

REGULATING WATER POLLUTION IN CHINA AND THE EUROPEAN UNION WITH A FOCUS ON AGRICULTURAL POLLUTION

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This article explores how China and the EU regulate water quality and design implementation strategies, with a particular focus on control of water pollution from agricultural sources. The similarities and differences between Chinese and European policies and practice are explored, with observations on those areas of the European experience that may be relevant to and have an influence on the Chinese system.

I INTRODUCTION

Preventing and reducing water pollution is an ongoing problem for policy-makers and regulators, particularly pollution from agricultural sources, as finding those liable for pollution is a more complex issue than when pollution emanates from industrial sources. Dealing with water pollution involves team work as regulatory, economic and communication policy instruments² are all involved in controlling pollution.

This article examines the regulatory framework for establishing water quality objectives in both China and the European Union (EU) and how China and the EU Member States design implementation strategies to control pollution of water bodies from agricultural sources.³ The challenges facing China today in this area are outlined with suggestions towards improved policies and more effective implementation. How the establishment of the water quality objectives is achieved is examined in section 2, with particular attention given to the policy framework of water pollution management in China resulting from a special domestic situation whereby formal law can sometimes be less effective.⁴ Implementation strategies for achieving the objectives are compared in section 3 and the similarities and differences between the two regions, and the conclusions reached through analysis of China's strategies and the experiences of representative Member States are discussed in section 4.⁵

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2 H L P Mees, J Dijk, D van Soest, P P J Driessen, M H F M W van Rijswijk and H Runhaar 'A method for the deliberate and deliberative selection of policy instrument mixes for climate change adaptation' (2014) 19(2) *Ecology and Society* 58 <http://dx.doi.org/10.5751/ES-06639-190258>.

3 The regulatory instruments discussed here must be distinguished from EU Regulations, ie EU legislation that is binding and directly applicable to and obligatory for all Member States.

4 For discussion of the relation of policy and formal law in water governance see Liping Dai 'A new perspective of water governance in China: captain of the river' (2015) 40(1) *Water International* 87–99.

5 It is clearly not possible to include every Chinese and EU regulatory measure; most of the important principles involved are covered. Moreover many instruments, for example sanctions on or liability for environmental damage, are more commonly discussed under administrative enforcement and civil or criminal liability, which are not the focus of this article.

2 ESTABLISHING WATER QUALITY OBJECTIVES

2.1 Policies shaping China's water quality objectives

The No 1 Document of 2011, which was announced in December 2010 and which was the first policy document to come into force in 2011, is China's equivalent to the EU Water Framework Directive.⁶ It aims at maintaining and improving the water environment and achieving sustainable use of water resources. The 2011 No 1 Document, which outlines a 10-year water management plan and which traverses two national five-year plans, is a new development in water management in China.⁷

The 2011 Document does not directly prescribe water quality objectives; instead, it sets out a system of 'most stringent standards' known as the 'Three Red Lines' (being quantity, efficiency of use and quality). These define quantitative controls for the allocation and abstraction of water resources, controls for efficient water use and quality controls, including pollution limits for the different uses of water bodies, or Water Function Zones (WFZs). The 2011 Document focuses more on 'what to do' in terms of achieving the most stringent standards, and leaves concrete methods and technologies of 'how to do' to its subsequent implementing regulations.

The National Water Function Zoning of Important Rivers and Lakes (2011–2030) (Zoning Policy) is a guide to the implementation of the most stringent standards system,⁸ and provides criteria by which to determine water quality objectives. WFZs are divided into a two-level system: the first level includes zones for protection, conservation, development and utilization; the second level refines the development and utilization zones into seven categories: drinking water sources, industrial use, agricultural use, fisheries, scenic and recreational use, transition and polluting emissions control.

The zoning policy sets out classified management for different WFZs; it does not establish water quality objectives as these are created by combining the zoning policy with

6 The No 1 Document is the first document issued by the Central Committee of the Communist Party each year. It sets national policy priorities for the forthcoming year. Whether the No 1 Document is in fact law is very much debated; some scholars consider it to be soft law. For more discussion of the No 1 Document see Liping Dai 'Water resources management in China: a legal approach and overview' *forthcoming*.

7 M Griffiths 'Comparison of EU-WFD and China's No 1 Policy' (in Chinese) (2012) 12(6) *Water Resource Development Research* 82–85.

8 The Zoning Policy was drafted by the Ministry of Water Resources (the Development and Reform Committee) and the Ministry of Environmental Protection, and was approved by the State Council No 167 [2011], in which 1027 rivers were covered, each watershed area being more than 1000 km². In total these rivers account for two-thirds of all national rivers (exceeding 1000 km²).

the Environmental Quality Standards for Surface Water (GB3838, EQSSW), the Water Quality Standards for Irrigation (GB5084) and Water Quality Standards for Fishing (GB11607). The EQSSW sets different quality standards for different zones – from Class I (for drinking water sources and national protection zones) to Class V (for agricultural use and general landscaping).

The zoning policy, by reference to EQSSW, identifies 3631 WFZs nationwide with a water quality objective of Class III or above, and 862 WFZs of Class IV or below. Eighty per cent of quality objectives must be achieved by 2020, and all of them by 2030. Another guidance document, the ‘Opinion of the State Council on Implementing the Most Stringent Water Resources Management System’ (Opinion),⁹ laid down three more specific quality objectives to be observed alongside the zoning policy, which are:

- to achieve more than 60 per cent of the established objectives in important national rivers and lakes by 2015 (for example, according to the zoning policy and the EQSSW, 60 per cent of the 3631 WFZs in important national rivers and lakes are to reach the water quality objective of Class III or above)
- to achieve higher than 80 per cent of the established objectives in important national rivers and lakes, and 100 per cent in urban drinking supply regions by 2020¹⁰
- to control by 2030 the total quantity of main pollutants in the WFZs within the pollutant-carrying capacity and achieve a compliance rate higher than 95 per cent.¹¹

As stipulated in the 2011 Document and the zoning policy, the Ministry of Water Resources hands down the water quality, allocation and distribution and efficiency objectives to the River Basin Management Authorities and provincial administrative authorities. The compliance rates for the first two dates vary throughout the provinces according to their water environments and status; for ex-

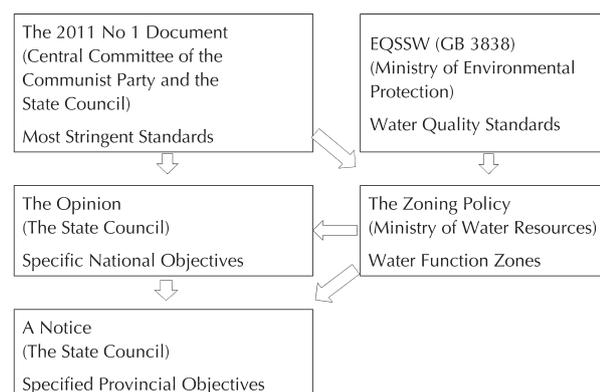


Figure 1: The relationship between different policies for establishing water quality objectives.

9 State Council No 3 ‘The Opinion of the State Council on implementing the most stringent water resources management system’ (in Chinese) http://www.gov.cn/zwqk/2012-02/16/content_2067664.htm.

10 Urban drinking supply regions belong to the Drinking Water Source Zones of the 2nd level of the Zoning, water quality is established as being Class II–III.

11 State Council No 2 ‘Notice of the General Office of the State Council on issuing measures for assessing the implementation of the strictest management system for water resources’ (in Chinese) (2013) http://www.mwr.gov.cn/zwzc/zcfg/xzfighgxwj/201301/t20130107_336155.html.

ample Beijing has to achieve 50 per cent by 2015 and 77 per cent by 2020, whilst in Shanghai these percentages are 53 per cent and 78 per cent. By averaging the compliance rates of all the provinces (including the autonomous regions and municipalities), the national average compliance rates reach the required 60 per cent by 2015 and 80 per cent by 2020. Achieving the objective of 95 per cent in important rivers and lakes by 2030 applies to the whole country.

2.2 Water quality objectives of the EU Water Framework Directive

The EU Water Framework Directive (WFD) establishes a legal framework to protect and restore water quality across the Member States, which must prevent their waters from deterioration and achieve a common water quality objective by a set deadline – a ‘good water status’ for both surface water and groundwater before 2015.^{12,13} ‘Good water status’ refers to both the chemical and ecological status of water bodies. The basic management units for surface water and groundwater are the river basin districts; water bodies are divided into natural, artificial and heavily modified waters. Water quality objectives are set for the different water bodies; for example, instead of a good ecological status, the artificial and modified water bodies must meet ‘good ecological potential’ and there are also some exemptions from meeting the 2015 deadline.

For Member States, establishing water bodies is the first step to setting environmental quality standards and water quality objectives. The ecological status or ecological potential, and the chemical status must be assessed as defined in Annex V of the WFD. The elements for assessment are subdivided into three groups: (1) biological elements; (2) hydromorphological elements supporting the biological elements; and (3) chemical and physico-chemical elements supporting the biological elements.¹⁴

Uitenboogaart and others have conducted a detailed comparison of the transposition of the WFD and establishment and accomplishment of objectives in five different Member States (the Netherlands, Denmark, France, England and Wales, and Germany) to ascertain how the general environmental objectives of the WFD were transposed and how the Member States established those objectives as standards and norms. They compared the objective-setting process of water quality at the river-basin level according to a number of topics, for example, the designation of water bodies and the objective-setting process in steps.¹⁵ They found that good ecological status for

12 WFD art 4 consists of several objectives, which differ in their formulation and in the presence or absence of deadlines and exemptions; more information can be found at section 4.1 of J J H van Kempen ‘Countering the obscurity of obligations in European environmental law: an analysis of Article 4 of the European Water Framework Directive’ (2012) 24(3) *Journal of Environmental Law* 499–533.

13 The criterion of good ecological status is defined in Annex V of the WFD, measured on the scale of high, good, moderate, poor and bad. Good chemical status is defined in terms of compliance with all the quality standards established for chemical substances at the European level, measured as good or failing.

14 Water Framework Directive Common Implementation Strategy Working Group 2A ‘Overall approach to the classification of ecological status and ecological potential’ (2003) 28.

15 Y Uitenboogaart et al *Dealing with Complexity and Policy Discretion: A Comparison of the Implementation Process of the European Water Framework Directive in Five Member States* (Sdu Uitgevers The Hague 2009).

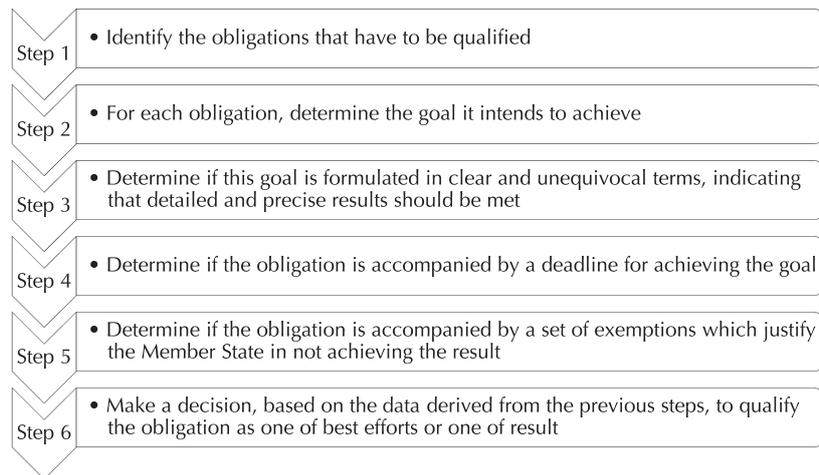


Figure 2: Six-step method to assess the quality of obligations.

natural water bodies and good ecological potential for artificial water bodies and heavily modified water bodies are assessed and then categorized based on several different criteria. Keessen and others later compared the regulation of quality norms and standards in 11 Member States, and both studies found that different criteria are used to establish water bodies and the types of obligations imposed.¹⁶

According to Van Kempen it is important to distinguish between obligations of best endeavours to achieve a result (obligation of effort) and obligations to succeed in attaining a result (obligation of result).¹⁷ Van Kempen's analysis shows that the obligations to achieve both chemical and ecological good surface water status are obligations of result (see Figure 2).

3 INSTRUMENTS FOR ACHIEVING THE ESTABLISHED WATER QUALITY OBJECTIVES

3.1 Achieving objectives in China

In China the 'Government's Objective Responsibility System' (GORS) is the main strategy for achieving environmental objectives. Governments at all levels are responsible for implementing the system with priority given to the reduction of pollution and polluting emissions. The State Council specifies levels of total emissions of certain pollutants for all administrative regions, where the total is divided between sectors and responsibility for the control of emissions is devolved to district authorities.¹⁸ For example, the total emissions quota for Beijing of the Chemical Oxygen Demand (COD), which is the principal determinant of water pollution, is 183,000 tons until 2015, 98,000 tons of which are assigned to industrial and domestic discharges and the remainder for other pollution sources.

The Opinion, which specifies that water quality objectives must be achieved within given timeframes (see section 2.1

¹⁶ A M Keessen et al 'European river basin districts: are they swimming in the same implementation pool?' (2010) 22(2) *Journal of Environmental Law* 197–221.

¹⁷ Note 11.

¹⁸ State Council No 26 'The comprehensive working plan for energy conservation and emission reductions in the 12th Five-Year Plan Period' (in Chinese) (2011) http://www.gov.cn/zwgk/2011-09/07/content_1941731.htm.

above), outlines what measures should be put in place and how they should be implemented in order to achieve the targets. The measures specified are:

- strengthening monitoring and managing WFZs
- increasing protection for drinking water sources
- promoting the protection and restoration of water ecological systems.

These are to be implemented by establishing accountability and assessment of performance in the management of water resources by:

- reinforcing the system for monitoring water resources
- improving the water resources management system
- refining input mechanisms for water resources management
- enhancing policies, regulations and public supervision mechanisms.

In order to assess performance, in other words, to strengthen the GORS, the State Council introduced categories ranging from excellent (90 points or more out of 100 points), good (more than 80 and less than 90 points), qualified (more than 60 and less than 80 points) or unqualified (less than 60 points).¹⁹

The leading officials of the Communist Party and local governments are responsible for the administration of water quality under contract with the upper level governments, who evaluate their performance according to the State Council's established indicators ranging from excellent, through good, to qualified and unqualified. Assessments are undertaken every five years and result in commendations or sanctions at each end of the scale, which places local governments at the forefront of environmental pollution control.

3.2 The links between water regulations and agricultural-related regulations in China

Although the National Census on Pollution Sources revealed that agriculture was the main source of environ-

¹⁹ State Council No 2 'Assessment methods for the most stringent water management system' (in Chinese) (2013), available at http://www.gov.cn/zwgk/2013-01/06/content_2305762.htm.

mental pollution together with water pollution,²⁰ a cohesive legal framework integrating the management of both water and agriculture is not yet well formulated. The regulatory system in China is in the form of a pyramid. Under the Constitution and the Environment Protection Law, further specific environmental laws are enacted and are divided into three groups:

1. Pollution prevention and control laws, for example the Water Pollution Prevention and Control Law, the Air Pollution Prevention and Control Law, and the Solid Waste Pollution Prevention Law.
2. Resource conservation and utilization laws, such as the Water Law, the Agriculture Law and the Grassland Law.
3. Environmental management laws, for example the Environmental Impact Assessment Law.²¹

The first group of pollution prevention laws plays a leading role in control of water pollution from agricultural sources. The newly revised Water Pollution Prevention and Control Law (2008) included the provision that: ‘the use and application of pesticides and fertilizers shall be reasonable and related standards shall be applied, and animal waste shall be treated to render it harmless’.²²

Laws that regulate agricultural activities do not directly address water pollution, but they do help to improve water quality indirectly. For example, the Regulation on the Protection of Basic Farmland states that: ‘the state advocates and encourages agricultural producers in the application of organic fertilizers, the rational application of chemical fertilizers and agricultural chemicals in the basic farmland under their management’.²³ Increasing agricultural pollution in recent years has led to the revision of many of the laws regulating agriculture practices; for example, the Cleaner Production Promotion Law, revised in 2012, requires that: ‘the use of chemical fertilizers, pesticides, and feed additive compounds shall be in accordance with scientific principles . . . The use of toxic or hazardous wastes as fertilizers or as landfill to build up fields is prohibited’.²⁴

The Law on the Prevention and Control of Environmental Pollution by Solid Wastes requests that:

. . . those who adopt agricultural films for agricultural use shall take certain measures such as recycling to prevent or reduce environmental pollution caused by the films; those

20 The 1st National Census on Pollution Sources was jointly released by the Ministry of Environmental Protection, the Ministry of Statistics and the Ministry of Agriculture on 6 February 2010. For further information on water pollution from agriculture see Liping Dai ‘Something old, something new, something borrowed and something blue: tackling diffuse water pollution from agriculture in China: drawing inspiration from the European Union’ (2014) 10(2) *Utrecht Law Review* 136–54.

21 Y Qi, X Zhou ‘Water pollution control in China: review of laws, regulations and policies and their implementation’ IGES (Hayama) 2009 <http://pub.iges.or.jp/modules/envirolib/view.php?docid=2775>.

22 Water Pollution Prevention and Control Law (2008) arts 47–50. The Water Pollution Prevention and Control Law was adopted by the National People’s Congress in 1984, and was subsequently revised in 1996 and 2008.

23 Cleaner Production Promotion Law art 19. See State Council No 257 ‘The regulation on the protection of basic farmland’ (in Chinese) (1998) http://www.mlr.gov.cn/zwqk/flfg/tqglflfg/200406/t20040625_570370.htm.

24 Cleaner Production Promotion Law art 22, issued by the Standing Committee of the National People’s Congress No 54 [2003], revised in 2012.

who engage in livestock and poultry breeding shall collect, store, transport and dispose of the livestock and poultry manure in accordance with the state regulation and prevent environmental pollution; and the specific measures for preventing and controlling rural consumer wastes shall be prescribed by local regulations.²⁵

The Regulation on the Prevention and Control of Pollution from Large-scale Breeding of Livestock and Poultry requires that:

. . . the prevention and control of pollution from livestock and poultry breeding shall give overall consideration to the need to protect the environment and to promote the development of the livestock husbandry; and the construction of livestock and poultry farms and breeding establishments within Drinking Water Source Protection Zones is prohibited.²⁶

3.3 Implementation strategies in the European Union

Under the WFD Member States are required to establish ‘good’ status of all Community waters by 2015, setting up RBDs as the basic management units (Article 3) and establishing a Programme of Measures (Article 11) and River Basin Management Plans (RBMPs) (Article 13). The programme of measures must include ‘basic’ measures,²⁷ which are the minimum requirements under other existing EU legislation (including for example the pollution control measures under the Nitrates Directive) and, where necessary, ‘supplementary’ measures, which are adopted to reinforce the provisions of the directive or set up new ones when the basic measures are not sufficient to achieve good water quality.²⁸

Tackling pollution from agriculture is one of the main challenges in achieving the WFD’s objectives, as 40 per cent of rivers and coastal waters in the EU are affected by agriculture.²⁹ The Common Agricultural Policy (CAP), which contains a number of instruments related to water resource management, was established in 1957 by the EEC; its original objectives were to provide affordable food for EU citizens and a fair standard of living for farmers.³⁰ Five decades have now passed and the updated CAP 2014–2020 has three current objectives: viable food production, the sustainable management of natural resources and climate action and a balanced territorial development.³¹

25 Law on the Prevention and Control of Environmental Pollution by Solid Wastes arts 19, 20 and 49, issued by the Standing Committee of the Eighth National People’s Congress No 58 [1995], revised in 2004 and 2013.

26 Regulation on the Prevention and Control of Pollution from Large-scale Breeding of Livestock and Poultry arts 3, 11, issued by the State Council No 643 [2013].

27 See Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy). Basic measures are included in art 10 and part A of Annex VI to the WFD.

28 A non-exclusive list of supplementary measures is provided in part B of Annex VI to the WFD. See R Müssner et al ‘WFD and agriculture linkages at the EU level: final report about cross-compliance and the WFD’ (2006) http://www.ecologic.eu/download/projekte/1950-1999/1966/1966_deliverable_12.pdf.

29 European Environment Agency Report *European Waters: Assessment of Status and Pressures* (Luxembourg: Office for Official Publications of the European Union 2012).

30 European Union *The Common Agricultural Policy: A Story to be Continued* (Publications Office of the European Union Luxembourg 2012).

31 European Commission ‘Agricultural policy perspectives: a brief overview of CAP reform 2014–2020’ http://ec.europa.eu/agriculture/policy-perspectives/policy-briefs/05_en.pdf.

Cross-compliance (reinforcing compliance with the EU's existing regulations) is one of the instruments of the CAP and represents the baseline or reference level for agri-environment measures.³² It links direct payments to farmers who comply with basic standards concerning the environment, food safety, animal and plant health and animal welfare, as well as maintaining land in a good agricultural and environmental condition (Council Regulation 73/2009 and Commission Regulation 1122/2009).³³ Two elements are included in the cross-compliance: one is represented by the statutory management requirements, which refer to 18 legislative standards related to public, animal and plant health, the environment and animal welfare;³⁴ the other requires Member States to maintain all agricultural land in a good agricultural and environmental condition according to a range of standards.³⁵

Although the WFD is not listed in the CAP, the implementation of the statutory management requirements does help to achieve the water quality and water management objectives of the WFD, either directly or indirectly (see Figure 3).^{36,37} The requirement for good agricultural and environmental condition also helps to achieve the WFD's objectives. The most common measures adopted by the

Member States are the establishment of green cover, restrictions on the burning of vegetation, controlling the encroachment of unwanted vegetation and restrictions concerning the use of machinery on waterlogged land.³⁸

The Nitrates Directive (91/976/EEC) is particularly important as it specifically attempts to reduce water pollution caused by nitrates from agricultural sources. The aim is to safeguard drinking water supplies and to prevent wider ecological damage arising from the eutrophication of freshwater and marine waters generally by establishing vulnerable zones.³⁹ Compliance with the Nitrates Directive is a key component in meeting the WFD's objectives.

4 DISCUSSION AND COMPARISON

4.1 Establishing the water quality objectives

In terms of the establishment of water quality objectives, China's 2011 Document shares many similarities with the EU WFD; however, as the levels of development and the culture are different in these two regions, the water management policies are implemented in different ways.

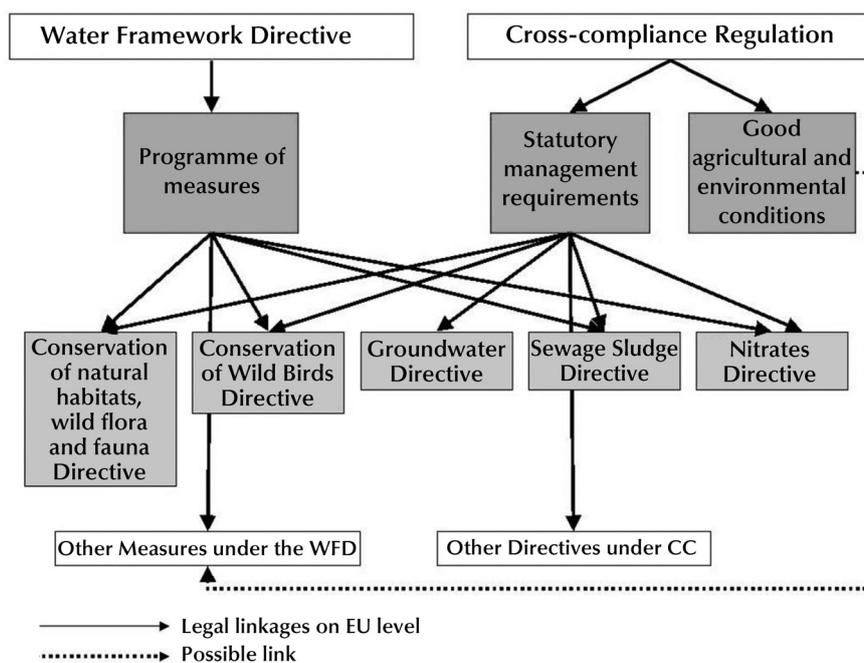


Figure 3: Links between the cross-compliance framework and the WFD.

Source: R Müssner et al 'WFD and Agriculture Linkages at the EU Level. Final Report about Cross Compliance and the WFD' (2006) http://www.ecologic.eu/download/projekte/1950-1999/1966/1966_deliverable_12.pdf.

32 Note 30.

33 European Commission *Agriculture and Environment* http://ec.europa.eu/agriculture/envir/cross-compliance/index_en.htm.

34 Article 5 of Council Regulation 73/2009. The 18 legislative standards are listed in Annex II. For a full understanding of EU water law including other water directives see H van Rijswijk, H Havekes *European and Dutch Water Law* (Europa Law Publishing Groningen 2012).

35 Article 6 of Council Regulation 73/2009. The range of standards set is listed in the third column of Annex III.

36 With regard to water management, the related directives covered by the statutory management requirements are the Groundwater Directive (2006/118/EC), the Nitrates Directive (91/676/EEC), the Sewage Sludge

Directive (86/278/EEC), Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna and the Birds Directive (79/409/EEC as amended by Directive 97/49/EC). The Groundwater Directive, which is a daughter directive of the WFD, is not listed. 37 T Dworak, M Berglund, T Thaler, E L Fabik and B Amand *Assessment of Agriculture Measures Included in the Draft River Basin Management Plans: Summary Report* (Ecologic Institute Berlin/Vienna 2010).

38 Müssner (n 28).

39 A Volkery, K Geeraerts, A Farmer, L Chalsège, B Vandresse, L D S Gaspar and D L Ursachi *European Commission—General Directorate Environment Support to Fitness Check Water Policy* (Deloitte Consulting Institute for European Environmental Policy Belgium 2011).

Both China's 2011 Document and the EU WFD outline long-term plans for water management: a 10-year plan in China and a 6-year planning cycle in the EU. Both of them set out the basis for water quality objectives and timetables for reaching these. The WFD requires Member States to achieve at least 'good' water status for both their surface water and groundwater before 2015, whilst China's deadlines are 2015, 2020 and 2030.

Unlike the EU WFD, however, which establishes some general water quality objectives and leaves some of the environmental quality standards to be set by the Member States, the 2011 Document sets out the 'Three Red Lines', which are the guidelines for objectives set out in the implementing regulations: the Opinion, the Zoning Policy and the Notice. By dividing its water bodies into different WFZs, China establishes different targeted objectives for those zones and sets out different compliance rates for the targeted objectives under different policy documents. The short-term objectives (2015 and 2020) for each province might be different, but the compliance rate of more than 95 per cent by 2030 is similar under both regimes. One recent difference is that the EU laid down possibilities for extension of the deadline twice (to 2021 and 2027) but there is no clear corresponding statement about a time extension in China.

The management units in both the EU and China (RBDs and WFZs) provide the basic framework for achieving environmental quality objectives; however, there is greater diversity in the EU owing to the Member States' freedom in implementation of the WFD than there is amongst the Chinese provinces where, under a centralized government the same political structures and therefore similar water management arrangements exist across the country. In China, the EQSSW define surface water as rivers, lakes, canals, irrigation channels and reservoirs (Article 1.2), although this is not as detailed as in the EU WFD, which further distinguishes between natural water bodies, heavily modified water bodies and artificial water bodies (Article 4(3)). With these divisions the impact of human activities are taken into account and the economic constraints are more easily reconciled with the environmental objectives.

Heavily modified water bodies and artificial water bodies are given an alternative objective of 'good ecological potential', where ecological indicators are taken into account. In contrast, by referring to the EQSSW, China's zoning policy divides WFZs according to 24 chemical indicators and excludes ecological indicators. The EU WFD sets basic requirements for assessing both ecological status and ecological potential, and although this is still a challenge for Member States, it does not detract from the fact that China should take note of the benefit of including the health of the aquatic ecosystem in water resource management.

The EU WFD refers to both surface water and groundwater, whereas Chinese policy is less well developed for groundwater. This does not mean that the pollution of groundwater in China is not a problem. For example, on the North China Plain more than 70 per cent of the overall groundwater was classified as Grade IV+ in 2013, in other words unfit to be touched by humans.⁴⁰ A general survey

40 China Water Risk <http://chinawaterrisk.org/notices/north-china-plain-groundwater-70-unfit-for-human-touch/>.

of the extent of the pollution of the country's groundwater is expected in 2015.⁴¹

There is virtually no system in place in China to monitor the effectiveness of the measures to achieve the objectives. According to Van Kempen's 6-step method, the obligation of achieving different compliance rates should be qualified as obligations of result because the objectives for each province are detailed and the deadlines are clearly specified by the official national Notice. However, to date there is no regulation imposing remedial measures for any non-achievement.

4.2 Implementation strategies and their effectiveness

China and the EU apply very different strategies to achieve their established objectives. China adopts the GORS and the EU establishes an integrated legal system.

4.2.1 The Chinese Government's objective responsibility system

The GORS is proving to be effective in achieving the objectives. For example, in Wuxi City in Jiangsu Province in sectors where the water is monitored the quality is reported to have improved significantly under the GORS system; 74.7 per cent of the sectors reached the required standards in 2008, which was 50 per cent better than in 2007 when the system had not yet been adopted.⁴²

However, the GORS has its limitations. There is no allowance for public participation in the GORS system.⁴³ The result of an evaluation of the GORS is extremely important for a provincial government in that it largely determines the government's financial fate (eg a good result may help to ensure support funding from the upper level) and the responsible persons' career paths (eg promotion or dismissal).

These stratagems give a false impression which means that 'the data becomes better and better, whilst the practical situation becomes worse and worse'.⁴⁴ Theoretically, citizens can initiate public-interest litigation when governments fail to act or enforce the law. However, in practice, the local judiciaries are dependent on local governments for funding, and their decisions may be interfered with. From 2002 to 2011 environment-related litigation at first instance only accounts for 0.2 per cent of the total cases,⁴⁵ and from 2000 to 2013, less than 60 environmental public-interest litigation cases arose.⁴⁶

In the EU infringements of EU law by Member States are brought by the Commission against the Member States in the European Court of Justice (ECJ) and for national law in

41 The National Planning for Prevention and Control of Groundwater Pollution was jointly released by the Ministries of Environmental Protection, Land and Resources and Water Resources and was approved by the State Council No 119 [2011].

42 Liping Dai (n 4).

43 *ibid.*

44 S He 'The objective responsibility system: operation and characters' (in Chinese) (2010) 24(7) *China Agricultural University Journal of Social Sciences Edition* 24(7) 173–82.

45 Chun Yuan 'Analysis of national environmental litigation from 2002 to 2011' (in Chinese) http://www.legaldaily.com.cn/zbkz/content/2012-12/19/content_4069404.htm?node=25497.

46 'Judges have no environmental case to hear while environmental conflicts occur frequently' (in Chinese) *China News* <http://www.china-news.com/gn/2014/10-08/6652268.shtml>.

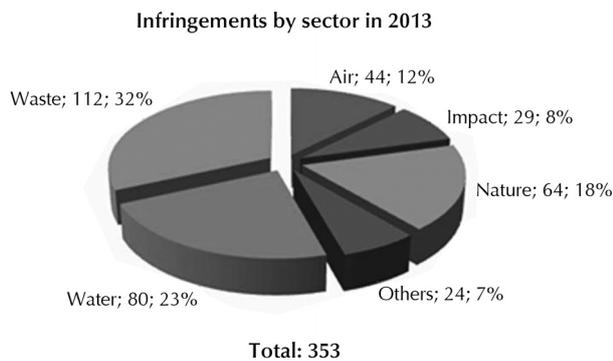


Figure 4: Infringements in the EU by environmental sector.

Source: European Commission 'Legal enforcement' <http://ec.europa.eu/environment/legal/law/statistics.htm>

the national courts. For example, the ECJ has taken action against Spain for having failed to designate a competent authority,⁴⁷ and against Greece⁴⁸ and Italy⁴⁹ for their failure to undertake the necessary analyses for some or all of their river basins.⁵⁰ In 2013 alone, 353 environmental infringements were brought before the ECJ, amongst which 80 (23 per cent) were water cases (see Figure 4).

Member States have found implementation of the WFD challenging. Incomplete implementation across the EU as a whole brings the risk that a proper assessment of the impact of the WFD may be hampered by the lack of evidence from Member States that have not yet put the Directive into practice, and this in turn impedes any process of identifying changes that may need to be made.⁵¹

4.2.2 *Integration between the legal and policy frameworks for water and agriculture*

The EU adopts a coordinated legal framework in order to control pollution from agricultural sources.⁵² This coordination enables greater transparency in policy implementation, better communication and the use of joint resources by the administrative bodies concerned (within and across Member States and regions).⁵³

Although there are some laws in China dealing specifically with agricultural pollution, they are not well synchronised. In the Water Pollution Prevention and Control Law it is stated that 'the use of pesticides must comply with the state provisions and norms on the safe use of pesticides' (Article 47) and the 'state provisions and norms could be found in the Standards for the Safe Application

of Pesticides in 1990';⁵⁴ however, this is only a guidance document which cannot be enforced, and is long out of date.

Article 48 continues:

The competent department of agriculture and other related departments under the local people's government at or above the county level shall take steps to guide agricultural producers to use fertilizers and pesticides in a scientific and reasonable way and control the overuse of fertilizers and pesticides so as to prevent water pollution.

The Regulations on Pesticide Administration state that: 'The competent administrative departments of agriculture of the people's governments at or above the county level shall enhance guidance in the safe and rational use of pesticides'.⁵⁵ The absence of any provisions to guide and monitor implementation or introduce sanctions for non-compliance of these laws is notable. Although agricultural pollution was included as a new section in the Water Pollution Prevention and Control Law 2008 the rules for implementation, which were adopted in 2001, remain unchanged.

5 CONCLUSION

In China ecosystem protection and management is not taken into account in the setting of water quality objectives. Although the Ministry of Environmental Protection proposed an assessment of the ecological security of important national lakes and reservoirs in early 2008, there is no official guideline available to date. A study of the EU policies and regulations could lead to establishing regional pilot schemes taking ecosystems and local conditions into consideration, which could then be developed nationwide. China also needs to develop more scientific water quality objectives, ie taking the health of aquatic ecosystems into consideration. Surface water resources are not integrated with groundwater resources, mainly because these fall into different governmental sectors. Ideally, a high-level commission to coordinate the key water management sectors would then be followed by institutional reform. Finally, judicial freedom and judicial independence, greater transparency throughout all levels of government, better coordination of environmental regulations and stringent monitoring and imposition of sanctions are all developments that should be called for urgently.

47 Case C-516/07 *Commission v Spain* [2009] ECR I-76.

48 Case C-264/07 *Commission v Greece* [2008] ECR I-00022.

49 Case C-85/07 *Commission v Italy* [2009] ECR I-3491.

50 See Volkery et al (n 39).

51 UK House of Lords European Union Committee 33rd Report 2010-12 'An Indispensable Resource: EU Freshwater Policy' para 15 <http://www.publications.parliament.uk/pa/ld201012/ldselect/lducom/296/29605.htm>.

52 See TFEU art 11, which states that environmental protection must be integrated into the EU's policies and regulations.

53 Note 39.

54 Standards for the Safe Application of Pesticides (GB 4285-89), approved by the National Environmental Protection Bureau (now the Ministry of Environmental Protection) in 1989.

55 Regulations on Pesticide Administration art 55, issued by the State Council No 326 [1997], revised in 2001.