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Abstract

Fresh water is an indispensable part of the environment for being one of the three media of abiotic environment, as well as for its essential function and vital role to biotic environment. The failure of the human beings and their communities to satisfy the environment for appropriate water requirement has been leading to significant, unnecessary and preventable sufferings on both the environment and the human beings. This paper discusses that the environment for appropriate water requirement is a right implicitly or explicitly by international law, international documents and State practice. Individuals and their communities at various levels should work to provide the environment with appropriate water and guarantee the environmental right to water as a lawful right. By acknowledging the environmental right to water and willingness to meet this right for the environment deprived of it, the human beings and their communities should have a valuable tool for addressing the crisis of water resources and sustainable development.

Key words: the environmental right to water, fresh water, international law, water requirement, State practice

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1 Introduction

The Earth has been facing a serious water crisis, which is experienced by the natural environment as well as by the human beings. In many parts of the world, because of mismanaging, misusing, overusing water and/or dumping waste, the natural environment including freshwater ecosystem is on the way of degrading and becoming dangerous. [1] Although individuals and their governments, international organizations, NGOs and other communities have adopted some measures to better manage and plan appropriate water requirement for the environment, those done are obviously not enough. Efforts

shall be step up continually. Either from the viewpoint of lawyer or from that of hydrologist, water law should play an important role in the development and utilization of water resources.[2] Therefore, where a water shortage exists, legal mechanisms for water rights must be established or strengthened to ensure the sustainable, reasonable, equitable and efficient utilization of water resources.

‘Stability of water rights is an important principle in water law’, and ‘[a] system of stable water rights is an incentive to invest in the development and conservation of water resources.’ [3] The human right to water has been summarised by the Committee on Economic, Social and Cultural Rights of UN Economic and Social Council, and the General Comment No. 15 (2002), which is titled ‘The right to water (Articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights)’, was adopted on 26 November 2002 during its 29th session. However, without the environmental right to water being acknowledged, given proper priority and enforced by law, being implemented in practice, water crisis could not be resolved fairly, equitably, reasonably, but continues to exaggerate and constitutes a severe obstacle to sustainable development, on the one hand. On the other, the human right to water of the future generation could not be fulfilled or ensured. After review of the evolution of ethic relating to the environment reflected in international legal documents, this article will discuss the environmental right to water in international law as well as in State practice, and following that, conclusions will be given.

2 The Evolution of Environmental Ethics in International Law

Since 1970’s, the increasing serious environmental problems and/or severe environmental situations have led to common concern on environmental protection. Ethic, law or policy, and technology have evolved and/or developed greatly.

From 5 to 16 June 1972, the UN Conference on the Human Environment was raised in Stockholm, Sweden, and environmental protection for the first time became a common issue of the world. Since that time, the concept and ideology of environmental protection have developed with cultural, economic, social and technology development. In the Stockholm Conference, human being is recognized as ‘both creature and moulder of his environment’, and ‘[m]an has a special responsibility to safe guard and wisely manage the heritage of wildlife and its habitat’.[4] It is obvious that the reasons for environmental protection only laid on the basis of human interest.

However, ten years later, World Charter for Nature was adopted at the 37th UN General Assembly on 28th October 1982.[5] In its Preamble, the Charter is aware that ‘[m]ankind is a part of nature and life depends on the uninterrupted functioning of natural systems’, and convinced that ‘[e]very form of life is unique, warranting respect regardless of its worth to man, and, to accord other organisms such recognition’. Upon this, five general principles are declared as follows:

1. Nature shall be respected and its essential processes shall not be impaired.
2. The genetic viability on the earth shall not be compromised; the population levels of all life forms, wild and domesticated, must be at least sufficient for their survival, and to this end necessary habitats shall be safeguarded.
3. All areas of the earth, both land and sea, shall be subject to these principles of conservation; special protection shall be given to unique areas, to representative samples of all the different types of ecosystems and to the habitats of rare or

endangered species.

4. Ecosystems and organisms, as well as the land, marine and atmospheric resources that are utilized by man, shall be managed to achieve and maintain optimum sustainable productivity, but not in such a way as to endanger the integrity of those other ecosystems or species with which they coexist.

5. Nature shall be secured against degradation caused by warfare or other hostile activities.’ [6]

And these principles are required to be reflected in the law and practice in domestic law as well as international law.[7] Further some detail measures are suggested to adopt so as to implement the above five principles.

In the UN Conference on Environment and Development, held in Rio de Janeiro, Brazil, from 3 to 14 June 1992, many legal documents relating to environment as well as development, i.e. sustainable development, were adopted. Among them, the important and comprehensive ones are Rio Declaration on Environment and Development and Agenda 21. [8] In Rio Declaration, the ideology of ‘the integral and interdependent nature of the Earth’ is further understood and introduced.[9] Moreover, Principle 1 declares that, ‘[h]uman beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.’ And Principle 3 states that, ‘[t]he right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.’ Principle 4 stipulates that, ‘[i]n order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.’ Principle 7 makes out the necessary to ‘conserve, protect, and restore the integrity of the Earth’s ecosystem’ Principle 23 states that, ‘[t]he environment and natural resources of people under oppression, domination and occupation shall be protected.’ Further Principle 25 provides that, ‘[p]eace, development and environmental protection are interdependent and indivisible.’

The first two paragraphs of the Preamble of UN Convention on Biological Diversity 1992, which was adopted at the Rio Conference, read as follows:

‘Conscious of the intrinsic value of biological diversity and of the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components, Conscious also of the importance of biological diversity for evolution and for maintaining life sustaining systems of the biosphere.’ [10]

In March 1995, The World Conservation Union (IUCN), in cooperation with the International Council of Environmental Law, completed Draft International Covenant on Environment and Development.[11] In 2000, the Draft Covenant was updated.[12] In the preamble, the Draft Covenant declares that, ‘humanity is part of nature’.[13] Further, it provides that, ‘[n]ature as a whole warrants respect. The integrity of the Earth’s ecological systems shall be maintained and restored. Every form of life is unique and is to be safeguarded independent of its value to humanity.’ ‘[t]he global environment is a common concern of humanity.’ ‘[p]eace, development, environmental protection and respect for human rights and fundamental freedoms are interdependent’.[14] It is not difficult to find that the ethic on environment is developed.

In the first year of this century, UN Millennium Declaration was adopted on 8 September in the 55th UN General Assembly. [15] In the Declaration, respect of nature is listed among six fundamental values to be essential to international relations in the 21st century. The said respect of nature means that:

‘Prudence must be shown in the management of all living species and natural resources, in accordance with the precepts of sustainable development. Only in this way can the immeasurable riches provided to us by nature be preserved and passed on to our descendants. The current unsustainable patterns of production and consumption must be changed in the interest of our future welfare and that of our descendants.’ [16]

In Part IV entitled as ‘protecting our common environment’, paragraph 22 reads as follows:

‘We reaffirm our support for the principles of sustainable development, including those set out in Agenda 21, agreed upon at the United Nations Conference on Environment and Development.’

and in paragraph 23, ‘a new ethic of conservation and stewardship’ is admitted to adopt.

From 26 August to 4 September, the World Summit on Sustainable Development was set up in Johannesburg, South Africa. One of the important results is the adoption of Johannesburg Declaration on Sustainable Development at the 17th plenary meeting of the World Summit on Sustainable Development, on 4 September 2002. [17] In the Declaration, on the basis of reaffirming commitment to sustainable development, the thought of sustainable development consisting of economic development, social development and environmental protection is introduced, [18] and ‘[t]he global environment continues to suffer’ is among the challenges human beings are facing. [19]

In the area of international trade, the value of the environment is special mentioned. For example, paragraph 1 of the Preamble of the Agreement Establishing the World Trade Organization reads that:

‘Recognizing that their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, and expanding the production of and trade in goods and services, while allowing for the optimal use of the world’s resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so in a manner consistent with their respective needs and concerns at different levels of economic development.’ [20]

It is obviously that the intrinsic value of the environment or the nature has been recognized, and sustainable development has been committed. In the WTO Ministerial Declaration, adopted on 14 November 2001 at the Doha Ministerial Conference, the objective of sustainable has been reaffirmed, and the ministers ‘are convinced that the aims of upholding and safeguarding an open and non-discriminatory multilateral trading system, and acting for the protection of the environment and the promotion of sustainable development can and must be mutually supportive.’ Further, ‘under WTO rules no country should be prevented from taking measures for the protection of human, animal or plant life or health, or of the environment at the levels it considers appropriate, subject to the requirement that they are not applied in a manner which

would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, and are otherwise in accordance with the provisions of the WTO Agreements.’ [21]

From the evolution of the above international legal documents, it is not difficult to find that, gradually, based on the understanding that ‘environmental security, social well-being and economic security are intricately intertwined and fundamentally interdependent’, the environment or the nature has been recognized to have its own natural and intrinsic value, [22] although the objective of protection of the environment might be a comprehensive or holistic package, and sustainable development, expressively or blandly, has been committed in all the above international documents. Indeed, environmental protection has involved in many different matters, and different approaches have been employed. According to the studies of Alexander Gillespie, as to the reason why and how the environments is protected, anthropocentric justification, which consists of five different approaches, i.e., self-interest justification, use of economic rationale justification, religious justification, rights of future generation justification, and aesthetic, cultural and recreational justification, as well as non-anthropocentric justification, which embraces three approaches, i.e., moral considerability of animals justification, respect for life justification and the land ethic justification, have been deployed, and each of these justification has advantages and disadvantages, i.e., could not be employed to resolve all issues relating the protection of environment alone. [23] As to the law, it concerns property law, human rights, criminal law, government administration, procedural law, etc. ‘At a wider level, the work of environmental philosophers may be adopted so as to establish a legal concept which accords the environment some status in its own right.’ [24] As to the employment of the term of ‘environmental right’, one argues that, ‘[t]he problem of defining such [environmental] rights so as to satisfy diverse ethical criteria is complicated by the need to make them operate in a legal context’. [25] And other thinks the term ‘might be better used to describe procedural rights possessed by individuals, such as rights to information, rights to be consulted, rights to have reasons provided for a decision and rights to make a complaint’ . [26] In this paper, the land ethic justification, or holistic environmental ethic justification or deep ecology ethic justification or ecocentric approach, will be employed to analysis the environmental right to water. On the basis of the ethic of humanity being part of nature, environment having its intrinsic value, it is reasonable to accept the following two concepts to some extent, a) the environment not only has its own intrinsic value but also provide human beings with essential services; b) the sustainability of the environment requires participatory, environment-based management. In this paper, the author would like to argue the environmental right as a) the right that the environment should have, i.e. substantial content, and b) the present human beings as well as groups formed by them at various levels, i.e. individuals, communities, governments, governmental organizations, non-governmental organizations, the present generation, etc, have right as well as are under duty to safeguard a), i.e. procedural content. For that, in order to realize the environmental right, the present human beings, should be entitled the rights as well as be set up

the duties, to protect the environment and enable the environment to be in a good and healthy order or status, for the benefit of the human beings, including individuals, communities, the present generation, or the future generation, while for the benefit of the natural environment.

3 Does There Exist the Environmental Right to Water?

Water is an essential component of the environment for being one of the three media, i.e. air, water and earth, of the non-living (abiotic) environment, and its essential function and vital role to the living (biotic) environmental of flora, fauna (plants and animals). Without water, no life exists on the one hand. On the other hand, water resources has vital role in the conversation of the whole environment. In this sense, '[w]ater is an essential part of any ecosystem, in terms of both its quantity and quality. Reducing the availability of water for the natural environment will have devastating effects'. [27] That is to say, without appropriate water with minimum quantity and proper quality in suitable places, the environment could not sustain in a good and healthy order or status. Therefore, the environment is entitled to get appropriate water for its beneficial order or sustain. In other words, from the very nature sense, there exists the environmental right to water. However, without enabling the present human beings or groups at different levels organized by them to have right and setting upon them duty to protect the substantial right that the environmental has, it is impossible for the environmental right to water to be realized. In this paper, the environmental right to water would be invoked as, a) the entitlement of the environment to get appropriate water with minimum quantity and proper quality in suitable places to sustain in a good and healthy order or status, i.e. the substantial content of the environmental right to water, and b) the right and duty of the present human beings or groups organized by them to realize a), i.e. the procedural content of the environmental right to water. The environmental right to water constitutes the main and important content of environmental right.

Although the 1992 Stockholm Conference did not pay enough attention to water for the environment or ecosystem, later, many comprehensive as well as special international legal documents dealing with water resources have been adopted, and the environmental right to water has been stipulated. In 1977, Mar del Plata Action Plan was adopted at the Mar del Plata Conference, and most of its content have been absorbed or developed in Agenda 21. From 26 to 31 January 1992, the International Conference on Water and the Environment in Dublin, Ireland, and The Dublin Statement on Water and Development was adopted at its closing session. [28] In the Statement, four guiding principles were introduced, and the environmental right to water was acknowledged. The Statement has influenced the relevant documents adopted later, e.g. Rio Declaration, Agenda 21. Further, many international documents, e.g. Millennium Declaration, Johannesburg Declaration, have adopted in this century to deal with the environmental right to water to some extent. To conclusion, water has been recognized as an indispensable component of the environment in international documents, and the environment right to water has been recognized in many important international and domestic legal documents as well as relevant authoritative literatures.

4 The Substantial Content of the Environmental Right to Water

The environmental right to water entitles the environment or the nature to minimum

amount of water with appropriate quality in suitable places to sustain the environment, nature or ecosystem in a healthy order or status. This right has been identified by a wide range of international treaties, declarations, and other documents, and authoritative literatures, and State practice.

Among the four Dublin principles, the first principle is directly to the substantial content of the environmental right to water. It reads as follows:

‘Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.’

Water maintains all life on the Earth; therefore effective management of water resources demands a holistic approach, i.e., considering social and economic development as well as protection of natural ecosystem. In another word, the environment should be protected for its own or intrinsic value.

In Stockholm Declaration, Principle 2 declares that:

‘The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.’

Because water is an indispensable component of the environment, it is clear that, according to Principle 1, 3, 4, 7, 23 and 25 of Rio Declaration, the environmental right to water is provided as an implicit part. And this could be identified in Agenda 21, in which, the substantial content of the environmental right to water is stated clearly in Chapter 18, the longest chapter, which is entitled ‘Protection of the quality and supply of freshwater resources: application of integrated approaches to the development, management and use of water resources’. In paragraph 18.2, the general objective of Chapter 18 is stated as that:

‘The general objective is to make certain that adequate supplies of water of good quality are maintained for the entire population of this planet, while preserving the hydrological, biological and chemical functions of ecosystems, adapting human activities within the capacity limits of nature and combating vectors of water-related diseases.’

In paragraph 18.8, under the awareness of water being an integral part of the ecosystem, considering the functioning of aquatic ecosystems and the perennially of the resource, to satisfy and reconcile needs for water in human activities, it provides that:

“In developing and using water resources, priority has to be given to the satisfaction of basic needs and the safeguarding of ecosystems.

The title of Part C of Chapter is ‘Protection of water resources, water quality and aquatic ecosystems’. Under this part, paragraph 18.36 stipulates that, freshwater management be holistic and ‘based on a balanced consideration of the needs of people and the environment.’

Paragraph 18.38(a) further stipulates as follows:

‘Maintenance of ecosystem integrity, according to a management principle of preserving aquatic ecosystems, including living resources, and of effectively protecting them from any form of degradation on a drainage basin basis.’

And paragraph 18.39(g) requires the states ‘[t]o adopt an integrated approach to

environmentally sustainable management of water resources, including the protection of aquatic ecosystems and freshwater living resources' .

Under UNCBD 1992, the variability among living organisms from aquatic ecosystems and the ecological complexes of which they are part is one of component of biological diversity, and the intrinsic value of the biological diversity is acknowledged. [29] It is logical to conclude that the ecosystem has right to get appropriate water with minimum amount and proper quality in suitable places to sustain.

In the Ministerial Declaration of The Hague on Water Security in the 21st Century, agreed to on Wednesday 22 March 2000, in Hague, Netherlands, the ministers recognized that, 'to provide water security' 'means ensuring that freshwater, coastal and related ecosystems are protected and improved' . [30] Further, seven challenges were adopted as the basis for future action. Among these challenges, two are directly to the content of the environmental right to water, i.e., protecting ecosystems - ensuring their integrity via sustainable water management, and valuing water - to manage water in the light of its different values, including environmental value. [31]

In Millennium Declaration, under Part IV which entitled 'Protecting our common environment', paragraph 22 states that, '[w]e reaffirm our support for the principles of sustainable development, including those set out in Agenda 21, agreed upon at the United Nations Conference on Environment and Development.' And according to paragraph 23, under a new ethic of conservation and stewardship, each state would resolve '[t]o stop the unsustainable exploitation of water resources by developing water management strategies at the regional, national and local levels, which promote both equitable access and adequate supplies.'

In Johannesburg Declaration, the states reaffirm their commitment to sustainable development, and to 'undertake to strengthen and improve governance at all levels for the effective implementation of Agenda 21, the Millennium development goals and the Plan of Implementation of the Summit' . [32]

In the Ministerial Declaration adopted on 24 March 2003 at the Third Water Forum, Tokyo, Japan, under the basis of recognize of 'the need to intensify water pollution in order to reduce hazards to health and the environment and to protect ecosystems, including control of invasive species', the ministers have thought '[t]o ensure a sustainable water supply of good quality', they 'should protect and use in a sustainable manner the ecosystems that naturally capture, filter, store, and release water, such as rivers, wetlands, forests, and soils', and further have urged 'countries to review and, when necessary, to establish appropriate legislative frameworks for the protection and sustainable use of water resources and for water pollution prevention' . [33]

In other international legal documents, the environmental need for water is also be identified. For example, Article 6.1(a) of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses (1997) provides that, in determine what is an equitable and reasonable utilization of an international watercourse, '[g]eographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character' should be regarded as a fact and be taken into consideration with all other relevant factors and circumstances. [34]

In Convention on the Protection and Use of Transboundary Watercourses and

International Lakes (1992), the contracting parties are under duty to take all appropriate measures ‘[t]o ensure that transboundary waters are used with the aim of ecologically sound and rational water management, conservation of water resources and environmental protection’, ‘[t]o ensure conservation and, where necessary, restoration of ecosystems’ .[35]

In the United Nations World Water Development Report, ‘Water for People, Water for Life’, it is realized that, all the goals most relevant to water among the Millennium Development Goals for 2015 needs to be achieved ‘while protecting the environment from the further degradation’ .[36] And protecting ecosystems for people and planet is listed as the second challenge to life and well-being in the Earth. Human beings ‘have come to accept two important concept in the past decade: firstly, that ecosystems not only have their own intrinsic value, but also provide humankind with essential services; secondly, that the sustainability of water resources requires participatory, ecosystem-based management’ .[37]

According to World Bank’s Water Resources Sector Strategy (2003), one of the three fundamental principles in modern water resources management is ecological principle, and ‘the environment is, of course, a special “water-using sector” in that most environmental concerns are a central part of overall water resources management, and not part of a distinct water-using sector’ .[38]

5 The Procedural Content of the Environmental Right to Water

In order to fulfil the substantial content of environmental right to water, individuals as well as their communities at different levels should be given rights and be imposed upon duties, and necessary procedure measures should be enacted into the law and policy. It should be noted and understood that to do a thing is sometimes an obligation as well as a right at the same time, and to do a thing is an obligation of one and relatively is a right of another. That is to say, sometimes, right, obligation, duty, power or responsibility are integrated.

A The Obligations of the States

In order to reasonably realize the environmental right to water, international law imposes certain obligations on the states. Under these obligations, the states shall or should admit and take appropriate steps to realize the environmental right to water. The obligations of the states relating environmental right to water, like that relating to human right to water, could be argued at four levels, i.e., general legal obligations, specific legal obligations, international obligations and core obligations.

1 General Legal Obligations

The environment has a right to get minimum amount of water with proper quality in suitable places to sustain itself, including all relevant ecosystems, and the present human beings are under duty and are entitled to realize the above right. However, situations relating to water resources differ from state to state, from region to region, and there exist different economic, social development levels. Therefore, the restrictions due to the limits of available resources of different states should be acknowledged. Nevertheless, the states shall still be imposed corresponding obligations in relation to the environmental right to water. The states have the immediate obligations, e.g. to recognize the environment having a right to minimum of

water to sustain in a healthy status, as well as obligations to take appropriate steps towards the reasonable realization of the environmental right to water. The steps must be conscious, actual and targeted towards the realization of the environmental right to water, although the states could adopt these steps 'according to their capacity and available resources' in accordance with Agenda 21. [39]

According to paragraph 18.40 of Agenda 21, all states could implement relevant special activities to realize the substantial content of the environmental right to water. Among them, the followings are of most importance:

(a) in water resources protection and conservation, include '[p]reparation of national plans for water resources protection and conservation', '[r]ehabilitation of important, but degraded catchment areas, particularly on small islands' .[40]

(b) in water pollution prevention and control, include '[m]andatory environmental impact assessment of all major water resource development projects potentially impairing water quality and aquatic ecosystems, combined with the delineation of appropriate remedial measures and a strengthened control of new industrial installations, solid waste landfills and infrastructure development projects' .[41]

(c) in protection of aquatic ecosystems, include '[r]ehabilitation of polluted and degraded water bodies to restore aquatic habitats and ecosystems', '[c]onservation and protection of wetlands (owing to their ecological and habitat importance for many species), taking into account social and economic factors', '[c]ontrol of noxious aquatic species that may destroy some other water species' .[42]

(d) in protection of freshwater living resources, include '[p]rotection of ecosystem from pollution and degradation for the development of freshwater aquaculture projects' .[43]

2 Specific Legal Obligations

The environmental right to water imposes three types of obligations on the states, i.e., obligations to respect, obligations to protect and obligations to fulfil.

(a) Obligations to respect. The obligation to respect requires the states refrain from interfering directly or indirectly with the enjoyment of the environmental right to water. The obligation includes, inter alia, refraining from engaging in any practice or activity that denies the environment's access to minimum water, unlawfully diminishing or polluting water. Under Agenda 21, the states should 'adopt an integrated approach to environmentally sustainable management of water resources, including the protection of aquatic ecosystems and freshwater living resources' .[44]

(b) Obligations to protect. The obligation to protect requires the states to prevent third parties from interfering in any way with the enjoyment of the environmental right to water. Third parties include individuals, groups, corporations and other entities as well as agents acting under their authority. The obligation includes, inter alia, adopting the necessary and effective legislative and other measures to restrain, for example, third parties from denying environment's access to minimum water; and polluting water resources and over extracting water from water resources. For example, the states should establish the standards for the discharge of effluents and for receiving waters. [45]

(c) Obligations to fulfill. The obligation to fulfil can be categorized into the obligations to facilitate, promote and provide. The obligation to facilitate requires

the states to take positive measures to assist the environmental to enjoy the right to water. For example, Agenda 21 requires the states to maintain 'ecosystem integrity, according to a management principle of preserving aquatic ecosystems, ... and of effectively protection them from degradation on a drainage basin basis', '[t]o adopt an integrated approach to environmentally sustainable management of water resources, including the protection of aquatic ecosystems and freshwater living resources'. [46] The obligation to promote obliges the states to take steps to ensure that there is appropriate education concerning the hygienic use of water, protection of water sources and methods to minimize water wastage. Agenda 21 requires the states to establish national and regional technical and engineering courses on the subjects of water-quality protection and control at existing schools, and education/training courses on water resources protection and conservation. [47] The states are also obliged to fulfil (provide) the right when there is no minimum water to meet the environmental needs for water. In accordance Agenda 21, the states could implement the following activities, '[r]ehabilitation of important, but degraded, catchment areas, particularly on small islands', '[r]ehabilitation of polluted and degraded water bodies to restore aquatic habitats and ecosystems'. [48] In general, the obligation to fulfil requires the states to adopt the necessary measures directed towards the reasonable realization of the environmental right to water. The obligation includes, inter alia, according sufficient recognition of this right within the national political and legal systems, preferably by way of legislative implementation; adopting a national water strategy and plan of action to realize this right; ensuring that water is reserved for the environment; and facilitating improved and sustainable access to water.

3 International Obligations

In accordance with Principle 27 of Rio Declaration, in general, the states shall recognize the essential role of international cooperation and assistance and take joint and separate action to achieve the reasonable realization of the environmental right to water. Under Agenda 21, the riparian states are required to harmonize the strategies and action programmes where appropriate, to promote international scientific research cooperation on freshwater resources, cooperate in the assessment of transboundary water resources in accordance with relevant international agreement. [49] For example, Article 20 of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses (1997) prescribes a general obligation that '[w]atercourse States shall, individually and, where appropriate, jointly, protect and preserve the ecosystems of international watercourses.' According to Principle 2 of Rio Declaration, the states are under responsibility 'to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction'. To comply with their international obligations relating the environmental right to water, the states should, a) respect the enjoyment of the right in other countries; b) refrain at all times from imposing embargoes or similar measures, that prevent the supply of water, as well as goods and services essential for securing the environmental right to water; c) to take steps to prevent their own citizens and companies, or to influence other third parties from violating the environmental right to water in other countries; d)

facilitate realization of the environmental right to water in other countries depending on the availability of resources; e) ensure that the environmental right to water is given due attention in international agreements; f) ensure that their actions as members of international organizations take due account of the environmental right to water.

4 Core Obligations

The states have a core obligation to ensure the satisfaction of, at the very least, minimum essential levels of the environmental right to water, and a number of core obligations in relation to the environmental right to water can be identified, which are of immediate effect: a) to ensure the minimum essential amount of water that is sufficient and safe for the environment; b) to ensure equitable distribution of all available water resources, facilities; e) to adopt and implement a national water strategy and plan of action addressing the environment; the strategy and plan of action should be devised, and periodically reviewed, on the basis of a participatory and transparent process; it should include methods, such as the environmental right to water indicators and benchmarks, by which progress can be closely monitored; f) to monitor the extent of the realization, or the non-realization, of the environmental right to water.

B Implementation at National Level

In accordance with Agenda 21, '[a]ll States, according to their capacity and available resources, and through bilateral or multilateral cooperation, including the United Nations and other relevant organizations as appropriate, could implement' the environmental right to water. That is to say, every state has a margin of discretion in assessing which measures are most suitable to meet its specific circumstances. However, it is clear that each state is imposed a duty to take whatever steps are necessary or appropriate to ensure that the environmental enjoys the right to water. Any national measure designed to realize the environmental right to water should be consistent with the principle of sustainable development. In accordance with relevant international documents, the following measures should be adopted in the implementation of the environmental right to water.

1 Formulation of Legislation, Strategies and Policies

In order to implement the environmental right to water the legislation, strategies and policies initiating to set targets and standards and to promote the integrated water resources management should be made. Wherever there are existing legislation, strategies and policies, they should be reviewed to ensure that they are compatible with obligations arising from the environmental right to water, and should be repealed, amended or changed if inconsistent with the environmental right to water.

Principle 11 of Rio Declaration requires that:

'States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.'

It is clear that, the duty to take steps clearly imposes on the states an obligation to adopt a national strategy or plan of action to realize the environmental right to

water. And this principle has been reflected in many other international documents. Under Article 6 of the UNCBD 1992, in accordance with its particular conditions and capabilities, the states shall:

‘(a) Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned; and

(b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.’

It is well known that, the human being has not understood the environment completely up to now, and the environment is vulnerable to some extent, while there are many other factors should be taken into consideration. Therefore it is impossible for the states to adopt scrutiny legislation, and it is advantageous to adopt. However, the legislation should include: a) targets or goals to be attained and the time frame for their achievement; b) the means by which the purpose could be achieved; c) the intended collaboration with civil society, private sector and international organizations; d) institutional responsibility for the process; e) national mechanisms for its monitoring; and f) remedies and recourse procedures. As to particular measures, minimum flow, site protection, water source protection, species protection etc., should be adopted where appropriate by the states.

In accordance with Agenda 21, the relevant strategy must: a) be based upon international law and principles relating to the environmental right to water; b) cover all aspects of the environmental right to water and the corresponding obligations of the states; c) define clear objectives; d) set targets or goals to be achieved and the time frame for their achievement; e) formulate adequate policies and corresponding benchmarks and indicators. The strategy should also establish institutional responsibility for the process; identify resources available to attain the objectives, targets and goals; allocate resources appropriately according to institutional responsibility; and establish accountability mechanisms to ensure the implementation of the strategy.

Integrated water resources management requires the states to take steps should to ensure there is sufficient coordination between the national ministries, regional and local authorities in order to reconcile water-related policies. Where implementation of the environmental right to water has been delegated to regional or local authorities, the state still retains the responsibility to comply with its obligations, and therefore should ensure that these authorities have at their disposal sufficient resources to maintain and extend the necessary water services and facilities. The states must further ensure that such authorities do not deny access to services on a discriminatory basis.

2 Stakeholder/Public Participation

Principle 10 of Rio Declaration states that:

‘Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public

authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.’

Therefore, the formulation and implementation of national water strategies and plans of action should respect the principle of stakeholders/public participation, accountability, transparency and independence of the judiciary. This principle of public participation has been stipulated or/and adopted in many international legal documents in many areas relating to environmental protection and/or environmental right, including the environmental right to water. For example, the second principle and the third principle of the four Dublin principles are expressly related to these principles. The second principle states that, ‘[w]ater development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels’. And the third principle further emphasize the important of the participation of women, i.e., ‘[w]omen play a central part in the provision, management and safeguarding of water.’

In Agenda 21, chapter 18 ‘Protection of the quality and supply of freshwater resources: application of integrated approaches to the development, management and use of water resources’, it is not difficult to find the procedural content of the environmental right to water. In accordance with paragraph 18.9(c), one of the four principle objectives should be pursued in the integrated water resources management reads as follows:

‘To design, implement and evaluate projects and programmes that are both economically efficient and socially appropriate within clearly defined strategies, based on an approach of full public participation, including that of women, youth, indigenous people and local communities in water management policy-making and decision-making.’

According to paragraph 18.12(n), all states could implement the activity of public participation to improve integrated water resources management, in detail, Development of public participatory techniques and their implementation in decision-making, particularly the enhancement of the role of women in water resources planning and management.

3 Promotion of Education and Research

Under chapter 18 of Agenda 21, the states should implement the following activities, a) ‘[p]romotion of schemes for rational water use through public awareness-raising, educational programmes’, b) ‘promotion of international scientific research cooperation on freshwater resources’, c) ‘establishment of national and regional technical and engineering courses on the subjects of water-quality protection and control at existing schools and education/training courses on water resources protection and conservation for laboratory and field technicians, women and other water-user groups’. [50]

6 State Practice

Under international legal documents, the environment has a right to get minimum amount of water with proper quality in suitable places to sustain its ecosystem, and the present human beings are under duty and are entitled to realize the above right.

However, it should be mentioned that, because water situations differ from state to state, from region to region, and the different levels of economic, social development exist, although states are under duties to enact laws to fulfil the environmental right to water, they are entitled to adopt measures that they feel appropriate 'according to their capacity and available resources' in accordance with Agenda 21.

In fact, although the legislations relevant to environmental right to water might be different from state to state, the substantial content of environmental right to water as well as the procedural content of environmental right to water have been stipulated. Firstly, many countries have recognized that the environmental demand to water should be met in priority, at least is one of beneficial use should be taken into consideration. Secondly, laws in many countries have empowered the relevant water management institutions or authorities to adopt measures to ensure the minimum environmental use of water, and have allowed the relevant stakeholders to participate the process of decision-making and decision implementing.

In order to fulfil their obligations under or being influenced by international legal documents, many countries have entitled the environmental need or demand to water, or stipulated the environmental use of water as a beneficial use, although the approach adopted varies from country to country. The following are practices in several countries or regions, with severe shortage of water, i.e., South Africa, South Australia, China, as well as relatively abundance of water, i.e., France, United Kingdom.

A South Africa

In White Paper on a National Water Policy for South Africa (April 1997), there are many paragraphs relating to environmental right to water. The document states several key proposals that would be employed to guide water management in South Africa. Among them, two are of great importance to the environmental right to water. The first one is that all water in the water cycle 'will be treated as part of the common resource and to the extent required to meet the broad objectives of water resource management, will be subject to common approaches'.^[51] The second one is that, '[o]nly that water required to meet basic human need and maintain environment sustainability will be guaranteed as a right. This will be known as Reserve.'^[52] Section 4.2, which entitled 'Optimum resource use and protection', explains the three important concepts, i.e. 'optimum', 'environmentally sustainability' and 'social economic benefit', and states the relations between them. In this section, the sustainable use of water resource is explained as, 'even where the immediate demands for development are very high, society must find different development approached which make sure that the use of water resources does not destroy the ability to cover'. In section 5.1.2, in which public trust is discussed, the government states to carry out the its public trust obligations in a way, which 'makes sure that the requirements of the environment are met; takes into account the interconnected nature of the water cycle'. In section 5.2, priorities are discussed in detail, and the environmental requirements is among the three types of priorities. The document declares that, '[a]fter providing for the basic needs of citizens, the only other water that is provided as a right, is the Environmental Reserve - to protect the ecosystems that underpin our water resources, now and into the future'. In section 6.3, protection of water

resources is discussed in detail.

In National Water Act 1998, there are certain provisions to regulate the environmental right to water. [53] In paragraph 4, 5 and 6 of Preamble, the sustainable use of water, the protection of the quality of water resources and integrated management of water resources are recognized. As to purposes of the Act, which are identified in section 2 of National Water Act (1998), 'promoting the efficient, sustainable and beneficial use of water in the public interest', 'protecting aquatic and associated ecosystems and their biological diversity' and 'reducing and preventing pollution and degradation of water resources' are in the list. In accordance with section 1(1) (xviii) of National Water Act (1998), 'Reserve' means the quantity and quality of water required to satisfy basic human needs and to protect aquatic ecosystem. On satisfying basic human needs, the content in detail is that, the quantity and quality of water required 'to protect ecosystems in order to secure ecologically sustainable development and use of the relevant water resource'. In chapter 4, protection of water resources is provided in detail, and the determination, preliminary determination, and effect of Reserve are stipulated in section 16, 17 and 18 respectively.

B South Australia

As a federal country, Australia consists of six states and two territories, and South Australia is one of the six states. Under the federal system of government, the states and territories have primary responsibility to manage natural resources, including water resource. The latest water law reform has begun from 25 February 1994, on which day the Council of Australia Governments endorsed a national key water resource policy, i.e., Water Reform Framework. [54] In the Framework, the introduction of a comprehensive systems of water allocations is recommended, the provision of water for the environment, the determination of clearly specified water entitlements and water trading arrangements consist the reform package. Following the Framework 1994, National Principles for the Provision of Water for Ecosystem was adopted in 1996 by two Ministerial councils, i.e., the Agricultural and Resource Management Council of Australia and New Zealand and the Australia and New Zealand Environmental and Conservation Council. [55] This document provides a 'policy direction on how the issue of water for the environment should be dealt with in the context of general water allocation decisions'. In the document, the need to review the existing water allocation procedures so as to allow use for agricultural, domestic and industrial purposes as well as for environmental purpose, i.e., ensuring sufficient water allocated to meet environmental need, is recognized, and twelve principles are declared. South Australia has implemented these two documents through relevant measures; among them, the enactment of Water Resources Act 1997 is the most important one. On 29 August 2003, in order "to increase the productivity and efficiency of water use, sustain rural and urban communities, and to ensure the health of river and groundwater systems", the COAG agreed to refresh the Water Reform Framework 1994, and a Proposed National Water Initiative was recommended. Later, on 25 June 2004, the COAG approved the Future Information on the National Water Initiative 2004 at a meeting held in Canberra. Following the Initiative, on 5th August 2004, the Natural Resources Management Act 2004, South Australia, was adopted, and the Water Resources Act 1997

will be repealed in accordance with Schedule 4 (cl 43(1)(c)) of the Natural Resources Management Act 2004.

Although environmental right to water is not employed as a term in water resources law in South Australia, there are substantial provisions to deal with this right. Therefore, it is thought that 'water-dependent ecosystems have a legitimate right to water' in accordance Water Resources Act 1997/Natural Resources Management Act 2004, [56] and water for the environment is a vital content of water resources management. Under the Natural Resources Management Act 2004, a legal framework is established. Within the legal framework, the environmental right to water is addressed. For example, in Section 7 (1) of the Natural Resources Management Act 2004 articulates the sole object of the Act, and the object requires that water-dependent ecosystems and their associated biological diversity (biodiversity) shall be protected. Therefore the Act recognizes that water-dependent ecosystems have a legitimate right to water, i.e. the environmental right to water is recognized. Allocations to uses other than environmental needs must take place only after environmental requirements being appropriately met. In State Water Plan 2000 (Vol. 1) - Policies for a Sustainable Future, the environmental right to water is mainly argued in section 4.4 entitled 'Managing the Health of Water-Dependent Ecosystems', and six aspects are discussed, i.e., integrated management of waterbodies and associated water-dependent ecosystems, water for the environment, riparian zone management, wetlands management, floodplain planning and management and estuary management, and the goal(s) for each aspect is/are established and corresponding principles are introduced.

C P. R. of China

Under Water Law (2002 Revision), ecological and environmental water-use, together with livelihood water-use, and production and business water-use, is provided as one of the three kinds of water-use, and the protection of water resources is linked with ecology and environment. [57] In formulating the comprehensive plans for river basins, regional comprehensive plans and the special plans which are of close relevance to the utilization of land, environmental protection plans shall be coordinated with; In the development and utilization of water resources, ecological and environmental water-use should be taken into consideration, and full consideration shall be given to the ecological and environmental water-use need in the development and utilization of water resources in the arid and semi-arid areas. [58]

D France

France is a country with relatively abundance of water resource. However, the environmental right to water is regulated to certain extent. In French Water Act 1992, Article 1 declares that 'respecting natural balances' is in the general interest. Under Article 2 relating to the purpose of the water resources management, a) the preservation of aquatic ecosystems, of sites and wetlands; wetlands are understood as land, whether used or not, usually flooded or constantly or temporarily drenched with water, that is fresh, brackish or salt; most of the plants, if any, are hygrophilous at least part of the year; b) the protection against all pollution and the restoration of surface and groundwater quality, and ocean water within the boundaries of the territorial waters; and c) the development and protection of water resources are in the list. Even earlier, French Fishing Law (1884) proposes minimum flows for rivers

that have to be maintained if ecosystems are to be preserved.

E United Kingdom

Like France, United Kingdom is also a country relatively rich in water resources. In Water Resources Act 1991, which mainly applies in England and Wales, as to the general duties of the relevant authorities, general environmental and recreational duties, environmental duties with respect to sites of special interest, and codes of practice with respect to environmental and recreational duties are regulated, by section 16, 17 and 18 respectively. [59] Further, in section 21, 22 and 23, minimum acceptable flows is provided. Section 6 of Environment Act 1995 imposes two general duties on the Environment Agency relating to its water resources management functions, and the first one requires the Agency to promote the conservation and enhancement of the natural beauty and amenity of inland and coastal waters, the conservation of flora and fauna which are dependent on an aquatic environment. [60] In practice, six overall uses of water have been defined for the purpose of implementing the new national Statutory Water Quality Objectives scheme, two of which relate to the environmental right to water, i.e. fisheries ecosystem and special ecosystem.

It should be mentioned that, the water related laws in France and United Kingdom have been deeply influenced by relevant EU law and policy, especially by the Water Framework Directive 2000/60. According Article 1 of the Directive, its overall purpose is to establish a framework for the protection of inland surface water, transitional waters, coastal waters and groundwater so as to ‘ (a) prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems directly depending on the aquatic ecosystems; (b) promotes sustainable water use based on a long-term protection of available water resources; ... ’ In order to implement the provisions of the Directive, the two states have adopted relevant legislative and policy measures.

7 Conclusions

It is amply clear that, new water policies have been developed to address the goal of preserving and allocating water for the environment since 1992. This paper reviews evidence of international law and other relating international documents, e.g., declarations, statements, programmes etc., as well as State practice, and concludes that the environment, in practice, the important parts of it, has a right to enjoy appropriate water with minimum quantity and proper quality in suitable places to maintain its healthy order or status. If the frames of early the environmental right language would be some problematical, it is reasonable and precise now to suggest that the environmental legal documents would have to more explicitly incorporate the environmental right to water. A formulation appropriate to the existing environmental right to water declarations might be:

1. The environment has an indispensable right to get appropriate water with minimum quantity and proper quality in suitable places to maintain its health. This right shall be given priority, at least next to the human right to water, and protected by law.
2. The human beings and their communities at various levels are under a duty or a responsibility to ensure the realization of the environmental right to water. Appropriate rights or obligations shall be entitled or imposed on the individuals and the communities by law.

‘The world is full of uncertainty and it is difficult to predict the future.’ [61] The environmental right has been addressed, but inadequately and incompletely, and the challenge of meeting the environmental right’s obligations in all areas is quite difficult. Therefore, perhaps, the recognition of the environmental right to water could not actually improve the situations worldwide immediately. ‘By working together, however, we can help to shape the world and make it a better place.’ [62] The imperatives to meet appropriate environmental water needs are more than just moral, they are rooted in natural justice and law and the responsibilities of governments. Therefore it is time for the human beings to review its fundamental development goals as well as methods. A first stair toward meeting the environmental right to water would be for the human beings and their communities at various levels to guarantee the environmental the most fundamental of appropriate water needs and to work out the necessary institutional, economic, and management strategies necessary for meeting them, although flexibility shall be allowed to request to differing national, regional or local circumstances. The achievement of these relevant and further measures will be vital to the health of the environment as well as to the human beings.

Notes:

- [1] See UNESCO, et al., *The United Nations World Water Development Report: Water for People, Water for Life* (2003) 10–12; UNEP, *Global Environment Outlook 3* (2002) 115.
- [2] See P. Wouters, et al., ‘The Legal Response to the World’s Crisis: What Legacy from the Hague?’ , 4 *Water Law Review* (2001) 418; Ray K. Linsley, et al., *Water-Resources Engineering* (4th ed.) (1992) 169.
- [3] See M. Solanes and F. Gonzalez-Villarreal, *The Dublin Principles for Water as Reflected in a Comparative Assessment of Institutional and Legal Arrangements for Integrated Water Resources Management* (1999) 29.
- [4] See para. 1 of Preamble, and Principle 4, Declaration of the United Nations Conference on the Human Environment [hereinafter Stockholm Declaration]. UN Doc A/CONF 48/14 (1972). 11 ILM 1416 (1972).
- [5] World Charter for Nature, UN Doc A/RES/37/7 (1982).
- [6] See paras. 1–5, World Charter for Nature.
- [7] See para. 14, World Charter for Nature.
- [8] Rio Declaration on Environment and Development [hereinafter Rio Declaration], Rio de Janeiro, 13 June 1992. UN Doc A/CONF.151/26 (Vol. I) (1992); 31 ILM 874 (1992). Agenda 21, Rio de Janeiro, 13 June 1992. UN Doc A/CONF.151/26 (Vol. I, II, & III) (1992).
- [9] See para. 6 of Preamble, Rio Declaration.
- [10] UN Convention on Biological Diversity [hereinafter UNCBD], Rio de Janeiro, 5 June 1992, UNEP Bio. Div./CONF L2 (1992); 31 ILM 818 (1992).
- [11] Draft International Covenant on Environment and Development [hereinafter DICED] (1995), available at http://www.discerningtoday.org/IUCN_covenant.pdf (last visited 21/07/2003).
- [12] DICED (2000), available at <http://www.iucn.org/themes/law/pdfdocuments/EPLP31ENsecond.pdf> (last visited 21/07/2003).

- [13] See para. 2 of Preamble, DICED (1995) and DICED (2000).
- [14] See arts. 2 to 4, DICED (1995) and DICED (2000). However it should be mentioned that, in article 2 of DICED (1995), the provision of '[t]he integrity of the Earth' s ecological systems shall be maintained and restored' does not exist.
- [15] UN Millennium Declaration [hereinafter Millennium Declaration]. UN Doc A/55/L.2 (2000).
- [16] See para. 6, Millennium Declaration.
- [17] Johannesburg Declaration on Sustainable Development [hereinafter Johannesburg Declaration]. UN Doc A/CONF. 199/20 (2002).
- [18] See paras. 1 and 5, Johannesburg Declaration.
- [19] See para. 13, Johannesburg Declaration.
- [20] Agreement Establishing the World Trade Organization. 33 ILM 1144 (1994).
- [21] See para. 6, WTO Ministerial Declaration, WT/MIN (01)/DEC/1.
- [22] See UNESCO, et al., supra note 1, at 130.
- [23] Alexander Gillespie, International Environmental law, Policy and Ethics (1997).
- [24] S. Bell & D. McGillivray, Environmental law (5th ed.) (2002) 19.
- [25] See M. R. Anderson, 'Human Rights Approaches to Environmental Protection: An Overview', in A. E. Boyle and M. R. Anderson (eds.), Human Rights Approaches to Environmental Protection (1998) 11.
- [26] S. Bell & D. McGillivray, supra note 24.
- [27] See UNESCO, et al., supra note 1, at 8.
- [28] The Dublin Statement on Water and Development, UN A/CONF. 151/PC/112, annex.
- [29] See art. 2, and paras. 1 and 2 of the Preamble, UNCBD.
- [30] See para. 1, Ministerial Declaration of The Hague on Water Security in the 21st Century (2000). The Declaration available at <http://www.worldwaterforum.net/Ministerial/declaration.html> (last visited 21/07/2003).
- [31] See para. 3, ibid.
- [32] See para. 30, Johannesburg Declaration.
- [33] See paras. 23-25, Tokyo Ministerial Declaration (2003). The Declaration available at http://www.world.water-forum3.com/jp/mc/md_final.pdf (last visited 21/07/2003).
- [34] UN Convention on the Law of the Non-Navigational Uses of International Watercourses, May 21, 1997. UN Doc A/51/869 (1997); 36 ILM 700 (1997).
- [35] Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992). UN Doc ENVWA/R.53 and Add.1.
- [36] See UNESCO, et al., The United Nations World Water Development Report: Water for People, Water for Life (Executive Summary) (2003) 6.
- [37] See UNESCO, et al., supra note 1, at 130.
- [38] See Water Resources Sector Strategy: Strategic Directions for World Bank Engagement (2003) v and 20.
- [39] See paras. 18.11, 18.12, 18.26, 18.27, 18.39, 18.40, 18.50, 18.58, and 18.59, Agenda 21.
- [40] See para. 18.40(a) (iii) and (iv), Agenda 21.
- [41] See para. 18.40(b) (v), Agenda 21.
- [42] See para. 18.40(e) i), (iii) and (iv), Agenda 21.
- [43] See para. 18.40(f) (ii), Agenda 21.

[44] See para. 18.39(f), Agenda 21.

[45] See para. 18.40(b)(iii), Agenda 21.

[46] See paras. 18.38(a), 18.39(g), Agenda 21.

[47] See para 18.45, Agenda 21.

[48] See para. 18.40(a)(iv), (e)(i), Agenda 21.

[49] See paras. 18.10, 18.12(i), 18.27(a)(d) respectively, Agenda 21.

[50] See paras. 18.12(g), 18.12(i), and 18.45 respectively, Agenda 21.

[51] Department of Water Affairs and Forest (DWAF), White Paper on a National Water Policy for South Africa (1997) 4.

[52] Ibid.

[53] National Water Act (1998), Act No. 36 of 1998, assented to 20 August 1998, Republic of South Africa, Government Gazette (No. 19182) (26 August 1998).

[54] The Council of Australia Governments, Water Reform Framework, available at <http://www.disr.gov.au/science/pmsec/14meet/inwater/app3form.html> (last visited 21/07/2003).

[55] The Agricultural and Resource Management Council of Australia and New Zealand (ARMCANZ) and the Australia and New Zealand Environmental and Conservation Council (ANZECC), National Principles for the Provision of Water for Ecosystem, available at http://www.netSPACE.net.au/~jneville/Env_flows_principles96.doc (last visited 21/07/2003).

[56] The Natural Resources Management Act 2004 has been partially implemented, before it completely repeal the Water Resources Act 1997, these two acts are implemented at the same time with the valid parts of the former act have priority. Due to the former will repeal the latter sooner or later, the discussion is mainly in accordance with the former.

[57] See arts. 4 and 9, Water Law (2002 Revision). Water Law of the PRC was primarily adopted at the 24th Session of the Standing Committee of the Sixth NPC on January 21, 1988, in force on July 1, 1988; on 29 August 2002, it was revised at 29th Meeting of the Standing Committee of the ninth NPC, and the revision in force on 1st October 2002.

[58] See arts. 15 (2) and 21, Water Law (2002 Revision).

[59] Water Resources Act, 49 Statutes 673.

[60] Environment Act 1995, 35 Statutes 1019.

[61] See UNESCO, et al., supra note 1, at 1.

[62] Ibid.

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