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The Chinese Way of Water Management

Legislative and Institutional Framework

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INTRODUCTION

Water scarcity has become a global problem. China, like many other countries, is facing a severe water crisis that endangers its population, food security, economy and ecosystems. In this paper, the main causes of the crisis will be presented, focusing on those specific to the Chinese case, instead of stressing the influence of global trends such as climate change. The interrelation between water scarcity and water pollution will be presented, as well as the crises' consequences on economic development, public health and the environment.

Over the decades, China has developed a complex institutional framework for water resources management that is characterized by high levels of fragmentation, a stark division between administrative and environmental management of water resources, and by repetitions and overlaps of competences. In particular, there are over ten ministries that share competences related to water resources. This system is known as "Nine Dragons Ruling Water". The paper will provide an analysis of the framework, both in terms of division of duties among different State bodies, and in terms of problems that stem from said framework. Taking into exam the institutional dynamics at the central and local levels of government is fundamental to the understanding of the issues related to law enforcement.

The core of the paper will be a detailed analysis of the legal framework for the regulation of water resources, with focus on environmental management. Starting from the late Seventies, China has developed a comprehensive legal framework for water resources management, which is subject to a process of constant upgrading: as environmental protection rises to the top in the government priorities' list, legislators work to overcome environmental laws' shortcomings, increasing their effectiveness.

After an introduction on the sources of law pertaining to the water sector, and a brief parenthesis on law drafting, each of the laws that constitute the core of the legal framework will be analyzed, with focus on the development of each law over the years.

The legal framework for the Chinese water sector is rather complete, but far from perfect. Although efforts towards improvement exist and are effective to a certain degree, the main problem to overcome is the high level of fragmentation in environmental water management, that makes it hard for authorities to apply effective measures to bring environmental water quality improvements and alleviate scarcity. Stylistic issues of the laws will also be presented, highlighting how an imperfect language can concretely impact the efficacy of laws.

Laws are not the only type of State document that will be presented in this paper. In China, the line between State planning and legislative document is blurred, moreover, central plans for water resources serve as a guideline for the legislative work of the period to which they refer. That is why the role of water environmental protection in Five-Year Plans will be considered, and the two main policy documents related to the water sector of the last decade will be briefly examined.

Related to the legal framework is dispute resolution. Environmental disputes prove to be of particular interest in China, as they have the potential to introduce significant innovations in the judicial sector, thanks to a certain degree of openness on the government's part, given the relatively uncontroversial nature of environmental cases. Two fronts of innovation will be presented: the establishment of environmental courts and the introduction in China of NGO-lead public interest litigation. This last topic also allows for a brief reflection on alternative types of control mechanism for environmental governance that have been gaining ground in China, and especially on the growing role of civil society and public participation.

As the Chinese water crisis gives no sign of improvement, and people are more and more concerned about pollution, the government is taking strong positions on the necessity of improving the country's environmental performance and curbing pollution emissions. The leadership's environmental orientation was reflected in the latest State Council reform, that lead to a radical rearrangement of the water sector's institutional framework. The changes to the framework will be presented, and some hypothesis on the effects of the reform will be advanced.

序言

目前，全世界面临最严重的威胁之一，是所谓的水危机。因为中国人口众多、在国际经济平台上的重要性不可比拟，所以，眼下，在全球范围内，中国的水危机更明显了。

从七十年代末起，随着改革开放，中国的经济越来越发达、摆脱贫困的人也越来越多。但是每个硬币都有两面，经济发展给人带来繁荣的同时，也导致环境的逐渐恶化。

中国水危机由两大部分组成：水资源的缺乏和水污染。虽然中国水资源并不贫乏，但是人均占有量只居于世界的第 121 位。造成这个现象的原因主要有两个。第一是中国水资源的区域自然分布不平衡：中国北部水资源少，而南部水资源丰富。第二是水资源的区域分布不符合国家经济、农业和人口的需求。中国北方是国家的主要小麦生产基地，还是国家的主要工业中心。北部面积等于国土面积的百分之六十四，而且东北地区贡献几乎三分之一的 GDP。这明显意味着北方的水资源需求很大，但是北方水资源只占全国百分之二十一。水资源分布不平衡导致地下水超采，也导致严重的缺水问题。

水危机的第二个部分是水资源的污染。水污染主要来自工业活动、农业活动和城乡废水。因为北方是国家的农业和工业中心，所以那里的污染比南方的严重。由于污染使一大部分的水资源无法使用，使得北方已经很有限的水资源更加匮乏。另一方面，南方充沛的雨水使得南方流域有较强的自然净化能力。可是这并不意味着在南方水污染不成问题，反而水资源丰富的南方也面临的缺水问题就是水污染的原因。

水危机对人体健康、经济发展和环境质量有负面的影响。饮用水的质量对人们健康至关重要，科学研究早就证明了水污染和一些疾病的联系。水危机也影

响到经济：为了加快经济发展，工业需要大量的水。如果国家水资源不够满足工业的需求，经济发展就会减速。并且，渔业和一些别的行业特别会因为水污染而对其自身造成损害。水污染对自然环境的影响也很明显：大部分的水体质量差，影响到野生动物和植物的健康。

近年来，中国政府越来越关心水危机问题，特别是水污染。中国已建立了较完善的水资源和水污染防治体制，但是这个体制还没健全。水资源的特征是外部性，这意味着水资源组成综合的体系，也意味着用以许多互相协调的部门为主的机制来管理水资源根本不能有很高的效率。

从横向来分析中国水环境保护的体制，主要问题就在于此。有保护水环境责任的部门为数众多，还存在着功能重叠，况且由于不同部门之间的利益冲突所以合作不够。管理水资源的制度称作"九龙治水"就是因为它具有这些特点。 具有水环境保护责任的主体是环境保护部、水利部、住房和城乡建设部、农业部、国土资源部以及较多别的部门和委员会，如国家改革发展委员会。

在纵向方面上也存在着许多问题。中央和地方不同层级都承担着跟水环境保护有关的相同责任，这导致事权交错、责任划分不明的问题。中央和地方政府也有利益冲突的问题：地方政府有打击污染的义务，同时也有促进地方经济发展的义务。污染企业对地方经济和就业人数的贡献很大，所以地方政府通常选择保护污染环境者的利益。这种现象称作地方保护主义。

政府意识到水环境保护体制的缺点，所以在 2018 年的国务院机制改革中，政府重视克服机制框架给水环境保护有效管理所带来的障碍。改革之后，九龙治水制度被消除了，现在机制框架的主体只有两个：新建立的生态环境部和自然资源部。水利部和一些别的部门仍有跟水环境管理有关的责任，但是目前它们被边缘化了。

有效的水环境保护管理建立在完善的法律制度的基础上。规定中国水环境的主要法律有三个：水法、环境保护法和水污染防治法。除了这三个法律以外，还有几个影响到水环境的很重要的法律：环境保护税法、环境影响评价法、城乡建立法和别的规定水资源的某些范围的法律。除了第一位阶的法律，水环境保护法律制度还包括不同部门和地方政府制定的配套法规。

规范中国水环境保护活动的法律制度以下列原则为主：

一是水污染防治，体现这个原则的措施是进行环境影响评价。环境影响评价的目的就是参考建设项目或计划会给环境带来什么样的影响，还有提出减少负面影响的有效措施。为了控制水污染国家还拟定了水环境质量标准和污染物排放标准，并建立了重点污染物的总量控制制度。

二是所称"三同时"的原则。"三同时"是中国特色的环境保护办法，要求污染者在生产过程中减低和处理他们所产生的污染。

三是清洁生产，清洁生产的目的在于通过采用先进工艺和淘汰严重污染环境的设备来促进可持续发展。

四是污染者付费的原则。排放污染物的企业事业单位都有处理污染的义务，除了设置处理污染的设备外，还要求污染者按照所产生的排污量付排污费或环境保护税，也要求排放重点污染物的生产者遵守政府拟定的排污配额。污染者付费其实不仅是指污染者该承担污染处理的成本，还是指如果所产生的污染给人或环境造成损害，污染者得承担责任。为了避免责任划分不清的情况，法律要求排放污染物的企业事业单位都建立环境保护责任制度。

五是水环境监督监测。监督是指对排污行为进行检察，检测是指用技术设备来评价水环境质量和污染排放的情况。这就是环境管理的科学基础。

中国水环境保护的法律制度从七十年代起有了很大的发展，但是仍然存在着下列问题。

第一是中国现行水资源的管理制度以行政区域管理和流域管理为基础，按照水法和水污染防治法的规定，水利部进行水量管理，环境保护部进行水质管理，实际上这意味着实行水资源的综合管理很难，因为部门之间的协调机制不多、不完善。

第二是法律法规有含混的地方，并且不同法律法规之间存在协调问题，这减低法律制度的有效率。

第三是法律法规存在着重叠，也存在着空白。比方说，环境保护法、水污染防治法、水法和清洁生产促进法都有规定环境状况监督检测的条款。另一方面，有如面源污染和农业污染的一些领域几乎没有有关规定。

第四是水污染和水事纠纷的处理问题。水污染和水事纠纷有不同种类，从法律角度来看，成问题的纠纷种类是跨行政区域纠纷 。这种纠纷的主体一般都是不同层级的地方政府或政府部门和政府的直辖机构。按照水法和水污染防治法，跨行政区域纠纷应当协调处理，或者由双方共同的上一级人民政府协调解决。因为协调只有双方自愿互相互让才有效，所以很多跨行政区域纠纷仍然没有解决。

虽然水环境保护法律制度还没健全，但是它一年又一年地进步。在一些方面上，水环境保护的法律制度真有给国家法律制度带来创新的能力。水环境有关纠纷逐渐增长了，而且水污染纠纷很复杂，必须有专业知识来解决，但普通法官一般不会有所必要的背景。2007 年随着一些重大的水污染事故，一些地方政府决定建立环保法庭来解决这种纠纷，目的不仅是减轻普遍法院的工作负担，也是培训一群环保专门的法官。一开始这种法院的未来很不稳固，但是现在已经有六百多个环保法庭，连最高人民法院建立了自己的环保审判庭。

除了跟司法制度有关的创新，水环境保护活动所带来的革新也包括别的控制机制种类的使用。目前，控制污染的市场机制很发达，用地越来越多。新制定的环境保护税制就是市场机制的例子。

越来越受到政府的关注的控制机制是公众参与和文明社会。按照法律个人也有保护环境和举报损害环境行为的义务。这是公众参与的一个方面，另一个是参与政策制定的过程。虽然在中国第二个方面发展地比较慢，可是公众的监督角色逐渐变强。

文明社会在国家环境保护平台上的位置也关键重要。直到几年以前，环境保护非政府组织的活动很限制，但随着政府意识到非政府组织在环境保护领域的重要性，这些组织的动作范围不断扩大。在中国，非政府组织正在起一些很重要的作用：第一是教育公众，提高人民的环境保护意识。第二是监督检测作用：非政府组织不仅使用先进技术来检测环境质量，它们也把数据给公众公开，还举报违法行为、公开超过标准污染者的名姓。信息公开的活动特别启发中国政府，以至于现在中央和地方政府的所有部门几乎都进行公开信息的活动。

环境保护非政府组织的最后一个重要的作用是参与公益诉讼。2014 年新修订的环境保护法规定符合资格的环境保护非政府组织有权对违法的污染者起诉。在这种情况下，非政府组织起诉是为了保护公众利益，保护弱势群体。多亏公益诉讼，污染者、污染受害者和政府主体之间的权力分配更平衡。

总体来说，中国正在面临的水危机很严重，涉及人民健康、经济发展和环境质量。近年来，中国政府越来越意识到解决水危机的紧急性。虽然水环境保护有关的体制和法律制度还没健全，但是它们一年比一年改善，前景光辉。

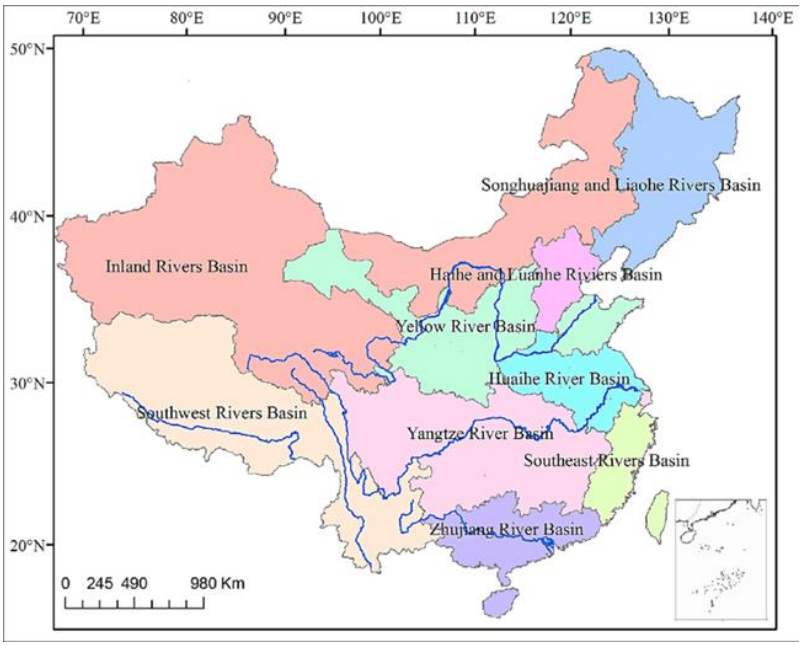
CHAPTER 1

1.1 CHINA'S WATER CRISIS

China is currently facing a severe water crisis (水危机 *shui weiji*) that originated mainly along with the huge economic development that the country underwent starting from the 1980s. Increased industrial and agricultural activities required water, especially in the coal mining field,[1] as coal is the main source of electric power in the country. China also experienced a demographic boom, and as the population grows in number, its need for water will also increase. Water resources are needed now more than ever, but their availability is endangered. The current crisis is composed of two main factors that are actually the two sides of the same coin: scarcity (缺水问题 *queshui wenti*) and pollution (污染 *wuran*).

1.1.1 Scarcity

Water scarcity is nothing new to China, as the water resources of the country are naturally unevenly distributed in space, and subject to quantitative variations in time.[2] China's water resources are divided into nine main river basins, as illustrated in fig. 1.



[1] Qin T., Zhang M., *Development of China's environmental legislation*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 18
[2] Jiang Y., China's water scarcity, *Journal of Environmental Management*, 90 (2009) p. 3186

Figure 1: Map of China's river basins.[3]

According to data from the Ministry of Water Resources of the PRC, China's total water resources (including both surface and underground water) amount to 2.8 trillion m^3, corresponding to about 6 percent of the global freshwater resources (淡水资源 *danshui ziyuan*).[4] The country is home to a population of approximately 1.41 billion people,[5] that is to say about 18 percent of the total global population.[6] However, the availability of renewable water resources per capita is only 2100 m^3/year, which is just around one quarter of the world's average.[7] It is also worth noticing that statistics, by their very nature, are generalizations of complex situations, therefore meaning that there are places in China where the average water availability per capita is far lower or higher than 2100 m^3: for example, the National Bureau of Statistics estimated that the quantity of water per capita in Beijing is 124 m^3, while that of Tibet is 120.121 m^3 water per capita.[8] These differences can be ascribed not only to an actual variation in the availability of water resources, but also to differences in the density of the population. Moreover, as the population grows and consumption rates increase, the quantity of water resources per capita is going to decline.[9]

One of the main factors determining water scarcity is the precipitation pattern: the country has a monsoonal climate, which means that it is subject to dry winters and wet summers.[10] Rainfalls tend to increase following a North-West to South-East trajectory.[11] Due to this type of climate, China is prone to both floods and draughts, and because of climate change, the occurrence of natural disasters such as heat waves, intense rainfalls and cyclones is more frequent, and exacerbates the situation.[12] It has been noticed that downpours tend to be shorter in duration but much more intense.[13] Urbanization also contributes to the disastrous effects of extreme weather phenomena, as an ever growing part of the land is made impermeable to water: having no natural drainage underground,

[3] Source of the image: L. Jiang, F. Wu, Y. Liu, X. Deng, Modeling the impacts of urbanization and industrial transformation on water resources in China: an integrated hydro-economic CGE analysis, *Sustainability*, 6 (2014)
[4] Ministry of Water Resources, *Water Resources in China*, p. 2
[5] UN Population Division, accessible at https://esa.un.org/unpd/wpp/DataQuery/
[6] Source: http://www.worldometers.info/world-population/china-population/
[7] Global Water Partnership, *China's water resources management challenge: the "three red lines"*, 2015, p.7
[8] National Bureau of statistics of China, *China Statistical Yearbook 2016*, available online at http://www.stats.gov.cn/tjsj/ndsj/2016/indexeh.htm
[9] Source http://www.fao.org/nr/water/aquastat/countries_regions/CHN/index.stm
[10] Global Water partnership, above note 7, p.7
[11] Ministry of Water Resources, above note 4, p.1
[12] *Ibid*.; see also: F. Huang, Z. Liu, B. G. Ridoutt, J. Huang, B. Li, China's water for food under growing water scarcity , *Food Sec*., 7, 2015, p. 934
[13] Luo P., He B., Takara K., Xiong Y. E., Nover D., Duan W., Fukushi K., Historical assessment of Chinese and Japanese flood management policies and implications for managing future floods, *Environmental Science and Policy*, 48 (2015) p. 268

water overflows in cities and other human settlements.[14] Floods also contribute to the transport of pollutants from the sewage systems of municipalities to other water bodies and soil.[15] Moreover, urbanization was achieved by reducing the surface occupied by forests and farmland, which are essential to maintaining a certain degree of humidity in the soil. This contributes to the process of desertification that China is currently undergoing and also increases the occurrence of disastrous floods.[16]

The uneven spatial distribution of water resources is especially problematic, as it does not match the needs of the economy and the population.[17] Southern China comprises 36 percent of the territory and hosts about 53 percent of the population, while the North possesses the remaining 64 percent of territory and 47 percent of population, and is also the major producer of crops.[18] Water, however, is mostly located in the Southern regions: there we find close to 81 percent of the total water resources, which leaves a meager 19 percent to the water-scarce North.[19] It is estimated that the North-East contributes to almost one third of the national GDP, while the South's contribution is inferior by far.[20] This causes frequent and severe water shortages in the fields of industry, agriculture and domestic consumption.[21]

As demand for water often surpasses supply, especially in the North, there has been a growth in phenomena of over-extraction of water, mostly as far as groundwater is concerned.[22] An emblematic case of water shortage is that of the Yellow River of 1997: the river's water level was so low that it could not outflow into the sea for most of the year.[23]

1.1.2 Pollution

As mentioned previously, water scarcity is not a stand-alone problem, but is strictly connected to pollution. In fact, where scarcity is already an existing problem, it is further exacerbated by pollution, and where it should not be a problem, such as in the water-rich South of the country, scarcity comes into existence due to the high levels of pollution that reduce the quantity of good-quality water.[24]

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[14] *Id*., p. 267
[15] *Id*., p. 266
[16] Orts E. W., Environmental law with Chinese characteristics, *William and Mary Bill of Rights Journal*, vol. 11 no.2 (2003), p. 554
[17] Jiang Y., China's water security: current status, emerging challenges and future prospects, *Environmental Science & Policy* 54 (2015) p. 107
[18] Tyler Z., Transboundary water pollution in China, *Columbia Journal of Asian Law*, 2006 p. 574
[19] *Ibid*.
[20] World Bank Group, *Cost of pollution in China. Economic estimates of physical damages*, 2007 p. 9
[21] Jiang Y., above note 2, p. 3187
[22] *Ibid.*
[23] *Ibid.*
[24] *Id*., 3189

Pollution has been a major concern in China for years now, and has been affecting the environment in all of its aspects. As far as water is concerned, the problem is especially severe.

First of all, water quality is ranked using a grading system that goes from grade I to III, which identify water from excellent to good quality, suitable for domestic use, grade IV and V identify polluted to badly polluted water, only suitable for industrial, agricultural and entertainment use but not for human contact, and lastly grade V+ identifies water so polluted that cannot be used for any purpose at all.[25]

The main pollution sources are industrial and urban wastewater (废水 *feishui*), which is often untreated and dumped directly into water bodies, and agricultural non-point source pollution (面源污染 *mianyuan wuran*)[26].

The following graphs present the current situation of the pollution of water resources based on data from the Report on the State of Environment of 2016 by the Ministry of Environmental Protection (MEP). It is worth mentioning that data from different sources may present variations, and that due to the complexities of environmental data gathering in China these statistics may have a certain degree of inaccuracy.[27]

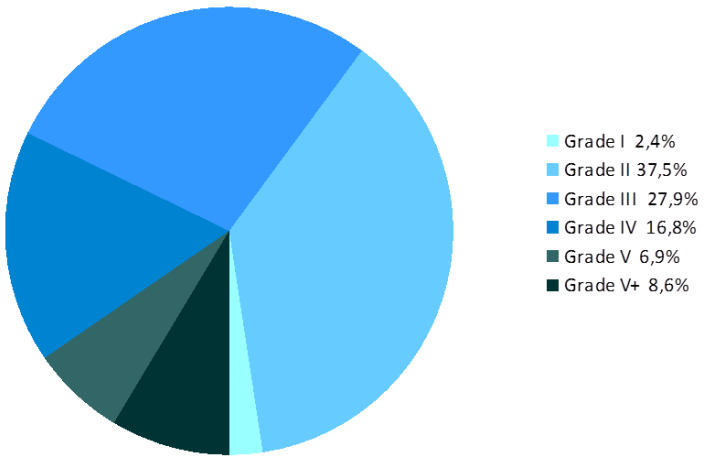

Figure 2: overall surface water (地表水 *dibiaoshui*) quality in 2016.

[25] Su J., Ji D., Lin M., Chen Y., Sun Y., Huo S., Zhu J., Xi B., Developing surface water quality standards in China, Resources, *Conservation and Recycling*, 117 (2017), p. 295-296

[26] Tyler, above note 18, p. 574

[27] The problem of environmental data inaccuracy undermines the understanding of the actual environmental conditions of the country, and of the steps to be taken in order to bring improvement. I encountered this problem when making these graphs basing myself of data from the Ministry of Environmental Protection, as the numbers seem to indicate something is off in either data collection or data elaboration. In fact, in several cases, when adding up percentages related to one item, the total was either slightly above or below one hundred. In fig. 3, for example, the Report indicates that 57,5 percent of water in the Songhua River Basin belongs to category I to III, 33,3 percent to category IV and V, and 6,5 percent to category V+, for a total of only 97,3 percent.

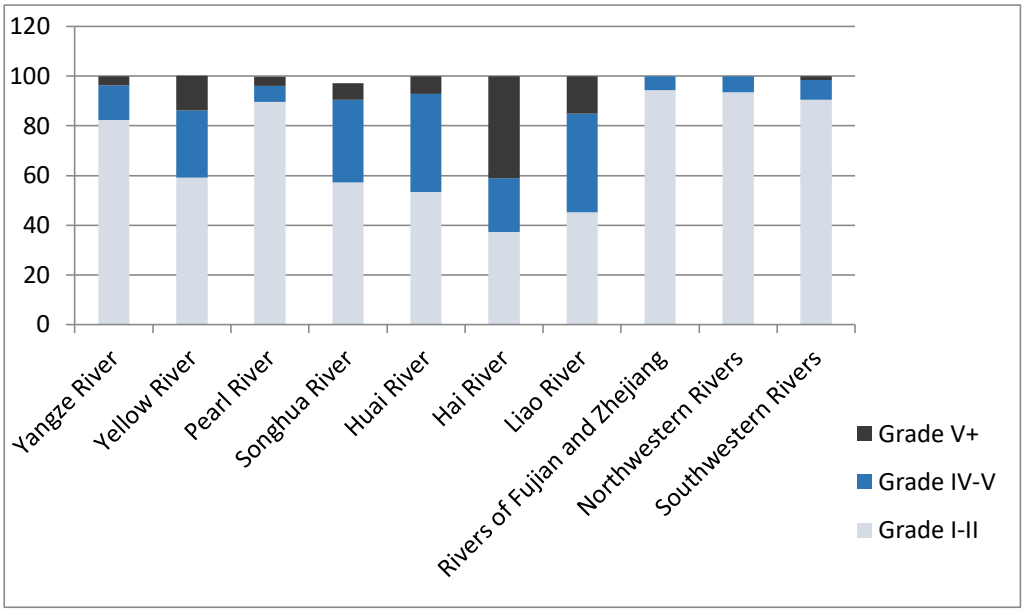

Figure 3: water quality of China's main river basins (主要流域 *zhuyao liuyu*) in 2016

As illustrated in Fig. 2, the quantity of water whose poor quality makes it unfit for human contact exceeds 40% of the total surface water of the country. If we also take into consideration the data from Fig. 3, we notice that the majority of badly polluted water is located in the North and Northeast, which explains the severe scarcity of water in these regions: not only the overall quantity of water is already scarce due to natural factors, it is further reduced by the grave pollution problems that make a big part of the local water resources unusable. High levels of pollution in the North are also related to the high population density of the region,[28] that puts more pressure on the environment both in terms of need for water resources and in terms of pollution it creates.

On the other hand, pollution is less severe in the Southern and Western parts of China. This may be thanks to more abundant precipitations that allow the river systems to assimilate pollutants more quickly.

Agriculture also plays an important role in determining these statistics, being the main source of non-point pollution (and thus much harder to tackle):[29] due to its flat surface, the North of the country has been chosen to be the main producer of grain regardless of the natural dryness of the region.[30] With extensive crop growing comes intense use of chemical fertilizers and pesticides (oftentimes of the kinds forbidden by law, such as DDTs),[31] which in turn end up contaminating the soil and filtering

[28] World Bank, above note 20, p.6
[29] *Id*., p. 34
[30] Nickum J. E., Shaofeng J., Moore S., *The three red lines and China's water resources policy in the twenty-first century*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 71
[31] Lu Y., Song S., Wang R., Liu Z., Meng J., Sweetman A. J., Jenkins A., Ferrier R. C., Li H., Luo W., Wang T., Impact of soil and water pollution on food safety and health risks in China, *Environment International* 77 (2015), p. 8

in water resources. This practice, combined with wastewater irrigation, which is sometimes unavoidable due to lack of other water resources,[32] water scarcity and inefficient management, leads to the evidence presented in fig. 2.

China has a great number of lakes and reservoirs. The following graph presents the overall water quality of the 112 major lakes of the country, evaluated using the same grading system used previously for surface water quality. Figure 5 presents another kind of water quality evaluation, that considers 108 lakes and that is focused on the monitoring of the nutritional status (营养状态 *yingyang zhuangtai*) of the water bodies.

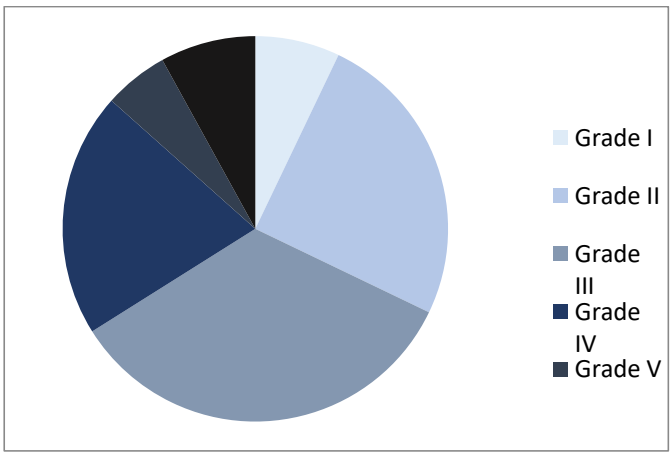

Figure 4: overall water quality of China's major lakes and reservoirs in 2016.

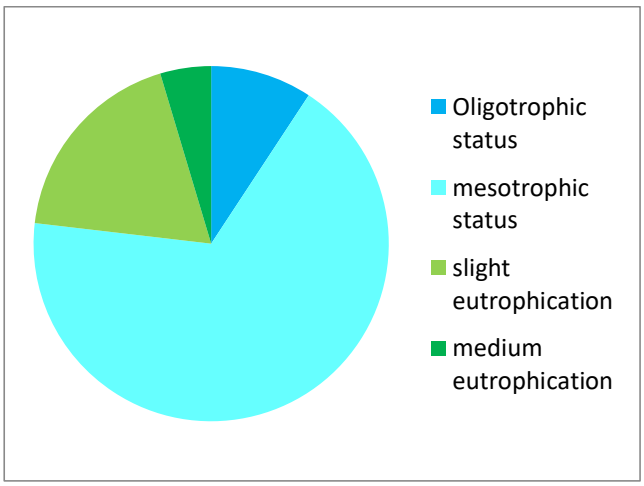

Figure 5: nutritional status of China's major lakes and reservoirs in 2016.

Pollution, illustrated in fig. 4, is the main cause of the rise in the nutritional levels of water illustrated in fig. 5, due to an increase in the concentration of phosphate and nitrate nutrients, which mainly

[32] *Id.* p. 6

comes from organic fertilizers, animal waste and sewage waste.[33] High levels of nutrients lead to the eutrophication of water bodies with the excessive bloom of algae, which make the water unfit for drinking and, in the more severe cases, can cause the death of fish due to lack of oxygen.[34]

The last fundamental category of freshwater whose pollution levels are monitored by the Chinese Ministry of Environmental Protection is groundwater (地下水 *dixiashui*). The following graph offers an overview of the quality status of groundwater on the national level.

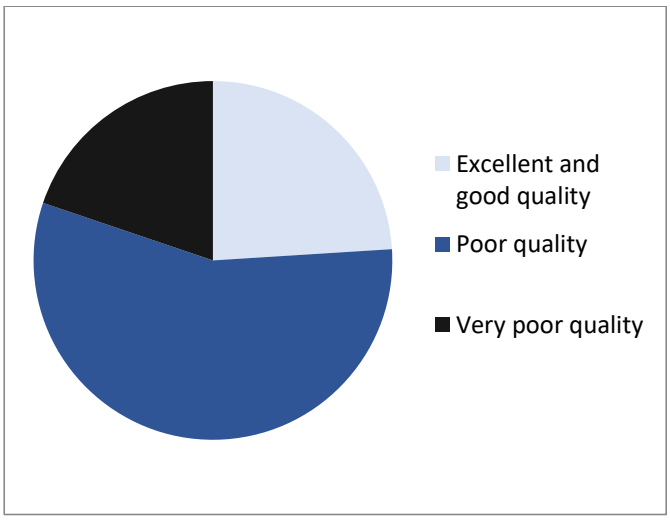

Figure 6: overall underground water quality in 2016.

The conditions of groundwater are especially alarming. About 70% of the Chinese population relies on groundwater as a primary source of drinking water,[35] especially in the North.[36] On the other hand, due to pollution coming mainly from the industrial (coal mining) and agricultural sectors, groundwater reservoirs' quality is deteriorating. Moreover, China has to face a serious problem of over-extraction of groundwater, which has caused the level of aquifers to precipitate.[37] This phenomenon is especially widespread in the North and North-East of the country, which, as previously mentioned, is the most water-scarce part of China. Groundwater over-extraction has lead to a variety of environmental problems. It has caused a rise in the salinity of groundwater resources, which makes them unfit for drinking.[38] It has lead to subsidence, which mines the stability of

[33] Hu Y., Cheng H., Water pollution during China's industrial transition, *Environmental Development* 8 (2013), p. 60-61
[34] World Bank, see above note 20, p. 106
[35] Qiu J., China to spend billions cleaning up groundwater, *Science*, 334 (2011), p.745
[36] China Water Risk, *Groundwater under pressure*, accessible at http://www.chinawaterrisk.org/resources/analysis-reviews/groundwater-under-pressure/
[37] World Bank, above note 20, p. 82
[38] Liu J., Zheng C., *Towards integrated groundwater management in China*, in *Integrated Groundwater Management. Concepts, Approaches and Challenges*, p. 456

infrastructures, as well as reduces the capacity of aquifers.[39] Lastly, groundwater over-extraction also has repercussions on lakes and wetlands (湿地 *shidi*), as it contributes to their drying up, and in general is contributing to the progressive process of desertification (荒漠化 *huangmohua*) that is affecting China.[40]

Needless to say, the water crisis interests a wide variety of ecosystems, endangering both plants and animals. In fact, many estuarine species have gone extinct.[41]

The consequences and ramifications of the phenomena that have just been described are not exclusive interest of environmental scientists and specialists in the sector, as they extend well beyond the field of ecology and touch upon the economy and society

1.1.3 Social and economic costs of the water crisis

Water scarcity and pollution seriously undermine the country's food security. China needs massive quantities of grain to feed its population of almost one and a half billion people, but grain is not all that Chinese people want: increased levels of income lead to more variation in terms of diet, with more consumption of meat, milk and eggs.[42] China needs grain both for people and livestock, but at the same time water is needed for industrial and urban use. Oftentimes the only solution is to divert water resources destined to agriculture to other sectors, hindering crop production.[43] Some observers, namely Brown in his pioneering albeit controversial work "Who will feed China: wake-up call for a small planet", are worried about the consequences that China's food security issues might have on a global scale, fearing China might be forced to become the world's major grain importer, thus causing a global rise in food prices.[44] The Chinese government is well aware of this risk and is working to a solution, as confirmed by Chinese Prime Minister Li Peng at the FAO World Food Security Conference in 1996.[45] Solving, or at least alleviating, the water crisis would be an important step to ensuring the country's food security.

Water is needed for irrigation, but its scarcity forces farmers to resort to dangerous practices. Aquifers are being depleted, their level has fallen drastically and is causing such problems as soil

[39] China Water Risk, above note 36
[40] Liu J., Zheng C., above note 38, p.460
[41] Jiang Y., above note 2, p. 3187
[42] Ceresa M., *Life is holiday. Nuovi consumi e nuovi piaceri della Cina urb*ana, in *Propizio è intraprendere imprese. Aspetti economici e sociosulturali del mercato cinese*, edited by Abbiati M., Libreria Editrice Cafoscarina, Venezia, 2006, p. 62
[43] Brown L., *Who will feed China? A wake-up call for a small planet*., World watch environmental alert series, New York, W.W. Norton & Company, 1995, p. 67
[44] *Ibid.*
[45] Van Rooij B., *Regulating land and pollution in China. Lawmaking, compliance and enforcement; theory and cases*, PhD dissertation, Leiden University Press, Leiden, 2006, p. 50

subsidence and saline intrusions in aquifers, as mentioned earlier. It is also making the land barren, intensifying the process of desertification that interests especially the Western regions of the country, and that causes the infamous sandstorms that more and more often hit Beijing.[46]

Farmers also resort to wastewater irrigation (污水灌溉 *wushui guangai*),[47] trying to make the most of the water they have.[48] However, this practice is detrimental to food safety, as untreated wastewater contains substances such as persistent organic pollutants (持久性有机污染物 *chijiuxing youji wuranwu*) and heavy metals (重金属 *zhongjinshu*),[49] which pose serious risks to human health by filtering in the soil and being absorbed by crops.[50]

Water pollution seriously affects human health through consumption of unsafe drinking water and food that has been contaminated by wastewater irrigation, coupled with excessive use of fertilizers and pesticides. It is estimated that every year approximately 190 million people contract illnesses caused by water pollution, and 60.000 people die because of them.[51]

According to a study by the World Bank, almost all urban residents have access to piped water, however, the extent of access to piped water in rural zones is unclear. At the time of the study (2007) it was estimated that only one third of rural residents could rely on it.[52] Another estimate indicates that about 320 million people, or one quarter of the Chinese population, lack access to potable water.[53] Unfortunately, piped water is not a guarantee of good quality, therefore the effects of water pollution on health also depend on the possibility and willingness of people to resort to alternative drinking water sources when they realize the water they are supplied is not up to standard.[54] The poorer strata of the population, especially rural, are more exposed to water pollution, as they lack resources to avoid polluted water. The World Bank indicates a correlation between lack of access to piped drinking water and the incurrence of infectious diseases such as cholera, hepatitis A, dysentery, typhoid and diarrhea.[55]

[46] Orts E. W., above note 16, p. 553
[47] The Chinese expression for wastewater irrigation implies that the water used reaches the quality standards for irrigation waters and that the process is a form of water recycling that should not bring harm to the environment. However, oftentimes the water used for this practice is untreated and ends up polluting soil, crops and waters.
[48] Lu Y. et al., see above note 31, p. 9
[49] *Ibid.*
[50] *Ibid.*
[51] Wang Q., Yang Z., Industrial water pollution, water environment treatment, and health risks in China, *Environmental Pollution*, 218 (2016), p. 358
[52] World Bank, above note 20, p. xiv
[53] Du Q., New developments in water pollution law and policy in China: effective enough to cope with water pollution conflict?, *International Journal of Rural Law and Policy*, special edition 2011, p. 2
[54] *Id*., 35-39
[55] *Id*., p. 7

Exposure to chemical pollutants such as heavy metals and nitrates (the former mostly come from mining and smelting,[56] while the latter from fertilizers)[57] can cause a range of diseases, that span from acute poisoning to chronic illnesses (such as cancers), and to pregnancy complications.[58] These pollutants are found not only in drinking water but also in crops, being a consequence of soil pollution caused by sewage irrigation.[59]

High morbidity and mortality of cancer are especially alarming. Studies show that the incidence of cancers to the digestive system is high, and mortality in rural areas exceeds the average levels both on national and global level. Polluted drinking water is thought to be the root of the phenomenon.[60]

An alarming trend strictly related to water pollution is the rise of cancer villages (癌症村 *aizhengcun*),[61] villages where the number of cancer cases in a specific amount of time is higher than what is recognized as normal. Cancer villages tend to be clustered along China's major and most polluted rivers, and are particularly common in proximity of the Hai River and Huai River in the North, and also in the areas of the lower course of the Yellow River, Yangze River and Pearl River.[62]

Environmental degradation and unsafe living conditions caused by pollution have also lead to cases of mass migration.[63] While the phenomenon of rural migration to urban areas and the formation of the so-called "floating population" in China is well known, it is worth mentioning that pollution is a contributing factor. Moreover, the masses of migrant workers, currently estimated to be 245 million people,[64] further strain the infrastructural capabilities of urban areas, including sewages, water treatment and piped water.

The correlation between water pollution and health hazards is unquestionable, and the way this affects social stability is evident: in a time when internet and the media facilitate communication and the spreading of news (albeit in China there still exist limits to the freedom of these exchanges), people affected by pollution are not willing to stay silent. The Chinese government understands that when lives are endangered, protests might quickly escalate. Central authorities are under pressure to solve the country's environmental problems, and in fact their growing concern on the topic is made evident by the policy and legislative evolution of the past three decades.

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[56] Lu Y. et al., above note 31, p. 10
[57] Liu J., Zheng C., above note 38, p. 461
[58] World Bank, above note 20, p. 41
[59] Lu Y. et al., above note 31, p. 9
[60] World Bank, above note 20, p. 6-7
[61] Lu Y. et al., above note 31, p. 10
[62] *Ibid.*
[63] Beyer S., Environmental law and policy in the People's Republic of China, *Chinese Journal of International Law*, vol.5 no.1 (2006), p. 187
[64] National Bureau of Statistics, *China Statistical Yearbook 2017*, 2017, available online at http://www.stats.gov.cn/tjsj/ndsj/2017/indexeh.htm

Finally, before moving to the topic of what has been done and is currently being done about the water crisis, I will give some figures about the economic impact of the crisis.

The World Bank study of 2007 indicates that water scarcity caused by pollution costs the Chinese government 147 billion yuan each year, which was about 1 percent of the country's GDP.[65] Adding the cost of groundwater depletion, estimated to be along the lines of 92 billion yuan,[66] we get a cost of 239 billion yuan. The Ministry of Environmental Protection estimates that water pollution eats up to 2.1 percent of the country's GDP.[67]

The water crisis affects each sector in tangible ways. Groundwater depletion has an increasing economic cost, besides the obvious environmental cost: digging deeper and deeper to get access to groundwater gets more and more expensive, furthermore, China as started to exploit deep aquifers, that are non-renewable sources that took thousands of years to accumulate and that are being consumed in the span of a few decades.[68]

I have already mentioned the detrimental effects of wastewater irrigation on crop quality and the consequences for human health. This practice also has some tangible economic effects: productivity is lowered by soil degradation, and inferior crop quality and high levels of pollution in the produce also contribute to lower the retail price.[69] The World Bank estimates that the economic loss for agriculture in 2003 amounted to 6.7 billion yuan.[70]

The water crisis damages industry by causing a decrease in product quality and a slower production pace (sometimes it even forces industries to stop production for some time).[71] An example is that of a hydro-power plant that was forced to periodically halt its activity to change its turbines, corroded by polluted water. The economic damage comes from both lowered productivity and the cost of new turbines, that need to be substituted much more often than if water pollution were out of the equation.[72]

Water pollution has obvious effects on fishery. While the public's attention is usually captured by episodes of severe pollution caused by accidents, that cause mass death of fish, the effects of pollution are actually chronic and long-term: toxic pollutants accumulate in water bodies, threatening the lives of fish, and therefore many fish farmers resort to using excessive quantities of antibiotics and

[65] World Bank, above note 20, p. 81
[66] *Ibid.*
[67] Jain R., The dragon treads the polluted path: political dilemmas before the Chinese Communist Party, *Asian Affairs: an American Review*, vol. 42 no.3 (2015), p. 151
[68] *Id*., p. 93
[69] *Id*., p. 102
[70] *Ibid.*
[71] *Id*., p. 84
[72] This example was drawn from Van Rooij, above note 45, p. 192-194

additives in order to prevent fish death.[73] Direct economic loss caused by pollution accidents is relatively easy to calculate, but the loss caused by chronic pollution is harder to estimate. According to the World Bank, total economic losses in 2003 amount to 4.3 billion yuan (this figure takes into consideration both marine and inland fishery).[74]

After this broad overlook on the Chinese water crisis and its most fundamental effects on the lives of Chinese people, I will introduce the institutional bodies of the State that are tasked with water management, and thus with dealing with the crisis. I will also analyze the sources of law and the legislative process, and their possible influence on the crisis. Chapter two will be devoted to an analysis of the main laws regulating water and on key policies on the theme of water. I will also introduce the judicial system and the complexity of law enforcement in China. Lastly, I will present the latest institutional reform that has interested the environmental sector.

1.2 INSTITUTIONAL BODIES REGULATING THE CHINESE WATER SECTOR

1.2.1 Historical development of water management and environmental protection in China

Water management has always had a strong link to government in Chinese history.[75] Like most civilizations, the Chinese one developed in proximity of a river, in this instance the Yellow River, which is subject to periodic floods that, if not handled properly, can have disastrous effects on human settlements and human activities.[76]

According to historian Sima Qian's Shiji, the founder of the Xia dynasty, Yu the Great, became a ruler after having successfully tamed floods through a series of irrigation channels that not only prevented the damages caused by water but also redistributed it in the fields, allowing society to prosper.[77] The historicity of Yu is questionable, but his legend still suggests the fundamental role of water management in China: the first forms of government may have sprouted from the necessity of

[73] Buckley C., Wu A., "Something is wrong": fresh fish vanish from Beijing stores, rising suspicions, The New York Times, 24/11/2016, online at https://www.nytimes.com/2016/11/24/world/asia/something-is-wrong-fresh-fish-vanish-from-beijing-stores-raising-suspicions.html
[74] World Bank, above note 20, p. 107

[75] Schreiber H., *La Cina. Tremila anni di civiltà*, translated by Gianni Pilone Colombo, Garzanti, Milano, 1984, p. 13-24
[76] *Ibid.*
[77] Wu Q., Zhao Z., Liu L., Granger D. E., Wang H., Cohen D. J., Wu X., Ye M., Ofer B. Y., Lu B., Zhang J., Zhang P. Yuan D., Qi W., Cai L., Bai S., Outburst flood at 1920 BCE supports historicity of China's Great Flood and the Xia dynasty, *Science*, vol. 353 no. 6299 (2016), p 579

handling the Yellow River's floods.[78] The very word for governing, *zhi* 治， originally meant to tame a flood.[79]

The close link between good environmental management and governance was preponderant throughout the Imperial period, during which water management was implemented through great irrigation works and flood prevention projects.[80]

This mindset, characterized by management through great engineering projects, persisted after the fall of the Empire and was prevalent during Mao's era, sometimes with disastrous effects.[81] The Ministry of Water Resources of the People's Republic of China (水利部 *shuili bu*), or MWR, founded in 1954, inherited the infrastructural management spirit. During the Maoist period, environmental protection was a topic that was barely touched upon, and water management was highly fragmented and mostly concerned with development objectives, the so-called "socialist transformation" of nature.[82] In this period we can find the roots of the management style that characterizes Chinese water management, and that is often described with the phrase "Nine Dragons Ruling Water" (九龙治水 *jiulong zhishui*): authority over water resources is siloed, with the MWR in charge of flood control and water transfer projects among river basins, while other tasks are entrusted to other ministries.[83] For example, irrigation is within the domain of the Ministry of Agriculture (农业部 *nongye bu*).[84] At this stage, no institutional body was devolved to environmental protection yet. During this time, the ideology of "better red than expert" (要红不要专 *yao hong buyao zhuan*) was pervasive, and it opened the way to today's water crisis: the period saw a blooming of hydropower projects that were often ill-designed, and lead to environmental disasters (most notably floods) and also had high social costs, as they usually implied the destruction of human settlements whose residents lost their homes and had to move elsewhere.[85]

The Great Leap Forward (1958-1961) is infamous for its enormous human costs, but it also took a toll on the environment, and the "grain first" policy that followed as a preventive measure for future famines took a further step down the path of environmental degradation:[86] first, great forest areas

[78] Schreiber H., see above note 75
[79] Source: http://www.zdic.net/z/1c/xs/6CBB.htm
[80] Luo P. *et al.*, above note 13
[81] Shapiro J., *Mao's war against nature: politics and the environment in revolutionary China*, Washington DC, American University, 1999
[82] Stein S., Hartmann H., *Land degradation and land-use strategies in China's northern regions. Soil conservation, afforestation, water resources management*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 145
[83] Nickum J. E., Shaofeng J., Moore S., above note 30, p. 72
[84] *Ibid.*
[85] Shapiro J., above note 81, p. 3
[86] He G., Lu Y., Mol A. P.J., Beckers T., Changes and challenges: China's environmental management in transition,

were cut down to fuel furnaces, and then the deforestation process continued to make room for more farmland.[87] Another measure that was adopted in this direction was the reclamation of land from lakes and wetlands, with effect of diminishing the capacity of water bodies, exasperating the gravity of flood events.[88]

The joint consequences of these actions are groundwater depletion, especially in the North, for irrigation purposes, and increased frequency of draughts and floods due to loss of storage capacity of lakes.[89]

Starting from the Great Leap Forward, China saw a gradual marginalization and decentralization of the State's administrative functions that culminated in a complete stop of all legislative activities during the period of the Cultural Revolution (1966-1976).[90] It will not be until 1975 with a new Constitution that the country assists to a revival of the legal system,[91] and only in the Eighties will legislators turn their attention to establishing a framework for water management.[92] Environmental awareness, however, began to stir in the minds of the Chinese leadership almost a decade before, at the beginning of the Seventies, with the 1972 United Nations Conference on Human Environment in Stockholm.[93] At this time, China had only just begun to re-establish relationships with other countries, most notably by entering the United Nations in 1971. Despite consensus to attend the Conference was not unanimous within the Party, as some believed environmental problems only affected capitalist countries,[94] this marked the starting point of China's engagement in environmental protection.

The first concrete step taken after the Conference was the establishment in 1974 of the Environmental Protection Office under the authority of the State Council's Leading Group for Environmental Protection (国务院环境保护领导小组 *guowuyuan huanjing baohu lingdao xiaozu*).[95] While the Office held no real authority over the decision-making process of other institutional bodies, it could exert indirect influence through the Leading Group.[96] However, both bodies had little to no contact with the new environmental protection units established at the local level, and were therefore disconnected from local environmental realities.[97] The first environmental

Environmental Development, 3 (2012), p 29
[87] Stein S., Hartmann H., see above note 82, p. 145
[88] Nickum J. E., Shaofeng J., Moore S., see above note 30, p. 73
[89] *Ibid.*
[90] Cavalieri R., *Cina,* in *Diritto dell'Asia Orientale*, edited by Cavalieri R., Venezia, Libreria Editrice Cafoscarina, 2008, p. 32-33
[91] *Ibid*.
[92] Nickum J. E., Shaofeng J., Moore S., see above note 30, p. 72
[93] Wu J., Public participation in the enforcement of China's anti-pollution laws, *Law, Environment and Development Journal*, vol. 4 no. 1 (2008), p. 38
[94] *Ibid.*
[95] Ma X., Ortolano L., *Environmental regulation in China. Institutions, enforcement and compliance*, Rowman and Littlefield Publishers Inc., New York, 2000, p. 78
[96] *Ibid*.
[97] Jahiel A. R., The organization of environmental protection in China, *The China Quarterly,* 156 (1998), p. 767

protection regulations date back to this period: the Provisional Standards for the Emission of Three Industrial Wastes (工业“三废”排放试行标准 *gongye sanfei paifang shixing biaozhun*) concern water in that they contain provisions for wastewater; other regulations worth mentioning are the Provisional Standards for Emissions and the Provisional Regulation on Pollution Prevention of Coastal Waters.[98] Environmental protection is inserted in Five-Year Plans for the first time in 1976, with the enactment of the FYP for National Environmental Protection.[99]

The Constitution was amended in 1978 to add environmental protection among the State's responsibilities.[100] This was the starting point of a long and on-going process of evolution that interests both the laws and the administrative bodies devolved to environmental protection and resource conservation. These were the years of the new start of legislative work and of the re-establishment of the State's administrative bodies, and they were characterized by a high degree of legislative experimentation.[101] In a historical moment where China was deprived of legal experts and was beginning an unprecedented series of reforms, the "crossing the river by feeling the stones" (摸石头过河 *mo shitou guohe*) approach was adopted:[102] laws were first implemented on a trial basis to study what consequences they might have, and then adopted definitively or further modified or abandoned. The Environmental Protection Law (环境保护法 *huanjing baohu fa*) of 1979 was an example of this approach, in fact it would be enacted for trial adoption and would be made permanent only ten years later. This law represents the first milestone in environmental protection legislation in China.

The Eighties were characterized by a series of landmarks such as the adoption of the 1982 Constitution that legitimizes environmental protection in article 26.[103] A further analysis of the articles and other laws mentioned in this paragraph will be provided in Chapter Two. Several laws on pollution and resource conservation were enacted during this decade, the ones relevant to water are essentially two: the Water Pollution Prevention and Control Law (水污染防治法 *shui wuran fangzhi fa*) of 1984, and the Water Law (水法 *shuifa*) of 1988.

The Eighties also saw significant development in the administrative structure concerning environmental protection: in 1982 the Leading Group was abolished, and environmental protection passed under the umbrella of the newly-founded Ministry of Urban and Rural Construction and

[98] Qin. T, Zhang M., above note 1, p. 19
[99] Deng Y., Brombal D., Farah P. D., Moriggi A., Critto A., Zhou Y., Marcomini A., China's water environmental management towards institutional integration. A review of the current progress and constraints vis-a-vis the European experience, *Journal of Cleaner Production*, 113 (2016), p. 286
[100] Beyer S., above note 63, p. 192
[101] Cavalieri R., above note 90, p. 24
[102] Wu J., above note 93, p. 38
[103] *Ibid.*

Environmental Protection (城乡建设环境保护部 *chengxiang jianshe huanjing baohu bu*).[104] As it turned out, this was not the best choice that could be made for the environment: the authority of the new body was weaker than before, and the previously independent environmental protection units operating locally were now integrated in the new Ministry's bureaus at the local level.[105] Realizing the adverse consequences of this reform, environmental authorities saw a gradual increase in rank that culminated with their emancipation from the Ministry of Urban and Rural Construction and the establishment of the National Environmental Protection Agency (国家环境保护局 *guojia huanjing baohu ju*), NEPA, in 1988. The new organization had the equivalent rank of a vice-ministry.[106]

Law production continued in the Nineties with the adoption of the Water and Soil Conservation Law (水土保持法 *shuitu baochi fa*) in 1991, and that of the Flood Control Law (防洪法 *fanghong fa*) in 1997. It is in the Nineties, after China attended the United Nations Conference on Environment and Development (UNCED) in Rio in 1992,[107] that the concept of sustainable development is introduced and brings a slow but progressive shift in the Chinese conception of economic development: if up until now the imperative for development was "pollute first, control later" (先污染，后治理 *xian wuran, hou zhili*),[108] over the years more and more emphasis has been placed on the concept of sustainable development (可持续发展 *kechixu fazhan*).

The administrative structure also saw significant change during this decade. First, the National People's Congress Environmental Protection and Resources Conservation Committee (全国人民代表大会环境与资源保护委员会 *quanguo renmin daibiao dahui huanjing yu ziyuan baohu weiyuanhui*) was founded in 1993, to assist in law production related to environmental protection. The other major event for environmental protection administration was the upgrading of NEPA to State Environmental Protection Administration, or SEPA (国家环境保护总局 *guojia huanjing baohu zongju*) in 1998, in the context of a major government reform that saw a substantial reduction in the number of ministries and ministry-level bodies (from 40 to 29).[109] This promotion not only had practical outcomes, as it signified an expansion of SEPA's duties and authority compared to NEPA, but it was also a move that signaled the leadership's awareness and concern for the country's environmental issues.[110]

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[104] Jahiel A. R., above note 97, p. 768
[105] *Ibid.*
[106] Ma X., Ortolano L., above note 95, p. 79
[107] Wang Y., Sun H., Zhao J., Policy review and outlook on China's sustainable development since 1992, *Chinese Geographical Science*, vol. 22 n. 4, 2012
[108] Wang A., The role of law in environmental protection in China: recent developments, *Vermont Journal of Environmental Law*, 8 (2007), p. 198
[109] Jahiel A. R., see above note 97, p. 757
[110] *Ibid.*

Other changes awaited the Chinese environmental protection system in the new millennium. The last two decades saw a flourishing of environmental legislation and policies, and also significant modifications of the administrative structure.

In 2002 SEPA established the Environmental Emergency and Incident Investigation Center (环境应急与事故调查中心 *huanjing yingji yu shigu diaocha zhingxin*), mainly in order to organize and lead intervention in case of serious pollution accidents.[111] During the same year, the Water Law was substantially revised and the Environmental Impact Assessment Law (环境影响评价法 *huanjing yingxiang pingjia fa*) was adopted for the first time.

In 2003 the Cleaner Production Promotion Law (清洁生产促进法 *qingjie shengchan cujin fa*) signaled a formal shift from the "end-of-pipe" approach that had characterized environmental management up to that moment,[112] to an approach marked by pollution prevention and sustainable development, a concept introduced during the 1992 United Nations Conference on Environment and Development.[113] Alongside a top-down approach to pollution control and resource management, market instruments began to appear, albeit in an experimental and unsystematic fashion.[114] The new path of circular economy tends toward the integration of economy and environment.[115]

The Water Pollution Prevention and Control Law was revised in 2008, the same year when SEPA was upgraded to Ministry of Environmental Protection (环境保护部 *huanjing baohu bu*). This was not merely a nominal change: SEPA, although it was a ministry-level organ, was under direct control of the State Council, and did not have a right to vote in the decision-making process, as it was not a Cabinet-level body. MEP, however, is part of the Council, and as such its voice cannot be as easily ignored.[116]

Since then, environmental protection law and policy-making have continued along the path of improvement and updating. The Water and Soil Conservation Law was modified in 2010, and the Environmental Protection Law was revised for the first time in twenty-five years, in 2014.

Most recently, 2018 has also brought news in environmental legislation: a new revision of the Water Pollution Prevention and Control Law entered into force this year, as well as the new Environmental Taxation Law (环境保护税法 *huanjing baohu shuifa*).

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[111] Source: Ministry of Environmental Protection, accessible at http://yjb.mep.gov.cn/
[112] He G. et al., above note 86, p. 29-32
[113] Beyer S., above note 63, p. 192
[114] He G. et al., see above note 86, p. 33
[115] *Ibid.*
[116] Qiu X., Li H., China's environmental super ministry reform: background, challenges, and the future, *Environmental Law Reporter*, 2 (2009), p. 10154

Besides laws, a number of policies concerning the environment and water in particular have been enacted since the awakening of China's environmental awareness. As previously mentioned, Five-Year Plans started introducing environmental objectives since the Seventies, and the space dedicated to the topic in following FYP has only increased, along with investments in the sector. Besides focusing on industrial and agricultural pollution, the most recent FYPs have devoted particular attention to topics such as drinking water quality and development of water infrastructures.[117]

In the face of a reality where, as we will see, environmental laws are often violated, policy-makers have worked towards tightening the leash on polluters. In 2009, the "strictest water resources management system" was announced.[118] The system was later embodied in the Resolution on Accelerating the Development of Water Resources Reform (中共中央国务院关于加快水利改革发展的决定 *zhonggong zhongyang guowuyuan guanyu jiakuai shuili gaige fazhan de jueding*) of 2011.[119] The Resolution set targets for 2015, 2020 and 2030 in three areas of water management: water withdrawal, water productivity (as in efficiency of water use in industry and agriculture) and ambient water quality. These are generally known as the "three red lines".[120]

Perhaps the other most significant policy on water resources is the 2015 Water Pollution Prevention and Control Action Plan (水污染防治行动计划 *shui wuran fangzhi xingdong jihua*), or "Water 10 Plan". This plan established ten broad measures to tackle a series of fundamental issues related to water resources, setting targets, timelines and defining responsibilities.

The last paramount change on the stage of resource management and environmental protection is very recent (March 2018): the transformation of MEP in the Ministry of Ecology and Environment (生态环境部 *shengtai huanjing bu*), and the establishment of the Ministry of Natural Resources (自然资源部 *ziran ziyuan bu*). The ministries will take over responsibilities for environmental protection and for resources management respectively, absorbing them from other ministries, some of which will be eliminated in the process of reform.[121] Speculation on the results of this administrative turn are ongoing, and will be discussed later in this paper, as will be the laws and policies mentioned up to now.

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[117] Deng Y. et al., above note 99, p. 286
[118] Nickum J. E., Shaofeng J., Moore S., above note 30, p. 74-75
[119] *Ibid.*
[120] *Ibid.*
[121] J. Cui, Ministry to beef up protection, *China Daily*, online at http://www.chinadaily.com.cn/a/201803/18/WS5aadacc8a3106e7dcc142450.html ;
Yun J., *Lu Hao zhizhang de zhege quanxin bumen, daodi shi zuo shenme de?* (陆昊执掌的这个全新部门，到底是做什么的？ What exactly does Lu Hao's new ministry do?) Online at https://mp.weixin.qq.com/s/BqvvFhE3KKEaG3EKPLmNhg

1.2.2 Chinese State bodies with environmental competences

China is a unitary state[122] with no separation of the three powers (legislative, executive and judicial). In accordance with Leninist theory, all powers belong to the people and are exercised through the National People's Congress (中华人民共和国全国人民代表大会 *zhonghua renmin gongheguo renmin daibiao dahui*) and its Standing Committee (全国人民代表大会常务委员会 *quanguo renmin dibiao dahui changwu weiyuanhui*)[123].

The main functions of the NPC are essentially two: the legislative function, and the appointment or removal of the highest officers in the State's hierarchy. In terms of its legislative function, the main power of the NPC is to approve basic laws (基本法 *jibenfa*), while ordinary laws (法 *fa*) are ratified by its Standing Committee.[124]

The NPC also has power to establish special committees, which are currently nine.[125] The one that is relevant to this topic is the NPC Environmental Protection and Resources Conservation Committee,[126] which acts as a consultant in the law drafting process.

The Chinese government is known as State Council (国务院 *guowuyuan*). It is the highest executive organ of State power,[127] and it can issue a series of legislative acts, such as administrative regulations, that will be examined later. As will be analyzed in the next paragraph, many of the ministries that compose the State Council share responsibilities related to the water sector.

The highest judicial body is the Supreme People's Court (最高人民法院 *zuigao renmin fayuan*), flanked by the Supreme People's Procuratorate (最高人民检察院 *zuigao renmin jianchayuan*). The Supreme People's Court is the court of final appeal, and also covers an important role in law interpretation.

The organs that have just been described constitute the highest level of the State's structure, often referred to as central level. This structure is then replicated on the other levels of the administrative organization (province, prefecture, county and township). Local people's governments, and especially provincial governments, play an important role in water management. They supervise the work of environmental protection bodies and water resources management bodies stemming from the

[122] Liu J., Overview of the Chinese legal system, *ELR China Update*, 1 (2013), p. 1
[123] Cavalieri R., above note 90, p. 37
[124] *Id*., p. 38
[125] National People's Congress of the PRC, accessible online at http://www.npc.gov.cn/englishnpc/Organization/node_2849.htm
[126] Liu J., above note 122, p. 3
[127] Constitution of the PRC, article 85

central government, and they also have a series of water-related powers, such as setting water quality standards and establishing protected areas (the limits of their authority will be presented in paragraph 2.2, as they are established by the laws that will be analyzed later), and they also contribute to the drafting of water resources plans. The fundamental role of local governments resides in law enforcement, but as will be illustrated later, a series of relational dynamics hinders their effectiveness.

This brief overview of the Chinese State structure cannot be concluded without mention to the Chinese Communist Party (中国共产党 *zhongguo gongchandang*). The CCP's political role has grown stronger over the years, with reforms as recent as 2018 legitimizing its guidance.[128] The CCP can be described as the "shadow" of the administrative structure, in that to each governmental body corresponds a Party division that can influence its operations in an often non-transparent way, and as a "filter" to the political and legislative decision-making process, as the appointment of government positions happens within the limits of the lists of candidates approved by the CCP, and major decisions are ratified by the Party.[129] The Party's presence inside the State is pervasive, as the large majority of public officials (on the central and local level, as well as in the judiciary) are Party members, and those who are not must still be approved by the Party.

When it comes to water resources management, the Party plays a role of political and ideological guidance, as it does in all aspects of State administration. Each of the Ministries involved in water management contains a Party committee that supervises the organ's work and administers discipline to Party members within the body when necessary.[130] Recently, some Party members also received much more concrete tasks in relation to environmental water management, having being appointed as River Chiefs in charge of the quality of water bodies within their jurisdiction (more on the River Chief System in Chapter 2).

1.2.3 Division of duties and responsibilities related to water resources

The content of this paragraph describes the institutional framework as it was until March 2018, that is to say before the latest State Council reform.[131] As such, this part of the paper is meant to provide

[128] The 2018 amendment to the Constitution officially legitimizes the role of the Party, that before was only mentioned in the Constitution's Preamble. For further detail on the amendment see https://www.loc.gov/law/foreign-news/article/china-2018-constitutional-amendment-adopted/

[129] Samarani G., *Potere politico e istituzioni*, in *Propizio è intraprendere imprese. Aspetti economici e socioculturali del mercato cinese*, edited by Abbiati M., Libreria Editrice Cafoscarina, Venezia, 2006, p. 36; Liu J., above note 122, p. 1-3

[130] See for example the Ministry of Ecology and Environment's website for more about the functions of such Committees: http://english.mee.gov.cn/About_MEE/Internal_Departments/201605/t20160526_346942.shtml

[131] In this paper I will only focus on the aspects of the reform that are relevant to the environmental field, but the reform has a much wider scope. Reference material on the topic will be provided in the last part of the paper.

a picture that will serve as a reference image to better understand the potential impacts of the reform, analyzed in Chapter Three.

As mentioned in the previous paragraph, the legislative power, and as such the drafting and approval of laws related to the water sector, is entrusted to the NPC and its Standing Committee. However, as drafting of environmental and water management laws requires specialized knowledge, these bodies are often assisted and receive input from the Environmental Protection and Resources Conservation Committee, as well as from the ministries that possess responsibilities in the field and consequently can count on experts among their ranks.[132]

Until very recently, the water sector was characterized by a multitude of ministries entrusted with duties related to some aspect of water management and pollution control. This compartmentalized system is usually described with the phrase "nine dragons ruling water".[133] The "lead dragons" of the system are the Ministry of Water Resource and the Ministry of Environmental Protection. The MWR takes care of the administrative side of water management: it is responsible for integrated water management, it helps in the drafting of water policies and laws, it is in charge of the water abstraction permit system and of the water resources tax collection system, it drafts river basin plans and it publishes national reports on water resources, it also organizes and supervises water saving projects and policies. The MWR can issue water standards and is in charge of draught and flood control.[134] Lastly, it is responsible for rural water supply.[135]

MEP, on the other hand, is entrusted with unified pollution control and the issuing of related standards, laws and regulations. It organizes the national water quality monitoring system and manages the system of pollution fees collection. It also publishes reports on the state of the environment and approves or cancels projects after examining the Environmental Impact Assessment books.[136]

This brief summary of the duties of MWR and MEP is only meant to highlight the main tasks of the ministries, but not only they have other responsibilities in their respective fields, there are also other aspects of water resources management that are entrusted to yet other ministries.

The Ministry of Housing, Urban and Rural Construction (住房和城乡建设部 *zhufang he chengxiang jianshebu*) supplies water in urban areas and manages wastewater treatment. The

[132] Ongley E. D., Wang X., Transjurisdictional water pollution management in China: the legal and institutional framework, *Water International*, vol. 29 no. 3 (2004), p. 272
[133] EU SME Centre, *The water sector in China*, 2013, p. 36
[134] Liu J., *Shui huanjing baohu shiquan huafen kuangjia yanjiu* (水环境保护事权划分框架研究 Study on the water environmental protection administration functions), *Rev. Econ. Res.*, 8 (2011), p. 12
[135] EU SME Centre, above note 133, p. 36
[136] Liu J., above note 134, p. 12

Ministry of Agriculture is in charge of both non-point source agricultural pollution prevention and management of water resources in rural areas (most notably for irrigation).

The Ministry of Land Resources (国土资源部 *guotu ziyuan bu*) has the important task of managing groundwater resources.

Other ministries involved in the water sector are: the Ministry of Transport (交通运输部 *jiaotong yunshubu*), the National Development and Reform Commission (国家发展和改革委员会 *guojia fazhan he gaige weiyuanhui*) and the Ministry of Finance (财政部 *caizhengbu*), the National Health Commission (国家卫生健康委员会 *guojia weisheng jiankang weiyuanhui*), the State Forestry Administration (国家林业局 *guojia linye ju*), the State Oceanic Administration (国家海洋局 *guojia haiyang ju*) and the Ministry of Science and Technology (科学技术部 *kexue jishubu*).[137]

Ministries operate on the local level through bureaus that receive directives from the top but also answer to the local government. This organization has been described as "unified leadership with responsibilities divided on levels" (统一领导，分级负责 *tongyi lingdao, fenji fuze*).[138]

The organs that operate on the local level for MEP are the Environmental Protection Bureaus, or EPB (环境保护局 *huanjing baohu ju*), while the MWR directs Water Resources Bureaus or WRB (水资源局 *shuiziyuan ju*), and is also in charge of the River Basin Organizations (流域机构 *liuyu jigou,* RBO) established in the major river basins to manage hydrological planning and hydraulic works.[139]

EPBs shoulder the operational responsibilities of MEP:[140] they are the bodies that as a matter of fact enforce environmental laws and regulations, and also assist local governments in drafting local rules and standards.[141] The task of WRB is similar, in that they are the operational bodies of the MWR on the local level.[142]

1.2.4 Shortcomings of the institutional framework

An intricate bureaucratic matrix is not ideal in dealing with water management. The main reason for this is the water cycle: water is not a static resource but forms a unified system, and

[137] All information on the division of duties among ministries presented up to now was taken from Liu J., above note 134, and the EU SME Centre Report (above note 133). Liu in particular offers a very detailed analysis of water environmental pollution administration. Chapter 3 contains a table that synthetizes the institutional framework for water resources before the new State Council reform.
[138] Liu J., above note 134, p. 32
[139] Ongley E. D., Wang X., above note 132, p. 273
[140] *Ibid.*
[141] Wu J., above note 93, p. 39
[142] Ongley E. D., Wang X., above note 132, p. 273

compartmentalized management is ill-suited for it. China, like many other countries,[143] is shifting towards Integrated Water Resources Management (IWRM), a management style that represents an alternative to traditional top-down, sector-based water resources management, as it works towards both economic efficiency and social and environmental sustainability.[144] IWRM has come to be the most widely accepted policy instrument for water management.[145] However, China still has a long road ahead.

While Chinese leaders have worked towards IWRM,[146] the very structure of water administration is a serious obstacle to its achievement. The problems affecting the administrative framework can be analyzed on two axis, horizontal and vertical.[147]

On the horizontal level, the already complex distribution of power and duties is further complicated by overlaps both at the central and local level that cause a blurring of responsibilities and difficulties in establishing accountability.[148] A system as intricate as the one examined in the previous paragraph requires, in order to function properly, high levels of coordination among departments and jurisdictions. Unfortunately, coordination, or rather the lack of it, is a paramount problem for China's environmental protection. The MEP and MWR have been contending control over pollution for years: on one side, the importance of MEP's role given the current conditions of China's environment is indisputable, but the Ministry is still young and often perceived as a hindrance to economic development, which for many is the real priority. On the other hand, the MWR is old, dating back to the beginnings of the People's Republic (it was founded in 1954), and given the importance traditionally attached to flood control since Imperial times and even before, its power is considerable.[149]

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[143] Chiefly the EU, with its Water Framework Directive; see: Deng Y. *et al*., above note 99

[144] Global Water Partnership South Asia, *About IWRM*, online at https://www.gwp.org/en/gwp-SAS/ABOUT-GWP-SAS/WHY/About-IWRM/

[145] Rahaman M. M., Varis O., Integrated water resources management: evolution, prospects and future challenges, *Sustainability: science, practice and policy*, vol. 1 no. 1 (2005), p. 18

[146] Global Water Partnership, above note 7, p. 12

[147] Most of the studies I consulted for this paper disserted the problems affecting Chinese water management by differentiating between horizontal and vertical relations between administrative bodies. One notable exception is represented by Ma and Ortolano that, in their "*Environmental Regulation in China*", talk about "line and area relationships". The concept is fundamentally the same, but the terminology they decided to adopt may better represent the dynamics between the different administrative units involved. Here I use the term "horizontal" to indicate relationships between bodies that hold the same level of authority, such as ministries under the State Council. The term "vertical" refers to hierarchic relationships, such as those between the MEP and its EPBs, or local governments their subordinate offices.

[148] Liu J., above note 134, p. 30

[149] Ongley E. D., Wang X., above note 132, p. 273; for more on the traditional ideology attached to water resources management and how it is embodied by MWR see: Boxer B., Contradictions and challenges in China's water policy development, *Water International*, vol. 26 no. 3, 2001, p. 335-341

This phenomenon is not limited to MEP and MWR but interests other ministries and commissions involved in water management as well. As Tyler notes, "Many ministries and other departments have overlapping duties that often result in bureaucratic turf wars and policymaking quagmire".[150]

Perhaps as a result of this phenomenon, MEP tends to be seriously underfunded, which mines its operational efficiency.[151]

Rivalry is not limited to ministries either, but also extends to provinces and other levels of the administrative structure.[152] The importance attributed to economic performance is possibly at the core of this and other issues intrinsic to the administrative structure. Both at the central and local levels, China's economic organizations (such as the National Development and Reform Commission) have more power and resources than the MEP.[153]

From this kind of dynamics follows the near absence of cooperation between EPBs and WRBs even within the same jurisdiction.[154] This directly affects water quality: pollution could often be alleviated through joint operation of quality and quantity control, aiming at reducing pollutant concentration through dilution management. However, this is seldom the case.[155] The lack of coordination between MEP and MWR is also very evident within River Basin Organizations (RBOs): these bodies report to the MWR that has requested comprehensive authority over water resources, including pollution control, which, however, remains exclusive domain of MEP and its EPBs. As such, RBOs only manage quantitative control of water within their jurisdictions, thus frustrating hopes for integrated water resources management.[156]

Lack of coordination is reflected especially in the severity of cross-administrative water pollution: upstream provinces often take decisions disregarding the environmental consequences on downstream areas. The fact that cancer villages in proximity of the Yangze River, Yellow River and Pearl River are clustered in the lower reaches of the rivers might very well be a consequence of this dynamic; pollutants might tend to concentrate in these areas also due to endemic transboundary pollution.

Chinese leaders are aware of the coordination issues that affect environmental protection, and measures have been taken to mitigate the problem. A coordination system among ministries already exists, the "Joint Meeting System" that involves meetings concerning specific issues among ministers

[150] Quoted from Tyler Z., Transboundary water pollution in China. An analysis of the failure of the legal framework to protect downstream jurisdiction, *Columbia Journal of Asian Law,* 19 (2006), p. 582
[151] Economy E. C., *The river runs black. The environmental challenge to China's future*, Cornell University Press, Ithaca, 2010 (second edition), p. 112
[152] Samarani G., above note 129, p. 39
[153] He G., Lu Y., Mol A. P.J., Beckers T., above note 86, p. 35
[154] Ongley E. D., Wang X., above note 132, p. 273
[155] *Ibid.*
[156] *Ibid*.

of the relevant ministries. However, this system is employed as an *ad hoc* measure and is not meant to be a long-term coordination mechanism.[157] Another organ that might help improve coordination is the Environmental Emergency and Incidents Investigation Center established in 2002.[158] According to the circular published by SEPA at the time,[159] helping coordination in case of trans-jurisdictional pollution incidents is among the duties of the Centre. However, visiting the Centre's website today, there is no mention of coordination duties.[160] Then again, this may simply be for conciseness' sake.

Unfortunately, the elimination of the State Environmental Protection Commission in 2012 represented a blow to central-level cooperation, as the Commission was the only platform that allowed intra-ministry coordination.[161]

On the vertical axis of the administrative structure, the first major problem that is at the root of so many dynamics impeding environmental protection is the combination of a top-down administrative approach and high levels of decentralization. Studies indicate that such a power structure can only work in the presence of environmentally proactive leaders, adequate income levels and integration in the international community.[162] This is not often the case in China.

According to the "unified leadership with responsibilities divided on levels" principle, orders come from the top, but their execution relies on local authorities. This structure leads to the "implementation gap" problem:[163] local governments and EPBs, responsible for implementing national legislation and policies at the local level, actually have conflicting interests that lead them to put their own priorities over the environment. This phenomenon is known as local protectionism (地方保护主义 *difang baohu zhuyi*).[164]

First, local government officials' careers depend on the State evaluation system (考核 *kaohe*), that includes both economic and environmental indicators. Generally, economic indicators still outweigh environmental ones,[165] moreover, the presence of environmental performance criteria could prove to be a double-edged sword: while it can result in some improvement on environmental quality, it can

[157] *Id*., p. 272
[158] Ferris R., Zhang H., Reaching out to the rule of law: China's continuing efforts to develop an effective environmental law regime, *William and Mary Bill of Rights*, vol. 11 no. 2 (2003), p. 593
[159] See State Environmental Protection Administration "国家环境保护总局关于组建国家环境保护总局环境应急与事故调查中心的通知" (*guojia huanjing baohu zongju guanyu zujian guojia huanjing baohu zongju huanjing yingji yu shigu diaocha zhongxin de tongzhi* , State Environmental Protection Administration's Notification on the Establishment of the State Environmental Protection Administration's Environmental Emergency and Incident Investigation Center), 2002
[160] Source: http://yjb.mep.gov.cn/
[161] Economy E. C., above note 151, p. 112
[162] *Id*., p. 122-126
[163] Wu J., above note 93, p. 42
[164] Deng Y. et al., above note 99, p. 289-290
[165] Nickum J. E., Shaofeng J., Moore S., above note 30, p. 79

also lead to a surge of deformed environmental data provided by local officials in order to receive a better evaluation.[166] Another characteristic of the officials' promotion system that affects environmental protection is the quick rotation of officials:[167] even when an official is well-meaning and puts effort into improving the environment of his or her jurisdiction, the length of the term is usually too short to implement long-term measures. Moreover, officials moved to a new jurisdiction might interrupt the work started by their predecessors in order to distinguish themselves and leave their own mark.[168]

Second, local officials are deeply entangled in the local economic fabric: local governments often are stakeholders of TVEs (township and village enterprises, 乡镇企业 *xiangzhen qiye*), that are generally infamous for their bad environmental performances;[169] moreover, these enterprises are important for local employment, and shutting them down or putting them in economic difficulties by imposing compliance to environmental regulation can negatively affect local officials' popularity, and even lead to protests.[170] Local enterprises also constitute a considerable part of local governments' revenues through taxation, it ensues that keeping them operating is important for them.[171] The last point concerning local officials and their links to the economic institutions of their area is that it is common for them to move from state administration to SOEs administration and vice-versa. Being stakeholders in SOEs, they have all the interest in facilitating their operations, even when that means neglecting environmental protection duties.[172]

MEP could be seen as a "toothless tiger", because it relies heavily on its EPBs for the enforcement of its directives. However, EPBs (as well as WRBs and all local-level departments stemming from a ministry, and even local courts), are subject to a "dual-leadership" administrative system:[173] they do not respond exclusively to MEP, but also rely on local governments for founding and staffing, which means that when MEP's directives are in conflict with local interests EPBs usually chose the latter.[174] Local governments can appoint EPBs staff, which often results in them choosing people whose interests are aligned with their own.[175] Knowing that their careers as a matter of fact depend from

[166] *Id*., p. 74-79; Deng Y. et al., above note 99., p. 291
[167] Kostka G., *China's local environmental politics*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 37-38
[168] *Ibid.*
[169] Van Rooij B., above note 45, p. 75
[170] *Ibid.*
[171] Wu J., above note 93, p. 42
[172] Brombal D., Accuracy of environmental monitoring in China: exploring the influence of institutional, political and ideological factors, *Sustainability*, vol. 9 no. 324 (2017), p. 10
[173] Chen X., Zhang Y., Ekroos A., Comparison of China's Environmental Impact Assessment (EIA) Law with the European Union (EU) EIA Directive, *Environmental Monitoring Assessment*, 132 (2007), p. 55
[174] Alford W. P., Shen Y., Limits of the law in addressing China's environmental dilemma, *Stanford Environmental Law Journal*, vol. 16 no. 125 (1997), p. 7
[175] Tyler Z., above note 18, p. 583

local governments, while also having to report to national authorities, EPB staff often resolve to tactics such as notifying factories of upcoming inspections.[176]

A final category of issues affecting the institutional framework is that of what I would define as "transversal problems", in that they are not typical of one or the other dimension of the command chain but derive from traditional Chinese culture, and as such are deeply embedded in Chinese people's minds. I am referring to status (or rank), "face" (面子 *mianzi*), and *guanxi* (关系).

The influence of these three concepts derives from Confucianism.[177] Although under Mao Confucianism was harshly criticized for promoting a *status quo* that favored the elite and for being a relic of the imperial past,[178] Confucian thought was so pervasive in China for such a long time that it left an indelible imprint in Chinese culture.

The relevance of status, or rank, has characterized Chinese society since ancient times and would require a long dissertation, as would the concepts of *mianzi* and *guanxi*. For the purpose of this paper, I will limit myself to a synthetic explanation of each concept, and will focus more on the concrete consequences on water management.

In this paper it will be enough to say that Chinese society is highly hierarchical: each administrative division and the people who work inside State institutions have a rank that determines the limits of its authority in relation to other administrative bodies.[179] The most important consequence of status is that administrations cannot issue binding orders to bodies of equal or higher rank.[180] Of course, this not only applies to organizations, but also to people. It is not uncommon to hear about EPB chiefs that could not perform their duties due to ranking lower than the directors of the factories they were supposed to regulate.[181] State-owned enterprises are an integral part of the state bureaucracy, and are often among the worst in terms of pollution emissions,[182] but it is relatively easy for them to prioritize economic performance over environmental protection, as their administrative rank is usually higher than that of EPBs.[183]

[176] *Ibid.*
[177] Andreini A., *La cultura cinese e l'eredità della tradizione*, in *Propizio è intraprendere imprese. Aspetti economici e socioculturali del mercato cinese*, edited by Abbiati M., Libreria Editrice Cafoscarina, Venezia, 2006 p. 27-29
[178] Pushkarna N., *Cultivating a green conscience in corporate culture: China's approach to regulating corporate environmental crime*, Irving, University of California, 2016, p. 33
[179] Ma X., Ortolano L., above note 95, p. 34
[180] *Id*., p. 36
[181] For examples illustrating the influence of rank in environmental protection see Ma X., Ortolano L. in the previous note.
[182] Brombal D., above note 172, p. 10
[183] *Ibid.*

Related to status and also deeply embedded in Chinese culture is "face" (*mianzi* 面子 or *lian* 脸).[184] "Face" can be described as a "form of social currency"[185] that could be roughly translated as "reputation", although it holds a much greater significance in Chinese minds.[186]

Face can be gained or lost through one's own actions or through interactions with others. In general, situations that shed positive light on a person signify gaining face, while embarrassment and shame cause a loss of face.[187] Face influences environmental performance in both positive and negative ways: good results in environmental protection can make one gain face, but at the same time when the performance is poor those responsible can try to minimize the situation or inflate data in order not to lose face. Intervention from the center is perceived as especially embarrassing and is seen as a "failure". [188] Making and receiving criticism also negatively affects face, and this becomes problematic when it hinders communication between local and central organs, as local organs prefer to find indirect ways to provide feedback on central policies in order to avoid face loss.[189]

The other cultural element influencing environmental performance that cuts across not only environmental protection administration but also courts and privates is *guanxi*. *Guanxi* represents the network of social connections of each individual; every Chinese, from villagers to political leaders, is entangled in a net of *guanxi*. *Mianzi* is related to *guanxi* in that having *mianzi* allows one to form better *guanxi*.[190]

Chinese sociologist Fei Xiaotong described *guanxi* as a network that expands in concentric circles around the individual, starting from close relatives and then spreading out, similar to when a stone is thrown in a pond.[191] Commonly, *guanxi* are often associated to favoritism and corruption, being based on the mutual exchange of favors.[192] It is true that *guanxi* can obstruct environmental protection and environmental justice in many ways, starting from personal connections between governments and polluting enterprises, or influencing a judge's work. However, research indicates that *guanxi* can also be employed to facilitate environmental authorities.[193]

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[184] For more on the conceptual difference between the two terms see Andreini A., above note 177, p. 28
[185] Ma X., Ortolano L., above note 95, p. 85
[186] For an account on the study of *mianzi* and its definitions see Wu T., *Mianzi de dingyi ji qi gongneng de yanjiu zongshu* (面子的定义及其功能的研究综述, A review on the study of the concept of mianzi and its functions), Xinli Kexue (心理科学), 27 (2004), 927-930
[187] Ma X., Ortolano L., above note 95
[188] Ferris R., Zhang H., above note 158, p. 595
[189] Ma X., Ortolano L., above note 95, p. 88
[190] Andreini A., above note 177, p. 28
[191] Jacka T., Kipnis A. B., Sargeson S., *Contemporary China. Society and social change*, Cambridge University Press, New York, 2013, p. 32
[192] He X., Ng H. K., "It must be rock strong!" Guanxi's impact on judicial decision making in China, *The American Journal of Comparative Law*, 65 (2017), p. 846
[193] For a case illustrating the positive effects of *guanxi* on environmental protection see Ma X., Ortolano L., above note 95, p. 83

Status, "face" and *guanxi* play an important role in the dynamics among different administrative bodies, and among Chinese people in general, and their influence in all aspects of life, including environmental protection, is not to be underestimated. These traditional values continue to interact with legal norms, as they represent the background against which these norms operate.[194]

[194] Potter P. B., *The Chinese legal system. Globalization and local legal culture*, RoutledgeCurzon, London, 2001, p. 8

CHAPTER 2

2.1 NAVIGATING THE CHINESE LEGAL SYSTEM: SOURCES OF LAW AFFECTING THE WATER SECTOR

China belongs to the civil law tradition,[1] as such its highest source of legislation is the Constitution (宪法 *xianfa*). The Constitution was adopted in 1982 and then amended in 1988, 1993, 1999, 2004[2] and lastly in 2018.[3]

On the theme of water, the Constitution affirms in article 9 that waters, as all natural resources, are owned by the State, that is to say by all people. As for environmental protection, article 26 states that the State has the duty to protect and improve the environment and ecology, and to prevent and control pollution.[4]

The latest amendment to the Constitution has some relevance to the theme of environmental protection at least on an ideological level: the Preamble was amended to insert, among the guiding thoughts to lead the country, Hu Jintao's Scientific Outlook on Development (科学发展观 *kexue fazhanguan*) and Xi Jinping's Thought on Socialism with Chinese Characteristics for the New Era (习近平新时代中国特色社会主义思想 *Xi Jinping xinshidai zhingguo tese shehuizhuyi sixiang*).[5] Both thoughts are characterized by some emphasis on environmental protection: the importance attributed to sustainable development in the former's case,[6] and the need to implement people-centered policies that will improve people's lives in all aspects, including a healthy and beautiful environment, in the latter's case.[7]

The last relevant concept introduced by the Constitution is that of "ecological civilization" (生态文明 *shengtai wenming*).[8]

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[1] Pushkarna N., *Cultivating a green conscience in corporate culture: China's approach to regulating corporate environmental crime*, Ph.D. dissertation, Irvine, University of California, 2016, p. 37

[2] Cavalieri R., *Cina*, in *Diritto dell'Asia Orientale*, edited by Cavalieri R., Libreria Editrice Cafoscarina, Venice, 2008, p. 36

[3] NPC Observer, Translation: 2018 Amendment to the P.R.C. Constitution, available online at https://npcobserver.com/2018/03/11/translation-2018-amendment-to-the-p-r-c-constitution/

[4] Constitution of the PRC, available online at https://china.usc.edu/constitution-peoples-republic-china-1982

[5] NPC Observer, above note 3

[6] China Daily, *Scientific Outlook on Development*, available online at http://language.chinadaily.com.cn/2007-10/12/content_6170884.htm

[7] XinhuaNet, *Backgrounder: Xi Jinping's Thought on Socialism with Chinese Characteristics for the New Era*, available online at http://www.xinhuanet.com/english/2018-03/17/c_137046261.htm

[8] NPC Observer, above note 3; for more on the connotations of the term and its possible implications, see: Hansen M. H., Li H., Svarverud R., Ecological Civilization: interpreting the Chinese past, projecting the global future, *Global Environmental Change*, 53 (2018), p. 195-203

The second level of legislation is constituted by basic laws (基本法 *jiben fa*) and ordinary laws (法 *fa*), issued by the NPC and its Standing Committee respectively. The most important laws regulating water are: the PRC Water Law of 1988 (revised in 2002), the PRC Environmental Protection Law of 1989 (first adopted on trial in 1979, revised in 2014), the PRC Water Pollution Prevention and Control Law of 1984 (revised in 2008 and 2017) and the PRC Water and Soil Conservation Law of 1991 (revised in 2010). There are also other environmental laws that affect the water sector, although they were not specifically created to regulate it: the PRC Environmental Impact Assessment Law of 2002, the Environmental Taxation Law of 2018, the Cleaner Production Promotion Law of 2003 (amended 2012), the PRC Forestry Law (森林法 *senlin fa*) of 1985 (revised in 1998), the PRC Solid Waste Pollution Prevention and Control Law (固体废物污染环境防治法 *guti feiwu wuran huanjing fangzhifa*) of 1995 (revised in 2004), the Urban and Rural Planning Law (城乡规划法 *chengxiang guihua fa*) of 2007 (revised in 2015) and the Agriculture Law (农业法 *nongye fa*) of 1993 (modified in 2002, 2009 and 2012).[9] There are also provisions related to the environment and, by large, the water sector in the PRC Tort Liability Law (侵权责任法 *qinquan zeren fa*) of 2010,[10] and the PRC Criminal Law (形法 *xingfa*) of 1997.[11]

The second tier of legislation also includes regulations imposed by international treaties, as they prevail over domestic laws unless explicitly specified.[12]

The Standing Committee of the NPC is authorized to release interpretations of national laws (法律解释 *falü jieshi*) if required by the situation.[13] These interpretations serve the purpose of making law application uniform throughout the country, and have the same validity of national laws.[14] The Supreme People's Court also issues judicial interpretations (司法解释 *sifa jieshi*), opinions (意见 *yijian*) and decisions (决定 *jueding*) for the same purpose, along with collections of typical, or "model", cases (典型案例 *dianxing anli*),[15] addressed at lower level courts in order to help them

[9] The relevant laws cited in the paragraph, as well as the dates of first implementation and revision, were drawn from 环境保护法律法规全书 (*Huanjing baohu falü fagui quanshu*, Complete book of the environmental protection regulations of the People's Republic of China), China Legal Publishing House, Beijing, 2017. Some of the laws just mentioned come without their Chinese name, as it can be found in Chapter 1, paragraph 1.2.1

[10] PRC Tort Law, Chapter 8, a translated version can be found at http://www.npc.gov.cn/englishnpc/Law/2011-02/16/content_1620761.htm

[11] PRC Criminal Law, Chapter 6, section 6 (articles 338 to 346), a translated version of the law is available at https://www.fmprc.gov.cn/ce/cgvienna/eng/dbtyw/jdwt/crimelaw/t209043.html

[12] Alford W. P., Shen Y., Limits of the law in addressing China's environmental dilemma, *Stanford Environmental Law Journal*, vol. 16 no. 125 (1997), p. 2

[13] Legislation Law of the PRC, article 42, available online at https://www.cecc.gov/resources/legal-provisions/legislation-law-chinese-and-english-text

[14] *Id*., art. 47

[15] Cavalieri R., *Il diritto nella Cina socialista e post-socialista*, in *La Cina: verso la modernità*, edited by Scarpari M., Samarani G., Einaudi, Torino, 2009

in law application.[16] Let's take for example the Environmental Protection Law: on the EPL, the Standing Committee has issue a "reply" (答复 *dafu*) meant to clarify the application of article 41.[17] On the general theme of environmental protection the Supreme Court has also published two collections of model cases.[18]

Below the level of national legislation, things start to get complicated for those interested in the water sector's legal framework. We now enter the vast and varied field of administrative and local regulations, emanated following the same horizontal and vertical directions that were examined previously in relation to the State administrative structure.

On the horizontal level, the State Council can issue administrative regulations (行政法规 *xingzheng fagui*) that are binding but are subordinate to national laws.[19] At the same time, each ministry and commission under the State Council can issue its own administrative rules (行政规章 *xingzheng guizhang*), as well as national standards (国家标准 *guojia biaozhun*).[20] The Water Pollution Prevention and Control Law offers a good example of an environmental law that was further articulated through central secondary acts:[21] first, the State Council issued the Detailed Rules for the Implementation of the WPPC Law (水污染防治法实施细则 *shui wuran fangzhifa shishi xize*). Specific aspects of the Law were further developed by ministries under the State Council through their own rules, such as in the case of the Administrative Measures for the Health Supervision of Drinking Water (生活饮用水卫生监督管理办法 *shenghuo yinyongshui weisheng jiandu guanli banfa*) jointly issued by the Ministry of Housing, Urban and Rural Development and by the National Family Planning and Health Commission.

Moving from the center to the local level, local People's Congresses and their Standing Committees can issue local regulations (地方法规 *difang fagui*),[22] while the local governments emanating from local Congresses can produce local rules (地方政府规章 *difang zhengfu guizhang*).[23] The Legislation Law grants ample discretion to local authorities in drafting their own legislation as a supplement to

[16] Alford W. P., Shen Y., above note 12, p. 2
[17] NPC Standing Committee Reply on Correctly Understanding and Applying the Second Comma of Article 41 of the Environmental Protection Law (全国人大常委会关于正确理解和执行环境保护法第十四一条第二款的答复 *quanguo renda changweihui guanyu zhengque lijie he zhixing huanjing baohufa disishiyi tiao di'er kuan de dafu*), 1992
[18] Ten Important Administrative Cases on Environmental Protection Published by the SPC (最高人民法院公布人民法院环境保护行政案件十大案例 *zuigao renmin fayuan gongbu renmin fayuan huanjing baohu xingzheng anjian shida anli*). The first collection was published in 2014, the second one in 2016.
[19] *Ibid.*
[20] *Ibid.*
[21] Besides the Administrative Measures mentioned above, other regulations expanding on the WPPCL and other environmental laws can be found in paragraph 2.2 and 2.4.
[22] Beyer S., Environmental law and policy in the People's Republic of China, *Chinese Journal of International Law*, vol. 5 no. 1 (2006), p. 189
[23] *Ibid.*

the national one, through a rather vague provision that allows production of local legislation "in light of the specific situation and actual needs of the jurisdiction".[24] Secondary acts below the national law level take a variety of forms, such as measures (办法 *banfa*), orders (命令 *mingling*), regulations (条例 *tiaoli*), notifications (通知 *tongzhi*) and many others.[25] Continuing with the example of the WPPCL, the Standing Committee of Beijing's People's Congress has issued its own Measures on the Implementation of the WPPC Law (北京市实施水污染防治法办法 *Beijingshi shishi shuiwuran fangzhi fa banfa*). Beijing's government has then expanded upon the topic of urban water supply (including the aspect of drinking water, related to the WPPCL) in the Administrative Measures for Urban Public Water Supply (北京市城市公共供水管理办法 *Beijingshi chengshi gonggong gongshui guanli banfa*).

The common denominator of all these secondary acts is that they must be consistent not only with the Constitution and national laws, but also with regulations of the higher level, following a hierarchic order. As such, administrative rules will have to comply with administrative regulations, local administrative regulations will have to comply with national regulations and rules, and local rules will have to comply with national regulations and rules, as well as local regulations.[26]

A mention must also be made to the policies drafted by the Chinese government, that while not having the validity of laws, are still important tools to regulate the activity of State officials through the setting of environmental targets that are later used to evaluate their work. Not all of the targets are "binding" (约束性 *yueshuxing*), but it is very important for officials to meet those that are, because failure often means that all other achievements are rendered null.[27]

From this brief overview one can easily guess the level of complexity of the Chinese sources of law. Just to give some figures, on the general theme of environmental protection there are more than 700 pieces of legislation (central and local administrative regulations and rules), and over 800 national standards.[28] National laws are quite easy to access, but navigating the local level legislation can prove quite difficult, as Chinese laws are generally not codified and rather disorganized.[29] Moreover, inconsistencies among central and local legislations are frequent, and can cause confusion in the

[24] Legislation Law, article 63. The quote was drawn from the online version of the law linked in the above note 13
[25] Ma X., Ortolano L., *Environmental regulation in China. Institutions, enforcement and compliance*, Rowman and Littlefield Publishers Inc., New York, 2000, p. 31
[26] Legislation Law, articles 56, 63, 71, and 73
[27] Kostka G., *China's local environmental politics*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 33
[28] Qin T., Zhang M., *Development of China's environmental legislation*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 21
[29] Cheng P., Boots S., Fogarty D., Introduction to environmental law in China, *ELR China Update*, 1 (2013), p. 8

application process.[30] It is quite easy to see how pollution victims can have a hard time trying to figure out to which law they have to appeal to make their claims.[31]

Before moving to analyzing each relevant law in detail, I would like to open a brief parenthesis on the lawmaking process, as its influence on environmental quality is often underestimated.

2.1.1 The law drafting process

Before introducing the law drafting process itself, a premise on the Chinese conception of law is necessary. The concept of "rule of law" is usually translated in Chinese as 以法治国 (*yifa zhiguo*), however, this concept does not exactly correspond to the English one: in China, the law is not above politics, but it is an instrument of politics, as such a more correct translation would be "rule *by* law". Potter talks about the Chinese conception of law in terms of instrumentalism: the law is the tool through which political goals are realized.[32]

The contents and quality of a law are directly affected by the drafting process, especially in terms of the actors involved.[33] Chinese law production started anew in the Seventies, after years of complete halt during the Maoist period, and lawmakers found themselves unprepared to the task at hand, lacking the technical expertise required to translate policies into laws. As a result, the laws they produced were vague and weak.[34] The vagueness of the laws was not only the result of technical deficiencies, but also of the experimental approach that characterized the first period of economic reforms: by utilizing broad, unspecific clauses, lawmakers allowed a certain degree of flexibility in local application, and local law production.[35] However, the experimental phase is now over and Chinese lawmaking has been shifting from this piecemeal approach[36] to more specific and stringent laws.[37]

Related to the rebuilding of the Chinese legal system, and still relevant for environmental law, is the fact that legislators often drew inspiration from foreign models, which impacts law applicability in so far as the imported provisions are considered acceptable by the regulated part, and are feasible.

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[30] Ma X., Ortolano L., above note 25, p. 92-93
[31] Economy E. C., *The river runs black. The environmental challenge to China's future*, Cornell University Press, Ithaca, 2010, p. 107
[32] Potter P. B., *The Chinese legal system. Globalization and local legal culture*, RoutledgeCurzon, London, 2001
[33] Van Rooij B., *Regulating land and pollution in China. Lawmaking, compliance and enforcement; theory and cases*, PhD dissertation, Leiden, Leiden University Press, 2006, p. 26-27. I would like to acknowledge the great inspiration that I drew from Van Rooij's work for this paragraph, and I invite readers to refer to his paper for an in-depth description of the effects of the lawmaking process on China's Water Pollution Prevention and Control Law and also on the Environmental Impact Assessment Law.
[34] *Ibid.*
[35] Cavalieri R., above note 15
[36] Van Rooij B., above note 33
[37] *Id.*, p. 45

In the case of environmental law, strict provisions that heavily penalize the local economy, or that require technical skills or equipment that is not accessible to the regulated actor, are very hard to implement and enforce.

The Chinese lawmaking process is characterized by a top-down approach, however, more and more stakeholders are involved in the debate revolving around law proposal and drafting. These actors include, of course, the NPC and its legislative committees (in the case of environmental legislation the Environmental Protection and Resources Conservation Committee, EPRCC). Other actors involved are the State Council's Office of Legislative Affairs (法制办公室 *fazhi bangongshi*), tasked with drafting the five-year legislative plans that will guide law production,[38] and also the State Council's relevant ministries.

The role of ministries is especially significant, as Chinese laws are strictly linked to their relevant ministry. Ongley and Wang argue that Chinese laws can be considered as documents meant for ministries by ministries, and that much of the ministry's power derives by its laws. The political relevance of laws thus becomes evident.[39]

Over the years, new stakeholders have become involved in the lawmaking process, such as local governments and commercial and industrial stakeholders,[40] and very recently, to a small degree, NGOs and civil society.[41]

Increasing pluralism in legislative production might seem like a step forward to many Western observers, and it certainly is to some degree, but the corporatist lawmaking process[42] currently in use in China tends to lead to "watered down" laws that are the inevitable result of trying to reconcile the diverging interests of all those involved in the process.[43]

Public participation is almost non-existent in legislative production, however, Chinese leaders always keep a careful eye on public opinion. Chinese leaders strive for social harmony, and try to anticipate anything that could disrupt it through their legislative efforts. As such, laws often come as a response to incidents that have drawn public attention.[44] For example, the Water Pollution Prevention and Control Law was revised in 2008, after protests were blooming over badly polluted

[38] Ferris R., Zhang H., Reaching out to the rule of law: China's continuing efforts to develop an effective environmental law regime, *William and Mary Bill of Rights*, vol. 11 no. 2 (2003), p. 578
[39] Ongley E. D., Wang X., Transjurisdictional water pollution management in China: the legal and institutional framework, *Water International*, vol. 29 no.3 (2004), p. 272
[40] Van Rooij B., above note 33, p. 73
[41] Dai J., Spires A. J., Advocacy in an authoritarian state: how grassroots environmental NGOs influence local governments in China, *The China Journal*, 79 (2017), 62-83
[42] The term "corporatist" is applied to China by Van Rooij, (see above note 33) and it is referred to a kind of participation in lawmaking that is open to debate to a certain extent, but only involves a limited range of stakeholders, unlike in a real pluralistic approach.
[43] Van Rooij B., above note 33, p. 28. It must be said that the problem of "watered down" laws as a result of the conciliation of different interests is not peculiar to China but is a widespread phenomenon.
[44] *Id*., p. 101.

water and pollution incidents such as the one that interested the Songhua River in 2005.[45] Moreover, legislation also serves as a tool to send signals to the people: instead of revising flawed laws, top leadership often prefers to issue new and more stringent laws, sometimes at the expense of implementability:[46] lawmakers in Beijing are often disconnected from local realities, and sometimes issue laws that are very hard to implement due to technical factors, or due to their disregard of local socio-economic dynamics.

The lawmaking process for the most part still interests a relatively small number of actors, its dynamics are not completely transparent and the public's influence is limited. Environmental laws, however, have opened a small window for public debate in recent years. In fact, the 2014 review of the Environmental Protection Law was unprecedented under more than one aspect, ranging from the publication of its drafts to the way it exposed for the first time the power and political dynamics of the lawmaking process.[47]

The EPL revision started in 2011. Debate around the revision practically embodied the core of dilemma that has been plaguing the Chinese leadership especially since the 2000s: which has the greatest priority, economic development or environmental protection? The EPRCC and the National Development and Reform Commission (NDRC) were the main supporters of a limited reform that would only address the most urgent problems that presented immediately feasible solutions. MEP, on the other hand, advocated for a radical revision of the law, and was sustained by local EPBs, environmental NGOs and by experts on the environment and on legal matters, as well as by members of the NPC.[48]

The first draft proposed by MEP in 2011 did not receive much support, as it proposed radical changes that were not approved of by other ministries and especially by the powerful NDRC and EPRCC. This latter commission was tasked with coming up with a new draft. As by procedure, the EPRCC consulted with experts and members from other ministries and local Congresses before publishing a new draft in 2012, which not only proposed a very limited series of amendments, but most notably did not touch upon some major and much needed changes such as the introduction of public interest litigation or environmental rights for citizens.[49] This draft essentially satisfied economic stakeholders

[45] Du Q., New developments in water pollution law and policy in China: effective enough to cope with water pollution conflict?, *International Journal of Rural Law and Policy*, special edition 2011, p. 1-5
[46] Van Rooij B., above note 33, p. 101
[47] Zhang L., He G., Mol A. P.J., China's new environmental protection law: a game changer?, *Environmental Development*, 13 (2015), 1-3
[48] Zhang L., He G., Mol A. P.J., Zhu X., Power politics in the revision of China's new environmental protection law, *Environmental Politics*, vol. 22 no. 6 (2013), p. 1032
[49] *Ibid*.

such as local governments and enterprises, as it would also strip MEP of some of its core powers in terms of setting standards and controlling pollution.[50]

To contrast a draft that if adopted would very likely have disastrous environmental consequences, MEP resorted to a technique that was unprecedented in Chinese lawmaking:[51] it published on its website a list of comments and suggestions on the draft,[52] that received the support of experts whose advise had been ignored by the EPRCC. Discussion on the new EPL expanded beyond the restricted confines of the traditional lawmaking arena, reaching experts, NGOs and the public. This wave of controversy resulted in the EPRCC being removed from the drafting duty, which was entrusted to the more neutral NPC Law Committee.[53]

The new draft produced by the Law Committee was published to receive suggestions and criticism. This new cooperative approach to lawmaking was promptly sustained by MEP, which organized workshops involving experts, NGOs, and members of various State organizations, ranging from courts to local governments.[54] It was clear by then that the EPL would after all go through a substantial revision, and in fact, it required an additional fourth draft (traditionally, the maximum number of law reviews in the lawmaking process in three) before finally being approved by the NPC and adopted in 2014.[55]

2.2 ANALYSIS OF THE MAIN LAWS REGULATING THE WATER SECTOR

The water sector in China, as previously mentioned, is regulated by a few national laws that are integrated by a multitude of administrative, sectorial and local regulations. In this part of Chapter Two, I will focus on the analysis of the relevant national laws only, but important secondary acts will be mentioned when necessary to integrate the exposition.

I will first introduce each of the main laws that constitute the basic legal framework for water management, presenting the historical evolution of each law and its main contents. I will then briefly introduce other relevant laws that, although being important, have a lesser impact on water management. The final paragraph in this part of the chapter will be devoted to an analysis of the

[50] *Ibid*.
[51] *Ibid*.
[52] Wübbeke J., The three-year battle for China's new environmental law, *China Dialogue* (中外对话), 25/04/2014 accessible online at https://www.chinadialogue.net/article/show/single/en/6938-The-three-year-battle-for-China-s-new-environmental-law
[53] *Ibid*.
[54] Zhang L. *et al*., Power politics in the revision of China's new environmental protection law, above note 48, p. 1034
[55] Wübbeke J., above note 52

framework as a whole, giving consideration to the concrete consequences of the legislation to the environment, the issues that persist and those that have been solved, and also to the issues (and the developments) of the legislative style.

2.2.1 Water Law

Even though both the Environmental Protection Law and the Water Pollution Prevention and Control Law predate the Water Law, this law will be presented first, as it established the first national framework for water management in China.

The Water Law was first published on January 21 of 1988, and came into force on July 1 of the same year. The 1988 Law consisted of 7 chapters, for a total of 53 articles. The chapters titles were: general provisions; development and utilization; protection of water, water areas and water projects; management of the use of water; flood prevention and flood control; legal liability; supplementary clauses. The Water Law for the first time set a national framework for the development, utilization and protection of water resources in China, identifying key actors and their responsibilities.

Article 3 reaffirmed what had already been stated in Article 9 of the Constitution, that is to say that all water resources inside the national territory belong to the State; however, an exception was added by specifying that water contained in ponds and reservoirs belonging to rural economic collective organizations (**农业集体经济组织** *nongye jiti jingji zuzhi*) is owned by said organizations.[56]

The law affirmed the responsibility of the State, of enterprises and of individuals to protect and improve the water environment and save water resources, and the right of individuals and units to use water in accordance with the law.[57] The relevant State actors were identified in article 9, that affirmed that "The State implements a system that integrates unified management with management by level and department." (国家对水资源实行统一管理与分级、分部管理相结合的制度 *guojia dui shuiziyuan shixing tongyi guanli yu fenji fenbu guanli xiangjiehe de zhidu*).[58]

The article then indicated that the "competent water administration under the State Council" (**国务院水行政主管部门** *guowuyuan shuixingzheng zhuguan bumen*) is responsible for unified management of water resources at the national level. Concretely speaking, the "competent water administration" can be identified with the Ministry of Water Resources and its subordinate bodies.

[56] PRC Water Law of 1988, art. 3
[57] *Id*. art. 4, 5, 6, 7, 8
[58] All translations from Chinese of extracts of this law and of following laws were made by the researcher, any mistakes are her own.

Other relevant departments under the State Council work in coordination with the MWR to carry out water-related tasks within their field of operation based on the division of labor prescribed by the State Council. Finally, the same operational structure is established at the local level for governments above the county level: the competent water administration and other relevant departments of local governments shall be in charge of water management in accordance with the division of responsibilities decided by the local government. In this case, the competent water administration corresponds to the local water resources bureaus (WRB) reporting to the MWR.[59]

The second chapter contained provisions on water development and utilization. Article 11 is possibly the most relevant article of this chapter,[60] as it established the planning system for water resources. First of all, a unified planning based on river basins or on administrative divisions is prescribed in order to develop and use water resources, and to prevent water damages. The law called for two types of plans, comprehensive plans (综合规划 *zonghe guihua*) and special plans (专业规划 *zhuanye guihua*). These two types of plan will be maintained also after the law was completely revised in 2002, and the regulation related to water resources plans has only been further expanded, maintaining the foundations laid down in 1988.

Comprehensive river basin plans for the major rivers indicated by the State are to be drawn by the MWR in cooperation with other competent departments and the governments of the relevant provinces, autonomous regions and municipalities directly reporting to the central government. The plans are then to be ratified by the State Council. Comprehensive plans for other river basins or administrative divisions are drawn by the relevant WRB in collaboration with other competent departments, and are ratified by the government of the same level. The plans must also be registered by the WRB of the next higher level. The law stated that comprehensive plans must harmonize with the plans for the territory while also supporting the needs of each administrative division and industry. It is evident then that the focus of water resources planning at this stage of legislative development was still economic development.

Special plans concern a variety of matters ranging from flood management to water quality protection and hydrological assessments, and are drafted by the relevant department of governments at or above county level. The same level government will then ratify the plan. Any modification of either comprehensive of special plans needs to go through the same steps of the drafting process.

[59] PRC Water Law of 1988, art. 9

[60] The majority of articles contained in Chapter Two, but also many of the provisions of the law in general, are more similar to policy statements in that they are rather rhetorical in nature and hard to implement in real life. This is typical of the legislative style of Chinese laws, as will be analyzed in paragraph 2.2.6. To give an example, article 12 prescribes that "any unit or individual, in drawing, storing or discharging water, must not damage public interests and other people's legal rights". Given the extreme level of generality of this provision and the lack of any further clarification, it will probably remain a string of words on paper that is very unlikely to be enforced or appealed to.

The third chapter of the law concerned the protection of water resources, but was very brief and only focused on the problems that may arise from water exploitation activities, with no mention to the aspect of water pollution.

The fourth chapter dealt with water resources management, and in particular set the foundation to the water allocation planning system, the water drawing permit system and the water fee system. It also contained the only provisions on dispute resolution of the whole law.

First, the law required MWR to collaborate with other departments in drafting long-term water supply and demand plans for the nation and for cross-administrative areas. The State Council's planning department (which corresponds to the National Development and Reform Commission) is identified as responsible for the ratification of the plans. At the local level, WRBs and other relevant departments are in charge of long-term supply and demand plans on the base of the next higher level's supply and demand plans, and in light of local conditions. The plans are then ratified by the planning administration of the same-level government.[61] There was also mention to water allocation plans for cross-administrative areas, that must be drafted by WRBs of the next higher level administration after consulting the relevant local governments.[62]

The law then established a framework for the water abstraction permit system which is still in use to this day. The system requires entities directly extracting water from rivers, lakes or aquifers to obtain a water abstraction permit. The permit is also required for the construction, modification or expansion of existing projects. Water abstractions in small quantities, such as for domestic use, do not require a permit. The detailed rules concerning the water abstraction permit system were published five years after the law, in 1993.[63]

Article 34 concerned the water fee system, that also maintained after the 2002 revision of the law. Two types of fee are identified: water fees (水费 *shuifei*) are to be paid by those who use water from a water project to the company that owns said project. Water resources fees (水资源费 *shuiziyuan fei*) are to be paid by those who draw water from aquifers, rivers or lakes to provincial level governments (or, in the case of directly drawing water from an aquifer located in a city, to the city government). The collection methods for the fees are established by the State Council.

Articles 35, 36 and 37 dealt with water dispute resolution. The law provided indications for two kinds of dispute: disputes among administrative units, and disputes between individuals, companies

[61] PRC Water Law of 1988, art. 30

[62] *Id.*, art. 31

[63] *Id.*, art. 32 and 33. See also "Implementation methods for the water abstraction permit system" (取水许可制度实施办法 *qushui xuke zhidu shishi banfa*). The Implementation Methods were replaced in 2006 by the "Management rules for water abstraction permits and water resources fee collection" (取水许可和水资源费征收管理条例 *qushui xuke he shuiziyuanfei zhengshou guanli tiaoli*).

and companies and individuals. In the first case, the law prescribed resolution through consultation in the spirit of cooperation and mutual understanding, but in the case that consultation fails, the next higher level's government would handle the matter. The parties were forbidden to modify the water conditions in any way before a solution was reached. In the second case, people and companies were also encouraged to solve their dispute through consultation or mediation, but in case these methods failed or the parts were not willing to employ them, they could request that the dispute be handled by the local government at or above county level, or bring the dispute to a court. In case the parts were not satisfied with the verdict, they could appeal to the tribunal within fifteen days of having received the decision notification.

Lastly, the 1988 Water Law contained seven provisions on legal liability (articles 44 to 50). Article 44 established the duty of units or individuals to compensate losses caused to third parties while utilizing water in violation of the law, and the duty to stop the illicit activity and remove the obstacles created. In general, for violation of the law's provisions, the relevant WRB at or above county level, or another relevant department, could order the stop of the illicit activity, the adoption of corrective measures and the compensation of damages. It could also impose the payment of a fine. The law, however, did not provide any concrete indication on the fine levels. The law also provided for criminal prosecution if the violation constitutes a crime. For government officials or for water project managers who neglect their duties or abuse of their power, administrative or criminal sanctions were prescribed in article 50, based on the gravity of the infraction.

The legislative framework set by the 1988 Law was a step forward compared to the high levels of fragmentation and lack of regulation that preceded the Law,[64] however, in the context of rapid economic evolution and industrialization that characterized the Eighties and the Nineties, this framework was far from sufficient to implement efficient water management and contrast environmental degradation. Reform was needed, and finally came in 2002 with the revision of the Water Law. The new version of the law was published on August 29, and came into force on October 1, a date that holds high historical and rhetorical meaning to Chinese people. The new version of the law substitutes the 1988 one.

The newly revised Water Law consists of eight chapters and eighty-two articles. The chapter titles are: general provisions; water resources planning; development and utilization; protection of water areas, water resources and water projects; allocation and economical use of water resources; resolution of water disputes and supervision and inspection of law enforcement; supplementary

[64] Wouters P., Hu D., Zhang J., Tarlock A. D., Andrews-Speed P., The new development of water law in China, *Water Law Review,* vol. 7 no. 2 (2004), p. 259

provisions. The Law was significantly lengthened, with the addition of three new chapters (chapter 2, 5 and 6). The chapter on flood prevention and management was removed, since the matter is now regulated by the 1998 Flood Prevention Law.

The 2002 revised Water Law introduces principles of Integrated Water Resources Management (IWRM), creates instruments for a better protection of water resources, strengthens and clarifies the water abstraction permit system and the water resources fee system, and provides a new chapter entirely devoted to water dispute resolution. The Law also improves accountability and enhances the system of penalties for law violation.

The first innovation that can be observed regards water property rights: while the 1988 version identified two different kinds of property, State and collective, the 2002 version only admits State property for water resource; rural collectives however still maintain the right to use for water of ponds and reservoirs that they previously owned.[65]

The 2002 Law takes steps in the direction of IWRM, with the introduction of the integration between the river basin management system and the administrative division management system.[66] In terms of the division of responsibilities for national water management, the framework of the new Law is consistent with the 1988 version, with only one major change: River Basin Organizations (RBOs) are included for the first time among the actors responsible for national water management. This is the first institutional recognition of RBOs. RBOs are responsible for management on the base of river basins, while WRBs exercise unified management of water resources within their administrative jurisdiction.[67]

The second chapter of the revised law is devoted to water resources planning, and compared to the provisions on planning of the 1988 Law, the 2002 Law moves towards a more integrated and centralized approach to water resources management. While the 1988 Law provided for plans based on river basins *or* on administrative divisions (and in fact the word 或者 *huozhe*, "or" was employed), the 2002 Law requires both river basin plans and administrative division plans,[68] and subordinates the latter to the former.[69] Both types of plan include comprehensive plans and special plans, as in 1988, moreover, the Law finally provides a definition of comprehensive plans as plans concerning global dispositions for water resources development, use, conservation and protection in light of the

[65] The matter of water property rights is complex and multifaceted, to learn more about the development of water property rights in China see: Wouters P. *et al.*, above note 64.; Jiang Y., China's water scarcity, *Journal of Environmental Management*, 90 (2009); Zheng H., Wang Z., Hu S., Wei Y., A comparative study of the performance of public water rights allocation in China, *Water Recources Management*, 26 (2012)
[66] PRC Water Law of 2002, art. 12
[67] *Ibid.*
[68] *Id.*, art. 14
[69] *Id.*, art. 15

needs of socio-economic development and the current conditions of water resources exploitation. It is required that all comprehensive plans be harmonized with economic and social development plans, comprehensive city and land use plans, and environmental protection plans.[70] The relevant water administration is also expected to conduct scientific investigations that must serve as the base for all kinds of plans. The Law also opens a small window for public participation by requiring governments at and above provincial level to create information systems for hydrological data, which must be made available to the public.[71]

Given these new developments, the drafting and approval process for plans has been revised too. While the new Law still follows the same structure set in 1988 for comprehensive river basin plans for the major rivers and lakes decided by the State Council, and for special plans, changes have been introduced for comprehensive river basin plans of rivers and lakes that cross administrative regions (other than the major ones drafted by MWR), and for administrative divisions: first, the plans are drafted by the relevant RBO in collaboration with the relevant WRBs, and then examined by the relevant provincial level government that can give further indications. The plans are then submitted to MWR, that should examine them while also requesting the opinion of other relevant departments, before giving the final approval.

There is one final category of comprehensive plans, that of plans for river basins and administrative regions other than all those treated up to now, which are drafted by the relevant WRBs at or above county level, in cooperation with other relevant departments. The plans are then approved by the same level government and registered by the next higher level's WRB.[72]

Chapter three is devoted to utilization and development of water resources, and contains provisions that indicate the gradual shift towards sustainability principles; these provisions, however, are characterized by their generality, the lack of definite implementation methods and of a clear division of responsibilities.

Chapter four on the protection of water resources introduces two new instruments for water resources protection: water function zones (水功能区 *shui gongneng qu*) and drinking water resources protection zones (饮用水水源保护区 *yinyongshui shuiyuan baohuqu*).

Water function zones are regulated by article 32. The definition of water function zone is not provided by the Law, but is introduced in the 2003 "Methods for the management of water function zones" (水功能区管理办法 *shui gongnengqu guanli banfa*): water function zones are special areas in which water quality standards are established and applied based on the zone's main function. The

[70] *Id.*, art. 14 and 15
[71] *Id.*, art. 16
[72] *Id.*, art. 17

law also specifies that the zones must be defined with consideration to river basin plans and water resources protection plans.[73]

Water function zones for the nation's main river basins and lakes are established by MWR and the Ministry of Environmental Protection (MEP), along with the relevant provincial level governments. The final ratification lies with the State Council. Function zones of other cross-province rivers and lakes are established by the relevant RBOs and the environmental protection bureaus (EPBs) and WRBs of the relevant provinces. They are then examined by the relevant provincial level governments and by MWR, and finally approved by the State Council or another authorized department. Function zones of other rivers and lakes are established by WRBs and EPBs at or above county level, ratified by the same level governments and registered by the next higher level's WRB and EPB.

WRBs or RBOs must assess the water bodies natural capacity for self-purification (自然净化能力 *ziran jinghua nengli*) and provide EPBs with an opinion on the area's pollutant discharge limit (污染物排放总量 *wuranwu paifang zongliang*). These same bodies are responsible for water quality supervision in water function zones, and must collaborate with the environmental protection department and local governments to guarantee that waters reach the required standard.[74]

Drinking water resources protection zones are regulated by articles 33 and 34, but the provisions concerning them are scarce compared to those referring to water function zones: the Law only states that these zones can be established by provincial-level governments, which should adopt measures to prevent drinking water pollution. It is forbidden to set up discharge outlets in these zones. Article 34 also specifies that in order to build, modify or expand a discharge outlet in rivers or lakes, a company needs the approval of the relevant RBO or WRB, and that the Environmental Impact Assessment Report (EIAR) of the project will be examined by environmental protection authorities.

Water allocation is further developed in the new Water Law: water is allocated according to long-term and medium-term plans, which are integrated by a quota system. The National Development and Reform Commission and the MWR are in charge of the macro-allocation of water resources. MWR drafts national and cross-province long-term and medium-term plans, ratified by the NDRC. Local medium and long term supply and demand plans are drafted by the local WRB and approved by the next higher level's water administration. The plans must take into account, among other things, river basin plans and regional plans: river basins become the basic unit for water allocation plans, thus making this new water allocation system more organic and integrated than the previous one. The Law prescribes a hierarchical planning system for water resources allocation that starts at the national

[73] Methods for the management of water function zones, art. 2
[74] PRC Water Law of 2002, art. 32

level and reaches county level industry administrations, that must establish quotas for each industrial sector. County level governments must also draft annual water allocation plans based on quotas, and implement a total water quantity control system.[75]

The regulation for water abstraction permits is contained in articles 48 and 49. There are two major changes compared to the 1988 Law: one is that the permit can be granted not only by WRBs, but also by RBOs. The right to abstract water is obtained after the payment of the water resources fee. The second change is that water resources fees are based on water quantity: quotas are established, and if water use exceeds the quota, the price of the fee is progressively increased.

The 2002 Law introduces extensive provisions concerning dispute resolution. There are now eight articles on dispute resolution and supervisory duties, compared to the three provisions of the 1988 Law. There aren't any major changes in content on the topic of dispute resolution, but the Law now specifies the duties and powers of WRBs and RBOs in the supervision and inspection of law violations. The Law invests these bodies with the power to inspect the investigated unit's documents and permits, and their production facilities. The Law also takes a modest step towards enhancing government accountability: article 63 states that if local governments at or above county level (or the WRBs of the next higher level) discover law infractions in the process of supervision and inspection by the WRB of the same or of inferior level, they can order the correction of the violating behavior. Of course, the effectiveness of this provision is questionable, as it is not clear how the violating bureau might be convinced to abide by the Law, and as this provision only applies to violations committed by same level or inferior level bureaus, thus leaving violations by higher level bureaus untouched, unless discovered by yet higher level entities.

The last innovation introduced by the 2002 Law concerns legal liability provisions: RBOs are invested with the power to order entities to stop violations within their jurisdictions, and WRBs and RBOs can order entities to remove the obstacles created by their violations or to restore the conditions previous to the violation. They can also enforce the execution of their orders in case the unit is not willing to comply, in this case the unit will bear the cost of the operations. Finally, the law now indicates a specified range for fines, based on the nature and gravity of the violation. In general, fines range from 10.000 RMB to 100.000 RMB.

2.2.2 Environmental Protection Law

The Environmental Protection Law (EPL) sets the national legislative framework for environmental protection, and even though it does not regulate water specifically, its relevance resides in the fact

[75] *Id.*, art. 45, 46, 47

that it established a series of principles that were integrated in other environmental laws concerning specific topics, such as the Water Pollution Prevention and Control Law.[76]

The Law was first adopted experimentally on September 13, 1979. This first version was extremely brief, containing only 33 articles distributed in 7 chapters (general provisions; protection of natural environment; prevention and control of pollution and other hazards; agencies for environmental protection and their duties; scientific research, publicity and education; rewards and penalties; supplementary clauses).

It is evident by reading this Law that it belongs to a period of Chinese history where the legal system was in the initial stage of rebuilding; the Law is very rhetorical and places a strong emphasis on socialist principles and on the prevalence of economic development over environmental protection.[77] It is to be expected, after all, as back at the end of the Seventies China's environmental degradation was not as advanced yet, and moving Chinese people out of poverty was the real priority. In this context, the very existence of this Law was innovative, and has served as base for the further development of environmental legislation.

The 1979 Law generally affirmed the responsibility of governments, State agencies, units and individuals to protect the environment,[78] and also stated the right of individuals to supervise and report units that harm the environment (and also forbade said units to retaliate against those who reported them). It is not clear, however, to whom people might report environmental harm.[79]

The 1979 Law proclaimed the establishment of the State Council's environmental protection organization (at the time, it was the Leading Group for Environmental Protection with its Environmental Protection Office), and listed its duties, which included long-term and annual environmental protection planning, establishing national environmental standards and supervising the implementation of national environmental guidelines, policies, laws and decrees.[80] It is interesting to notice how law implementation comes after guideline (方针 *fangzhen*) and policy (政策 *zhengce*) implementation, as this was a time in which State planning was still prominent, and the line that divides law and policy statements was even thinner than it is today.

The Law provided for the establishment of environmental protection bureaus at the provincial and county levels. These bodies replicate the same duties of the central environmental protection agency on the local level.[81] The Law also stated that all departments of the State Council and local

[76] Tyler Z., Transboundary water pollution in China. An analysis of the failure of the legal framework to protect downstream jurisdiction, *Columbia Journal of Asian Law*, 19 (2006), p. 586
[77] The prominence of economic interests over environmental concerns is embodied in article 4.
[78] PRC Environmental Protection Law of 1979, art. 5, 6, 8
[79] *Id.*, art. 8
[80] *Id.*, art. 26
[81] *Id.*, art. 27

governments, as well as large and medium scale enterprises and public institutions could establish environmental protection organization according to their needs, in order to carry out environmental protection tasks.[82] The Law also introduced for the first time the pollution discharge fee system (排污费 *paiwufei*), even though the related provision is very short and lacks detail, simply prescribing that the pollution discharge fee must be paid if discharges surpass national standards.[83]

The 1979 EPL contained only one provision on sanctions for law violation: this provision stated very generally that, if a unit violated the law and caused environmental damages or harm to people's health, environmental protection organizations could give sanctions such as admonitions and fines, or order loss compensation or the halt of operations until damages were repaired, but only with the approval of the local government. In the case of very serious damages or pollution, that caused huge economic losses or lead to people being hurt or dying, the person directly responsible for the accident could receive administrative, economic, or even criminal sanctions.[84]

In general, it can be affirmed that while this Law holds historical significance, its concrete effects on environmental protection are debatable, due to its extremely general nature and the near non-existence of enforcement tools. But it still represented the foundation for the subsequent legislative evolution.

The Environmental Protection Law was officially adopted on December 26, 1989, replacing the previous experimental version. The new Law consisted of 47 articles in 6 chapters: general provisions, environmental management and supervision, protection and improvement of the environment, pollution prevention and control, legal liability and supplementary provisions. The Law established a series of fundamental principles that should guide environmental protection in all fields (although it must be noted that the Law only focuses on urban and industrial pollution, leaving the prevention and curbing of agricultural pollution coming from non-point sources largely unregulated). The Law addressed air, water, solid waste and noise pollution, and created a system of management and supervision of law application and enforcement[85] by far more solid than the one created by the 1979 Law. Even though the Law was subject to an extensive revision in 2014, the core principles it planted still remain the main guidelines for environmental protection in China to this day.

[82] *Id*., art. 28
[83] *Id*., art. 18
[84] *Id*., art. 32
[85] Beyer S., Environmental law and policy in the People's Republic of China, *Chinese Journal of International Law*, vol. 5 no. 1 (2006), p. 193

Article 4, as in the previous 1979 version, subordinated environmental protection to economic development. Article 6 established the duty of all individuals and units to protect the environment and their right to report units and individuals who cause environmental harm.

Article 7 identified State agencies with environmental protection duties: the first was the State Council's environmental protection main administration (EPMA) (国务院环境保护主管部门 *guowuyuan huanjing baohu zhuguan bumen*).[86] This body was in charge of unified management and supervision of national environmental protection. The same task was entrusted to EPBs at the local level. The article then listed a series of other administrative departments that had environmental duties in their respective fields, such as transports administration, water resources administration and public security. Yet more relevant administrative departments were listed as responsible for environmental protection at the local level. Clearly, even if EPMA and its EPBs were in charge of unified management and control, it appears like they actually had to share their duties (and authority) with quite a few other departments. Although some of the bodies sharing environmental responsibilities changed over the years, this fractured structure was in force until the latest State Council reform of 2018.

Articles 9 and 10 concerned the setting of national environmental standards: the EPMA set national environmental quality standards, and provincial level governments could set their own standards for matters left unregulated by the national ones. The EPMA then set pollutant discharge standards based on national environmental quality standards and the economic and technological conditions of the nation. Again, provincial level governments could set standards of their own for unregulated matters, or even set standards stricter than the national ones for already regulated items.

Environmental monitoring, which is an essential part of environmental governance, was regulated in article 11: the EPMA was tasked with establishing the monitoring system and its norms, and should collaborate with other relevant departments to set up a monitoring network.

The Law introduced internationally recognized environmental principles, such as the environmental liability (or "polluter pays") principle,[87] and the "prevention first" principle.[88] The Law also introduced the principle of the Three Synchronizations,[89] which is typical of Chinese environmental

[86] Today, this body can be identified with the new Ministry of Ecology and Environment, but before that it has been NEPA, SEPA and lastly MEP. In this paper, the State Council's environmental protection main administration will be referred to as EPMA for brevity's sake, unless the term can be substituted for the proper Ministry or agency.
[87] EPL of 1989, articles 19 and 28
[88] *Id.*, 16, 24, 25, 27, 30
[89] *Id.*, art. 26. The Three Synchronizations (三同时 *san tongshi*) prescribe that the pollution prevention facilities of a construction project must be designed, constructed and operated simultaneously with the project, thus making them an integral part of it.

law.[90] The EPL also requested construction projects that can cause pollution to submit an Environmental Impact Assessment Report to the EPMA.[91] The only regulation on transboundary pollution, a problem that weighs heavily on the Chinese environment, was article 15, that simply stated that problems related to prevention and control of cross-administrative pollution should be resolved through consultation by the relevant administrations, or in case of failure, the next-level government should take a decision for the parts. The last noteworthy innovation of the EPL is that it set a base, albeit weak, for information disclosure, in articles 11 and 31.

The EPL, unlike its predecessor, contained a chapter dedicated to legal liability. In general, the EPMA, its EPBs or the actor in charge of management and supervision had the power to give admonitions and impose fines for law violation, could order polluters to restore the original environmental conditions, and could in some instances order the stop of production or of the use of certain equipment (such as that of pollution prevention facilities that do not meet the required standards);[92] administrative and criminal penalties were also prescribed for grave violations, and in some instances an enterprise might even be shut down with the approval of the relevant local government.

The 1989 Law has regulated environmental protection in China for twenty-five years, during which environmental quality has hardly seen any improvement. It thus became more and more evident that the Law required a revision. As stated in paragraph 2.1.1, the revision process of the EPL was unique, as it allowed an unprecedented degree of public participation and required four drafts (Chinese law prescribes a maximum of three drafts).

The new EPL is the result of an extensive revision: it now contains 70 articles and 7 chapters: general provisions, supervision and management, protection and improvement of the environment, prevention of pollution and other hazards, divulgation of information and public participation, legal liability, supplementary clauses. The Law was passed on April 24, 2014, and is effective from January 1, 2015, replacing the 1989 Law.

The first substantial change introduced by the Law is the elevation of environmental protection to a national policy.[93] The law also lists some of the major principles guiding environmental protection: public participation is now included along with long-standing principles such as the prevention first principle.[94]

[90] He G., Lu Y., Mol A. P.J., Beckers T., Changes and challenges: China's environmental management in transition, *Environmental Development*, 3 (2012), p. 30
[91] EPL of 1989, art. 13. More on the topic of Environmental Impact Assessment in paragraph 2.2.5 on the EIA Law.
[92] *Id.*, art. 36
[93] EPL 2014, art. 4
[94] *Id.*, art. 5

The division of responsibilities is described in article 10, and while there are no substantial changes compared to the 1989 version, the style is slightly different, the list of responsible actors that is now synthesized as "the relevant departments of governments at and above county level and the army's environmental protection department".

Article 13 introduces a new planning system for environmental protection plans, which were only briefly mentioned in the 1989 Law. This planning system is not as articulate as the one prescribed by the Water Law for water resources planning; it only requires MEP and its EPBs to draft environmental protection plans. The plans must take into account the necessities of social and economic development, and must harmonize with other plans such as those for land use or for specific functional zones. All plans must be ratified by the relevant government and executed after being published.

The new Law prescribes EIA for construction projects, and also encourages Strategic Environmental Assessment.[95]

The provisions on monitoring have been strengthened: the monitoring system set up by the 1989 Law still stands, and the Law now also calls for a unified planning for the installation of environmental quality monitoring stations and for the establishment of mechanisms for monitoring data sharing. The Law also holds monitoring organizations accountable for the authenticity and accuracy of data.[96]

The Law takes a modest step forward in addressing cross-administrative pollution: article 20 prescribes the establishment of cross-administrative joint mechanisms for prevention and control of pollution and ecological damage in key areas and river basins, where unified standards, planning, monitoring and measures are implemented. The old provision prescribing resolution through consultation or through mediation by the next higher level government still applies to all other types of cross-administrative environmental disputes.

One of the aims of the new EPL is to increment responsibility and accountability for both enterprises and people's governments. In the case of governments, this happens mostly through the provisions of articles 26 and 27: the completion of environmental objectives is now part of the officials' evaluation system,[97] moreover, government officials are also required to provide an annual report about the state of the environment and the degree of achievement of environmental goals to be submitted to their People's Congress (or its Standing Committee). Government responsibility is extended with the introduction of "ecological red lines" (生态红线 *shengtai hongxian*), sensitive

[95] *Id.*, art. 14 and 19; more on the topic in paragraph 2.2.5
[96] *Id.*, art. 17
[97] The law introduces the "environmental protection objectives responsibility system" (环境保护目标责任制 *huanjing baohu mubiao zeren zhi*). Officials are evaluated based on the state of completion of the environmental goals assigned to them.

areas that must be strictly protected by local governments in order to preserve their ecological functions.[98]

As for enterprises' responsibility and accountability, stricter rules for pollution prevention and control are imposed:[99] companies that discharge pollutants are expected to establish environmental protection responsibility systems (环境保护责任制度 *huanjing baohu zeren zhidu*)[100] in order to easily identify the responsible person when needed.[101] Companies discharging key pollutants (重点污染物 *zhongdian wuranwu,* that is to say the pollutants most strictly monitored by the State) are also required to install pollutant discharge monitoring equipment, and must keep all of the monitoring records.[102] Enterprises now need to obtain a pollutant discharge permit in order to emit pollutants,[103] and must pay the pollution discharge fee. All revenue from the fee must be employed for pollution prevention and control.[104]

The Law also introduces a new instrument to curb pollution that has provoked some debate: the control system for total emission of key pollutants.[105] The concept itself is rather uncontroversial: it is a system based on quotas, decided by the State Council and passed down to provincial level governments, that leads to each company discharging major pollutants to receive an emission quota that should not be surpassed. Certain companies must thus discharge within the limits set by their quotas, as well as within the national or local pollutant discharge standards. The Law prescribes rather harsh penalties for violation, such as halting production until restoration or even company shut down.[106] Contrasting opinions have emerged in relation to the penalty prescribed for administrative divisions: in case an administrative region exceeds one of its quotas, the next higher level EPB should interrupt approval of EIAs for projects that would increase the discharge amount of the relevant pollutant in the area. Many have questioned the legitimacy and effectiveness of such a provision, as it causes companies to bear the burden of other enterprises' violations.[107]

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[98] EPL 2014, art. 29. More on the concept of red line in paragraph 2.3.
[99] King & Wood Mallesons, Environmental protection law: big changes in 2014, *China Law Insight*, 20/05/2014
[100] The difference between the environmental protection responsibility system and the environmental protection objectives responsibility system is that the first has the objective to identify the people responsible for environmental protection activities within an organization, in order to easily identify the responsible person in case of incidents or law violation. The second is a part of the officials' evaluation system, it consists of a series of environmental objectives whose level of completion will determine the final evaluation of government officials.
[101] EPL, art. 42
[102] *Ibid*.
[103] *Id*., art. 45
[104] *Id*., art. 43
[105] *Id*., art. 44
[106] *Id*., art. 60
[107] For an in-depth analysis concerning this provision see: Zhu X., Zhang L., Ran R., Mol A. P.J., Regional restrictions on environmental impact assessment approval in China: the legitimacy of environmental authoritarianism, *Journal of Cleaner Production,* 92 (2015)

The new EPL is innovative also thanks to the emphasis it places on information disclosure and public participation: not only there is an entire chapter dedicated to the topic (Chapter 5), but many other provisions call for the publication of data, reports and plans as well. Article 53 establishes the right of citizens, legal persons and other organizations to obtain environmental information and to take part in public participation and environmental supervision activities. MEP and its EPBs, as well as other bodies with environmental management and supervision duties, are expected to periodically disclose information about a variety of matters, ranging from environmental quality to details on pollution discharge permits and fee collection. EPBs are also required to publish the names of companies that violate environmental laws and details about their violations.[108] If consistently applied, this provision might prove to be a smart way to leverage the Chinese concept of "face" and the importance of reputation for enterprises.

The Law prescribes public participation in the process of EIA, and also requires companies to disclose information about their environmental performance and pollutant emissions.[109]

All of these provisions are only relevant in so far as they are actually implemented. There is however one provision in Chapter 5 that could really prove to be a game changer, although still presenting room for improvement: article 58 makes way for the first time to public interest litigation (公益诉讼 *gongyi susong*) , allowing social organizations that meet certain conditions to press charges for acts like pollution and environmental harm. In order to qualify for public interest litigation, an organization must be registered at a civil affairs bureau at or above township level in the area in which the organization was established, and must be specialized in environmental protection public interest activities, having worked in the field for five or more years. It must also have no law-breaking record.

Lastly, the new EPL strengthens the penalty system for law infraction: a new daily penalty system is established, and caps on the maximum penalty are removed.[110] Fines are not the only applicable punishment, in fact, based on the nature and gravity of the violation, EPBs have the right to impose limits or suspension of production until the company ratifies the situation, or confiscate non-standard equipment. Penalties are prescribed for projects violating EIA rules or for companies that do not disclose environmental information. Finally, the Law prescribes administrative or criminal sanctions, and for certain violations EPBs can pass the case to public security authorities, that can order a minimum of 5 days of detention and up to 50 days. Companies are not the only actors subject to penalties: in case of infractions, all those with management and supervision duties, as well as

[108] EPL, art. 54
[109] *Id*., art. 56 and 55
[110] *Id*., art. 59

monitoring organizations and EIA approval organizations are held accountable for their actions. The law does not indicate a fine range for violations.

2.2.3 Water Pollution Prevention and Control Law

The WPPC Law is the first national law designed for the protection of water resources against pollution. As such, its provisions are more focused compared to those of the EPL, and are aimed at the problem of pollution, unlike the Water Law that is mostly focalized on the administrative side of water management.

The first version of the WPPCL predates the Water Law, dating back to 1984. The Law consisted of forty-six articles in seven chapters: general provisions, environmental water quality standards and pollution emission standards, management and supervision of water pollution, prevention of surface water pollution, prevention of underground water pollution, legal liability, and supplementary provisions.

In chapter one, article 3 required central and local authorities to insert water pollution prevention in social and economic development plans. Article 4 indicated the bodies with competences related to water pollution: the environmental protection departments of central and local governments were in charge of unified control and supervision of pollution prevention activities. The navigation authorities (航政机关 *hangzheng jiguan*) under the Ministry of Transportation were responsible for the supervision and control of pollution caused by boats. Article 4 also listed a series of administrative departments that must collaborate with environmental authorities in carrying out their water pollution-related tasks: water resources departments, health administration departments (卫生行政部门 *weisheng xingzheng bumen*), geological and mineral departments (地质矿产部门 *dizhi kuangchan bumen*), municipal administrations and water resources protection authorities of important rivers. This provision represents one of the foundations for the fragmentation of environmental water management.

Article 5 affirmed the right of units and individuals to protect water resources and report behaviors that threaten them. Those who directly suffered damages due to water pollution also had the right to ask that the polluter compensate the damage and restore good environmental conditions.

Chapter two dealt with water quality standards (水环境质量标准 *shuihuanjing zhiliang biaozhun*) and pollution discharge standards (污染物排放标准 *wuranwu paifang biaozhun*). Both types of standard were set by the national environmental authorities, while provincial level governments could draw their own standards for matters left unregulated by national ones, or, in the case of pollution

discharge standards, could set standards stricter than the national ones. Environmental authorities must give due consideration to technological and economic conditions when establishing standards.[111]

Chapter three, on management and supervision of water pollution, contained some of the most relevant provisions of the Law: it set the basis for Environmental Impact Assessment,[112] it granted governments at or above county level the power to establish protected areas (保护区 *baohuqu*),[113] and it invested environmental authorities with the power to carry out inspections on polluting enterprises.[114] A registration system for polluting companies was established: companies that directly or indirectly emit pollutants in water bodies must register with the local environmental protection authorities, and declare their discharge and treatment facilities, the types of pollutants emitted on a regular basis, as well as the pollutant quantity and concentration. They must also provide technical information related to pollution prevention.[115] Finally, a pollution fee system was also set up: the system provides for two types of fee, a fee for discharges within national and local standards, and a fee for emissions that exceed national or local standards (excess discharge fee, 超标准排污费 *chaobiaozhun paiwufei*). This was problematic as it seemed that companies were legitimized by the Law to give little consideration to pollution discharge standards.[116]

Chapters four and five contained provisions on the prevention of surface and underground water pollution, respectively. In general, a series of polluting techniques and behaviors was forbidden (such as installing discharge outlets in protected areas),[117] and a list of substances that are forbidden to be discharged into water bodies was provided.[118]

Legal liability was addressed in chapter six. The bodies entrusted with law enforcement and giving sanctions are essentially three: environmental protection authorities, navigation authorities and local governments. Environmental protection authorities and navigation authorities can impose fines and order polluting companies to restore environmental conditions within deadlines. In case a company failed to meet this last obligation, additional fines could be imposed. The most severe sanctions (production stop and company shut down), however, could only be imparted by the relevant government. The Law did not specify a range for financial sanctions, but it did contemplate the possibility to impose fines equal to two or more times the due excess discharge fee.

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[111] Water Pollution Prevention and Control Law of 1984, art. 6 and 7
[112] *Id*., art. 13
[113] *Id*., art. 12
[114] *Id*., art. 18
[115] *Id*., art. 14
[116] *Id*., art. 15; see also Du Q., New developments in water pollution law and policy in China: effective enough to cope with water pollution conflict?, *International Journal of Rural Law and Policy*, special edition 2011, p. 7
[117] *Id*., art. 19
[118] *Id*., art. 21

Units or individuals that were not satisfied with the administrative sanction established by the relevant EPB or navigation authority could take the case to the court within fifteen days of receiving the notification. If a case fell under criminal law, Article 43 cross-referenced to articles 115 and 187 of the Penal Code, as in 1984 these were the only criminal provisions that might be employed to deal with an environmental cause.

Lastly, in terms of legislative style there are two characteristics that make the WPPCL rather advanced from a technical point of view compared to the then in force EPL or the Water Law that would be adopted only a few years later: the first is the inclusion of the principle of *force majeure* in article 42, the second is the presence of a part devoted to definitions in the supplementary provisions (article 44).

The WPPCL was amended for the first time in 1996. The revised Law consists of 62 articles, while the chapter division remains the same. The revised Law is stricter than the previous version, introduces updated tools to curb pollution and can be seen as a step forward in the gradual shift towards pollution prevention over the "end-of-pipe" pollution management system.

In order to facilitate pollution prevention, a new planning system was introduced: pollution prevention activities should be planned in a unified manner on the base of river basins *or* administrative divisions.[119] The bodies appointed with the task of drawing plans were the central environmental authorities (in the case of river basin plans for the main river basins) or the relevant EPBs, in collaboration with other relevant departments such as the central or local planning commissions, water resources administrations and relevant governments.

As the plans represented the basis for pollution prevention and control, local governments were expected to base their local plans according to the next higher level's plan (or on the basis of a river basin plan). The planning system also contained provisions aimed at curbing cross-administrative pollution, by requiring cooperation in the drafting of plans for rivers that cross jurisdictions. However, the actual degree of cooperation in plan drafting and the effectiveness of plans to curb pollution is unclear. The planning system established in 1996 was maintained in later versions of the law and is still in use.

The other important tool introduced by the Law is the total discharge control system for point-source pollution (重点污染物的总量控制制度 *zhongdian wuranwu de zongliang kongzhi zhidu*). The system basically entails that, in water bodies where pollutant discharge standards are met without reaching environmental quality standards, provincial or central governments can establish a

[119] Water Pollution Prevention and Control Law of 1996, art. 10

maximum allowed quantity for the discharge of certain major pollutants.[120] The system is based on plans drafted by the central environmental authorities or by provincial level EPBs, in consultation with the relevant provincial and local governments. These plans establish pollutant discharge quotas that represent the basis on which the relevant local governments (at or above county level) will draft action plans to reduce major pollutants emissions, by assigning pollutant reduction targets and deadlines to units in the area. These units are also required to install monitoring equipment on their discharge outlets according to the Law.[121] The total discharge control system will also be maintained during following revisions and will actually be strengthened.

The planning system and the total discharge system are the two major innovations of the 1996 Law, but legislators also introduced a series of other provisions to significantly updated and strengthened the Law. Article 13 introduced tools from the 1989 EPL, that is to say the "Three Synchronizations" and the requirement for public participation in EIA.

Article 19 aimed at making urban wastewater treatment economically sustainable and appealing to polluting companies: urban wastewater treatment become a paid service, and companies who employ it were exempted from paying the pollutant discharge fee.

Article 20 introduced regulations on protected areas for surface drinking water resources (生活饮用水地表水源保护区 *shenghuo yinyongshui dibiao shuiyuan baohuqu*): they basically represented an extension to the provision on protected areas of the 1984 Law, but specifically focused on drinking water resources security.

Article 23 forbade the establishment of small factories unequipped with pollution treatment facilities for a variety of activities, such as chemicals or paper production. This provision was aimed at preventing the problem of pollution coming from small factories such as TVEs, that usually do not have the economic means to curb their own pollution and as such end up having bad environmental performances.[122]

On the theme of dispute resolution, the 1996 Law tried to address disputes among administrative units by requiring them to reach a solution through consultation, or to have the common next higher level government make a decision.[123]

Lastly, the Law introduced stronger provisions on legal liability: sanctions were introduced for violations related to pollution treatment facilities and to violations in drinking water resources

[120] *Id*., art. 16
[121] Detailed Rules for the Implementation of the Water Pollution Prevention and Control Law of the PRC (中华人民共和国水污染防治法实施细则 *zhonghua renmin gongheguo shuiwuran fangzhifa shishi xize*), art. 6 to 11
[122] Zhang L., *Ecologizing industrialization in Chinese Small Towns*, PhD dissertation, Wageningen University, 2002, p. 59-61
[123] WPPCL 1996, art. 26

protection areas.[124] Local governments were still the only bodies that could impart the heaviest penalties for the infractions that prescribe them, such as violation of article 23 on small enterprises.

But perhaps the most important innovation in terms of legal liability was introduced in article 58: the Law held officials accountable for conducts such as abuse of power or malpractice, and imposed administrative fines or criminal prosecution, in case the violation constitutes a crime. This provision will be maintained in later versions of the Law.

The 1996 Law was in force until 2008, when a newly revised version of the WPPCL entered into force, replacing the old one. The need for a revision became evident as social protests escalated starting from 2005: not only water-related pollution incidents had become frequent, it was also hard for victims to obtain compensation from the responsible companies.[125]

The 2008 WPPCL is considerably longer than its predecessor, consisting of ninety-two articles in eight chapters, the fourth of which is further divided into five sections. The chapters titles are: general provisions, standards and plans for water pollution prevention and control, water pollution prevention and control management and supervision, measures for water pollution prevention and control (ordinary provisions, industrial water pollution prevention and control, urban water pollution prevention and control, agricultural and rural water pollution prevention and control, naval water pollution prevention and control), protection of drinking water resources and other special water bodies, management of water pollution incidents, legal liability, and supplementary clauses.

As evident by reading the chapter titles, the new Law focuses on the relevant issues of drinking water protection and on the topic of environmental accidents. It is unfortunate however that the part dedicated to underground water protection was removed, as underground water resources are possibly the most sensitive and endangered category, and have seen a progressive qualitative deterioration.[126]

In general, it can be observed that the Law is getting stricter, and more oriented towards a balance between sustainability and economic interests, instead of a prevalence of the latter over the former.[127]

In terms of the actors appointed with management and supervision of pollution prevention and control, the Law maintains the same fragmented framework introduced in 1984, and simply updates the relevant provision by eliminating obsolete actors (such as the geological and mineral department, or the navigation authorities) and introducing new actors, such as the maritime affairs organizations of the Ministry of Transportation (海事管理机构 *haishi guanli jigou*) and the river basin water

[124] *Id*., art. 47, 48, 49
[125] Du Q., above note 45, p. 2
[126] Yardley J., Beneath booming cities, China's future is drying up, *New York Times*, 28/09/2007 available online at https://www.nytimes.com/2007/09/28/world/asia/28water.html
[127] WPPCL 2008, art. 1

resources protection organizations (流域水资源保护机构 *liuyu shuiziyuan baohu jigou*), which correspond to RBOs and their subordinate bodies.[128]

The Law strengthens and clarifies previously existing provisions, such as those related to EIA[129] or to the establishment of small-scale enterprises.[130] It also expands the regulation on drinking water protected areas by providing further detail and stricter provisions.[131]

The Law brings some substantial innovations. Article 5 introduces environmental criteria among the parameters for officials' evaluation. A similar provision will be inserted in the EPL of 2014 (art. 26).

The total discharge system introduced in 1996 is now applicable to all water bodies.[132] As a way to encourage compliance, local governments and the State Council should also publish the names of the companies that commit law infractions by surpassing their assigned quotas.[133]

A system of pollutant discharge permits (排污许可制度 *paiwu xuke zhidu*) is established: the Law indicates the actors that need to apply for the permit, and forbids them to discharge waste into water bodies without it or in violation of the permit's conditions.[134] The provision is very short and lacks detail, which should be provided by the State council in an additional piece of legislation.[135]

The Law establishes a new monitoring system for water environmental quality and for pollutant emissions (环境质量监测和水污染物排放检测制度 *huanjing zhiliang jiance he shuiwuranwu paifang jiance zhidu*). The rules for the monitoring system are to be drawn by MEP, who is also in charge of publishing reports on environmental quality. MEP will work with MWR to organize the monitoring network.[136] The Law also entrusts monitoring responsibilities to RBOs and their subordinate agencies, but only for water environmental quality monitoring.[137] RBOs are expected to

[128] *Id*., art. 8
[129] *Id*., art. 17
[130] *Id*., art. 42
[131] *Id*., art. 56 to 64
[132] *Id*., art. 18
[133] *Id*., art. 19
[134] *Id*., art. 20
[135] Further regulations on the pollutant permit system came out only in 2016 (排污许可证管理暂行规定 *paiwu xukezheng guanli zanxing guiding*, Interim provisions on the administration of pollutant discharge permits)
[136] WPPCL 2008, art. 25
[137] *Id*., art. 26. A brief linguistic comment is needed, as a comparison between the WPPCL and the Water Law may cause some confusion. Although it can be assumed with certainty that art. 26 makes reference to RBOs, the terms used in the WPPCL are different from the term employed by the Water Law to refer to RBOs. The WPPCL mentions: 1. 流域水资源保护机构 (*liuyu shuiziyuan baohu jigou*, art. 8); 2. 江河、湖泊流域的水资源保护工作机构 (*jianghe, hupo liuyu de shuiziyuan baohu gongzuo jigou*, art. 26); 3. 流域水资源保护领导机构 (*liuyu shuiziyuan baohu lingdao jigou*, art. 26). The Water Law, on the other hand, only uses the term 流域管理机构 (*liuyu guanli jigou*, Water Law 2002, art. 12). The term used In the Water Law generally refers to RBOs. The correspondent term in the WPPCL is that of point 1. Point 2 refers to Water Resources Protection Bureaus, which are organs under the jurisdiction of RBOs that should work in conjunction with environmental authorities to manage water quality within the basin. Point 3 refers to the Leading Groups that have been established for some of the main river basins, in order to improve coordination within the basin.

communicate the results of their monitoring to both MEP and MWR, as well as to their respective river basin Leading Group (if present).

The Law now prescribes centralized treatment of urban wastewater (a paid service), and provides indications on the related planning system and fees.[138]

Chapter seven, on legal liability, introduces more severe penalties for law infraction, and works towards the reduction of linguistic ambiguity by expanding previously existing provisions (such as those related to officials' liability) and by indicating for the first time a monetary range for fines. In general, depending on the nature and gravity of the violation, fines can go from a minimum of 10.000 RMB to a maximum of one million RMB. Another type of financial penalty is introduced: for violations related to the use of pollution treatment plants or on emission standards, the fine can be equal to one to three times the due emission fee in the first case, and to two to five times the emission fee in the second case. The Law also introduces a specific type of fine for pollution incidents: based on the gravity of the incident, the fine can correspond to up to 50 percent of the revenues of the year previous to the pollution incident, or to 20 to 30 percent of the damage caused.[139]

Some substantial innovations are also introduced in relation to dispute resolution: first, the possibility to avoid responsibility for a pollution incident in light of the *force majeure* principle is removed. Second, article 87 establishes that for environmental causes, the polluter bears the burden of proof (举证责任 *juzheng zeren*). Third and last, if the number of people suffering damage because of pollution is high, victims can elect a representative to bring collective lawsuits (共同诉讼 *gongtong susong*).

Water has been raising to the top in the list of the government's priorities, for it seems evident that the water crisis affecting the country has not been averted yet. That is why the WPPCL has been amended once again in 2017.

The new version counts a hundred and three articles and is the result of a rather extensive revision: thirty-one articles were modified, eighteen are new and seven were removed. The chapter division has not changed.

The main changes to the Law increase government accountability, expand information disclosure and strengthen rules against pollution, in particular concerning drinking water safety. This last topic has been given special attention, as can be perceived right away by reading article 1, that now lists

[138] *Id*., art. 44
[139] *Id*., art. 83

among the objectives of the Law "guaranteeing drinking water safety" and "protecting public health" (保障饮用水安全，维护公众健康 *baozhang yinyongshui anquan, weihu gongzhong jiankang*).[140]

In the new Law any mention to pollution discharge fees is removed, as the fee system has been replaced in 2018 by the new Environmental Protection Tax Law, that will be presented in the following paragraph. The new WPPCL also tries to address cross-jurisdictional pollution and agricultural pollution.

In general, the comparison of the 2017 WPPCL amended version with its previous versions constitutes a good example to illustrate the Chinese legislative approach, in that Law evolution is based on trial and error, reflects ideological shifts (in this case, from prioritizing economic development to striving for the harmonization of economic and environmental objectives) and tries to give concrete responses to problems that arise on the road of development (as exemplified by articles 45 and 51 presented below).

Government accountability is increased through several provisions. Articles related to information disclosure can be considered tools to improve officials' accountability, because their focus is not so much on making information accessible to enhance public participation as it is on increasing officials' sense of responsibility in relation to the environment.

First, article 5 institutes the river chief system (河长制 *hezhangzhi*). River chiefs are government and Party officials operating on the level of province, municipality, county or township, who are in charge of organizing and guiding water resources protection, waterline management (水域岸线管理 *shuiyu anxian guanli*), pollution prevention and water environmental management of rivers and lakes within their jurisdiction.[141]

The river chief system was adopted for the first time in 2007 in Wuxi, and since then has been experimented in other parts of the country. Its introduction into national legislation is a testimony to its effectiveness. The reason behind its success mainly relies on the clear division of responsibilities that it entails, which represents the base against which officials are evaluated for promotions or demotions.[142]

Articles 17 and 18 expand the regulation related to anti-pollution plans: county and municipal governments must set goals for water environmental quality improvement with deadlines for their realization, which must be registered by the relevant People's Congress, and must also be

[140] WPPCL 2017, art 1
[141] *Id.*, art. 5
[142] China Water Risk, *China's River Chiefs: who are they*?, accessible online at http://www.chinawaterrisk.org/resources/analysis-reviews/chinas-river-chiefs-who-are-they/

communicated to the public. Reports on the state of completion of water-related environmental objectives must also be presented to the relevant People's Congress and published.

A new task has also been entrusted to local governments starting at the county level: they are now responsible for the monitoring of drinking water quality within their jurisdiction, including that of drinking water resources, water supplied by providers and tap water quality.[143]

Provisions on pollution prevention have been strengthened: the total discharge control system is now applied nationwide for main pollutants. Quotas are established by MEP in consultation with provincial level governments. Said governments can also decide to implement the system for pollutants other than the major ones.[144] In case an administrative division fails to respect its quotas, higher level EPBs can stop the approval of EIAs for new projects that would increase the emissions of the relevant pollutant. The same kind of penalty for this type of violation is prescribed by the 2014 EPL, article 60.

An interesting innovation of the 2017 Law is the introduction of a provision specifically meant to regulate industrial clusters (工业集聚区 *gongye jijuqu*), which are a growing phenomenon in China and fundamental to the economy of the areas in which they are located.[145] Industrial clusters are now required to possess centralized treatment plants for wastewater that must be equipped with monitoring mechanisms linked to the national monitoring network.[146] A possible drawback for this provision is the lack of the definition of "industrial cluster".

Article 51 is an example of provision introduced in response to an unexpected problem that arose through practice and experience following the previous versions of the Law: since 1996 the Law prescribes centralized treatment of urban wastewaters. The byproduct of wastewater treatment is sludge (污泥 *wuni*), a substance with high concentrations of toxic substances such as heavy metals and pathogens.[147] As such, correct disposal of sludge is essential to prevent further pollution. The WPPCL is now among the pieces of legislation, along with the Solid Waste Pollution Prevention and Control Law (固体废物污染环境防治法 *guti feiwu wuran huanjing fangzhifa*) that addresses the problem of sludge treatment. Article 51 prescribes that treated sludge should conform to national standards, and the definition of sludge is added to the list of definition at the end of the Law.[148]

[143] WPPCL 2017, art. 72
[144] *Id*., art. 20
[145] Jankowiak A. H., *"Chinese industrial clusters"*, in *Innovation sources of economies in Eastern Asia*, edited by Skulska B., Jankowiak A. H., Publishing House of Wroclaw University of Economics, Wroklaw, 2012, p. 165-169
[146] WPPCL 2017, art. 45
[147] Yang G., Zhang G., Wang H., Current state of sludge production, management, treatment and disposal in China, *Water Research*, 78 (2015), p. 60-73
[148] WPPCL 2017, art. 102

The Law briefly touches upon a topic largely left unregulated by the previous versions, that is agricultural pollution.[149] In particular, standards for fertilizer and pesticide use are established.

Drinking water safety is prioritized thanks to a series of provisions. In particular, companies supplying drinking water are now responsible for the quality of the water provided, in that it must conform to national standards.[150]

Finally, the Law also introduces a new provision to try to strengthen cross-administrative cooperation in order to curb transboundary pollution: MEP and provincial governments must cooperate to establish coordination mechanisms for the protection of water resources of the main rivers and lakes. Uniform planning, standards and monitoring are prescribed.[151]

No major changes have been introduced in the field of dispute resolution, but penalties have been made more severe for Law infractions: the daily penalty system introduced by the 2014 EPL is now applicable for water pollution cases,[152] and in some instances fines have been increased compared to the 2008 version (for example, article 81 on refusing the inspection of production plants or providing false data now prescribes penalties ranging from 20.000 RMB to 200.000 RMB, in 2008 the same violation was fined from 10.000 to 100.000 RMB).

2.2.4 Environmental Protection Tax Law

The Environmental Protection Tax Law (EPTL) was passed in 2016, but only entered into force on January 1 of 2018. The Law establishes a framework for a tax on atmospheric, water, solid waste and sound emissions, and in the case of water it replaces the emission fee system established by the WPPCL.

The EPTL has been the center of a long debate inside the Chinese government over the need to balance environmental protection and economic development so that one would not hinder the other.[153] As it appeared clear that the pollution discharge fee system was too weak to actually help in reducing pollution,[154] the introduction of this new market instrument could prove to be an effective incentive to improve environmental performances.

[149] *Id*., art. 52 to 58
[150] *Id*., art. 71
[151] *Id*., art. 28
[152] *Id*., art. 95
[153] Economy E. C., above note 31, p. 108
[154] Reuters, *China to levy new taxes in bid to strengthen pollution fight*, 25/12/2016, accessible online at https://www.reuters.com/article/us-china-environment-idUSKBN14E05T

The Law consists of five chapters formed by 28 articles, and is supported by a series of tables that list pollutants and tax rates for each. The chapter titles are: general provisions, taxation basis and payable tax rates, tax reductions and exemptions, collection management, supplementary clauses.

Article 2 identifies as taxpayers all those who directly discharge pollutants into the environment. The taxable pollutants are listed in the tables annexed to the Law.[155] The tables provide tax rates for each pollutant, and it is up to provincial governments to establish the applicable rate within their jurisdiction.[156] The applicable tax rate is that of the area in which emissions are produced.[157]

The Law requires the collaboration of environmental protection and tax authorities (税务机关 *shuiwu jiguan*): environmental protection authorities are in charge of monitoring pollutants, while tax authorities will collect the tax.[158] A platform for sharing tax-related information between the two bodies shall also be established.[159]

The tax is collected quarterly based on monthly emissions. Taxpayers are responsible for providing information on the type and quantity of emissions.[160] The Law provides a brief but detailed explanation of how to calculate the amount to be paid based on the tables that come with the Law.[161] In general, the new tax system is more balanced compared to the emission fee system, as it differentiates between light and heavy polluters, providing the latter with an incentive to curb emissions.[162] Local governments are encouraged to enforce the new Law by retaining a hundred percent of the derived tax income (previously, 10 percent of the collected emission fees was seized by the government).[163]

The Law prescribes five types of temporary tax exemption: for agricultural discharge of taxable pollutants, mobile pollution sources, urban waste treatment that discharge within national standards, multipurpose use of solid waste respecting national and local standards, and other temporary exemptions established *ad hoc* by the State Council.[164]

As for tax reductions for water pollution, taxpayers can get 75 percent off the tax if they discharge pollutants in a concentration inferior to 30 percent of the national and local standards, or can get 50

[155] EPTL, art. 3
[156] *Id*., art. 6
[157] *Id*., art. 17
[158] *Id*., art. 14
[159] *Id*., art. 15
[160] *Id*., art. 18
[161] *Id*., art 7 and 8
[162] XinhuaNet, *China focus: environmental tax helps reign in polluters in China*, 04/01/1018, accessible online at http://www.xinhuanet.com/english/2018-01/04/c_136871744.htm
[163] China Briefing, *Environmental Protection Tax in China*, 18/01/2018, accessible online at http://www.china-briefing.com/news/china-implements-new-environmental-protection-tax/
[164] *Id*., art. 12

percent off the tax if their emissions' concentration is inferior to 50 percent of national and local standards.[165]

For Law violation on the part of taxpayers, tax authorities or environmental authorities, legal liability is prescribed according to the Taxation Collection and Management Law (税收征收管理法 *shuishou zhengshou guanlifa*) and the Environmental Protection Law.[166] Penalties for non-compliance are more serious than the ones prescribed by the previous emission fee system: penalties now can range from up to 5 times the due tax, to criminal penalties for the most severe infractions.[167]

The EPTL is yet another testimony to the government's environmental efforts, and a tentative step in the shift from a strictly top-down environmental governance towards the integration of market instruments.

2.2.5 Other national laws and secondary acts on environmental water management

- Environmental Impact Assessment Law

The EIAL was first adopted in 2002 and then revised in 2016. Its significance to the water sector resides in its potential for environmental damage prevention, if applied consistently and thoroughly.

Provisions on EIA were present in legislation previous to 2002[168] (in fact, EIA was first introduced in China in 1973),[169] but this Law is the first systematic regulation of the EIA process, and strengthens EIA's legal status.[170]

The Law is composed of thirty-seven articles in five chapters: general provisions, environmental impact assessment for plans, environmental impact assessment for construction projects, legal liability, and supplementary provisions.

The first thing to be said about the Chinese EIA Law is that it prescribes EIA for plans (Strategic Environmental Assessment, SEA), which does not happen in many other countries.[171] SEA is required for regional development plans at or above the level of municipality (in the case of water

[165] *Id*., art. 13
[166] *Id*., art. 23
[167] Environmental Protection Tax in China, above note 107
[168] The Water Law, EPL e WPPCL all contain provisions on EIA. Before 2002, the main act regulating EIA was the Administration of Construction Projects' Environmental Protection Regulation (建设项目环境保护管理条例 *jianshe xiangmu huanjing baohu tiaoli*). For a list of the main regulations on EIA previous to 2002 see: Gu L., Sheate W. R., Institutional challenges for EIA implementation in China: a case study of development versus environmental protection, *Environmental Management*, vol. 36 n. 1 (2005), p. 126
[169] Chen X., Zhang Y., Ekroos A., Comparison of China's Environmental Impact Assessment (EIA) Law with the European Union (EU) EIA Directive, *Environmental Monitoring Assessment*, 132 (2007), p. 53
[170] *Id*., p. 54
[171] *Id*., p. 55

resources, for construction, development and utilization plans of river basins) and for special sectorial plans, for example for specialized plans inside water resources development plans. The bodies in charge of conducting SEA are the relevant State Council ministries and the relevant local-level governments with their involved departments.[172]

EIA for construction projects can be of three types, based on the magnitude of the projects' prospected impact on the environment: projects that may have a major impact on the environment must have a complete EIA Report (环境影响报告书 *huanjing yingxiang baogaoshu*, EIAR); project that will lightly affect the environment must come with an EIA Form (环境影响报告表, *huanjing yingxiang baogaobiao*, EIAF), and for projects that may only have slight environmental effects only an EIA Registration Form (环境影响登记表 *huanjing yingxiang dengjibiao*) is requested.[173]

MEP examines and approves EIA documents for plans and certain major construction projects, while all other EIA documents are evaluated by provincial-level EPBs.[174]

The Law specifies the contents of EIA and SEA[175] and prescribes public participation in the SEA and EIA process (only for major construction projects) through public hearings and the participation of experts.[176] For construction projects, it is also prescribed that firms providing technical assistance must be certified by the national environmental authorities.[177]

Penalties for violations can target all actors involved in the EIA process, from the companies redacting EIA documents for a construction project, to the firms providing technical services assisting them, to EPBs and other government departments. In the case of violations by companies, penalties span from the order to interrupt the construction of the project, to fines corresponding to up to 5 percent of the construction project's value. Administrative sanctions to the person directly responsible are also possible, as well as ordering the company to restore environmental conditions as they were previous to the beginning of construction.[178]

If infractions are committed by certified firms assisting in the process, the penalties prescribed range from downgrading or requisition of the firm's certification, to fines, administrative sanctions or even criminal penalties.[179]

If environmental authorities or members of other government departments commit law violations, administrative or criminal penalties are prescribed. This is also valid for SEA.[180]

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[172] EIAL 2016, art. 7 and 8
[173] *Id*., art. 16
[174] *Id*., art. 13 and 23
[175] *Id*., art. 10 and 17
[176] *Id*., art. 11, 13 and 21
[177] *Id*., art. 19
[178] *Id*., art. 31
[179] *Id*., art. 32
[180] *Id*., art. 29, 33, 34

- Water and Soil Conservation Law

The reason why this Law is only briefly examined in this paragraph is that it mainly focuses on soil erosion prevention, however, given the inextricable link between soil and water resources, the Law is also relevant to the topic of this paper, especially as measures to prevent soil erosion also positively impact water scarcity.[181]

The Water and Soil Conservation Law was first adopted in 1991, and later revised in 2010. It currently consist of 60 articles and seven chapters: general provisions, planning, prevention, rehabilitation, monitoring and supervision, legal liability, and supplementary provisions.

The Law designates the Ministry of Water Resources and its WRBs as responsible for national soil and water conservation.[182] The ministry and its WRBs are responsible for soil and water conservation planning; plans must be drafted in cooperation with other relevant departments both at the central and local levels.[183]

The Law focuses on the conservation of water and soil resources[184] by prescribing a series of measures such as limiting construction in sensible areas[185] and encouraging reforestation.

- Other laws containing provisions on water resources protection

The Cleaner Production Promotion Law, enacted in 2003 and amended in 2012, focuses on incentivizing the employment of technology and production processes that lower pollution emissions and reduce natural resources consumption. The main bodies in charge of cleaner production promotion are the State Council's department for comprehensive coordination of clean production (清洁生产综合协调部门 *qingjie shengchan zonghe xietiao bumen*), MEP and other relevant ministries.

The Law is relevant because it contains provisions linked to the systems established by the EPL and WPPCL, and in particular to the total discharge control system for main pollutants. Article 17 prescribes that the relevant departments of regional governments disclose to the public the names of

[181] He X., Li Z., Hao M., Tang K., Zheng F., Down-scale analysis for water scarcity in response to soil-water conservation on Loess Plateau of China, *Agriculture, Ecosystems and the Environment*, 94 (2003), p. 359
[182] Water and Soil Conservation Law of 2010, art. 5
[183] *Id*., art. 12 to 15
[184] Liu N., Country report: People's Republic of China. Water and Soil Conservation Law, *IUCN Academy of Environmental Law e-Journal*, issue 2012, p. 70
[185] Water and Soil Conservation Law, art. 24

the companies that exceed their discharge quotas. Said companies are also required to disclose information about their emissions in order to receive public supervision.

Article 27 is also related to the total discharge control system: companies that surpass their given pollutant discharge quotas are subject to compulsory clean production auditing, the results of which must be communicated to the relevant departments of the local government and to the public. In case of violation of this clause, the company can either accept to comply or receive a fine from 50.000 to 150.000 RMB.

The Solid Waste Pollution Prevention and Control Law of 1995 (amended 2004, 2013, 2015 and 2016) replicates the WPPCL provision that forbids units or individuals to throw solid waste into water bodies,[186] and forbids the creation of landfills in protected areas such as drinking water resources protected areas.[187]

The Urban and Rural Planning Law of 2007, revised in 2015, contains a few provisions related to water resources. Article 13 on regional plans for the urban system prescribes that plans design tightly controlled areas devoted to the protection of ecosystems and natural resources. The Law also briefly regulates water supply and sewage infrastructures, which are the subject of specific regulations by the State Council and local governments.[188]

The last national law containing provisions on water resources that will be mentioned in this paper is the Agriculture Law. The eighth chapter of the Law is devoted to the protection of the agricultural environment and resources. Article 66 in particular prescribes governments at or above county level to take steps in order to avoid contamination caused by wastewater.

Linked to agriculture, even if belonging to the field of chemicals management, are the Regulations on the Management of Pesticides (农药管理条例 *nongyao guanli tiaoli*) of 1997, recently revised in 2017, that forbid the use of farm chemicals in drinking water protected areas. Throwing pesticides or pesticide packaging and washing pesticide application equipment in drinking water protected areas and watercourses is also forbidden.[189]

[186] Solid Waste Pollution Prevention and Control Law, art. 17
[187] *Id*., art. 22
[188] Such as the Urban Water Supply Regulations (城市供水条例 *chengshi gongshui tiaoli*), for sewages the Regulation on Urban Drainage and Sewage Treatment (城镇排水与污水处理条例 *chengzhen paishui yu wushui chuli tiaoli*).
[189] Regulations on the Management of Pesticides 2017, art. 35

2.2.6 Synthesis of the main characteristics of the legal framework for water resources management and analysis of the related issues

The legal framework created by the laws presented thus far has the following characteristics: it separates the administrative and environmental management of water resources, and works on the basis of plans. The plans are based on river basin and on administrative regions, and serve as the foundation for other types of plan, such as water allocation plans and other special types of plan. Water abstractions are based on permits and the use of water resources is based on fees. The main actor for the administrative aspect of water management is the MWR and its subordinate bodies, the WRB and RBOs. MWR is also in charge of water resources conservation in relation to soil erosion prevention, as stipulated by the Water and Soil Conservation Law.

Water pollution prevention also works on the basis of plans, and it is organized by MEP and its EPBs. In particular, the baseline for pollution prevention is constituted by environmental quality and pollutant emission standards, and also by the total pollutant discharge quota system. Pollutant emissions are allowed for all those who obtain a pollutant discharge permit, and are monitored through the national monitoring system established by MEP in collaboration with MWR. Pollutant emissions are now subject to the environmental protection tax, to be levied quarterly based on the monitoring information provided by each firm. The fundamental principles guiding the environmental management of water are the "prevention first" principle, implemented through the compulsory environmental impact assessment evaluation, the so called Three Synchronizations (see above note 34) and the requirement for cleaner production.[190] The other principle is that of environmental liability, or "polluter pays",[191] according to which polluters have the obligation to compensate pollution victims and to restore good environmental conditions.

Lastly, widely recognized environmental management instruments such as mechanisms for public participation and market tools to regulate pollution are slowly being introduced.

Two categories of problems related to the framework presented thus far can be identified: problems derived by the legislative style and language, and problems related to the content of the laws.

- Style and language-related issues

[190] Beyer S., above note 22, p. 200-203
[191] *Id*., p. 203-204

Many experts have pointed out in their works that Chinese laws suffer from weakness and vagueness[192]. As already stated in paragraph 2.1.1, this is in part due to the experimental approach to lawmaking that characterized China especially in the past, and that can still be observed in some instances. For example, the River Chief System introduced by the 2017 WPPCL is the result of ten years of localized experimentation (see note 142 above). In the past, the linguistic and stylistic weaknesses of Chinese laws could also be attributed to a lack of technical expertise in law drafting: the rebuilding of the Chinese legal system in the Seventies was largely based on inspiration drawn from foreign models, as such many of the experts involved in the process were chosen mostly based on their knowledge of English, and not of law.[193] Today, however, the study of law is well affirmed, and the educational level of legal experts is much higher, which reflects in the qualitative improvement that characterizes the laws presented in the previous paragraphs as they have been revised through the years. Regardless of the development registered in the last few years, there is still much room for improvement. Some stylistic problems in particular still affect Chinese environmental laws.

The first issue is that Chinese laws often resemble policy statements,[194] and lack effective enforcement provisions.[195] As Ongley and Wang put it, Chinese laws tend to be more descriptive than prescriptive.[196] Many provisions, especially in earlier versions of the laws, express sound and beneficial propositions and principles. However, the wording is too vague to actually implement them, or implementation is made near impossible by the absence of further provisions. I will give two examples to clarify this type of issue.

Example 1: From the WPPCL of 2017, article 48

企业应当采用原材料利用效率高、污染物排放量少的清洁工艺，并加强管理，减少水污染物的产生。

Qiye yingdang caiyong yuancailiao liyong xiaolü gao, wuranwu paifangliang shao de qingjie gongyi, bing jiaqiang guanli, jianshao shuiwuranwu de chansheng.

Firms should employ clean production processes with high levels of efficiency in the use of raw materials and low levels of pollutant emission, and should strengthen management in order to lower the production of water pollutants.

[192] See for example Economy E. C., Beyer S., Alford P. W. and Shen Y.
[193] Potter P. B., above note 32, p. 13-14
[194] Alford W. P., Shen Y., above note 12, p. 5
[195] Mu Z., Bu S., Xue B., Environmental legislation in China: achievements, challenges and trends, *Sustainability*, 6 (2014), p. 8972
[196] Ongley E. D., Wang X., above note 39, p. 275-276

Example 2: From the EPL of 2014, article 31 (extract)

国家建立、健全生态保护补偿制度。

Guojia jianli, jianquan shengtai baohu buchang zhidu.

The State builds and strengthens an ecological compensation system.

Example 1 represents one of the cases in which the Law expresses a principle that is good from a theoretical point of view, but that is very likely destined to remain just that: a principle. The Law does not provide any further detail. The article refers to "companies" in general, without distinguishing between industrial sectors or type of company. It does not indicate a body responsible for the supervision of the process of technical innovation that companies are encouraged to undergo. It does not provide incentives or deterrents, as in the legal liability sector of the Law no penalty is prescribed for the infraction of this clause. In this article, like in many others, the desired behavior is simply encouraged, as indicated by the use of the term "应当", "should".[197]

Example 2 is one of the instances in which a principle is inapplicable due to lack of implementation detail. The difference between examples 1 and 2 is mainly that in the first case, the expressed principle would be hard to implement anyway because far too broad in scope (it is not reasonable to expect *all* companies in China to upgrade their production processes), while the second is only impossible to implement due to lack of supplementary legislation. The EPL (and also the Forestry Law) introduce the concept of ecological compensation system (生态补偿制度 *shengtai buchang zhidu*), which actually existed in China since the 1990s in the form of compensation schemes for key ecological function zones, and were regulated by a series of Measures.[198] The article considered in our example, however, seems to indicate that the ecological compensation system should be applied nationwide to all ecological protection areas (生态保护地区 *shengtai baohu diqu*). Until supplementary regulation such as implementation rules is provided, it will be hard to make such a large-scale system work in a systematic way.

On the theme of excessively vague language, I would also point out the use of the term "reasonable/reasonably" (合理 *heli*), that is sometimes used in provisions on governance measures.[199] The term is employed for example in article 40 of the WPPCL, in which ministries and governments

[197] Wu J., Public participation in the enforcement of China's anti-pollution laws, *Law, Environment and Development Journal*, vol. 4 no. 1 (2008), p. 41

[198] Sun X., Lu C., Major problems and countermeasures for the establishment of ecological compensation systems for national key ecological function areas, *Journal of Resources and Ecology*, vol. 6 n. 6 (2015). The titles of the Measures regulating ecological compensation schemes can be found inside the article.

[199] For a study on the use of *heli* in Chinese laws see: Timoteo M., Vague notions in Chinese Contract Law: the case of *heli*, *European Review of Private Law,* 5 (2010), p. 939-951

are asked to "reasonably regulate industrial layouts" (合理规划工业布局 *heli guihua gongye buju*) in order to improve environmental performances. The term recurs six times in the WPPCL and seven times in the Water Law. Each time, the final say on what can be considered "reasonable" is up to the regulated actor, instead of being established by the Law.

Another stylistic problem that affects Chinese environmental laws is a general lack of definitions and cross-references between logically related laws that causes repetitions and inconsistencies.[200] This is mainly due to the dynamic described in paragraph 2.1.1, in which every Ministry is legitimized in virtue of its own Law (e.g. the MWR and its Water Law, MEP and its EPL). Laws also function as political instruments, and as such the legislative framework for water looks more like a chest of drawers in which each compartment belongs to a Ministry, rather than a tapestry realized in conjunction by all ministries involved, forming a coherent picture.

The Water Law, EPL and WPPCL give very few definitions, and most importantly the core term "water resources" is not properly defined.[201] The Water Law defines water resources as "including surface and underground water".[202] The EPL gives no definition of water resources at all, while the WPPCL only defines the term "water pollution". As Ongley and Wang note, this is one of the cores of the dispute between MWR and MEP over who has the ultimate jurisdiction on water pollution: MWR considers the management of all aspects of water resources, including pollution, as its mandate, while MEP regards this particular aspect as its competence.[203]

The lack of cross-references causes repetitions: the repetition rate of the EPL in other environmental laws previous to its latest revision is estimated to be 66 percent.[204] Repetitions also plague local regulations: local legislators, in face of the vagueness of the central legislation that they are supposed to develop in accordance to local needs, often limit themselves to repeating national laws.[205] The fact that they often adopt local regulations without submitting them to higher level authorities as they should also facilitates the presence of inconsistencies between local and central acts.[206]

The problem of inconsistencies is also a consequence of lack of cross-references. In the case of the Water Law and the WPPCL, for example, an inconsistency causes a certain degree of ambiguity concerning the setting of pollutant discharge standards in relation to water function zones. The Water

[200] Ongley E. D., Wang X., above note 39, p. 276
[201] *Ibid.*
[202] From the Water Law of 2002, art. 2: 本法所称水资源，包括地表水和地下水 (*benfa suocheng shuiziyuan, baokuo dibiaoshui he dixiashui*) "What is defined in this Law as water resources includes surface and underground water".
[203] Ongley E. D., Wang X., above note 39, p. 276
[204] Mu Z. *et al*., above note 195, p. 8972
[205] Beyer S., above note 22, p. 206; See also Li G., Cai S, *Guayu shuihuanjing shuiziyuan baohu xiangguan falü fagui de pingjia* (关于水环境水资源保护相关法律法规的评价 Comment on the laws and regulations on the protection of the water environment and water resources), Report submitted by the authors to the Committee for Urban and Rural Construction and Environmental Resources of the People's Congress of Hubei Province, 2008
[206] Ferris R., Zhang H., above note 38, p. 586

Law prescribes in article 32 that WRBs and RBOs at or above county level provide environmental authorities with an opinion on the limit for the total amount of pollutant discharge in a water function zone. The WPPCL, on the other hand, does not mention basing its standards on the opinion provided by the water administration. It does prescribe that MEP and EPBs collaborate with MWR and its WRBs, but water function zones are only mentioned in relation to environmental quality standards. Moreover, the term for "water function zone" employed by the two laws is different: the Water Law uses the words "水功能区" (*shui gongnengqu*), while the WPPCL actually does not talk about water function zones but of "utilization function of a water body" (水体的使用功能 *shuiti de shiyong gongneng*). As a matter of fact, EPBs usually use their own evaluation when setting standards, instead of relying on those by the water administration authorities.[207]

If inconsistencies happen in strictly related laws such as the Water Law and WPPCL, it is not surprising to find them between laws whose mutual connection is weaker. For example, the Water Law explicitly prescribes that when comprehensive river basin and regional plans concern territorial development, the plans must be coordinated with comprehensive city plans (among others).[208] The Urban and Rural Planning Law, however, in the section devoted to comprehensive city planning, makes no mention to water resources plans.

The problem of ambiguous language can also lead to another type of side effect: instrumental interpretation of law.[209] This is often the case, for example, of articles that prescribe information disclosure. An example can be found in article 27 of the Cleaner Production Promotion Law: the article prescribes that enterprises that exceed emission standards or their assigned emission quotas should undergo compulsory clean production auditing, and should also publish the auditing results as to receive supervision by the public, *unless* business secrets (商业秘密 *shangye mimi*) are involved. The Law does not specify what can and cannot be considered business secret, and therefore it would not be too hard for a company to refuse to disclose information by exploiting this loophole.

- Issues related to the content of the laws

The first fundamental issue affecting the legislative framework for water is that it establishes a system that is in many ways incompatible with an integrated management of water resources. China has been working towards the implementation of IWRM, but in order to achieve it the first step to take would be to overcome the dichotomy between the administrative and the environmental management of

[207] Ongley E. D., Wang X., above note 39, p. 279
[208] Water Law of 2002, art. 15
[209] Economy E. C., above note 31, p. 108

water. These two aspects are entrusted to different ministries (MWR in the first case, MEP in the second) and regulated by different laws. In practice, this translates to MWR implementing quantitative water management, while MEP implements qualitative water management.[210] The laws presented in the previous paragraphs set the foundation for the fragmented institutional framework analyzed in Chapter 1, which further obstructs efficient water management. In theory, there are institutions and mechanisms that should bring cohesiveness among the different actors involved: the River Basin Organizations, their Leading Groups and their subordinate organs, the River Basin Water Resources Protection Bureaus,[211] should promote cooperation between MWR and MEP, but the reality is that RBOs respond to MWR and their role in environmental protection is limited.[212]

The WPPCL indicates that legislators are aware of this issue, but the measure adopted to mitigate it is far from sufficient: article 28 requires MEP, MWR and the relevant provincial-level governments to set coordination mechanisms for the environmental protection of the main river basins, in which unified plans, standards, monitoring and measures should be applied. The article is too short and vague, and needs supplementary provisions to integrate it and provide further detail.

A second issue with the legislative framework is that, although it is generally accepted that Chinese environmental regulation is rather complete,[213] it still presents problems of overlaps and voids.[214]

The fundamental overlaps created by the current legislative framework regard the jurisdiction over water pollution, a dispute that, as already mentioned in this paper, can also be traced back to turf wars among ministries and to ambiguous language in the laws. This leads to overlaps in the systems that stem from the division of duties among MWR and MEP. Both water resources administration and water pollution prevention are based on plans, with MWR in charge of the first type of plans and MEP responsible for the second. The WPPCL prescribes that MEP draft water pollution prevention and control plans in collaboration with other relevant ministries, including MWR, and that MEP submits the plans directly to the State Council for approval. The Water Law, on the other hand, requires that water resources plans should be harmonized with other types of plans, among which water pollution prevention plans. The meaning of "harmonize" (协调 *xietiao*) is unclear. The end result is that the two types of plan, that by nature should be strictly connected, have little relation to each other.[215]

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[210] Liu J., *Shui huanjing baohu shiquan huafen kuangjia yanjiu* (水环境保护事权划分框架研究, Study on the water environmental protection administration functions), *Rev. Econ. Res.*, 8 (2011), p. 34
[211] For the Chinese names of these institutions see above note 137
[212] Shen D., River basin water resources management in China: a legal and institutional assessment, *Water International*, vol. 34 no. 4 (2009), p. 492
[213] Ferris R., Zhang H., above note 38, p. 589
[214] Liu J., above note 210, p. 32-33
[215] Ongley E. D., Wang X., above note 39, p. 277-278

The other major, and maybe even more relevant, field of overlap is environmental monitoring. The Water Law and the WPPCL assign to their respective ministries the task to implement water resources monitoring.[216] The WPPCL in articles 25 and 26 identifies MEP as the main actor responsible for water quality and pollutant discharge monitoring, and states that MEP and MWR should collaborate in building a monitoring network and mechanisms for data sharing. It also entrusts River Basin Water Resources Protection Bureaus (subordinate to RBOs) with the task of monitoring water quality in proximity of provincial borders. The Water Law indicates WRBs at or above local level and RBOs as the actors responsible for water quality monitoring of water function zones. This leads to both ministries carrying out their monitoring duties independently and causing a waste of government resources.[217] Moreover, data are not standardized nationally, which leads to disagreements over the validity of data collected in different jurisdictions.[218]

Just as there are overlaps among different laws, there are also matters scarcely or completely not regulated. Examples include agricultural pollution[219] and, by large, non-point source pollution,[220] and pre-existing pollution sources.[221]

Problems also arise in relation to the planning system and standards for environmental quality and pollutant discharge. In the case of plans, the Water Law prescribes unified planning based on river basins *and* administrative units (art. 14), while the WPPCL states that pollution prevention plans can either be based on river basins *or* on administrative divisions (art. 16). The combination of plans based on these two different units can hardly form an organic system.[222] Moreover, it seems like management based on administrative units is consistently favored.[223] This is embodied in the total discharge control system, that distributes quotas and inflicts penalties on the base of administrative units, and not on river basins. The core of the problem is that the ideal basis for a water resources management system that can lead to environmental quality improvement is the river basin,[224] and until environmental water management is compartmentalized according to administrative divisions, fighting the water crisis will be much harder.

The idea itself that the Water Law and WPPCL prescribe State planning as the basis for water resources management is rather anachronistic: the prominence of centralized planning greatly

[216] *Ibid.*
[217] Liu J., above note 210, p. 34
[218] Ongley E. D., Wang X., above note 39, p. 277
[219] Liu J., above note 210, p. 34
[220] Ongley E. D., Wang X., above note 39, p. 278
[221] Beyer S., above note 22, p. 206
[222] Liu J., above note 210, p. 34
[223] *Ibid.*
[224] Shen D., above note 212, p. 495

diminished since the beginning of economic reforms, and the current variety of actors on the field is not recognized.[225]

The same type of unrealistic approach can be observed in the setting of standards, both for environmental quality and for pollutants discharge. First, although a centralized planning system for water resources is established, standards are developed outside of it.[226] The Chinese water quality standards system also presents gaps, both compared to other standards systems employed internationally[227] and in terms of unregulated parameters.[228] But maybe the most serious problem connected to standards is that the law does not allow for local adjustments except for establishing standards stricter than the national ones, which disregards geographical and climatic differences.[229] The law also fails to impose standards on the base of river basins, that would make upstream water quality standards consistent with those of downstream areas,[230] possibly helping against cross-administrative pollution and making water disputes between different administrations easier to settle.

Another deficiency in the legislative framework is related to the cost of compliance against the cost of pollution: for many companies, polluting is oftentimes more convenient that complying with anti-pollution regulation.[231] This is a problem that has seen improvements over the years, as each time the main laws on water have been revised sanctions were also strengthened. It is true, however, that the most severe penalties are still subject to local governments' approval and, as illustrated in Chapter 1, local governments often have interest in keeping polluting enterprises operating. One of the main sources of this detrimental dynamic was recently demolished: the pollutant emission fee system, that has long been deemed insufficient in discouraging pollution,[232] has been substituted with the new environmental protection tax. The new tax system, however, presents some issues as well: in particular, the possibility for local governments to adjust tax rates within their jurisdiction may lead to the formation of areas in which polluting is relatively convenient, which may cause relocation of industrial plants and localized severe pollution.[233]

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[225] Beyer, above note 22, p. 206
[226] Tyler Z., above note 76, p. 594
[227] Su J., Ji D., Lin M., Chen Y., Sun Y., Huo S., Zhu J., Xi B., Developing surface water quality standards in China, *Resources, Conservation and Recycling*, 117 (2017), p. 298
[228] Tyler Z., above note 76, p. 579
[229] Su J. *et al.*, above note 227, p. 298
[230] Tyler Z., above note 76, p. 587
[231] Liu J., above note 210, p. 33
[232] State Administration of Taxation of the PRC, *China starts collecting environmental tax*, available at http://www.chinatax.gov.cn/eng/n2367751/c3021312/content.html
[233] Cicenia A., China's environmental protection tax, *China Briefing*, available online at http://www.china-briefing.com/news/china-environmental-protection-tax/

2.3 Beyond the law: state policies on water resources protection

China has a long history of State planning, derived from the soviet institution of Five-Year Plans for planned economy.[234] Since the beginning of economic reforms, the role of State planning has changed: Five-Year Plans are not meant to be rigid investment and resources allocation schemes, but provide macro-economic targets and indicators for the promotion of a series of objectives, among which environmental ones have registered a growing importance.[235]

The relevance of Five-Year Plans (经济和社会发展五年规划 *jingji he shehui fazhan wunian guihua*, Five-Year Plans for social and economic development) and other types of policy documents and programmes from central authorities resides in the fact that they guide the operations of officials at the central and local levels by providing the direction for legislative work for the next five years,[236] providing targets for specific areas and prescribing measures for their achievement.[237] Moreover, Five-Year Plans also mirror the gradual rhetorical shifts in the Chinese leadership's guiding ideology, highlighting the ever-growing role of environmental protection not only as a necessary collateral effect of development but also as a development tool itself.

In this paragraph I will give a brief overview of water and the environment in Five-Year Plans, and of the two major policies for water resources of the past decade: the so-called "three red lines" and the Water Pollution Prevention and Control Action Plan.

The evolution of FYPs' priorities over time indicates a slow change of mentality: while the first few FYPs were solely focused on economic development through industrialization,[238] starting from the 5th Plan environmental protection enters the agenda.[239] Over the years, environmental objectives raised to the top in the list of government priorities, as the country moved towards green development. This trend can be observed through the percentage of GDP invested on pollution control measures in the form of transfers from central to local-level governments: for the 8th FYP (1991-1995) expenditures amounted to 0.73 of GDP, then rose to 1.2 percent of GDP during the 10th FYP and to 1.4 percent of GDP during the 12th FYP.[240]

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[234] Samarani G., *La Cina del Novecento. Dalla fine dell'impero a oggi*, G. Einaudi, Torino, 2008, p. 211
[235] Hu A., The distinctive transition of China's five-year plans, *Modern China*, vol. 39 no. 6, p. 629-633
[236] Heggelung G., Nadin R., *Air pollution: how will China win its self-declared war against it?*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 108
[237] Kostka G., above note 27, p. 33
[238] Jiang Y., *Development and the environment in China: an overview*, in *Green Development in China. Models and discussions*, Springer Singapore, 2016, p. 7
[239] Deng Y., Brombal D., Farah P. D., Moriggi A., Critto A., Zhou Y., Marcomini A., China's water environmental management towards institutional integration. A review of the current progress and constraints vis-a-vis the European experience, *Journal of Cleaner Production*, 113 (2016), p. 286.
[240] Van Rooij B., Zhu Q., Li N., Wang Q., Zhang X., *Pollution law enforcement in China. Understanding national and regional variations*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 197

Environmental and ecological goals were included for the first time among the main objectives of a FYP during the 10th FYP period (2001-2005).[241] However, the targets established by the 10th FYP were not reached, therefore as a response environmental targets in the 11th FYP became binding (约束性 *yueshuxing*), instead of "desirable" (预期性 *yuqixing*).[242] The 11th FYP also included protection of drinking water resources in the list of its primary goals.[243] This was the first Plan developed according to the "Scientific Outlook on Development", and as much as 30 percent of the stated objectives were related to the environment.[244]

The 12th FYP (2011-2015) has green development as one of its main goals,[245] and can be considered the first real national green development plan in China.[246] The plan focuses on infrastructural development, and provides measures to tackle the water crisis in the form of the Water Development Plan for 2011-2015.[247] The Water Development Plan contains objectives for both resources conservation and pollution reduction. Among the most relevant there are: increasing rural citizens' access to centralized water supply, reducing industrial water use by 30 percent per unit of GDP, increasing the quantity of treated urban wastewater and recycled wastewater, reducing groundwater over-extraction and improving general surface water quality.[248] The 12th FYP is also relevant, as will later be analyzed, for the introduction of a key policy that will also recur in the 13th FYP: the "three red lines" policy.

The current 13th FYP (2016-2020) inherits the spirit of the 11th and 12th plans, and further strengthens green development. Its main objectives are improving environmental quality, promoting a holistic management approach and accelerating the solution of existing environmental problems.[249]

In order to achieve better management of water, some key measures have been established: unit-based water quality management, adoption of holistic measures to tackle pollution based on river basins, protection of good-quality water bodies, control of groundwater pollution through holistic strategies, improvement of polluted urban water bodies and of estuary waters.[250]

The 13th FYP also prospects administrative reforms to move environmental law enforcement up in the chain of command, so that it will not be exclusively up to local governments and local EPBs, thus

[241] Jiang Y., above note 238, p. 7
[242] Du Q., above note 45, p. 3
[243] Deng Y. *et al.*, above note 239, p. 286
[244] Jiang Y., above note 238, p. 7
[245] Jain R., The dragon treads the polluted path: political dilemmas before the Chinese Communist Party, *Asian Affairs: an American Review*, vol. 42 no. 3 (2015), p. 156
[246] Jiang Y., above note 238, p. 7
[247] Deng Y. *et al.*, above note 239, p. 286
[248] EU SME Centre, *The water sector in China*, 2013, p. 4
[249] China Water Risk, *China's 13th Five-Year Plan for ecological & environmental protection (2016-2020)*, 09/12/2016, available online at http://www.chinawaterrisk.org/notices/chinas-13th-five-year-plan-2016-2020/
[250] *Ibid.*

demonstrating awareness of one of the greatest problems affecting environmental governance. It is prospected that monitoring, supervision and law enforcement activities operated by bodies below the provincial level will be under the supervision of EPBs of the next higher level, and trans-regional environmental protection agencies will also be experimented, in order to curb pollution at the level of river basins.[251] The Plan also promotes the establishment of emission trading systems.[252]

Water-related policy development in the last ten years has been particularly significant, in relation to the growing awareness of the negative impacts of water scarcity and pollution on the economy, society and the environment. In 2009, the then Minister of MWR announced the "strictest water resources management system" (最严格水资源管理制度 *zuiyange shuiziyuan guanli zhidu*).[253] From this system stem the so-called "three red lines" (三红线 *san hongxian*) for water resources.[254] The system with its red lines would be formalized by establishing specific targets in 2010, with its insertion into the National Comprehensive Water Resources Plan (全国水资源综合规划 *quanguo shuiziyuan zonghe guihua*), and by being reaffirmed in 2011 in the Resolution on Accelerating the Development of Water Resources Reform (关于加快水利改革发展的决定 *guanyu jiakuai shuli gaige fazhan de jueding*), which would signal its introduction into the 12th FYP.[255]

The concept of "red line" was first employed for land use in 2005,[256] and since then has been expanded by being applied to water resources and then ecology.[257] The red lines established for water encompass water resources administration (in terms of allocation and efficiency) and water environmental protection (in terms of pollution control). Targets are set for 2015, 2020 and 2030. The first red line is for total water use:[258] the goal is to control water withdrawals in order to keep consumption below the prospected total renewable freshwater reserves.[259] The control targets for the maximum total water consumption are: 635 billion m^3 by 2015, 670 billion m^3 by 2020 and 700

[251] 13th Five-Year Plan for social and economic development of the PRC, Part X, Chapter 44, Section 5
[252] *Ibid.*
[253] Nickum J. E., Shaofeng J., Moore S., *The three red lines and China's water resources policy in the twenty-first century*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 74
[254] *Ibid*.
[255] EU SME Centre, above note 248, p. 4
[256] Nickum J. E. *et al*., above note 253, p. 74
[257] The concept of ecological red line (生态红线 *shengtai hongxian*) was introduced by MEP in 2015, and defined as the minimum ecological space that needs the strictest protection, in order to guarantee ecological functions and biodiversity protection (MEP, Technical Guidelines for the Delineation of Ecological Protection Red Lines, 2015. 生态保护红线划定技术指南 *shengtai baohu hongxian huading jishu zhinan*). The concept of red line was also introduced in the 2014 EPL, art. 29. For more on ecological red lines see: Jiang B., Bai Y., Wong C. P., Xu X., Alatalo J. M., China's ecological civilization program – implementing ecological redline policy, *Land Use Policy*, 81 (2019), p. 111-114; Xu X., Tan Y., Yang G., Barnett J., China's ambitious ecological red lines, *Land Use Policy*, 79 (2018), p. 447-451
[258] Global Water Partnership, *China's water resources management challenge: the "three red lines"*, 2015, p. 15
[259] Nickum J. E. *et al*., above note 253, p. 75

billion m^3 by 2030.[260] Caps for withdrawals are established at the national level and at provincial and sub-provincial levels.[261]

The second red line is for water use efficiency. The aim is to implement water conservation by improving the efficiency of the main water resources consumers: agricultural and industrial users. The indicator for industrial water use efficiency is the water used per 10.000 RMB added industrial value, and is applied to seven major water-consuming industries.[262] The red line indicator for the agricultural sector is for irrigation efficiency.

The last red line is for pollution control, expressed in terms of the number of water function zones that reach their prefixed water quality standard.

Red Line	2015	2020	2030
Total water use (billion m^3)	635	670	700
Industrial use efficiency (water used per 10.000 RMB added value)	<94m^3	<65m^3	<40m^3
Irrigation efficiency (percentage of irrigated land)	53%	55%	60%
Water function zones meeting quality standards	>60%	>80%	>95%

Fig. 7: Targets for the Three Red Lines. Sources: Nickum E. J. *et al.*, note 20; State Council Office Implementing Methods for Assessing the Strictest Water Management System (实行最严格水资源管理制度考核办法 *shixing zuiyange shuiziyuan guanli zhidu kaohe banfa*), 2013. Detailed targets for provinces can be found in the Implementing Methods.

As in the case of environmental laws, the effectiveness of the three red lines policy depends on its actual implementation. Unfortunately, this policy presents some intrinsic limitations that make its thorough application quite hard: the most significant one is related to the information requirements and monitoring capacity.[263] For example, an accurate and direct calculation of total water use is near impossible, given the scope of the task. Estimates are thus often based on secondary data, moreover total water use should take into account a variety of complex factors that are often overlooked.[264]

The other great limitation of the policy is that its targets may look great on paper, but might actually not be all that strict in reality. Furthermore, they often reflect just one aspect of the goal that they aim at. This is the case, for example, of industrial water use efficiency: the indicator chosen to measure it is actually an economic indicator, and does not accurately reflect the status of achievement of the red line.[265]

[260] Global Water Partneship, above note 258, p. 15
[261] *Ibid*.
[262] *Id*., p. 16
[263] Nickum J. E. *et al.*, above note 253, p. 76-77
[264] *Ibid*.
[265] *Ibid*. See Nickum J. E. *et al.* for more details on the limitations of the Three Red Lines policy.

The three red lines policy was incorporated in the latest comprehensive policy document related to the water environment: the Pollution Prevention and Control Action Plan (水污染防治行动计划 *shuiwuran fangzhi xingdong jihua*). The plan came out in 2015 and was the result of the joint cooperation of over twelve ministries,[266] and has been regarded as the most comprehensive water policy up to this moment.[267] The plan is also known as "Water Ten Plan",[268] as it establishes ten main goals to be gradually achieved by 2020 and 2030. General desired achievements for the mid-century are also stated.[269] Each of the ten main goals is further articulated into specific objectives.

The following table lists the ten main objectives of the plan and the measures that are to taken to achieve each goal.

Ten main objectives	Detailed measures
Overall pollution emissions control	• Firmly oversee industrial pollution prevention and control (focus on ten main polluting industries, i.e. paper making, coking, chemicals etc.) • Strengthen urban pollution management • Promote agricultural and rural pollution management • Strengthen naval and port pollution control
Upgrading of the economic structures	• Regulate the industrial sector • Optimize space utilization • Promote circular development
Water resources protection and conservation	• Restrict total water use • Raise water use efficiency • Scientifically protect water resources
Strengthen technological support	• Promote education on the use of technology

[266] China Water Risk, New 'Water Ten Plan' to safeguard China's waters, 16/04/2015, available online at http://www.chinawaterrisk.org/notices/new-water-ten-plan-to-safeguard-chinas-waters/
[267] *Ibid*.
[268] *Ibid*.
[269] Water Pollution Prevention and Control Action Plan, available online at http://www.gov.cn/zhengce/content/2015-04/16/content_9613.htm (in Chinese).

	• Research and development of cutting-edge technology • Rapid development of the environmental protection industry
Promotion of the use of market mechanisms	• Rationalize prices and taxes • Promote diversified financing • Establish incentive mechanisms
Severe supervision over environmental law enforcement	• Improve the system of legal norms and the standards • Increase law enforcement's power • Improve supervision
Strengthen environmental water management	• Strengthen management through environmental quality objectives • Intensify total load control of pollution emissions • Strict control over environmental hazards • Overall promotion of pollution emission permits
Guarantee the safety of ecological environment	• Guarantee drinking water resources safety • Intensify prevention and control of pollution in main river basins • Strengthen environmental protection in costal areas • Restore urban black and smelly water bodies to a healthy condition • Protect water and wetland ecosystems
Clarify responsibilities	• Strengthen local governments' water environmental protection responsibilities • Improve coordination among departments

	• Fulfillment of polluting industries' main environmental responsibilities • Severe evaluation based on objectives responsibility
Strengthen public participation and society's supervision	• Disclose environmental information according to the law • Strengthen society's supervisory role • Promote good water use habits among the masses through education

Fig. 8: The Water Ten Plan's main goals and the measures to achieve them. Source Water Pollution Prevention Control Action Plan, above note 36.

The Water Ten Plan is very ambitious, and if correctly implemented could lead to a substantial improvement of the water environment. As it is a long-term plan, and it is only at its initial phase of implementation, it is still hard to evaluate its effectiveness. However, some research has already been conducted on the current achievements of the plan, and the results are overall positive.[270]

2.4 Environmental cases: between caution and innovation

Environmental cases, as noted by Stern, are relatively uncontroversial, as such they offer a gateway to moderate or even significant innovation under several aspects,[271] ranging from the establishment of environmental courts to the introduction of public-interest litigation. Many judges, however, especially for cases that are considered "sensitive", prefer to opt for a cautious approach.[272] This paragraph will look at the general iter that water environmental cases go through, focusing on the difficulties that they present, and then will analyze some of the innovative prospects opened by environmental litigation. Non-judicial forms of control mechanisms will also be brifly examined. The introduction of this topics is important to the completeness of the study, but it must be noted that these fields are vast and a thorough analysis of their current situation in China is beyond the scope of this paper.

[270] For an account on the implementation progress of the plan see: Dai L., Qiu Q., Implementing the water pollution prevention and control action plan in China, *Journal of Water Law*, 25 (2017), p. 243-246

[271] Stern R. E., *Environmental litigation in China. A study in political ambivalence*, New York, Cambridge University Press, 2013, p. 2

[272] Stern R. E., On the frontlines: making decisions in China's civil environmental lawsuits, *Law & Policy*, vol. 32 no. 1 (2010), p. 81

2.4 ENVIRONMENTAL CASES: BETWEEN CAUTION AND INNOVATION

2.4.1 The typical course of water environmental cases

The first thing to say about environmental disputes is that they rarely end up being heard by a judge: it is estimated that only one percent of all environmental disputes in China are resolved through the judicial system.[273] In fact, even though Chinese people have undoubtedly become more active in courts, they still tend to prefer non-judicial forms of dispute resolution, such as informal agreements, mediation (调节 *tiaojie*) and political action.[274] Mediation is especially relevant, as it has a long history in China and is indicated as a preferable dispute resolution method by laws (i.e. Water Law, art. 57) and by State authorities.[275] Other frequently used forms of non-judicial dispute resolution include negotiation with administrative authorities and the exploitation of *guanxi* to achieve the desired objectives. A popular tool to voice concerns is also the practice of filing complaints to "letters and visits" offices (信访 *xinfang*), which allow for both individual and collective complaints.[276]

The favoring of settlements outside the courts can be attributed to a variety of factors, some of which are cultural, and some of which are simply dictated by pragmatism: Chinese people traditionally dislike litigation,[277] moreover, courts require significant economic and time commitment, which discourages many pollution victims that are materially constrained by income and education levels.[278] For these reasons, administrative solutions are usually more appealing.

When plaintiffs decide to press charges, there are several courses of action that may follow, based on a variety of factors such as the type of actors involved (public institutions, companies, private citizens etc.) and the nature of the dispute (administrative lawsuits can be filed against public actors such as EPBs, civil lawsuits are common against polluting enterprises, while criminal charges are pressed for very severe violations of environmental laws).

Based on the importance of the case, a dispute can be handled by a basic court, or it can be assigned directly to an intermediate or high court.[279] Before landing in a court, however, the case must be

[273] Stern R. E. *Environmental Litigation in China*, above note 271, p. 71
[274] Van Rooij B., The people vs. pollution: understanding citizen action against pollution in China, *Journal of Contemporary China*, vol. 19 no. 63 (2010), p. 61
[275]Minzner C. F., China's turn against the law, *The American Journal of Comparative Law*, vol. 59 (2011), p. 935-984 ; For more on the cultural and historic significance of mediation in China, and its role in recent times see: Zeng Y., Mediation in China – Past and present, *Asia Pacific Law Review*, vol. 17 (2009), p. 1-29; Di X., Wu Y., The developing trend of of the People's Mediation in China, *Sociological Focus*, vol. 42 no. 3 (2009), p. 228-245
[276] Jacka T., Kipnis A. B., Sargeson S., *Contemporary China. Society and social change*, New York, Cambridge University Press, 2013, p. 258. For more see Gao X, Long J., On the petition system in China, *University of St. Thomas Law Journal*, vol. 12 no. 1 (2015), p. 34-55
[277] Wong B. K. Y., Traditional Chinese philosophy and dispute resolution, *Hong Kong Law Journal* 304 (2000)
[278] Van Rooij B., above note 274, p. 64
[279] Stern R. E., *Environmental litigation in China*, above note 271, p. 54

accepted, which for environmental disputes is no easy task: the large majority of cases are rejected at the courts' case-filing divisions (立案庭 *li'an ting*). The reasons for which judges at the case-filing division accept or reject potential cases largely relies on their subjective judgment, and it is not rare for them to give a refusal without the written rationale needed to appeal the decision.[280] If a case gets accepted, it does not automatically ensue that a legal cause will follow, as plaintiffs can be steered towards mediation by a judge (and in fact a great number of cases is dealt with in this way). It is also not uncommon for cases to be withdrawn.[281] Another issue linked to case acceptance is related to collective lawsuits: if a relatively large number of people (for example a village) suffer because of the same environmental problem, they can elect a small number of representatives to file a collective lawsuit. In this way, they can better pool resources and focalize their action. Judges at the case-filing division, however, have the power to divide collective lawsuits into individual cases, and often do so to discourage action and maximize court fees.[282]

Of strategic importance is the decision of where to file the case: the type and level of the court can heavily influence the final outcome. Local protectionism in courts is common and usually plays in favor of the polluter,[283] as such it is important to try to balance out the power of the parties. In general, higher-level courts are better insulated from the pressures of local actors.[284] Getting a case to a higher-level court bypassing the base-level is hard, and it is actually impossible for collective lawsuits due to a Supreme Court's decision of 2005.[285] It is possible, however, to minimize the influence of local actors by filing the case in courts far from where the dispute has risen. For environmental cases related to water, in particular, two types of special court can be selected: maritime courts (海事法院 *haishi fayuan*) and environmental courts (环保法庭 *huanbao fating*). The ten maritime courts handle ocean pollution cases, and their jurisdiction has gradually extended to water pollution cases in general.[286] As this type of court is not tied to administrative divisions, the influence of local protectionism is minimized.[287] Environmental courts are also a good option, as they were created to specifically handle this kind of disputes.[288]

The hardships of pollution cases do not end once the case is brought in front of the judge (or judges, as environmental cases are usually heard by a three-judges panel).[289] The obstacle now becomes to

[280] *Id*., p. 47
[281] *Id*., p. 46
[282] *Id*., p. 49
[283] Wang A. L., The role of law in environmental protection in China: recent developments, *Vermont Journal of Environmental Law*, 8 (2007), p. 215
[284] Stern R. E., *Environmental litigation in China*, above note 271, p. 55
[285] *Ibid*.
[286] Liu J., Overview of the Chinese legal system, *ELR China Update*, 1 (2013), p. 5
[287] *Ibid*.
[288] More information on environmental courts will be presented in paragraph 2.4.2
[289] Stern R. E., *Environmental litigation in China*, above note 271, p. 46

prove that pollution even exists, which sounds easier than it actually is: government data is the one considered more authoritative, but getting data from EPBs is not always easy, as not all EPBs are prone to collaborate with pollution victims and their lawyers.[290] Moreover, even if they are, collecting accurate data can be difficult for EPBs as well: this may be due to technical deficiencies or to the non-cooperation of polluting firms.[291]

Once data proving the existence of pollution is retrieved, the new obstacle plaintiffs face in obtaining compensation is the recognition of the causal relationship between pollution and the losses incurred. The burden of proof for the demonstration of the non-relatedness of pollution and damages rests on the pollutant part, as established by the EPL and WPPCL, among other laws and circulars;[292] judges, however, are often unfamiliar with these regulations and therefore apply the General Principles of Civil Law for which the burden of proof rests on the plaintiff.[293] It is also common for local courts to refuse plaintiffs' requests based on doubt on the correlation between pollution and damages.[294] The most important piece of evidence for the judge in order to come to a decision is possibly constituted by experts' appraisals: not only entrusting appraisals to third parties protects the judge from criticism, it also saves them time and compensates for many judges' lack of technical knowledge on environmental quality.[295] The quality of appraisals is pivotal to the final outcome of the case, as such an impartial and expert appraiser can make the difference for pollution victims between win and loss.

In general, it can be said that the success or failure of plaintiffs relies on a number of factors, some of which are heavily influenced by their economic constraints. First, a lawyer must be hired. That is no easy task, as many of them tend to avoid cases that are seen as unprofitable and risky (in that they can be politically sensitive, as they often imply challenging local authorities). Lawyers are also discouraged by factors such as the amount of paperwork required, and even the possibility of physical danger.[296] As in the case of courts, it is wiser to look for a lawyer outside the immediate area of the pollution, as they too are better insulated from local protectionism.[297] The cost of hiring a lawyer must be summed to the case acceptance fee, moreover, when possible, plaintiffs should also examine the possibility of hiring an appraiser of their choice to minimize the risk of incompetency and

[290] *Id*., p. 56
[291] Sternfeld E., *Introduction,* in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 5 and 11
[292] Stern R. E., *On the frontlines*, above note 272, p. 85
[293] Stern R. E., *Environmental litigation in China*, above note 271, p. 131
[294] *Id*., p. 58
[295] *Id*., p. 58-60
[296] Stern notes that physical threats are problematic as they can be directed both to lawyers and to plaintiffs. For more on the challenges of hiring lawyers for environmental disputes see Stern R. E., *Environmental litigation in China*, above note 1, p. 52-53
[297] *Id*., p. 50-53

corruption. It follows that the final outcome of the litigation is directly influenced by the plaintiffs' economic conditions.

Plaintiffs and their lawyers, however, can also count on certain external resources, such as getting media coverage (both in traditional formats and on the Internet). Another resource for plaintiffs is, of course, *guanxi*: connections inside the government can be exploited to get favors such as obtaining environmental data or getting a case into court.[298]

2.4.2 Caution and innovation: the potential for change of environmental cases

Environmental cases have the potential to bring innovation to the judicial system. However, this potential is balanced by caution, dictated by political sensitivity. This paragraph will examine the current balance between innovation and conservatism. The current paragraph does not focus specifically on the issue of water pollution and the related legislation, but it is noteworthy that water pollution has acted as a catalyst for innovation in several instances, as illustrated below. At the end of the paragraph, two innovative water-related cases will be briefly presented.

The first frontline of innovation is represented by environmental courts: starting from 2007, more than 600 such courts were established in the country.[299] As noted by Stern, there were both top-down and bottom-up incentives for the establishment of environmental courts,[300] which can mainly be summed up as: positive signals for the prioritization of environmental protection by central authorities, recognition of the need to strengthen law enforcement, people voicing the need for improved environmental protection following local pollution crises.

The first three environmental courts were established in Guiyang, Wuxi and Kunming between 2007 and 2008.[301] Water pollution was pivotal to their foundation, as they were created in response to severe water pollution within their jurisdiction: in Guiyang, it was because pollution endangered the water supply of 3.9 million people; in Kunming it was following arsenic contamination in Lake Yangzong, but also due to the chronic pollution of Lake Dianchi; in Wuxi the severe pollution of Lake Tai also played a role in the establishment of the court.[302]

Environmental courts, as it often happens in China, are a form of experimentation, and are not yet fully institutionalized. Currently, there exist four types of environmental courts (the term "court" is

[298] *Id*., p. 62-66
[299] Asia Environmental Governance Blog, *Updates from the field: exploring co-learning with China's Supreme People's Court*, 08/06/2017, available online at http://asia-environment.vermontlaw.edu/2017/06/08/updates-from-the-field-exploring-co-learning-with-chinas-supreme-peoples-court/
[300] Stern R. E., The political logic of China's new environmental courts, *The China Journal*, 72 (2014), p. 56-60
[301] Wang A. L., Gao J., Environmental courts and the development of public interest litigation in China, *Journal of Court Innovation*, vol. 3 no. 1 (2010), p. 40
[302] *Ibid*.

used here to generally indicate judicial bodies devoted to environmental disputes resolution, and does not necessarily refer to courts in the strict sense): the first one is independent environmental adjudication divisions (环保审判庭 *huanbao shenpanting*), which is a division inside a court solely devoted to hearing environmental cases. It is an additional fourth branch to the traditional three branches (civil, administrative and criminal) within Chinese courts. It has dedicated budget and resources, and hears all environmental cases that pass through the court, which means it will hear administrative, civil and criminal cases, as long as they are related to the environment. Currently, this is the model which holds the greatest influence. [303]

The second type is the environmental people's tribunal (环保法庭 *huanbao fating*). People's tribunals (人民法庭 *renmin fating*) are branches of base-level courts, and are established if considered necessary in order to provide citizens better access to the court. [304] Just like environmental adjudication divisions, environmental tribunals can hear all three types of cases, and they tend to have a larger jurisdiction than regular tribunals. [305] There currently exist only two environmental tribunals.[306]

The third type is environmental collegiate panels (环保合议庭 *huanbao heyiting*). The panel is formed by three or more judges that can come from the same or from different divisions; the panel can hear all types of cases and is disbanded once the case is over.[307]

The last type is environmental circuit courts (环保巡回法庭 *huanbao xunhui fating*). The purpose of circuit courts is also to improve court accessibility for the public, but unlike in the case of tribunals, this type of court can be established at all levels, including the Supreme Court (although an environmental circuit court at the Supreme Court's level does not currently exist). Circuit courts periodically head to certain locations to hear cases, moving from one place to another. Environmental circuit courts usually consist of judges working on site along with EPBs or other bureaus, such as WRBs,[308] and for the most part, they deal with administrative litigation and with the enforcement of administrative decisions.[309]

The establishment of environmental courts is innovative, and the general hope is that they will replicate the history of administrative adjudicating divisions, that from an experimental phase in the

[303] Zhang M., Zhang B., Specialized environmental courts in China: status quo, challenges and responses, *Journal of Energy and Natural Resources Law*, vol. 30 n. 4 (2012), p. 372
[304] Clarke D. C., What's law got to do with it? Legal institutions and economic reform in China, *Pacific Basin Law Journal*, vol. 10 n. 1 (1991), p. 20
[305] Zhang M., Zhang B., above note 303 p. 373
[306] *Ibid*.
[307] *Ibid*.
[308] Wang A. L., Environmental courts and public interest litigation in China, *Chinese Law & Government*, vol. 43 no. 6 (2010), p. 9
[309] Zhang M., Zhang B., above note 303, p. 374

1990s gradually affirmed themselves and became integral part of the current judicial system.[310] Environmental courts currently face two major obstacles to their complete integration in the system: there is the issue of their legality, and that of their caseload.

The legality of environmental courts is somewhat debated: the Organic Law regulating the court system allows the Supreme Court and also high and intermediate courts to establish new divisions when needed, but in the case of basic courts the Law explicitly states that only administrative, civil and criminal divisions can be established, thus mining the foundation ground for environmental divisions. Controversies also exist in the case of circuit courts and people's tribunals, as again their existence seems to contradict certain points of the Law: the Organic Law prescribes that circuit courts and tribunals can be established based on geographic and demographic requirements; environmental tribunals and circuit courts, however, are funded based on case subject.[311]

The issue of legality has been alleviated in 2010 by a statement of the Supreme People's Court that confirms the legitimacy of the creation of environmental courts in areas that have a significant caseload for this type of disputes.[312]

The second issue that environmental courts are facing is insufficient caseload: while it is true that environmental disputes have greatly increased in number in recent times, it also true that they only represent a very small percentage of total disputes on the national level.[313] Having a sufficient caseload is essential to guarantee the continuation of environmental courts, but courts risk to be sacrificed for the sake of politics: local protectionism still hinders the courts' power in order to protect polluters and maintain a certain level of economic performance. This is one of the instances in which caution prevails over innovation. The problem of caseload also lies in an insufficient divulgation of environmental information, which causes many pollution victims, especially in poor and remote areas, to be unaware of their condition.[314] The end result can either be that courts will deal with non-environmental cases to maintain a sufficient caseload, or that local authorities will allow them to take on cases whose relevance is debatable, in order to maintain the symbolical significance of the courts. The last possible outcome is courts being shut down.[315]

In spite of these drawbacks, it seems that environmental courts are faring rather well, and their future does not seem particularly at risk.[316] In fact, the Supreme People's Court itself has established its own environmental division in 2014.[317]

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[310] Stern R. E., *The political logic of China's new environmental courts*, above note 300, p. 72
[311] Zhang M., Zhang B., above note 303, p. 378
[312] Wang A. L., Environmental courts and public interest litigation, above note 308, p. 9
[313] Zhang M., Zhang B., above note 303, p. 379
[314] *Id*., p. 379-380
[315] *Ibid*.
[316] Wang A. L., Gao J., above note 301, p. 48-49
[317] Asia Environmental Governance Blog, above note 299

The second frontline of innovation brought forward by environmental cases and closely connected to environmental courts is the development of public interest litigation.

Public interest lawsuits are brought forward by individuals, groups or organizations with the aim of safeguarding the public interest, and can be instrumental for the protection of vulnerable groups (弱势群体 *ruoshi qunti*) that would otherwise have no means to access courts, due to restraints such as poor financial conditions or insufficient education levels.[318]

Public interest litigation in China is still at an initial stage, [319] especially in the case of NGO-lead public interest litigation. This latter type of litigation received substantial validation on the national level first in 2012 in the revision of the Civil Procedure Law (art. 55), and then in 2014, following its insertion into the new Environmental Protection Law that affirms the possibility for NGOs to initiate public interest lawsuits, and lists the standing requisites for NGOs. [320] Following these legal milestones, the Supreme People's Court also issued opinions to support and strengthen public interest litigation, and after a two-year pilot project, People's Procuratorates are now authorized by the law to initiate public interest litigation (both civil and administrative).[321]

Environmental public interest litigation and environmental courts are strictly connected, in that courts represent centers of legal experimentation and their work has produced a number of legal precedents for this type of litigation,[322] easing its recent formalization into national laws. It is interesting to note that many of the most influential of these cases are water-related: in fact, as many as six of the ten model cases on environmental public interest litigation published by the Supreme People's Court are related to water pollution.[323]

Water pollution cases have proved to be a good match to spark judicial innovation in the fertile ground of environmental courts. The *Guiyang Two Lakes and One Reservoir Management Bureau v. Guizhou Tianfeng Chemical Ltd*. case, for example, was the first case of public interest litigation in

[318] Cao M., Wang F., Environmental public interest litigation in China, *Asia Pacific Law Review*, vol. 19 no. 2 (2011), p. 217-218

[319] Discourse on public interest litigation has been spreading consistently in China only since the last decade, as confirmed by the Decision on the Implementation of the Scientific Outlook on Development and Strengthening of Environmental Protection (国务院关于落实科学发展观加强环境保护的决定 *guowuyuan guanyu luoshi kexue fazhanguan jiaqiang huanjing baohu de jueding*) of 2005. Article 27 of the Decision explicitly inserts the development of public interest litigation among other prefixed goals. For more see Zhai T., Chang Y., Standing of environmental public-interest litigants in China: evolution, obstacles and solutions, *Journal of Environmental Law*, no. 30 (2018), p. 370

[320] EPL, art. 58

[321] This authority comes from the amendment of the Civil procedure Law and of the Administrative Procedure Law. For more see Zhai T., Chang Y., above note 319, p. 372.

[322] Wang A. L., Gao J., above note 301, p. 38

[323] See: Ten Model Cases Regarding Environmental Public Interest Litigation Published by the Supreme People's Court (最高人民法院发布十起环境公益诉讼典型案例, *zuigao renmin fayuan fabu shiqi huanjing gongyi susong dianxing anli*). Cases number 1, 2, 4, 5, 8 and 10 are related to water pollution.

which the plaintiff was a government agency.[324] The chemical company in question was sued for dumping fertilizer into the local drinking water source, endangering the water supply of thousands of people. The case was innovative under other aspects, besides that of standing: first, the Qingzhen environmental court was assigned to the case by the higher level court, even though the lawsuit was outside the environmental court's jurisdiction; second, the defendant was ordered to both stop the illicit dumping of waste and to remedy to the damages caused; third, the court ruled against the defendant based on its violation of water quality standards, instead of on the proof of correlation between pollution and public damages.[325]

Another innovative case from the point of view of plaintiff standing is the *Guiyang Procuratorate v. Xiong Jinzhi, Lei Zhang and Cheg Tingyu*, which rose following infractions in a local water resource protection area. The People's Procuratorate brought a civil lawsuit (while in China, procuratorates typically bring criminal lawsuits) and was granted standing,[326] creating a precedent for the experimental pilot project of 2015 that resulted in the aforementioned extension of the Procuratorate's authority in terms of public interest litigation.

The last influential case that will be mentioned in this paper represents an important milestone for environmental public interest litigation, and is also connected to water pollution: it is the *Zhu Zhengmao & All-China Environmental Federation v. Jiangsu Province Harbor Jiangyin Container Co. Ltd for environmental pollution*. The company was sued for air and water pollution created by iron ore and by the dumping of untreated wastewater into the Yangze River. The case was heard by the Wuxi environmental court, and is extremely relevant as it represents the first case in China in which an environmental NGO has been granted standing in light of its registration with the administrative authorities as an organization devoted to environmental protection. In the end, the case was settled through mediation, but this does not diminish its relevance, which also resides in the preliminary injunction issued before the hearing as to prevent further pollution, and in the enforcement aspect of the case: the defendant was ordered to provide the court with periodic updates on the enforcement process, integrated by official monitoring data.[327]

This last case opens up a window for reflection on another aspect of environmental management that has gradually gained a certain space in China: alternative control mechanisms for environmental governance.

[324] Wang A. L., Environmental courts and public interest litigation, above note 308 , p. 12-13
[325] *Ibid*.
[326] *Id*., p. 13-14
[327] On this case see: Wang A. L. in the previous note, p. 15; InforMEA https://www.informea.org/en/court-decision/zhu-zhengmao-all-china-environment-federation-v-jiangshu-province-harbor-jiangyin

2.4.3 Alternative forms of control mechanism for environmental governance

This paragraph is not meant to give a complete account on the topic, but only to illustrate what are the main forms of alternative control mechanism that have been gaining relevance in China, and to provide some bibliography on the topic.

The main environmental governance structure in China is of the command-and-control kind, and in fact China has been widely regarded as an example of authoritarian environmentalism.[328] However, China has been opening up to new forms of control mechanism, as it is clear that the State cannot be ever-present and environmental law enforcement is lacking. Some of these forms of control have sprouted at the grassroots level, thanks to favorable conditions, while others are encouraged by the State itself.

The first type of alternative control mechanism, which is widely regarded as a fundamental element in environmental governance internationally,[329] is the action of civil society and of public participation.

There are several kinds of environmental NGO in China, the main types being: GONGOs (government-organized NGOs), INGOs (international NGOs) and grassroots NGOs, which constitute only a small part of the total of environmental NGOs in the country.[330]

Civil society in China is still at an initial stage, and faces many obstacles as the government has mixed feelings about it: if on one side it recognizes the role civil society can play in alleviating institutions' workload by integrating welfare services now that the State has significantly reduced its role as welfare provider, on the other it fears that civil society's action may endanger the government's supremacy.[331]

Environmental NGOs have become more and more involved in advocacy both at the local and national level. Of course, their influence should not be overestimated, and it is also important to consider that connection to the Party are important to achieve advocacy results.[332] Moreover, given

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[328] Lo K., How authoritarian is the environmental governance of China?, *Environmental Science & Policy*, 54 (2015), p. 152-159

[329] UN Environment, *Civil society engagement*, available online at https://www.unenvironment.org/civil-society-engagement

[330] Yangzi S., Grassroots environmental activism and the internet: constructing a green public sphere in China, *Asian Studies Review*, vol. 35 no. 4 (2011), p. 480-481

[331] This is especially true for rights-related NGOs; environmental NGOs, on the other hand, are perceived as less "sensitive", due to the fact that their goals are generally aligned with those of the government. See Dai J., Spires A. J., Advocacy in an authoritarian state: how grassroots environmental NGOs influence local governments in China, *The China Journal*, 79 (2017), p. 69-75; Economy E. C., above note 31, p. 135-181

[332] Dai J., Spires A. J., above note 331, p. 66; The dynamics of green advocacy in China are complex and NGOs are only one of the actors involved, for more see: Huang H., Sheng C., Berg J., *Advocacy coalitions of green economy and their influence on government policy in China*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 57-67

the lack of transparency in the government's decision-making process, the extent to which decisions are influenced by NGOs or are simply the result of already existing interest alignments is unclear.[333]

NGOs' commitment in advocacy represents only a small part of their activities, in fact, they also constitute a form of control mechanism over polluters and institutions: they report pollution by utilizing institutional means of communication predisposed by the government, and when these channels prove to be ineffective, they are also capable of using the media (both traditional and the internet) to their advantage.[334] And of course, since recent years they also started to play a role in courts through public interest litigation.

NGOs' relevance also resides in another aspect, that of their liaison with the public. NGOs play a fundamental role in encouraging public participation, if not in the policymaking process at least in performing a supervisory function over polluters and administrative bodies. First, NGOs often offer educational services to local communities, as well as legal assistance:[335] by spreading knowledge on the environment and on the related legal framework, people gain awareness of their rights and of the range of actions they can undertake, which might encourage them to be more active supervisors in the fight against pollution. In particular, NGOs employ the Internet and social media (such as WeChat)[336] to mobilize the public and spread information.[337]

Even though civil society and the public now cover a role that would have been unthinkable at the beginning of economic reforms, their action is still constrained: especially in recent years, control over the internet has tightened,[338] and one of the greatest obstacles for civil society and public participation is getting access to environmental information.[339] While many NGOs take care of environmental monitoring themselves, and publish data, the kind of technical expertise and resources required for this type of activity is not available to all NGOs. That is why obtaining government information is still of great importance.

The central government, at least from a rhetorical point of view, acknowledges this need for information and also encourages public participation, as signaled through a series of norms and

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[333] *Id*., p. 77

[334] *Id*., p. 76-77; on the topic see also: Yangzi S., above note 330, p.477-497

[335] Stern R. E., *Environmental litigation in China*, above note 271, p. 179-210; One group that covers a particularly significant role in terms of legal assistance is the Center for Legal Assistance to Pollution Victims (污染受害者法律帮助中心), active since 1998.

[336] For an account on the advantages and disadvantages brought by WeChat to environmental NGOs see: Tu F., WeChat and civil society in China, *Communication and the Public*, vol. 1 no. 3 (2016), p. 343-350

[337] For more information on the tools employed by Chinese NGOs see: Shapiro J., *The evolving tactics of China's green movement*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 47-56

[338] Economy E. C., The great firewall of China: Xi Jinping's internet shutdown, *The Guardian*, 29/06/2018, available online at https://www.theguardian.com/news/2018/jun/the-great-firewall-of-china-xi-jinpings-internet-shutdown

[339] Zhang L., Mol A. P.J., He G., Transparency and information disclosure in China's environmental governance, *Current Opinion in Environmental Sustainability*, 18 (2016), p. 17

documents:[340] the EPL and WPPCL both contain provisions on information disclosure, and over the years the regulation on the topic has extended, as indicated in paragraph 2.2. The EIAL also prescribes public participation in the EIA process. Specific regulation on information disclosure has also been produced: in 2008 the Open Government Information Regulations (政府信息公开条例 *zhengfu xinxi gongkai tiaoli*) were adopted, and MEP was the first department to issue its own sectorial rules for the implementation of the Regulation, with its Environmental Information Disclosure Measures (环境信息公开办法 *huanjing xinxi gongkai banfa*) of 2008. While the central government seems rather open to the integration of the traditional top-down environmental governance with governance through information, local governments are not always cooperating, as they often are the bodies under the scrutiny of the public.[341] In particular, local authorities and polluters can exploit legal loopholes to their advantage in order to refuse information disclosure.[342] However, it must be said that some practical efforts are being made in the direction of increasing transparency: for example, MEP's website now shows real-time monitoring data from various monitoring sites for both water and air pollution.[343] In general, many ministries' webpages now contain sections for publicly accessible information, usually under "disclosure" (公开 *gongkai*) and "data" (数据 *shuju*).[344]

The question of the real degree in which public participation is actually allowed becomes particularly evident in processes for which public participation is explicitly requested by the law. A clear example is provided by the environmental impact assessment process: the EIA Law contains provisions on public participation which are extended in the form of the Provisional Measures for Public Participation in EIA (环境影响评价公众参与暂行办法 *huanjing yingxiang pingjia gongzhong canyu zanxing banfa*). The Regulations and Measures cited above are also relevant. Even if access for the public to the EIA process is relatively well regulated, there still exist problems linked to the procedure itself (only a small percentage of EIA procedures require mandatory public participation, moreover the definition of "public" leaves room for discretion to the EIA compiler, and

[340] Here I only indicated the most relevant pieces of legislation on the matter, for a detailed account see Zhang L. *et al*. in the previous note.
[341] Zhang L. *et al*., above note 339, p. 17
[342] For example, art. 8 of the Open Government Information Regulation offers an exception on information disclosure to polluters and State administrators based on matters such as national and public security and the protection of social order. (See Zhang L. et al., above note 339). There are also cases of retaliation against NGOs that publish pollution data with the pretext of divulging state secrets. An example is provided by Lo's study (see above note 328), here I will indicate the article referring to said incident: *Pilu wuran shuju huanbao NGO fuzeren Liu Shu beibu* (披露污染数据环保 NGO 负责人刘曙被捕 Environmental NGO leader Liu Shu detained for disclosing pollution data) https://www.rfa.org/cantonese/news/arrest-10112016073626.html
[343] Data can be found in the Ministry's homepage at: http://www.mee.gov.cn/
[344] See for example the Ministry of Natural Resources at http://www.mnr.gov.cn/, or the Ministry of Agriculture and Rural Affairs at http://www.moa.gov.cn/.

the time allowed to the public to prepare for the hearing is insufficient);[345] problems are also linked to insufficient information disclosure: even if it is prescribed by existing regulations, companies and the governments often have a cautious approach to information disclosure, for fear of triggering social unrest.[346] Therefore, the public often lacks the necessary information to get a clear picture of the situation and make meaningful contributions.

However, it does seem that the government is making a constant effort in enabling public participation (albeit in a controlled way, by the government's rules), as demonstrated in the process of implementation of the Water Ten Plan: MEP has opened a series of communication channels, such as a WeChat account, through which the public can take part to the restoration of polluted water bodies by signaling areas in which intervention is needed.[347]

The current limitations of the action of civil society and the public are evident, but while the space for public inclusion in policymaking might still be limited, Chinese people are generally active in the public sphere, and their contribution in the form of supervision over pollution can be significant, thanks to the huge development of the Internet and mass communication.

The Chinese government is also opening up to other types of control mechanisms, in the form of financial and market instruments. Perhaps the one with which the public is more familiar is the national greenhouse gas emissions trading market launched in 2017, aimed at encouraging emission reduction by providing an economic incentive to companies.[348]

Emission schemes[349] of this kind are also in use for wastewater emissions, and in fact the first ever emission trade pilot in the country was for water pollution and dates back to 1987.[350] Over the years, regulation on emission trading has bloomed especially at the local level where pilots are conducted, but central level regulations underlie local legislation. In particular, the WPPCL provisions on the total discharge limit system with its emission quotas form the foundation for emission trading, along

[345] Zhao Y., Public participation in China's EIA regime: rhetoric or reality?, *Journal of Environmental Law*, vol. 22 no. 1 (2010), p. 107-110
[346] *Ibid*.
[347] Dai L., Qiu Q., above note 270, p. 244
[348] For more see Bradsher K., Friedman L., China unveils an ambitious plan to curb climate change emissions, *The New York Times*, 19/12/2017, available online at https://www.nytimes.com/2017/12/19/climate/china-carbon-market-climate-change-emissions.html
[349] Emission trading systems and the other types of incentives named below are described by Mol as means to financialize the environment. However, he also identifies a series of measures that have been taken in China and globally to "ecologize finance", as in making financial institutions allies to environmental protection. For more see: Mol A. P.J., *China's policies on greening financial institutions*, in *Routledge Handbook of Environmental Policy in China*, edited by Sternfeld E., New York, Routledge, 2017, p. 207-222
[350] Bennett M. T., Markets for ecosystem services in China: an exploration of China's "eco-compensation" and other market-based environmental policies, *Forest Trends* (2009), p. 63

with the relevant provisions of the Water Pollution Prevention and Control Law Detailed Implementation Measures.[351]

China has put in place other types of market-based control mechanisms besides emission trading, some of which more successful than others. The emission fee system established by the WPPCL and in place until 2018 was an example of not-so-successful mechanism: even if the system did have some effect in inducing pollution reduction, systemic problems such as fees lower than pollution cost, and difficulties in fee collection still represented major drawbacks.[352] The new environmental tax system will hopefully provide a major incentive for pollution reduction.

Before moving to the last part of this paper, I would like to mention other market-instruments that were first experimented with starting from 2007, and then received a legal foundation (albeit not very detailed) in the latest EPL:[353] environmental liability insurance,[354] green credit[355] and ecological compensation systems.[356]

The strengthening and expansion of the use of market instruments for environmental protection is one of the goals of the Water Ten Plan, both to the end of boosting pollution reduction and attracting investments in the environmental sector, and it does seem that China is following through with its stated objective.

[351] For a detailed account of water pollution trade emission schemes in China, as well as the related local legislation, see Bennett M. T. in the previous note.

[352] Asian Development Bank, *Market-based instruments for water pollution control in the People's Republic of China*, 2011

[353] Zhang L., He G., Mol A. P.J., China's new environmental protection law: a game changer?, *Environmental Development*, 13 (2015), p. 3

[354] For more see: Li R., Yanjiu huanjing zeren baoxian de falü zhidu goujian (研究环境责任保险的法律制度构建, Research on the construction of a legal basis for environmental liability insurance), *Journal of Weifang Engeneering Vocational College*, vol. 27 no. 4 (2014), p. 69-71; Feng Y., Mol A. P. J., Lu Y., He G., Van Coppen C., Environmental pollution liability insurance in China: compulsory or voluntary?, *Journal of Cleaner Production*, vol. 70 (2014), p. 211-219; Feng Y., Mol A. P. J., Lu Y., He G., Van Coppen C., Environmental pollution liability insurance in China: in need of strong government backing, *AMBIO*, vol. 43 (2014), p. 687-702

[355] For more see: InnovationSeeds, *Green credit guidelines in China*, available online at: http://www.innovationseeds.eu/policy-library/core-articles/green-credit-guidelines-in-china.kl; Zhang B., Yang Y., Bi J., Tracking the implementation of green credit policy in China: top-down perspective and bottom-up reform, *Journal of Environmental Management*, vol. 92 no. 4, p. 1321-1327; Guo P., Financial policy innovation for social change: a case study of China's green credit policy, *International Review of Sociology*, vol. 24 no. 1 (2014), p. 69-76

[356] For more see: Bennett M. T., above note 350; Dai L., Exploring China's approach to implementing 'eco-compensation' schemes: the Lake Tai watershed as a case study considered through a legal lens, *Water International*, vol. 39 no. 5 (2014), p. 755-773; Sun X., Lu C., Major problems and countermeasures for the establishment of ecological compensation systems for national key ecological function areas, *Journal of Resources and Ecology*, vol. 6 n. 6 (2015), p. 363-368

CHAPTER 3

3.1 China's new institutional framework for the environment

The institutional framework described in Chapter 1 has been significantly modified at the beginning of 2018 in the context of the latest institutional rearrangement within the State Council.

The purpose of this structural reform is to rationalize and optimize the State Council's internal organization, in order to enhance efficiency and to make policymaking smoother.[1] An analysis of the decisions taken in terms of which bodies are enhanced and which are eliminated in the process of reform gives a rather accurate picture of the government's priorities for the future, and it seems clear that environmental protection is still one of the top leadership's prime concerns.

The reform lead to the elimination of eight ministry-level bodies and seven vice-ministry-level bodies. Seven new ministries were created, some based on previously existing ministries, that absorb functions from other bodies, both still existing and not.[2] The end result is that the State Council is now composed of twenty-six bodies, which include ministries and other types of commissions.[3]

All in all, the reform was very extensive, with only a handful of bodies left untouched. In this paper I will only focus on the changes that affect water management, but for a comprehensive picture of the shifts and modification within the State Council refer to the article in the note.[4]

Before analyzing the new framework, I will provide a chart that synthesizes the institutional layout described in Chapter 1.

[1] Tiezzi S., China's massive government overhaul: what you need to know, *The Diplomat*, 14/03/2018, available online at https://thediplomat.com/2018/03/chinas-massive-government-overhaul-what-you-need-to-know/

[2] *Ibid.*

[3] For a complete list of the bodies that now compose the State Council see: http://www.npc.gov.cn/englishnpc/news/Events/2018-03/18/content_2051068.htm

[4] NPC Observer, *A guide to 2018 State Council institutional reforms*, available online at https://npcobserver.com/2018/03/14/a-guide-to-2018-state-council-institutional-reforms/

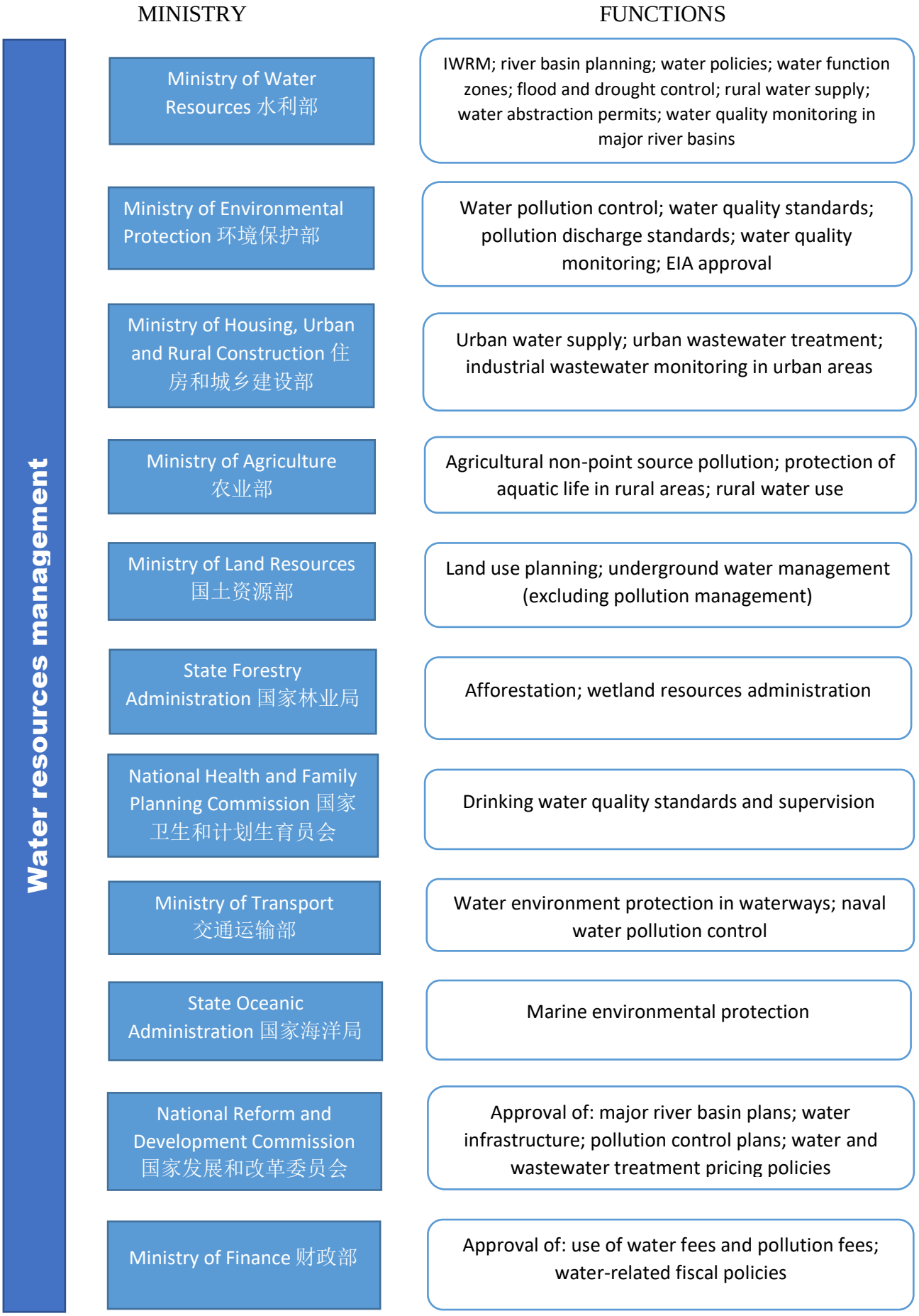
MINISTRY
FUNCTIONS
Water resources management
Ministry of Water Resources 水利部
IWRM; river basin planning; water policies; water function zones; flood and drought control; rural water supply; water abstraction permits; water quality monitoring in major river basins
Ministry of Environmental Protection 环境保护部
Water pollution control; water quality standards; pollution discharge standards; water quality monitoring; EIA approval
Ministry of Housing, Urban and Rural Construction 住房和城乡建设部
Urban water supply; urban wastewater treatment; industrial wastewater monitoring in urban areas
Ministry of Agriculture 农业部
Agricultural non-point source pollution; protection of aquatic life in rural areas; rural water use
Ministry of Land Resources 国土资源部
Land use planning; underground water management (excluding pollution management)
State Forestry Administration 国家林业局
Afforestation; wetland resources administration
National Health and Family Planning Commission 国家卫生和计划生育员会
Drinking water quality standards and supervision
Ministry of Transport 交通运输部
Water environment protection in waterways; naval water pollution control
State Oceanic Administration 国家海洋局
Marine environmental protection
National Reform and Development Commission 国家发展和改革委员会
Approval of: major river basin plans; water infrastructure; pollution control plans; water and wastewater treatment pricing policies
Ministry of Finance 财政部
Approval of: use of water fees and pollution fees; water-related fiscal policies

Figure 9: Institutional layout before the 2018 Reform

In terms of environmental water management, the core of the reform was the creation of two new ministries that absorb (in part or completely) competences from other bodies: the Ministry of Ecological Environment and the Ministry of Natural Resources. The following charts illustrate how the previous structure was altered to create these new bodies. Only the transfers of duties related to water management will be illustrated, for a complete picture of the reform refer to the article in note 4.

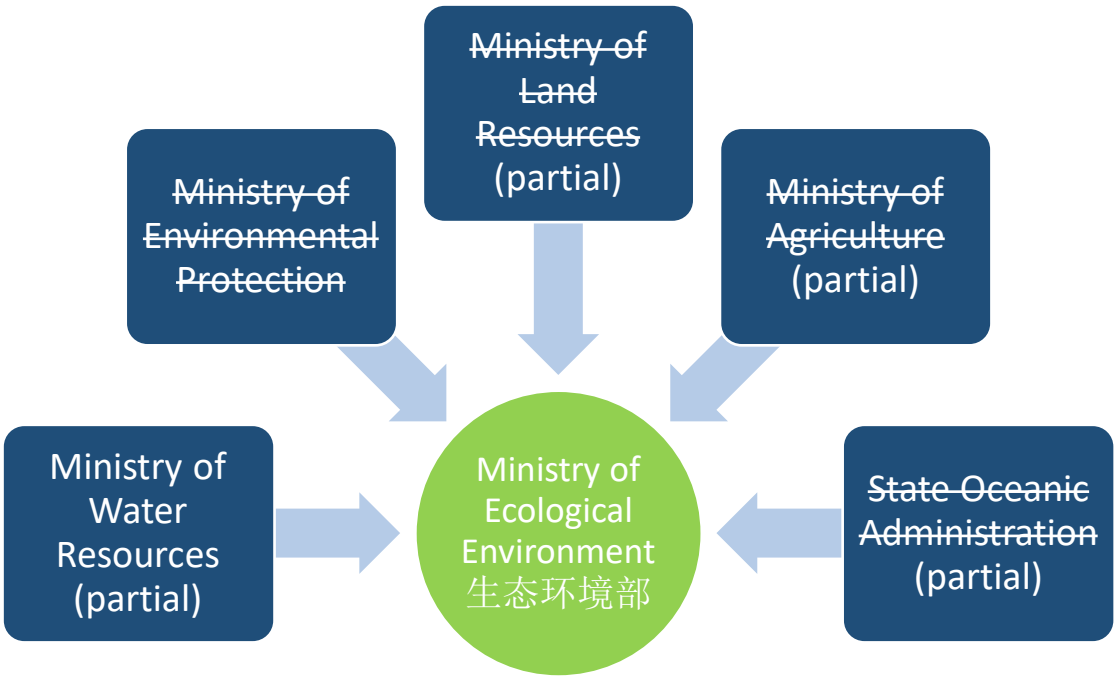

Fig. 10: redistribution of water-related powers to the Ministry of Ecological Environment.

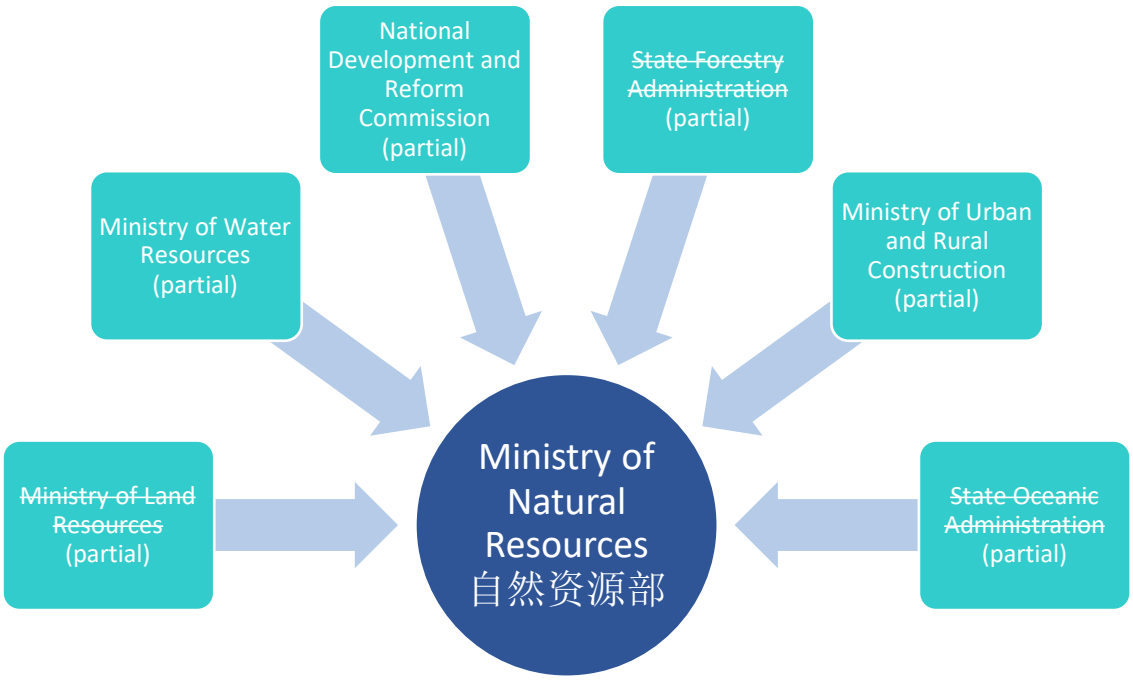

Fig. 11: redistribution of water-related powers to the Ministry of Natural Resources

The Ministry of Ecological Environment was created on the base of the previous Ministry of Environmental Protection, now abolished. The new MEE has thus inherited all of the functions of MEP. Moreover, it has also absorbed functions from other abolished ministries: underground water pollution management from the Ministry of Land Resources, agricultural non-point source pollution management from the Ministry of Agriculture, and marine environmental protection from the State Oceanic Administration. The new MEE now has almost complete monopoly over water pollution management, having also absorbed from MWR powers related to the drafting of water function zones, the setting of pollution discharge outlets and the protection of watersheds. MEE was also tasked with the protection of the environment in the South-to-North Water Diversion Project (南水北调工程项目 *nanshui beidiao gongcheng xiangmu*).

The new Ministry of Natural Resources also received powers from bodies that now do not exist anymore: it inherited all functions from the Ministry of Land Resources and from the State Oceanic Administration, with the exception of those functions that were assigned to other bodies; it also inherited wetlands management from the State Forestry Administration. From other still existing bodies it absorbed the following functions: rights registration and inspection of water resources from MWR, urban and rural planning management from the Ministry of Urban and Rural Construction, and organization of the drafting of plans for the main functional areas (which include main river basin plans and other major water-related plans) from the National Reform and Development Commission.

The Ministry of Water Resources is still operational, but stripped of some of its fundamental powers. Other than the ones mentioned above, it also ceded its authority over agricultural water conservation projects to the new Ministry of Agriculture and Rural Affairs (农业农村部 *nongye nongcun bu*). It also passed its functions related to floods and drought control to the new Ministry of Emergency Management (应急管理部 *yingji guanli bu*). However, the Ministry was also assigned new responsibilities, as it now incorporates the State Council's South-to-North Water Diversion Project Committee with its Executive Office, and the State Council's Three Gorges Project Construction Committee with its Executive Office.[5] Moreover, it still is the supervisory body for River Basin Organizations.

3.2 Analysis: is this the end of the Nine Dragons' rule?

[5] All information in this section was drawn from the State Council Institutional Reform Plan (国务院机构改革方案 *guowuyuan jigou gaige fang'an*), available online at http://www.xinhuanet.com/politics/2018lh/2018-03/17/c_1122552185.htm

There number of bodies involved in water resources management has decreased thanks to the new reform. The most significant organizational change of course is the establishment of the two new lead ministries, the Ministry of Ecological Environment and the Ministry of Natural Resources. While the division between the administrative and environmental management of water resources is preserved (as in quantitative management versus qualitative management), functions are now optimized in terms of distribution. Could this truly be the end of the "Nine Dragons Ruling Water" system?

First of all, MEE is now responsible for most pollution control related tasks:[6] it is responsible for the drafting, implementation and supervision of plans for water function zones, main river basins and drinking water source protection areas; it produces environmental quality and pollution standards; it plays a coordination role for pollution prevention and control among different administrations; it works for the attainment of emissions reduction targets and the implementation of related policies (i. e. total pollutant discharge system, emission quotas, pollution discharge permit system, assessment of pollutant carrying capacity of water bodies etc.); it directs pollution prevention activities and supervises the protection of drinking water resources (agricultural non-point source pollution management also belongs to this category of tasks, as well as underground water pollution management); it is responsible for environmental impact assessment of major state plans and policies; it plays a leading role in environmental monitoring, by establishing rules and standards and organizing the national monitoring system. Environmental Protection Bureaus still operate as before the reform, but they are now subordinate to MEE and their name has been changed to Ecological Environment Bureaus (EEB).

It can be expected that standards and rules on water pollution will be more consistent, with less overlaps happening. It is also significant that underground water pollution prevention and control is now under direct control of the Ministry, which is certainly better equipped for it than the former Ministry of Land Resources. The same goes for agricultural non-point source pollution. It is now reasonable to expect some improvement on both fronts, as they can be now properly addressed and receive a certain priority.

On the other hand, there are still some unclear points, such as who will be responsible for naval water pollution, drinking water standards and wetlands protection. In fact, the official communication on the reform makes no mention about the first two topics, so that it can be assumed they are still respectively under the Ministry of Transport and the new National Health Commission (国家卫生健康委员会 *guojia weisheng jiankang weiyuanhui*). As for wetland protection, the reform places it

[6] Information drawn by the Ministry's official website: http://english.mee.gov.cn/About_MEE/Mandates/

under MEE, MNR and also under the new State Forestry and Grassland Administration (国家森林和草原局 *guojia senlin he caoyuan ju*), but does not provide specifics.

As for the new Ministry of Natural Resources, its mandate is the administration of all natural resources on the Chinese territory, and in particular for water resources its main tasks are: overall administration of water resources (which includes water abstraction permit system, water fee system), protection of wetlands and also monitoring and control of groundwater over-abstraction, urban and rural planning and planning of main function areas. The centralization of natural resources planning could lead to improved resource utilization and to the reduction of phenomena of over-exploitation.[7]

It is yet to be seen if the reassignment of tasks from the Ministry of Water Resources to the new body will work out smoothly, or if it will create confusion and overlaps in the central government. MWR is still in charge of overseeing the work of RBOs for main river basins, possibly creating overlaps with the new MNR.

Another potential issue is related to water resources monitoring: according to MNR's official duties, it is responsible for inspection and evaluation of natural resources ("负责自然资源调查检测评价" *fuze ziran ziyuan diaocha jiance pingjia*).[8] MEE is also responsible for water monitoring, as are RBOs according to the Water Law, which means that the problems related to overlaps and lack of uniformity in monitoring standards may persist.

If the new institutional framework proves to be functional, it could really mean the end of the "Nine Dragons Ruling Water" system, with all water-related powers focused in the hands of just two ministries (with maybe a handful exceptions, but of secondary relevance). It is however yet to be seen if collaboration among the two ministries works out well, and most importantly if the roles that have been assigned to them are not simply too much to be accomplished: the range of functions covered by the two ministries is vast (one should not forget that water resources management is only a portion of the total responsibilities that they shoulder) and the amount of resources that will be needed for their functioning will not be indifferent.

Lastly, the reform is centered at the State Council level, and is unclear how it will affect operations at inferior administrative levels.

[7] ChinaWaterRisk, *Ministry Reform: 9 Dragons to 2*, 18/04/2018, available online at http://www.chinawaterrisk.org/resources/analysis-reviews/ministry-reform-9-dragons-to-2/

[8] Quoted from the Ministry of Natural Resources official website, available online at http://www.mnr.gov.cn/jg/#znpz (in Chinese).

CONCLUSION

The study of China's institutional and legislative framework for the water sector in relation to the current environmental crisis allows for an understanding of a wide variety of themes of significant relevance.

First, the fundamental role of water resources for economic and social development becomes evident, as well as the factors that contribute to endanger China's water security as the result of unregulated economic development.

The historical development of the institutional and legal framework related to the water sector highlights the shift in government priority as central authorities become more and more aware of the seriousness of the country's environmental degradation, which leads to a growing prioritization of environmental protection activities, to the point that recently environmental protection receives almost the same priority of economic development. Environmental protection enters the rhetorical discourse of Chinese leaders through the Scientific Outlook on Development and the concept of ecological civilization, among others.

The institutional framework for the water sector and the evolution of its structure illustrate the internal dynamics that regulate the relations between Chinese State bodies, both on the horizontal and on the vertical axis. At the central level, too many ministries are involved in the water sector and fight for power and resources, at the local level, local economic interests conflict with national environmental policies, leading to a chronic protection of polluting enterprises by local governments. Moreover, traditional cultural values such as *guanxi* and "face" also impact environmental governance, both positively and negatively. The recent State Council reform embodies the new proactive approach to environmental governance, as well as takes a step forward in the process of optimization of the institutional framework for the water sector.

The analysis of the legislative framework related to water resources can provide insight on the Chinese legal system, from the law drafting stage to law implementation. First, law drafting demonstrates the political instrumentalism of laws as means to enhance different ministries' power. Second, the historical study of Chinese environmental laws highlights the evolutionary nature of Chinese laws, in that significant quality improvement can be observed by comparing different versions of the same law, both in terms of language and content. Third, the main issues related to the legislative style that characterize the Chinese legal language are exemplified by environmental laws; problems related to content are also emblematic of weaknesses in the legislative process, which ultimately affects law implementation.

Resolution of environmental disputes related to water demonstrates the potential for innovation of environmental cases, as exemplified by the establishment of environmental courts and the introduction of public interest litigation. In these regards, water disputes have had a catalyzing function, due to the essential nature of water and the visibility of water pollution, which leads people to promptly act on it.

Moving from the legal framework to the world of policy documents, the same shift from prioritization of economic development to the affirmation of green development can be observed, especially by analyzing the growing importance of environmental protection in Five-Year Plans.

Lastly, the analysis of the legal framework for the water sector indicates signs of opening towards foreign models of environmental governance such as market instruments, governance through information and public participation.

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Administration of Construction Projects' Environmental Protection Regulation, *Jianshe xiangmu huanjing baohu guanli tiaoli* 建设项目环境保护管理条例

Administrative Measures for the Health Supervision of Drinking Water, *Shenghuo yinyongshui weisheng jiandu guanli banfa* 生活饮用水卫生监督管理办法

Administrative Measures for Urban Public Water Supply of the Municipality of Beijing, *Beijingshi chengshi gonggong gongshui guanli banfa* 北京市城市公共供水管理办法,

Agriculture Law, *Nongye fa* 农业法

Cleaner Production Promotion Law, *Qingjie shengchan cujin fa* 清洁生产促进法

Constitution, *Xianfa* 宪法

Criminal Law, *Xingfa* 刑法

Detailed Rules for the Implementation of the Water Pollution Prevention and Control Law, *Shuiwuran fangzhifa shishi xize* 水污染防治法实施细则

Environmental Impact Assessment Law, *Huanjing yingxiang pingjia fa* 环境影响评价法

Environmental Protection Law, *Huanjing baohufa* 环境保护法

Environmental Protection Tax Law, *Huanjing baohu shuifa* 环境保护税法

Flood Prevention Law, *Fanghong fa* 防洪法

Forestry Law, *Senlin fa* 森林法

Implementation Methods for the Water Abstraction Permit System, *Qushui xuke zhidu shishi banfa* 取水许可制度实施办法

Interim Provisions on the Administration of Pollutant Discharge Permits, *Paiwu xukezheng zanxing guiding* 排污许可证暂行规定

Management Rules for Water Abstraction Permits and Water Resources Fee Collection, *Qushui xuke he shui ziyuanfei zhengshou guanli tiaoli* 取水许可和水资源费征收管理条例

Measures on the Implementation of the WPPC Law of the Municipality of Beijing, *Beijingshi shishi shuiwuran fangzhifa banfa* 北京市实施水污染防治法办法

Methods for Environmental Information Disclosure, *Huanjing xinxi gongkai banfa* 环境信息公开办法

Methods for the Management of Water Function Zones, *Shui gongnengqu guanli banfa* 水功能区管理办法

NPC Standing Committee Reply on Correctly Understanding and Applying the Second Comma of article 41 of the Environmental Protection Law, *Quanguo renda changwuhui guanyu zhengque lijie he zhixing huanjing baohufa dishisiyi tiao di'er kuan de dafu* 全国人大常务会关于正确理解执行环境保护第十四一条第二款的答复

Open Government Information Regulation, *Zhengfu xinxi gongkai tiaoli* 政府信息公开条例

Provisional Measures for Public Participation in EIA, *Huanjing yingxiang pingjia gongzhong canyu zanxing banfa* 环境影响评价公众参与暂行办法,

Provisional Standards for the Emission of Three Industrial Wastes, *Gongye "sanfei" paifang shixing biaozhun* 工业"三废"排放实行标准

Regulation on Urban Drainage and Sewage Treatment, *Chengzhen paishui yu wushui chuli tiaoli* 城镇排水与污水处理条例

Regulations on the Management of Pesticides, *Nongyao guanli tiaoli* 农药管理条例

Resolution on Accelerating the Development of Water Resources Reform, *Zhonggong zhongyang guowuyuan guanyu jiakuai shuili gaige fazhan de jueding* 中共中央国务院关于加快水利改革发展的决定

Solid Waste Pollution Prevention and Control Law, *Guti feiwu wuran huanjing fangzhifa* 固体废物污染环境防治法

State Council Institutional Reform Plan, *Guowuyuan jigou gaige fang'an* 国务院机构改革方案

Implementing Methods for Assessing the Strictest Water Management System, *Shixing zuiyange shuiziyuan guanli zhidu kaohe banfa* 实行最严格水资源管理制度考核办法

State Environmental Protection Administration's Notification on the Establishment of the State Environmental Protection Administration's Environmental Emergency and Incident Investigation Center, *Guojia huanjing baohu zongju guanyu zujian guojia huanjing baohu zongju huanjing yingji yu shigu diaocha zhongxin de tongzhi* 国家环境保护总局关于组建国家环境保护总局环境应急与事故调查中心的通知

Taxation Collection and Management Law, *Shuishou zhengshou guanli fa* 税收征收管理法

Technical Guidelines for the Delineation of Ecological Protection Red Lines, *Shengtai baohu hongxian huading jishu zhinan* 生态保护红线划定技术指南

Ten Important Administrative Cases on Environmental Protection Published by the Supreme People's Court, *Zuigao renmin fayuan gongbu renmin fayuan huanjing baohu xingzheng anjian shida anli* 最高人民法院公布人民法院环境保护行政案件十大案例

Ten Model Cases Regarding Environmental Public Interest Litigation Published by the Supreme People's Court, *Zuigao renmin fayuan fabu shiqi huanjing gongyi susong dianxing anli* 最高人民法院发布十起环境公益诉讼典型案例

Tort Liability Law, *Qinquan zeren fa* 侵权责任法

Urban and Rural Planning Law, *Chengxiang guihua fa* 城乡规划法

Urban Water Supply Regulations, *Chengshi gongshui tiaoli* 城市供水条例

Water Law, *Shuifa* 水法

Water Pollution Prevention and Control Action Plan, *Shuiwuran fangzhi xingdong jihua* 水污染防治行动计划

Water Pollution Prevention and Control Law, *Shui wuran fangzhi fa* 水污染防治法

GLOSSARY

Aizhengcun	癌症村	Cancer village
Banfa	办法	Methods (type of legislative document)
Baohuqu	保护区	Protected area
Buyaohong yaozhuan	不要红要专	Better red than expert
Caizhengbu	财政部	Ministry of finance
Chaobiaozhun paiwufei	超标准排污费	Excess pollution fee
Chengxiang jianshe huanjing baohubu	城乡建设环境保护部	Ministry of Urban and Rural Construction and of Environmental Protection
Chijiuxing youji wuranwu	持久性有机污染物	Persistent organic pollutant
Dafu	答复	Reply (type of legislative document)
Danshui ziyuan	淡水资源	Freshwater resources
Defang fagui	地方法规	Local regulation
Defang zhengfu guizhang	地方政府规章	Local rule
Dianxing anli	典型案例	Model case
Dibiaoshui	地表水	Surface water
Difang baohu zhuyi	地方保护主义	Local protectionism
Dixiashui	地下水	Underground water
Dizhi kuangchan bumen	地质矿产部门	Geological and mineral department
Falü jieshi	法律解释	Legislative interpretation
Fangzhen	方针	Guideline
Fazhi bangongshi	法制办公室	Office of Legislative Affairs
Feishui	废水	Wastewater
Gongkai	公开	Disclosure
Gongtong susong	共同诉讼	Class action
Gongye jijuqu	工业集聚区	Industrial cluster
Gongyi susong	公益诉讼	Public interest litigation
Gongzhong canyu	公众参与	Public participation
Guanxi	关系	Relationship network
Guojia biaozhun	国家标准	National standard
Guojia fazhan he gaige weiyuanhui	国家发展和改革委员会	National Reform and Development Commission
Guojia haiyangju	国家海洋局	State Oceanic Administration
Guojia huanjing baohu zongju	国家环境保护总局	State Environmental Protection Administration

Guojia huanjing baohuju	国家环境保护局	National Environmental Protection Agency
Guojia senlin he caoyuan ju	国家森林和草原局	State Forestry and Grassland Administration
Guojia senlin ju	国家林业局	State Forestry Administration
Guojia weisheng he jihua shengyu weiyuanhui	国家卫生和计划生育委员会	National Health and Family Planning Commission
Guojia weisheng jiankang weiyuanhui	国家卫生健康委员会	National Health Commission
Guotu ziyuan bu	国土资源部	Ministry of Land and Resources
Guowuyuan	国务院	State Council
Guowuyuan huanjing baohu lingdao xiaozu	国务院环境保护领导小组	State Council Leading Group for Environmental Protection
Guowuyuan huanjing baohu zhuguan bumen	国务院环境保护主管部门	State Council's main administration for environmental protection
Guowuyuan shuixingzheng zhuguan bumen	国务院水行政主管部门	State Council's main administration for water resources
Haishi fayuan	海事法院	Maritime court
Haishi guanli jigou	海事管理机构	Maritime affairs organization
Hangzheng jigou	杭政机构	Navigation administration
Hezhangzhi	河长制	River chief system
Huanbao fating	环保法庭	Environmental court / environmental tribunal
Huanbao heyiting	环保合议庭	Environmental collegiate panel
Huanbao shenpanting	环保审判庭	Environmental adjudicating division
Huanbao xunhui fating	环保巡回法庭	Environmental circuit court
Huanjing baohu bu	环境保护部	Ministry of Environmental Protection
Huanjing baohu ju	环境保护局	Environmental protection bureau
Huanjing baohu mubiao zerenzhi	环境保护目标责任制	Environmental protection objective responsibility system
Huanjing baohu zeren zhidu	环境保护责任制度	Environmental protection responsibility system
Huanjing yingji yu shigu diaocha zhongxin	环境应急与事故调查中心	Environmental Emergency and Incident Investigation Center
Huanjing yingxiang baogaobiao	环境影响报告表	EIA form
Huanjing yingxiang baogaoshu	环境影响报告书	EIA report
Huanjing yingxiang dengjibiao	环境影响登记表	EIA registration form

Huanjing zhiliang jiance he shui wuranwu paifang jiance zhidu	环境质量监测和水污染污排放检测制度	Monitoring system for water environmental quality and for pollutant emissions
Huangmohua	荒漠化	Desertification
Jiaotong yunshu ju	交通运输局	Ministry of Transportation
Jiben fa	基本法	Basic law
Jingji he shehui fazhan wunian jihua	经济和社会发展五年计划	Five-year plan for economic and social development
Jiulong zhishui	九龙治水	Nine Dragons Ruling Water
Jueding	决定	Decision (type of legislative document)
Juzheng zeren	举证责任	Burden of proof
Kaohe	考核	Officials' evaluation system
Kechixu fazhan	可持续发展	Sustainable development
Kexue fazhanguan	科学发展观	Scientific Outlook on Development
Kexue jishu bu	科学技术部	Ministry of Science and Technology
Lian	脸	Face (as in reputation)
Liuyu jigou	流域机构	River Basin Organization
Liuyu shuiziyuan baohu jigou	流域水资源保护机构	River basin water resources protection organization
Liuyu shuiziyuan baohu lingdao jigou	流域水资源保护领导机构	Leading Group for River Basin Water Resources Protection
Mianyuan wuran	面源污染	Non-point source pollution
Mianzi	面子	Face (as in reputation)
Mingling	命令	Order (type of legislative document)
Nanshui beidiao gongcheng xiangmu	南水北调工程项目	South-to-North Water Diversion Project
Nawu nengli	纳污能力	Carrying capacity
Nongye jiti jingji zuzhi	农业集体经济组织	Rural economic collective organization
Nongye nongcun bu	农业农村部	Ministry of Agricultural and Rural Affairs
Nongyebu	农业部	Ministry of Agriculture
Paiwu xuke zhidu	排污许可制度	Pollution discharge permit
Paiwufei	排污费	Pollution discharge fee
Qingjie shengchan zonghe xietiao bumen	清洁生产综合协调部门	Department for comprehensive coordination of clean production
Quanguo renmin daibiao dahui	全国人民代表大会	National People's Congress
Quanguo renmin daibiao dahui	全国人民代表大会常务	National People's Congress

changwu weiyuanhui	委员会	Standing Committee
Quanguo renmin daibiao dahui huanjing yu ziyuan baohu weiyuanhui	全国人民代表大会环境与资源保护委员会	Environmental Protection and Resources Conservation Committee of the National People's Congress
Quanguo shuiziyuan zonghe guihua	全国水资源综合规划	National comprehensive plan for water resources
Queshui wenti	缺水问题	Water scarcity
Renmin fating	人民法庭	People's Tribunal
Sanhongxian	三红线	Three Red Lines
Santongshi	三同时	Three Synchronizations
Shangye mimi	商业秘密	Business secret
Shenghuo yinyongshui dibiaoshui baohuqu	生活饮用水地表水保护区	Protected areas for surface drinking water resources
Shengtai baohuqu	生态保护地区	Ecological protection areas
Shengtai buchang zhidu	生态补偿制度	Ecological compensation system
Shengtai hongxian	生态红线	Ecological red line
Shengtai huanjing bu	生态环境部	Ministry of Ecology and Environment
Shengtai huanjing ju	生态环境局	Ecological environment bureau
Shengtai shehui	生态社会	Ecological civilization
Shidi	湿地	Wetland
Shui gongnengqu	水功能区	Water function zone
Shui ziyuan fei	水资源费	Water resources fee
Shuifei	水费	Water fee
Shuihuanjing zhiliang biaozhun	水环境质量标准	Water environmental quality standard
Shuilibu	水利部	Ministry of Water Resources
Shuiweiji	水危机	Water crisis
Shuiyu anxian guanli	水域岸线管理	Waterline management
Shuiziyuan baohu gongzuo jigou	水资源保护工作机构	Water Resources Protection Bureau
Shuiziyuan ju	水资源局	Water resources bureau
Shuju	数据	Data
Sifa jieshi	司法解释	Judicial interpretation
Tiaojie	调解	Mediation
Tiaoli	条例	Regulation
Tongyi lingdao, fenji fuze	统一领导，分级负责	Unified leadership with responsibilities divided on levels
Tongzhi	通知	Notification (type of legislative

		document)
Weisheng xingzheng bumen	卫生行政部门	Health administration department
Wenming shehui	文明社会	Civil society
Wuni	污泥	Sludge
Wuran	污染	Pollution
Wuranwu paifang biaozhun	污染物排放标准	Pollutant discharge standard
Wuranwu paifang zongliang	污染物排放总量	Pollutant discharge limit
Wushui guangai	污水灌溉	Wastewater irrigation
Xi Jinping xinshidai zhongguo tese shehui zhuyi sixiang	习近平新时代中国特色社会主义思想	Xi Jinping's Thought on Socialism with Chinese Characteristics for the New Era
Xiangzhen qiye	乡镇企业	Township and village enterprise (TVE)
Xianwuran, houzhili	先污染，后治理	Pollute first, control later
Xietiao	协调	Harmonize
Xinfang	信访	Letters and visits (Chinese petitioning system)
Xingzheng fagui	行政法规	Administrative regulation
Xingzheng guizhang	行政规章	Administrative rule
Yifa zhiguo	依法治国	Rule of/by law
Yijian	意见	Opinion (type of legislative document)
Yingji guanli bu	应急管理部	Ministry of Emergency Management
Yingyang zhuangtai	营养状态	Nutritional status
Yinyongshui shuiyuan baohuqu	饮用水水源保护区	Protected area for drinking water resources
Yueshuxing	约束性	Binding (referred to the completion of goals in the officials' evaluation system)
Yuqixing	预期性	Desired (referred to the completion of goals in the officials' evaluation system)
Zhengce	政策	Policy
Zhongdian wuranwu	重点污染物	Main pollutants
Zhongdian wuranwu de zongliang kongzhi zhidu	重点污染物的总量控制制度	Total discharge control system for point-source pollution
Zhongguo gongchan dang	中国共产党	Chinese Communist Party
Zhongjinshu	重金属	Heavy metal
Zhuanye guihua	专业规划	Special plan
Zhufang he chengxiang jianshe bu	住房和城乡建设部	Ministry of Housing, Urban and Rural Construction

Zhuyao liuyu	主要流域	Main river basins
Ziran jinghua nengli	自然净化能力	Natural self-purification capacity
Ziran ziyuan bu	自然资源部	Ministry of Natural Resources
Zonghe guihua	综合规划	Comprehensive plan
Zuigao renmin fayuan	最高人民法院	Supreme People's Court
Zuigao renmin jianchayuan	最高人民检察院	Supreme People's Procuratorate
Zuiyange shuiziyuan guanli zhidu	最严格水资源管理制度	Strictest water resources management system

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