting goals and standards at the EU and the national level and proceeding with 3) the plans and programmes that consist of the policy instruments that will be used to meet the goals and which are accompanied by 4) an obligation to develop a sophisticated monitoring network, finally leading to 5) revised plans and programmes for the next planning period. This approach should be able to improve Europe's river basins and aquatic ecosystems in the period between the year 2000 and 2027. Theoretically, by explicitly focusing on sustainable and equitable water use the European approach and especially the Water Framework Directive should be capable of achieving sustainable and adaptive fresh water management – the central theme of this issue. However, things are never as easy as they look at first sight.

5 A M Keessen, H F M W van Rijswick 'Adaptation to climate change in European Water Law and Policy' *Utrecht Law Review* (November 2012) pp 38–50.

6 A M Keessen, A A Freriks, H F M W van Rijswick 'The clash of the titans: the relation between the European water and medicines legislation' *CML Rev* (5) (2010) pp 1429–454.

7 H F M W van Rijswick, H K Gilissen and J J H van Kempen 'The need for international and regional transboundary cooperation in European river basin management as a result of new governance approaches in EC water law' *ERA Forum*, vol 11 no 1 (2010) pp 129–57.

8 A M Keessen, H A C Runhaar, O F Schoumans, H F M W van Rijswick, P J J Driessen, O Oenema and K B Zwart 'The need for flexibility and differentiation in the protection of vulnerable areas in EU environmental law: the implementation of the Nitrates Directive in the Netherlands' *JEEPL* 8.2 (2011) pp 162–85.

9 P E Lindhout 'Cost recovery as a policy instrument to achieve sustainable and equitable water use in Europe and the Netherlands' *diss Utrecht University* (March 2015).

10 S van Holten, H F M W van Rijswick 'The consequences of a governance approach in European environmental directives for flexibility, effectiveness and legitimacy' in M Peeters, R Uylenburg (eds) *EU environmental legislation: legal perspectives on regulatory strategies* (Edward Elgar Publishing 2014) pp 13–47.

The WFD is considered a milestone in EU water resources management. It is a crucial step that aims to ensure an effective structure for the application of the existing directives that address water management in Europe. It is also interpreted as a coherent legislative framework for the protection and improvement of the aquatic environment within the context of achieving sustainable development in the EU.¹¹ After more than one decade since the WFD was introduced, water status in Europe has been improved, but unfortunately not as much as was expected.¹²

There are serious pitfalls in the new approach. Member States struggle with the meaning of many concepts of the Water Framework Directive leading to slow and insufficient implementation.¹³ Member States also take different approaches when implementing European legislative requirements. The first WFD cycle operates from 2009–2015, and during this cycle it is expected that the number of surface water bodies in ‘good’ status will increase from 43 per cent to 53 per cent. That is not an impressive result at all. The effectiveness of the first generations of water legislation is clearly recognized but was mainly suitable for addressing classical water problems such as point source pollution. As water problems are changing and new challenges have to be dealt with, the EU chose a new regulatory approach in the hope that this so-called governance approach would better address new environmental problems (floods, diffuse pollution, adaptation to climate change, ecological restoration of river basins, water scarcity, salinization, risk from new or thus far unknown substances and related risks and so on). The new approach is also an answer to demands from the Member States for more subsidiarity and flexibility. However, there is a widely recognized tension between on the one hand flexibility and policy discretion in environmental legislation and, on the other hand, the ability to enforce this new way of legislation.¹⁴ Also the role of the public is shifting from the demand for enforcement by the government and even the demand for justice by the courts towards a stronger role in participation at the beginning of the policy process. In particular, the fact that EU water law is not really adequate to deal with new challenges is making its approach less effective than was hoped for. Issues of water scarcity and the allocation of fresh water to different water users are not sufficiently addressed. The wide policy discretion contained in the directives that are aimed at combatting floods and improving coastal zone management also hampers effective protection. Finally, the current legal framework cannot be seen to be sufficiently comprehensive so as to ensure the right to water throughout the European Union. There are doubts as to whether the EU is taking a leading role in this respect.¹⁵

11 <http://ageconsearch.umn.edu/bitstream/14463/1/wp02-13.pdf>.

12 http://ec.europa.eu/environment/water/water-framework/impl_reports.htm.

13 G T Raadgever, C Dieperink, P P J Driessen, A A H Smit, H F M W van Rijswick ‘Uncertainty management strategies: lessons from the regional implementation of the Water Framework Directive in the Netherlands’ *Environmental Science & Policy* vol 14 (January 2011) pp 64–75; A Keessen, J van Kempen, H F M W van Rijswick, J Robbe and C Backes ‘European river basin districts: are they swimming in the same implementation pool?’ *JEL* vol 22, 2 (2010) pp 197–222.

14 O Green, A Garmestani, H F M W van Rijswick and A Keessen ‘EU water governance: striking the right balance between regulatory flexibility and enforcement?’ *Ecology and Society* (2013) 18(2) 10.

15 H F M W van Rijswick ‘Searching for the right to water in the legislation and case law of the European Union’ in H Smets (ed) *The right*

An important result of the EU’s new regulatory approach to environmental and water issues is that, for a thorough understanding of water resource management in the EU, it is necessary to take a close look at how individual Member States are dealing with new challenges in management given that the EU is no longer prescribing detailed requirements. Thus in this special issue the Netherlands is taken as an example.

China

For China, challenges abound at both the national and international levels. Many of the problems China is facing today are similar to the problems the EU faced at an earlier stage: the water resource management approaches are fragmented and agriculture becomes a major contributor to water pollution. In 2002 China revised its national water law to include a strategy similar to that of the EU of integrated river basin management, making the European pattern even more relevant. From a Chinese point of view this integrated approach is regarded as the strength of the EU. ‘In general terms, we all face the same challenges regarding water resources management. Obviously on a different scale and magnitude, with different backgrounds, reference conditions, and culture, that could lead us to different solutions to a similar problem.’¹⁶

In the domestic arena, national Chinese water policy aims to tackle pollution and has declared environmental protection one of its priorities (11th and 12th year plans).¹⁷ Speeches delivered by President Xi Jinping earlier in 2014 have stressed that China should no longer evaluate the performance of local governments by GDP growth. Instead, it should look at welfare improvement, social development and environmental protection.¹⁸ Premier Li Keqiang has declared ‘war on pollution’ with measures being implemented and monitored across China.¹⁹ Numerous environmental laws and regulations have been revised and new approaches have been promoted to adapt to the new situation.^{20,21} These are healthy signs that China is switching its focus from ‘GDP worship’ to a more sustainable development mode.²² Nonetheless serious problems of overuse, pollution and fragmented national water management administrative and legal regimes persist.

to safe drinking water and sanitation in Europe/ Le droit à l’ eau potable et à assainissement, sa mise en oeuvre en Europe (Académie de l’ eau, Editions Johanet Paris 2012) pp 87–113.

16 http://cewp.org/wp-content/uploads/2014/03/RBMP-Completion-Report-MR-018_EN.pdf

17 <http://www.kpmg.com/cn/en/issuesandinsights/articlespublications/publicationseries/5-years-plan/pages/default.aspx>.

18 K Rapoza ‘China’s Pres Xi: GDP no longer the measure of success’ (2013 July 1) retrieved 11 5 2014 from Forbes: <http://www.forbes.com/sites/kenrapoza/2013/07/01/chinas-pres-xi-gdpno-longer-the-measure-of-success/>.

19 <http://www.reuters.com/article/2014/03/05/us-china-parliament-pollution-idUSBREA2405W20140305>.

20 L Dai ‘Recovering the costs of water services in the People’s Republic of China: lessons from Article 9 of the European Union Water Framework Directive’ *Utrecht Law Review* (2012) 8(3) pp 102–118.

21 L Dai ‘Exploring China’s approach to implementing “eco-compensation” schemes: the Lake Tai watershed as case study considered through a legal lens’ *Water International* (2014) 39(5) pp 755–73.

22 L Dai ‘A new perspective on water governance in China: Captain of the River’ *Water International* (2015) 40:1, 87–99 DOI: 10.1080/02508060.2014.986702.

At the international level, one of the key legal issues for China relates to the scope of coverage. Many of the transboundary waters China shares with its 18 riparian neighbours (states and special administrative regions) are not covered by legal frameworks.²³ The majority of China's transboundary water agreements are with northern neighbours – Russia, Mongolia, Korea and Kazakhstan.²⁴ The southern reaches have a handful of data-sharing agreements. Thus, basins such as the Yarlung Tsangpo/Brahmaputra, Ganges and Mekong, all originating in China, have no comprehensive legal regimes.^{25,26} China's approach to international law, based on the Five Principles of Peaceful Coexistence, means that attempts to resolve any transboundary issues will involve negotiations and consultations.²⁷ None of China's treaty practices in this field includes third-party dispute settlement mechanisms. We can conclude that China has enormous scope for improved water-related legal regimes at the national and international levels.

However, there is still a long way to go before China implements its national principles of the socialist rule of law: 'There must be laws to follow, the existing laws must be observed and strictly enforced, and the law-breakers must be prosecuted', and the international five principles of 'mutual respect for each other's territorial integrity and sovereignty, mutual non-aggression, mutual non-interference in each other's internal affairs, equality and cooperation for mutual benefit, and peaceful co-existence' must be followed.

OVERVIEW OF THE RESEARCH CONTRIBUTIONS

The theoretical perspective

In the opening contribution to this special issue Bald de Vries is addressing a fundamental question in his paper '*Sustainable uncertainty: normalising the ecological state of exception*'. His statement is that modern economic rationality is an instrumental rationality geared towards the idea of 'progress' – the continuous need for wealth production (in quantitative terms) – and that this rationality underscores our political and legal order (amongst others). Law and politics can be said to serve the interests of 'progress'. But, as de Vries argues, we have become increasingly aware of the side effects this rationality brings about. These side effects can be conceptualized in terms of 'modern risks' and in this view they are manufactured uncertainties. De Vries applies his reasoning to global warming as a modern risk stating that it becomes more and more plausible that modern economic rationality and ways of wealth production are contributing factors

to global warming and hence, climate change, with an impact on water issues in the broadest sense.

Climate change poses a threat to the natural environment and carries the potential of catastrophic social consequences. To deal with it implies the management of its ecological and social side effects. The question according to de Vries is how these side effects of economic rationality are countered by another rationality, which one could characterise as 'security' or 'safety' rationality. His argument is that 'with this approach we are considered to be in a 'state of exception' – a situation out of the ordinary that demands attention with an aim to return to, or re-establish, the ordinary'. The state of exception, as a theoretical concept, suggests an increase of power structures in times of crisis. What is new is that global warming and climate change can be considered as 'an *ecological* state of exception leading to a *new* normality that demands different ways as to how we want to live together in our social and natural environment'. In his article he seeks to explore the idea of an ecological state of exception as the 'normal' state of affairs, demanding a new rationality and, consequently, asks to what extent a reconsideration of self-evident assumptions that underscore modern contemporary life – economic, political and social – is necessary and desired.

The institutional perspective

A second important issue concerns the institutional design of water management. Who is involved, who should be involved, how can we increase the legitimacy of policy- and decision-making? Which institutional arrangements may inspire us when designing institutional arrangements for transboundary and national water management? In this part we present articles dealing with institutional issues at the international and national levels.

In their contribution '*Implementing transboundary water cooperation through effective institutional mechanisms – dimensions of selected African joint water institutions*' Earle and Wouters examine regional state practice at the international level to determine if there are typologies of best practice. Selecting representative case studies from across Africa, the authors devise and deploy a three-pronged analytical framework comprised of: (i) *Legal and institutional foundations*; (ii) *regional context* and (iii) *organisational sustainability* in order to examine issues contributing to the robust design of river basin organization. The authors suggest that programmes designed to address these fundamental issues in a holistic manner go a long way to devising effective institutional mechanisms capable of tackling transboundary water governance challenges.

The next article by Otto Spijkers, also concerned with international water law, lays emphasis on public participation as an institutional element of utmost importance for sustainable water management. He also discusses the need for international law to contribute to promoting sustainable development and an ecosystem approach. His article analyzes how the Sustainable Development Goals (SDGs) process might give a boost to the evolution of international water law towards a more sustainable development-friendly legal framework. He introduces and discusses three recommendations, derived from the SDG process: to call upon states '1) unambiguously to

23 P Wouters, H Chen 'China's "Soft-Path" to transboundary water cooperation examined in the light of two UN global water conventions – exploring the "Chinese Way"' (2013) 22 *Journal of Water Law* 6 pp 229–47.

24 S Vinogradov, P Wouters 'Sino-Russian transboundary waters: a legal perspective on cooperation' Institute for Security and Development Policy (2013) see further: <http://chinawaterrisk.org/resources/analysis-reviews/keeping-peace-chinas-upstream-dilema/#sthash.rclFGyht.dpuf>.

25 Yu Su 'Contemporary legal analysis of China's transboundary water regimes: international law in practice' *Water International* (2014) 39:5 pp 705–24 DOI: 10.1080/02508060.2014.950856.

26 Yang Liu 'Transboundary water cooperation on the Yarlung Zangbo/Brahmaputra River – a legal approach to contemporary issues' *Water International* (2015) 40:2 pp 354–74.

27 Wouters, Chen (n 23).

approach international water law as a legal framework to promote the sustainable development of water resources, and to interpret the bedrock principles of international water law in that context; 2) to encourage the further development of the ecosystems approach to international water law; and 3) to use the legal framework of international water law to facilitate public participation at all levels of water governance’.

David Devlaeminck’s article continues the discourse on international water law. In *‘Transboundary water cooperation and the responsibility to protect’* he examines the possible reach of the international legal norm ‘Responsibility to Protect’ in the water resources domain. Under the so-called R2P, the international community may be justified in intervening in national affairs where governments fail to meet their duty to protect their own citizens. Could such a norm be invoked to justify interventions related to grave breaches of the human right to water? Outlining the key provisions of R2P, with an overview of possible connectivity with the international human right to water obligations, the author concludes that ‘extreme violations of the human right to water can act as a triggering mechanism for humanitarian intervention within R2P’.

Turning to the national water law arena, Remco Nehmelman’s *‘Institutional and governance aspects of water management: subsidiarity and decentralization – the secret of the Dutch approach to water management’* analyzes the institutional design of water governance in the Netherlands. In a recent OECD report *‘Water Governance in the Netherlands: Fit for the Future’*,²⁸ Dutch water governance was referred to as an exemplar, and while improvements are always possible, the Dutch process is cited as a potential inspiration for other national governments. The particular institutional design, combined with a river basin/catchment approach and a strong focus on decentralization and public participation together with a sustainable financing system are the elements that make water governance in the Netherlands so effective.

The instrumental/regulatory perspective

The third issue in water law management concerns the implementation of policy-making and goal-setting (monitoring compliance targets). Four important challenges in the field of water management are being addressed: 1) water scarcity, 2) water pollution and especially diffuse pollution from the agricultural sector, 3) adaptation to climate change and the protection against floods and finally 4) the impact of urban developments on water and ecosystems.

All contributions focus on regulatory approaches ranging from 1) allocation mechanisms, 2) instruments to tackle pollution, 3) measures to promote and develop adaptation to climate change with a focus on flood risk management and the public-private divide of responsibilities at EU and national (Dutch) level; finally 4) the design of legislation that may hamper or benefit sustainable development in urban areas.

The following questions are addressed: What kind of regulations do we need to address the issue of equitable water use? How can the important nexus between water management and agriculture and food safety be addressed? How can flood risk management be lined up with adaptation to climate change and disaster risk reduction? How can we design the legislation that deals with urban development, with its important impact on water management?

In her article *‘Mechanisms for water allocation and water rights in Europe and the Netherlands – lessons from a general public law perspective’* Marleen van Rijswick adopts a new approach to look at the allocation mechanisms for use of water resources and abstraction rights. Although the general discussion about the allocation of water use rights focuses on the scarcity of water itself, there is also a debate regarding ‘limited public authorizations’ in public law generally and the mechanisms that are used to create a transparent allocation regime based on equality.²⁹ Her article pin points lessons that can be learnt from discussions in public law to improve the allocation and regulation of water use rights to achieve sustainable, balanced and equitable water use. There is an analysis of international, European and national allocation systems because they frequently occur together at the same transboundary river basin, with the Netherlands taken as a national example. It is argued that European and Dutch allocation procedures need to be further developed respecting both the special status of water for living creatures and ecosystems, and in light of the procedures and principles used in other allocation mechanisms, in order to guarantee a sustainable, balanced and equitable water use.

Liping Dai describes both the Chinese and the European approach to the problem of pollution from agricultural sources in her contribution *‘Regulating water pollution in China and the European Union with a focus on agricultural pollution’*. Regulatory instruments are commonly used in both China and the EU to establish their water quality objectives and design implementation strategies, and the author finds that the interaction (or not) of regulatory measures regarding agricultural water pollution control presents a mixed picture. The article discusses the similarities and differences between the allocation mechanisms in China and the EU and observes how the European experience can benefit China.

Herman Gilissen illustrates in his contribution *‘The integration of the adaptation approach into EU and Dutch legislation on flood risk management’* the new regulatory EU approach in the field of adaptation to climate change. Instead of describing in a specific ‘adaptation directive’ what Member States should do to tackle the effects of climate change a choice was made for a combination of policy documents and mainstreaming adaptation in the existing legislative framework. The focus is on flood risk management. Gilissen assesses whether the adaptation approach has been appropriately integrated within the legal systems of flood risk management at the EU and

28 OECD Paris (2014).

29 P Adriaanse, F van Ommeren and W den Ouden (eds) *Allocating Limited Public Authorizations and Claims, General legal rules and principles for the allocation of limited public rights in the EU and its Member States* (Intersentia Mortsel 2015).

Dutch national levels.³⁰ His conclusion is that this cannot be understood correctly without insight into developments concerning this approach in a broader context. To this extent, the coming-of-age of the adaptation approach within the international climate debate as an ever more definitive policy to combat the adverse effects of climate change is addressed as well as the major policy developments giving further substance to the adaptation approach within the EU and the Netherlands.

Anoeska Buijze in her article on *'Promoting sustainable water management in area development: a regulatory approach'* discusses the important role of land use for sustainable water management. She finds that sustainable urban and rural development is a necessity in a world where actors compete over scarce resources, potentially to the detriment of natural resources and the world's capacity to meet the needs of future generations as well as our own. Water management is an integral part of this. Buijze's contribution examines the interplay between water law and governance in three cases in the Netherlands to determine what sort of written law can provide normative guidance during governance processes, while at the same time leaving ample room for innovation and allowing local actors to determine and implement the solution best suited to local circumstances. She concludes that generic, abstract rules do not function well under all circumstances, whereas instrumental rules are not necessarily problematic and sometimes essential. She adds to this conclusion that in particular, rules are needed to allocate (financial) responsibility and that the legal system should develop more refined ways to deal with uncertainty.

SUMMARY OBSERVATIONS AND CONCLUDING REMARKS

The articles presented here offer a wide range of insights on how legal and governance regimes might contribute to achieving sustainable and adaptive fresh water management across Europe and China. While 'no one size fits all', lessons can be learned from the research included in this collection. The following is a summary of some of the key observations from the research.

At the national level

- a. Depending on the state of development of the current legal framework for water resource management in a state or country we see both different and appropriate approaches to deal with the main challenges that societies face today. This is illustrated by the kind of problems that have to be addressed and the national context in which the legislation has to work. Problems of a 'classical' nature can be addressed by classical forms of regulation. Water pollution from point sources can best be addressed by clear standards, a licensing system with emission limit values and of course accompanied by monitoring and enforcement mechanisms. However, more complicated problems

have been the reason for the development of new regulatory strategies and instruments.

- b. In cases where there are multiple sources of pollution or diffuse pollution more integrated policies with other policy domains become necessary. A striking example is pollution caused by agriculture. Developing legislation that recognizes and addresses this correlation between policy fields becomes necessary to effectively address the problem at source. Coordination of policies and policy instruments is required as are mechanisms that stimulate or even demand cooperation between authorities and the stakeholders involved.
- c. Climate change poses new challenges for states and societies and exacerbates problems such as water scarcity, availability of water for all and flood risk. New legal mechanisms have to be developed and should aim at equitable and sustainable water use for current and future generations. The allocation of water use rights has hardly been addressed in European law and even at the Dutch national level this has not really been developed. There are as yet no mechanisms that take changing circumstances such as climate change or new technical and/or more sustainable solutions into account. The strong emphasis on protecting existing rights may impede a sustainable solution for the problem of water scarcity.
- d. New 'wicked problems' in the field of water management as a result of climate change that are characterized by uncertainties also require new and different ways of designing legislation so as to enable adaptive approaches and create learning capacities. However, the flexibility that goes with adaptive management may jeopardize important issues such as legal certainty and the enforceability of legislation.
- e. New institutional arrangements based on multi-level governance and cooperation of the governmental authorities involved are necessary, but may lead to ill-defined responsibilities and in the end ineffective water governance and management.
- f. Finally the design of the legislation and the norms may stimulate sustainable development, or on the other hand too wide a range of choices may hamper sustainability through the lack of clearly defined responsibilities. Urban development is one of the main issues of our time since most of the world's population lives in urban areas which will only increase in number and size. Sustainable development of urban regions is therefore an excellent way forward to put legislative design to the test.

At the international level

- g. European transboundary waters are regulated through a series of international agreements at the multilateral, regional and basins levels. These legal regimes have to be combined with national water policies and domestic legislation. China, in comparison, has a nascent transboundary water legal regime, comprised of only a handful of treaties. Most of these agreements are with northern/western riparian neighbours, with the most evolved cooperation being with Russia and Kazakhstan. China is a party to many multilateral environmental agreements, which might contribute to enhancing transboundary water management.
- h. Regional context and approaches to international law influence state practice in the field of transboundary

30 C Termeer, A Dewulf, H F M W van Rijswick, A van Buuren, D Huitema, S Meijerink, T Rayner and M Wiering 'The regional governance of climate adaptation: a framework for developing legitimate, effective and resilient governance arrangements' *Climate Law* 1 (2011) 1–21, DOI 10.3233/CL-2011-032, IOS Press.

waters. With distinctive historical, social and cultural underpinnings in water resources management, Europe and China implement different legal regimes.

- i. Rules of customary and treaty law can have a part to play in the achievement of sustainable and adaptive fresh water management. The two universal water-related instruments concluded under the auspices of the United Nations – the 1997 UN Watercourses Convention (UNWC)³¹ and the 1992 UNECE Transboundary Waters Convention (UNECE TWC)³² – are

framework instruments available for use as models of best practice by all riparian nations in devising their particular transboundary water agreements. Both UN Water Conventions offer examples of how to draft provisions that deal with the key legal issues – definitions of scope, substantive rules, procedural rules, institutional mechanisms and dispute settlement. Other rules of international law – human rights, responsibility to protect, environmental law, investment and trade – also contribute to transboundary water legal regimes and enhance the potential for cooperation.

31 UN Convention on the Law of the Non-navigational Uses of International Watercourses 1997 (entered into force 17 August 2014) http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf.

32 UN Economic Commission for Europe (UNECE) Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Helsinki (Helsinki, 17 March 1992) 31 I.L.M. 1312 (entered into force 6 October 1996) <http://www.unece.org/env/water/pdf/watercon.pdf>.