

The Research on the Legal Problem of Protecting Trans-boundary Water Resources

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Abstract: Trans-boundary water resources contain trans-boundary groundwater systems as well as international rivers, lakes and their tributaries, or the entrances and exits of international rivers. Environmental protection is a duty of every state. Every basin state has the duty to protect international basin water resources, who should take reasonable measures such as international cooperation and lateral measures to prevent from significant trans-boundary harm. The legal papers that provides for the problem of protecting trans-boundary water resources contains global water treaties, regional and basin water treaties, the resolutions, declarations and rules adopted by some intergovernmental and non-governmental organizations. According to these papers and the practice of international society, every basin state should take such measures as environmental impact assessment, exchanging data and information, supervision, informing, controlling pollution, public participation to prevent from and minimize harm. China has taken some measures to protect involved trans-boundary water resources.

Key words: trans-boundary water resources; protection; measures to protect trans-boundary water resources

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1 Trans-boundary water resources and protection

1.1 Definition of trans-boundary water resources and allocation

Trans-boundary Water Resources are also referred to as International Water Resources, International Freshwater Resources, or Trans-boundary Freshwater Resources. Up to now there is no standardized definition. In United Nations Environment Program Environmental Law Course, it is defined as shared watercourses, including trans-boundary groundwater systems as well as international rivers, lakes and their tributaries, or the entrances and exits of international rivers^[1].

Trans-boundary Water Resources consist of international surface and ground water resources.

International surface water contains international rivers, lakes, canals etc., with international rivers and lakes as the main part. Globally 263 influential international rivers and lakes are distributed in 145 countries. These international basins cover 45.3% of the land surface of the earth, affect about 40% of the world's population, and account for approximately 60% of the global freshwater^[2]. Among these, 148 international basins (about 56% of the total) flow across two countries, and the rest flowing through three countries or above.

Of all the continents, Asia has 57 international rivers and lakes, Africa 59, North America

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and Central America 40, South America 38, and Europe 69^[3]. Only Oceania has none. Asia mainly contains Indus, the Ganges, Lantsang, Mekong River, Yarlung Zangbo River, Brahmaputra, Salween, Jordan River, Tigris-Euphrates, Salt Sea and Caspian Sea. Africa has Nile, Niger, Zambezi River, Congo River and Senegal River. In North America, the USA shares four lakes of the Five Great Lakes and Columbia River with Canada, and shares Colorado River and Rio Grande with Mexico. South America has Amazon River and Rio de la Plata. Europe has Rhine and Danube River.

International Groundwater includes both groundwater joined with international surface water, and trans-sealed groundwater. As an underground layer has no political boundaries, several countries share underground layer. North-east Africa's underground layer is also shared with Egypt, Qatar and United Arab Emirates; North Sahara's is shared with Algeria, Tunis and Libyan; South America's is shared with Brazil, Paraguay, Uruguay and Argentina^[4].

1.2 Trans-boundary water resources protection

Water Resources Protection requires that human activities avoid causing damage to water resources, prevent water pollution and water exhaustion. Rational use of water resources is the central task and inexorable requirement of protecting water resources. Although it's a long history since man began to use natural resources, laying emphasis on protecting and rational use of natural resources started just in the early 20th century^[5]. In the USA, protection of resources refers to rational use and eliminating waste. Jointly compiled by IUCN, WWF, UNEP and FAO and published in 1993, World Conservation Strategy says protection advocates rational use^[6].

Trans-boundary Water Resources Protection makes countries take different measures for water resources development and utilization to improve and protect water, thus to satisfy the increasing needs of society. Environmental protection is a duty of every state. When making use of trans-boundary water resources and carrying on other activities, every country is responsible for protection by means of international cooperation and reasonable unilateral measures. It is equally every state's duty to prevent, lessen and control the great damage to other basin States and their environment. Additionally, people are forbidden to do detriment in their territories. The above are the basics of No-Harm Principle, which is one of the fundamental principles of International Water Resources Law. It has been widely accepted by international treaties, manifestos, documents and judgments.

2 International legal documents on trans-boundary water resources protection

At present, the international legal document on trans-boundary water resources protection is mainly water treaties. According to the number of contracting parties and the extent it applies to, water treaties can be categorized into three types: global water treaties, regional and basin water treaties. What's more, the resolutions, declarations and rules adopted by some intergovernmental organizations and international law academic bodies are the sources of Trans-boundary Water Resources Protection Law, and auxiliaries for laying down related laws and principles.

2.1 Global treaty

Global treaty is the treaty accessible to all the countries throughout the world, with The Con-

vention on the Law of the Non-Navigational Uses of International Watercourses (hereinafter referred to as Watercourses Convention) as the cardinal treaty. It marks an important milestone in the development of International Water Resources Law.

As approved in a resolution of the General Assembly at its 25th session in 1970, it was suggested that International Law Commission should do research on non-navigational use of international watercourses to codify and better related laws. In the course of research, embryo and drafting, International Law Commission passed The Draft Articles on the Law of the Non-Navigational Uses of International Watercourses in 1991 and 1994. Finally in 1997, Watercourses Convention was passed in the General Assembly at its 25th session. As the first treaty on non-navigational uses of trans-boundary watercourses, it comprehensively stipulates the content, principles, forms and management rules. The aim is international watercourses utilization, development, maintenance, management and protection, thus to promote the utmost and sustainable use at the present and later ages. The treaty, merely a framework agreement, provides drainage basins countries with the guide of concluding bilateral and multilateral water treaties. Although it has not come into effect, its use does not lie in whether it takes effect. The Principles of Equitable and Reasonable Use, No-Harm, International Cooperation are the basics of International Law principles. Mentioned in the court adjudication on the Gapeskov Dam on The Danube, the treaty acted as authoritative statement in International Watercourses Law.

In the 52nd session in 2000, International Law Commission included "shared natural resources among countries" in the long-term work plan. Since 2002, the subject has been focusing on the study of trans-boundary groundwater. The Draft Articles on the Law of Trans-boundary Aquifers was submitted to the International Law Commission in 2006 by the workgroup and got passed in 58th session of the International Law Commission in the same year. It comprises 5 sections, 19 provisions, with the similar structure to the International Watercourses Convention. The draft will be approved in General Assembly in the form of convention.

2.2 Regional and basin water treaties

Characterized by river basin system itself, laws and rules on trans-boundary water resources protection are quite common in specific regional and basin water treaties, and retain the distinctive characteristic of "One Basin, One System". Therefore, compared with global convention, regional and basin water treaties are in great use.

Regional treaty is one concluded by countries in the same geographic regions, often chaired by regional international association, with concluding parties not restricted to the same drainage basin. A typical case is that the Economic Commission for Europe approved The Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes (The Helsinki Convention) at Helsinki in 1992. It is applicable to the whole Europe, America and Canada. The goal is to prevent the trans-boundary watercourses, groundwater included, and international lakes from being affected by trans-boundary environmental damage; to conserve biodiversity; and to maintain and recover natural water functions. In 2000, EU passed EU Water Framework Directive.

Basin water treaty is the one signed for basin watercourses protection and use by part of or all the countries, the main body of water treaties. Take Rhine in Europe, the Great Lakes in North

America and Lantsang, Mekong in Asia as an example. The Rhine Water Treaties contain The Convention on the Protection of the Rhine against Chemical Pollution (1976), The Convention on the Protection of the Rhine against Pollution by Chlorides (1976), and The Convention on the Protection of the Rhine (1998), etc. The former two are aimed at improving the water quality of the Rhine and stopping chemical and chlorine pollution; while the latter focuses on sustainable development of the Rhine from the perspective of situation as a whole, thus stipulating precaution principle, polluter-pays principle, sustainable development principle, etc. In order to control and alleviate pollution of the Great Lakes, USA and Canada entered into Great Lakes Water Quality Agreement in 1972. It was revised in 1978, 1983 and 1987. Such downstream countries along the Lantsang, Mekong River as Thailand, Cambodia, Laos, Vietnam, etc. signed The Agreement on Cooperation for the Sustainable Development of the Mekong River Basin. Thus sustainable development can be spread through all aspects of watercourse protection and use.

2.3 Resolutions and declaration adopted by intergovernmental organizations

Since the 1970s UN has been paying close attention to trans-boundary water resources protection. Passed in International Conference on Water in 1977, Mardel Plata Action Plan is made up of 11 resolutions and 102 recommendations. The 18th Chapter of Agenda 21, passed in Rio de Janeiro, specializes in water resources use and protection. World Nature Charter (1982), Rio Environment and Development Declaration (1992), The Johannesburg Declaration on Sustainable Development (2002), etc. involve trans-boundary water resources protection.

Regional international organizations, esp. those in Europe, play an active role in forming and developing watercourses protection laws. Charter on Groundwater Management, passed by The Economic Commission for Europe (ECE) in 1968, was adopted by International Law Association in laying down international groundwater laws. As pointed out in Declaration on Water Rational Use Principles by European Commission in 1984, watercourse utilization and allocation must be rational.

2.4 Resolutions and rules of international law academic societies

In the process of forming and developing trans-boundary water resources related international law academic societies, esp. International Law Association (ILA), outstanding contribution has been made. ILA pointed out in Declaration on International Law Principles in 1958 that in the absence of specific regulation in the treaties and standards, international basin States are entitled to share watercourses equitably and reasonably. ILA approved The Rules on the Uses of the Waters of International Rivers (The Helsinki Rules) in 1966, which is the first milestone of laws and regulations on trans-boundary watercourses use and protection. The Helsinki Rules at once guide other countries to use and protect trans-boundary watercourses use and protection, which is also the blueprint of The Convention on the Law of the Non-Navigational Uses of International Watercourses. ILA also passed other resolutions to supplement The Helsinki Rules, mainly The Rules on Pollution of the Waters of International Basins (Montreal Rules) (1982) and The Rules on International Groundwater (Seoul Rules) (1986). These rules play a key role in formulating the rule of equitable and reasonable utilization as the basic rule of international law for the trans-boundary use and development of waters.

Since the end of the 20th century, LA has fully integrated and revised The Helsinki Rules and the other rules supplementing The Helsinki Rules to comprehensively codify the watercourses laws, national as well as international, including international drainage basins water use and protection customary law. Finally in 2004 The International Law Association Rules on Water Resources (Berlin Rules) was approved. The Rules present a comprehensive collection of all the relevant customary international law that a water manager or a court or other legal decision maker would have to take into account in resolving issues relating to the management of water resources^[7].

3 Specific legal measures on trans-boundary water resources protection

From the above document and practice of relevant nations, basin States should take effective measures to protect drainage river water resources. These measures include:

3.1 Prevention of trans-boundary harm

3.1.1 Trans-boundary harm prevention is the duty of every nation

As the proverb goes that "An ounce of prevention is better than a pound of cure", trans-boundary water resources protection means that basin States should take the responsibility of preventing trans-boundary harm rather than compensation or remedy after damage. Compensation after loss often cannot restore it to the former state.

Prevention of trans-boundary harm caused by dangerous activities is part of International Law. Such documents as legal precedents, international resolutions and declarations establish the responsibility of trans-boundary harm prevention. Trail Smelter Case Arbitration emphasized prevention of harm, which is affirmed or reiterated in Principle 21 of Stockholm Declaration, Principle 2 of Rio Declaration, consultation on legitimacy of a country using nuclear weapons in armed conflict by International Court of Justice (1996), and Article 3 of Draft Articles on Prevention of Trans-boundary Harm from Hazardous Activities.

Prevention of trans-boundary harm to environment, persons and property is regarded as an important principle in documents of international watercourses utilization and protection, such as Article 10 of The Helsinki Rules, Articles 2 and 3 of The Helsinki Convention, Articles 21 and 27 of The Convention on the Law of the Non-Navigational Uses of International Watercourses, Article 16 of Berlin Rules, etc., prevention is especially urgent for underground waters, as we know little about underground waters. Once groundwater is polluted, it is no use taking any restoration measures. Therefore, it is laid down in Article 38 of Berlin Rules that a nation should act in advance and develop long-term plan to ensure sustainable utilization of underground aquifers and water.

In examining whether a country fulfills the obligation of prevention of harm, we judge by actions rather than results, that is, formulating related policies, laws and regulations on prevention of trans-boundary harm and carrying them out by enforcement mechanisms. Besides, lack of sufficient scientific certainty cannot be the reason for avoiding taking precautionary measures. In accordance with Principle of Prevention, cautious actions should be taken before trans-boundary harm is affirmed scientifically. The principle requires that all states should constantly examine obligation of prevention so as to catch up with scientific advancement. In the Gapeskov Dam on the

Danube, International Court of Justice pronounced the sentence that parties refer to new requirements of environmental protection, and reexamine the treaty about "thermal power plant's influence on environment"^[8] .

Not fulfilling the obligation of prevention or minimizing the hazards does not mean that the activities themselves are prohibited or the states take the responsibility. Although obligation of prevention has become established convention, it hasn't been the rigorous duty. If a nation doesn't perform the obligation, the victimized countries cannot institute legal proceedings, unless the countries concerned have relevant rules about the treaty.

3.1.2 Specific measures for prevention of trans-boundary harm

Measures must be taken for prevention of great trans-boundary harm. The terms of prevention of trans-boundary harm in the international documents often include the measures to "prevent, control and reduce" harm, not independently stipulate general, detailed and operable obligation and procedure on prevention items, such as The Convention on the Law of the Non-Navigational Uses of International Watercourses, and The Helsinki Rules. International Law Commission of UN passed Draft Articles on Prevention of Trans-boundary Harm from Hazardous Activities in 2001, thus established a mechanism of prevention on trans-boundary harm, including entity and procedural laws and rules. The mechanism consists of rules on prevention, cooperation, environmental impacts assessments, access to information, notification, consultation, etc. Here is the analysis on environmental impacts assessments, exchange of information, monitoring, etc.

(i) Environmental impacts assessments

Environmental impacts assessments are the most essential precautionary approach, the embodiment of precautionary approach in the major projects. The rule requires the study of likely environmental effects and the public participation in the assessments. The assessment result plays an instructive and guiding role for decision-makers. So the assessments are combined with environmental standards^[9]. Environmental impacts assessments enable the countries concerned to judge the hazard quality of relevant activities and scope, and to take precautionary approach. A study of UN says that environmental impacts assessments have shown the value in implementing and reinforcing sustainable development, because the assessments are combined with prevention principle and principle of prevention on environmental harm, and take public participation into consideration.

Environmental impacts assessments were first established in The National Environmental Policy Act in 1969 by the USA, and were adopted in other states' domestic and international documents, such as UN's Environmental Policy of 1969, Rio Declaration, The Helsinki Rules, Draft Articles on Prevention of Trans-boundary Harm from Hazardous Activities, Berlin Rules and Draft Articles on The Law of Trans-boundary Aquifers. The Convention on Trans-boundary Environmental Impact Assessment is a specialized agreement on standardizing trans-boundary environmental impact assessment activities.

The specific content of environmental impacts assessments is fixed in domestic laws by the countries who will do the assessments. Impacts to be assessed include, among others, effects on personal and property safety in other states, effects on environment. In The Berlin Rules, Article 29, Principle 2, impacts to be assessed also include effects on existing or prospective economic

activities; effects on cultural or socio-economic conditions; and effects on the sustainability of the use of waters

(ii) Exchange of information

Once trans-boundary water resources use program is started, basin States shall regularly provide to other basin States all relevant and available data and information. In general, the information is only accessible to the State, but if the information is helpful to other States which will be likely to be affected, the State should provide the information.

The purpose of exchange of information is to prevent harm and eliminate hazard. But the State doesn't have the obligation to inform regarding programs just because of the existence of some harm and hazard. If the activities are legal, the likely-affected countries may not advocate the Basin State's nonfeasance. The obligation of precautionary notification works only under the special circumstance that the likely-affected countries may take precautionary measures.

(iii) Monitoring

Monitoring is an essential step for environmental impacts assessments, a crucial step to prevent and eliminate harm. Trail Smelter Case Arbitration admitted that monitoring is a key step to prevent and eliminate harm, and required parties to monitor the performance of others. America-Canada Great Lakes Water Quality Agreement has detailed regulation on monitoring. The Helsinki Convention, Article 11 sets forth that the lateral countries should formulate and carry out associated programs of monitoring on trans-boundary water environment, including flood and trans-boundary impacts, and work out and carry out the standards on relevant monitoring plans and procedures. The Berlin Rules, Article 39 sets forth that states should take all appropriate measures to monitor underground waters.

The Draft Articles on the Law of Trans-boundary Aquifers, Article 12 sets forth that the countries of aquifers should monitor the trans-boundary aquifers and aquifer system, and monitoring methods as well, including monitoring activities with countries of other aquifers, cooperation with international organizations, exchanges of monitoring data, use of fixed or unified standards and methods to monitor. One of the purposes of EU Water Framework Directive is to establish integrated monitoring and management mechanisms in drainage basin. In order to carry out the Directive, the Danube International Protection Commission, established in 1998, implemented accident forecast and warning system in the whole Danube basin. Remote sensing system is employed to monitor polluted water, flood and glacier, forecast and send out alarm. Although 18 countries border the Danube, monitoring stations are set up in the tributaries and mainstreams to send out real-time data to the accident forecast and warning alarm system of the Commission^[10].

3.2 Minimization of harm

As a step or a kind of obligation, prevention is for the phase before the great harm takes place. If harm is caused, the relevant countries shall take remedial measures and compensate to minimize harm. Specifically, here are the measures to minimize harm:

3.2.1 Notification

States shall notify other States likely to be affected, and sometimes regional or international organizations, of the accident information and the measures they are taking or will take to mini-

mize harm. The obligation of notification is a part of customary international law. In Corfu Channel Case (1949), International Court of Justice reinforced that State had the obligation to warn other States of the danger which might cause death or great damage. The court maintains that a country has the duty to use the territory without threatening the rights of other States. The Right is based upon "humanitarian consideration". The obligation of notification is also stated in The Helsinki Rules, Article 29, Rio Declaration, Principle 19, The Helsinki Convention, Article 14, The Convention on the Law of the Non-Navigational Uses of International Watercourses, Article 12, The Berlin Rules, Article 57, The Draft Articles on the Law of Trans-boundary Aquifers, Article 14, etc.

3.2.2 Aid and cooperation in emergency

Emergency might be caused by natural conditions or human conduct. The consequences of harm and the unexpectedness of emergency are the root for riparian countries to provide aid and cooperation. More and more international water law documents require aid and cooperation in emergency to minimize harm, such as The Convention on the Protection of the Rhine against Pollution by Chlorides, Article 11, America-Canada Great Lakes Water Quality Agreement, Encl 9, The Convention on the Law of the Non-Navigational Uses of International Watercourses, Article 28, Principle 2, The Berlin Rules, Article 32, The Draft Articles on the Law of Trans-boundary Aquifers, Article 16, etc.

3.2.3 Pollution control

Pollution is the main reason for harm, so pollution control is the inexorable requirement of minimization of harm. The rule of pollution control is stated in The Helsinki Rules, The Helsinki Convention, EU Directive on Integrated Pollution Control, The Convention on the Law of the Non-Navigational Uses of International Watercourses, The Berlin Rules, The Draft Articles on the Law of Trans-boundary Aquifers, etc.^[11].

The overall situation should be taken into consideration in pollution control, with a view to the integrated control of pollution^[12]. Pollutants can be disposed of in the earth, air, water or outer space. The firm control on pollutants dumping in the land encourages discharge of pollutants in the atmosphere and marine. Sometimes the main pollution sources do not directly discharge pollutants, but they are polluted by the atmospheric and land-sourced pollutants, which are "cross-media pollution". Scientific research shows that most of the pollution in Great Lakes is caused by atmospheric and surface water pollution and flows into lakes rather than discharging pollutants into the lakes directly, which is strictly prohibited. In 1987, the modification of America-Canada Great Lakes Water Quality Agreement shows the study.

Next, in terms of long-term pollution caused for many reasons, it is essential to control discharge amount and types of pollutants. Such means can be employed as forbidding transnational

The main characteristic of integrated control is to take comprehensive and systematic control of all kinds of pollution and environmental parameters, which helps overcome the defects of tradition. The traditional ways of control are disintegrated and individual, thus to neglect the link and transmutation and the connection and movement of different environmental parameters. See Ref [12].

flow of pollutant, permit system, polluted industrial technical standards, charges of pollutants discharge, tax credits for minimizing pollutant discharge, position choice of pollution control facilities, encouraging recycling of wastes, etc^[13].

3.3 Public participation

States should encourage those whose life, health, property and environment might be affected to participate into the process by which decisions are made, have the opportunity to express their views, and make the last decision-maker hear their opinions. Public participation can enhance prevention of trans-boundary harm, legitimacy and the extent of observance of relevant policies. There are numerous ways of public participation into decision-making, such as holding hearings, going through data and information upon which decision-making is based.

In order to enable such participation, States should provide access to the information relevant to policies, plans or programs, including activities, risk and harm nature and scope. Public participation into the decision-making process and access to information are stated in The Convention on Trans-boundary Environmental Impact Assessment, Article 3, Principle 8, Rio Declaration, Principle 10, The Helsinki Convention, Article 16, The Convention on the Law of the Non-Navigational Uses of International Watercourses, Article 12, The Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) (1998), Draft Articles on Prevention of Trans-boundary Harm from Hazardous Activities, Articles 9 and 13. Aarhus Convention intensifies the right to know the environment and the right to participate into some decision-making process.

One more important point is that the obligation of States taking appropriate precautionary measures or minimizing harm is the obligation of "appropriate efforts". But it doesn't make sure that the harm won't occur. As the basis of great trans-boundary harm prevention or obligation of minimizing risk, "appropriate efforts" obligation runs through the continuous obligation at every phase.

4 Practice of law and recommendations China adopts in trans-boundary water resources protection

The trans-boundary water resources related to China mainly refers to international river-basin water resources. China totally owns over 100 international rivers, involving 19 countries, such as Viet Nam, the Democratic People's Republic of Korea, Russia and India, among which, 15 countries border China. These international rivers affect nearly 3 billion people, accounting for 40% of the total water resources in China^[14]. These rivers are distributed in three regions: Northeast International River, with the boundary river as the main type; Xinjiang International River, with a boundary river base, and rivers flowing outbound; Southwest International River, with rivers flowing outbound as the main type. The main international rivers are, from east to west, from north to south: Heilongjiang River, Wusuli River, Suifen River, Tumenjiang River, Yalu River, Ertix-Ob River, Ili River, Tarim River, Indus River, Ganges, Yarlung Zangbo-Brahmaputra River, Rangoon River, Nujiang Salween River, Lacang-Mekong River, Yuanjiang-Red River, and Zhujiang River. The special position makes China the most important

upstream country in Asia, or even in the world, and is the water tower of Asian continent

As the upstream country of most international rivers, China has certain influence on these rivers. As China opposes the way of settling compulsory disputes in International Watercourses Convention, China voted against it at general assembly conference. But the principles of equitable utilization, no-harm and international cooperation are the customary principles of trans-boundary water resources use and protection, with some international law effect. Our country is carrying out Water Law, Law on Prevention and Control of Water Pollution, Law on Water and Soil Conservation, Environmental Impact Assessment Law, Environmental Protection Law, etc. These laws also apply to utilization and protection of international rivers in China. It is our duty to obey these principles and domestic legislation in trans-boundary water resources utilization and protection, and we have taken some measures.

4.1 Practice of law China adopts in trans-boundary water resources protection

China pays attention to environmental protection of Lancang River while building dams along it. For example, while building Xiaowan Hydropower Station, environmental investment of 125 million yuan was put for soil erosion prevention and ecological environment scientific research, including the destroyed woods while reconstruction. In terms of the fishery resources, the common concern of the states of lower reaches, the dam builders made some regurgitation cavities for those fish laying eggs against the current, and opened up fish natural reserves in Nan 'A River, Luosuojiang River and Nanla River of lower reaches of Lancang River where the migration fish gathers together^[15].

Since the 1950s, China has signed bilateral treaties on the use of Boundary Rivers with some lateral countries of Northeast Boundary Rivers. In 1956, China and the former Soviet Union signed Boundary Water Utilization Treaty for Heilongjiang River development and use. In 1960, China and Korea signed The Treaty on Navigational Cooperation in International Rivers for Yalu River development. Since the 1990s, China has accelerated negotiating and signing bilateral water treaties with the shared riparian countries of Northeast and Southwest Boundary Rivers. And those treaties are no longer confined to merely development and utilization, but use and protection. In 1992, China and Russia signed The Agreement on Use of Sino-Russian Shipping Foreign Trade Transportation in Heilongjiang River and Songhuajiang River, thus putting an end to the ships not being able to coming out of Heilongjiang River for over 130 years^[16]. In 1994, China and Mongolia signed The Agreement on Boundary Water Use and Protection between China and Mongolia. China and Kazakhstan negotiated on utilization and protection of the two countries' boundary rivers, Ili River and Irtysh River, and signed The Cooperation Agreement on Trans-boundary Rivers Utilization and Protection between PRC and Kazakhstan. Joint committee was established in charge of boundary river management. After a long-term negotiation, China and Russia signed The Cooperation Agreement on Trans-boundary Water Body Utilization and Protection in January, 2008.

China's cooperation with other countries related to international rivers on mutual exchange of flood control data, water resources management, shipping, etc. is reinforced. In the light of shortage of hydrological stations in international river basins, backward installations, murky waters, China's government and Ministry of Water Resources raised investment in establishing inter-

national hydrological stations network, and compiled Planning for Hydrological Network in International River Basins^[17]. China's cooperation on information is increasingly strengthened. In 2002, China and India signed Directives for China Providing India with Flooding Data on Yarlung Zangbo River-Brahmaputra Rivers, and China's relevant departments offer Yarlung Zangbo River flooding information from June to October each year. In the same year, China's Ministry of Water Resources signed flood warning agreement with Mekong River Commission. In the morning from June to October, China sent Mekong River Commission Secretariat water level and rainfall of Yunjiangan and Man'an Hydrological stations^[16]. China is negotiating with Kazakhstan about information cooperation.

4.2 Problems and legal recommendations of China's trans-boundary water resources protection

Although greater attention has been paid to trans-boundary water resources protection and management, it is still in its infancy, and there still exist some prominent problems: water pollution is severe; water pollution happens with increasing frequency; water pollution with trans-boundary influence and harm happening occasionally. The main causes are: more attention is paid to trans-boundary water resources development and utilization, the overall planning of basin use and protection and necessary environmental monitoring are neglected; environment impact assessment turns out to be a mere formality; some construction projects go into operation before environmental impact assessment; multitudes of polluting enterprises border the rivers for the convenience of drawing water; poor exchange of information after the polluting accidents, etc. In 2005, Sino-Russian Songhuajiang River water pollution fully exposed China's water resources protection problem: from the perspective of industrial layout, petro-chemical severe polluting enterprises border the basins. In the accident, due to Jilin Environmental Protection Agency's lack of timely transmission of message, State Environmental Protection Administration (now State Environmental Protection Department) missed the opportunity to nip the polluting accident in the bud stop, thus being unable to prevent the harm in time. After the accident, as for whether Songhuajiang River was polluted or not, Jilin environmental protection departments failed to offer monitoring data, and other departments evaded problems, shifted responsibilities, and even provided false information to the public and media. It not only missed the best time to put pollution under control, brought great trouble to people and industrial production, but also the tremendous evil influence internationally brought serious polluting harm to the countries of lower reaches and people.

In order to protect water quality, prevent trans-boundary water pollution, promote the economic and social sustainable development and carry out the friendly relation with neighboring countries, China is badly in need of practical legal measures. Firstly, rigidly enforce such laws and rules as Environmental Impact Assessment, Law on Prevention and Control of Water Pollution; conduct objective and fair environmental impact assessment on construction projects within the basins; and decide whether to keep or abolish the construction projects based on the assessment results. Secondly, cooperate with riparian countries or invest in advanced-equipped apparatuses; train high-caliber and high-level technical personnel; set up transnational water environmental monitoring network; tighten up the water environmental monitoring; equip professional

water quality monitoring ship in the transnational basin mainstream to enhance the capacity of providing against pollution accident and prompt reaction, and covering the entire river basin. Thirdly, maintain and enhance mutual information exchange and cooperation with neighboring and bordering countries, esp. after the water pollution accident, prompt reaction is needed to provide information to States likely to be affected, and take effective measures against pollution alone or jointly. Fourthly, resume negotiation and sign bilateral and multilateral basin protection agreement with more bordering countries, and set up river basin protection or council commission responsible for transnational river basin protection and management.

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跨国水资源保护法律问题研究

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摘要: 跨国水资源包括国际河流、湖泊及其大小支流,或者国际河流的入口和出口(通常称为国际流域)以及处于两国或更多国家管辖之内的地下水系统。环境保护是世界各国应承担的义务,流域各国在自己境内利用跨国水资源或进行其他活动时,有义务通过国际合作或者采取合理的单边措施,保护国际流域水资源,防止对其他流域国造成重大损害。规范跨国水资源保护问题的国际法律文件包括全球性水条约、区域性和流域水条约、政府间组织的决议和宣言、国际法学术团体的决议和规则等。根据这些文件的规定以及国际社会的实践,流域各国应当采取的保护国际流域水资源的措施包括但不限于环境影响评价、交流信息、监测、通知、紧急情况下的援助、控制污染、公众参与等,这些措施有助于预防和减少损害。中国在保护相关跨国水资源方面也采取了环境影响评价、交流信息等措施,但是需要加强和改进。

关键词: 跨国水资源; 保护; 保护措施

新书介绍

中国自然资源学会组织编写的《资源科学技术名词》已由科学出版社正式出版发行。这是全国科学技术名词审定委员会最新公布的资源科学领域里的规范性工具书,内容包括资源科学总论、资源经济学、资源生态学、资源地学、资源管理学、资源信息学、资源法学、气候资源学、植物资源学、草地资源学、森林资源学、天然药物资源学、动物资源学、土地资源学、水资源学、矿产资源学、海洋资源学、能源资源学、旅游资源学、区域资源学、人力资源学 21 部分,共 3 339 条,每条名词都给出了定义或诠释。本书适合于从事科研、教学、生产、经营以及新闻出版等部门有关人员使用,各地新华书店有售,定价:78 元。

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