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The integrated water basin approach for the sustainable water management in international and regional legislation

LL.M Master Degree Thesis

HÁSKÓLI ÍSLANDS

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List of abbreviations

EU	European Union
GWP	Global Water Partnership
ILA	International Law Association
ILC	International Law Commission
IWRM	Integrated Water Resources Management
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNGA	United Nations General Assembly
WSSD	World Summit on Sustainable Development
WWAP	World Water Assessment Program

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1 Introduction

1.1 Water crisis

The problem that necessities the current research is water crisis resulting in a rapidly increasing demand for water and in upstream- downstream conflicts of interests, increasing of poverty, water-related diseases, degraded and often dangerous environment. Given above factors together with water scarcity lead to disputes between states, often resulting in violent conflicts.

Fresh water is an increasingly scarce resource, particularly when viewed against the backdrop of the growing global population, changing of water technologies, and the prospect of global climate change.[1] According to the World Water Development Report prepared by the United Nations (hereinafter UN) World Water Assessment Program (WWAP), by 2015 nearly 40 per cent of the world's population is expected to live in water-stressed countries.[2]

Better access to better-managed water resources can make a big contribution towards solving the conflicts over allocations of water resources between stakeholders, towards poverty eradication, and improvements of health, quality of life and protection of the environment.

1.2 Necessity to take the problem at the international level

International water law concerns the rights and obligations primarily between states for the management of transboundary water resources. Such legal rules and principles are dedicated to decreasing water crisis and promoting cooperation of shared water resources.

"Freshwater access is a classic example of the tragedy of the commons," says Robert Parker, lecturer in political science at Penn State, who studies international political economy and the causes of war. "As with all common resources, unlimited demand and waste by some can lead to depletion of the resource for all". As it was once said by Süleyman Demirel, the 9th President of Turkish Republic, "we cannot fight poverty and hunger in the world without utilizing our water resources".

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[1] Swain, A.: *Managing water conflict: Asia, Africa, and the Middle East,* London 2004, p.2.

[2] *Water for people, water for life,* Joint Report by the twenty-three UN agencies concerned with freshwater, UNESCO Barcelona 2003, p. 6.

1.3 Transboundary basins

There are over 260 transboundary rivers on the globe, with 40 per cent of the world's population residing in their basins.[3] Over 75 percent of all countries have within their boundaries shared river basins. And 33 nations have over 95 percent of their territory within international river basins (See *Figure 1.* Major River Basins of the World).[4] With a growth of modern technology states that share water basin can affect each other far more seriously than before by utilizing the water on its own territory.

Even the most cordial and cooperative of neighboring nations have found it difficult to achieve mutually acceptable arrangements to govern their transboundary waters even in relatively humid regions where fresh water usually is found in sufficient abundance to satisfy most or all needs. When nations are located in arid regions, conflicts become more intense despite the friendly relations.[5]

The problem turned out now to be seen at the level of international politics, as water scarcity leads to disputes between states, often resulting in violent conflicts. A challenge in sharing water resources is to prevent conflict and to promote peaceful cooperation between different interests, be it in a region within a country or in a transboundary context.

1.4 Main reason of water crisis

The reason why today's world experiences water crises is not because of the insufficiency of water resources but mostly because of inappropriate management. Although there are sufficient resources on the global scale, threats to the future of water have reached critical limits due to the lack of a proper and sustainable management policy.[6]

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[3]Giordano, M. and Wolf, A.: "Sharing waters: Post Rio International Water Management", *Natural resources Forum 27*, 2003, pp. 163-164.

[4]Moreover, while most transboundary river basins are shared between just two countries, there are many river basins where this number is much higher. There are 13 basins worldwide that are shared between 5 to 8 countries. Five river basins, the Congo, Niger, Nile, Rhine and Zambezi, are shared between 9 to 11 countries. The river that flows through the most countries is the Danube, which passes through the territory of 18 countries. For further information visit the official website of World Water Day 2009 http://www.unwater.org/worldwaterday/faqs.html (last visited on May 1, 2009).

[5]Swain, A.: *Managing water conflict: Asia, Africa, and the Middle East,* pp.4-6.

[6]Rogers, P., Llamas, M., Martínez-Cortina, L., Botín, F.: *Water crisis: myth or reality?* London 2005, pp. 7-8.

1.5 Objectives of the thesis

According to the given above situation, this study is aimed to meet the following objectives:

1. To analyze the legal response towards the problems affecting the regulation of transboundary watercourses and increasing water crisis;

2. To highlight the importance of more holistic approach towards the management of the water resources;

3. To address the prospects of the Integrated Water Resources Management (hereinafter IWRM) in resolving the current water crisis and water conflicts.

1.6 Method of achieving the objectives

The thesis focuses on the analysis of existing current approaches towards the water management on the international and regional levels. First it reviews the role of international law towards the governance of international watercourses, and follows to the analysis of water management on regional scale. It underlines weak sides and the virtues of existing legal instruments and approaches towards water management. That is done in order to define its effectiveness towards alleviation of water crisis, changing the water "situation" from conflict to cooperation and achieving sustainable development in future.

1.7 Structure of the thesis

The first chapter is the current introduction. It explains the reason of the chosen topic. It discusses the necessity to take the problem at the international level and defines the main reason of water crisis. Objectives, the method of achieving these objectives and the structure of the thesis are represented in this chapter.

The second chapter focuses on the relevance of water being a natural resource and discusses the reasons of water scarcity resulting in numerous water conflicts, increasing of poverty and water-related diseases. It briefly discusses the respond of international community towards the problem of water crisis. It defines the scope of the term management of water resources and gives the general overview on the current water situation in the world.

The third chapter presents the assessment of the relevant sources of international law in search of governing principles in the non-navigational uses of the international watercourses under recent developments taking into account its historical evolution. It

starts by highlighting the current water basin approach towards utilization of the shared watercourses. It assesses the role of international law in solving problems of water crisis and water conflicts and the legal instruments it offers for regulating the non-navigational uses of shared water resource. It follows on by a quick analysis of the relevant principles set by the UN Convention on International Watercourses and its contribution to international water law. The findings from the study highlight both important progress as well as continuing weaknesses in the management of internationally shared water basins.

The fourth chapter concentrates on the regional instruments towards water management, focusing on European water policy. It is a clear example of successful implementation of an integrated water resources management (hereinafter IWBM) aiming at protection of water resources, of fresh and salt waters ecosystems, drinking and bathing waters. The chapter focuses in particular on the Water Framework Directive being the most substantial legally binding piece of EC water legislation aiming at improving and integrating the way water bodies are managed throughout Europe. A quick assessment of strength and weaknesses of the legal instrument was made investigating the potential of IWRM as a strong legislative tool for dealing with a problem of water crisis. The current chapter discusses the efficiency of the Directive and upon the question whether EU model of water management can be useful to be transcribed into water policies of other countries.

The fifth chapter discusses and addresses the prospects of IWRM in resolving a current water crisis. While appropriate management approach will be considered, attention will be focused on the effectiveness of IWRM in meeting the basic water needs today without compromising the sustainability of vital ecosystems and the critical question of implementation in the water legislation by the states.

The sixth chapter contains the final conclusions of the thesis.

1.8 Main argument

This thesis argues that more holistic approach to the management of international watercourses is an imperative in order to improve the international legal framework. All the factors that are necessary for the equitable and reasonable utilization of shared rivers and lakes should be taken into account in order to tackle the problem of water scarcity all over the globe. And in the same way to make a major contribution to

alleviation of the potential conflicts of interest over allocation of water resources between stakeholders, poverty eradication, health improvements, quality of life and protection of the environment.

It is aiming at taking an advantage of IWRM highlighted through the analysis of current EU water policy and the way of implementation of underlined approach into it. Since water is fundamental to many aspects of life, and to the surrounding natural environment, there is a need not only to review the effectiveness of IWRM in theory, but also to identify the problems and challenges to its implementation in practice.

2 Further on the water crisis

2.1 Relevance of water as a resource

Lately water has become one of the main agenda items of many international and regional organizations during the last two decades. Why so many discussions, disputes and conflicts have been aroused on the basis of utilization, allocation of water that is under the full sovereignty of the state? The reason of that is quite easy to understand — water is life and one of the engines of sustainable development.

Freshwater is vital to ensure health, survival and reproduction of humanity. The access to freshwater affects the very existence of human beings and their inherent dignity. In many of its functions, water cannot be substituted by any alternatives, which makes it different from other natural resources such as oil,[7] for instance. Of all the resources that people depend on, only air is more directly vital to sustaining human life than water. Water is needed in all aspects of life. Water is essential for health and necessary for the production of food, economic growth and the support of the environment.[8] Water is used in households, industries and agriculture but it is also essential for energy, transport and recreation.

Access to clean and affordable water is a prerequisite to achieving a minimum standard of health and to undertaking productive activities of people. That's why it is so important that every single person in the world would be able to have an access to that vulnerable resource, essential to sustain life, development and the environment.

2.2 Water scarcity and the potential for conflict

Nowadays, the whole world with its diverse and abundant life forms, including more than 6 billion humans, is facing a serious water crisis. There are terrifying conflicts

[7] Petrella, R.: *The Water Manifesto*, New York 2001, p. 55. See also Savenije, H. and Zaag, P.: "Water as an Economic Good and Demand Management: Paradigms with Pitfalls", *Water International Journal*, vol. 27 (1), 2002, p. 98.

[8] "Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment", "Water has an economic value in all its competing uses and should be recognized as an economic good". The first and the fourth out of four principles (the so called Dublin Principles), set out on the International Conference on Water and the Environment in Dublin in 1992, that is still relevant today. See further, The Dublin Statement on Water and sustainable development: Principle No 1, 4.

over water in most parts of the world.[9] With an increase in industry and at the same time heightened use of water in shared water basins for more than domestic, agricultural and navigational uses, the first controversies over the water between the states began to appear. The upstream-downstream water sharing challenge is growing and in several regions it is increasingly necessary to include conflict prevention measures.

"Of particular concern," says Robert Packer, "there are certain riparian basins that could explode into conflict as sources of freshwater diminish. Conflict is more likely to occur where water can be seized and controlled in addition to being scarce". Among Middle East countries, where every major river crosses at least one international border, up to 50 percent of water needs of any specific state finds its source in another state.[10]

The natural availability of water has decreased during the centuries as a result of many different factors, listed below in part 2.3 of the current chapter. And suddenly a number of regions are experiencing water scarcity, many for the first time. The problem turned out now to be seen at the level of international politics, as water scarcity leads to disputes between states, often resulting in violent conflicts. As a result, water has taken on a strategic role for many states.

The heart of this crisis, as was defined in section 1.4, is poor water governance. Everything points out that it is getting worse and will continue to do so unless corrective action is taken. And since the likelihood of discovering new sources of water for exploitation is slim, the alternative and perhaps the only way ahead must be the wise governance of existent ones.

2.3 Reasons of the water scarcity

One of the reasons of the water scarcity today is declining of water quality and quantity. The health of ecosystems is the key to human health, to sustainable development and to poverty reduction and vice-versa. About half the rivers and lakes of the planet are seriously polluted[11] from industrial sources and poor sanitation.[12]

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[9]Middle East, Africa, Asia, Latin America etc. See further, Bulloch, J., Darwish, A.: *Water wars. Coming conflicts in the Middle East*, London 1993; Allan, J.: *Middle East Water: local and global issues*, London 1995.

[10]Dellapenna, J.: *Middle East Water: The Potential and Limits of Law*, Hague 2002, p. 25.

[11]In the developing world more than 90% of sewage water is discharged directly into rivers, lakes and coastal waters without any kind of treatment. About two million tons of waste is dumped every day

Degraded water quality is also decreasing the amount of safe water.

Another reason of water scarcity is an increasing demand and need for water. Population growth,[13] economic development and changing trade policies are the main driving forces behind increasing demand and need for water.

Moreover, water availability varies between regions from abundance to shortage.[14] And this is one, but pretty relative, side of the water crisis, when freshwater resources are unevenly distributed around the globe, so that some people have more than sufficient water, while others exist under conditions of scarcity.[15]

As has been chronicled in earlier volumes of The World's Water, the failure to provide safe drinking water and adequate sanitation services to all people is perhaps the greatest development failure of the twentieth century[16].

In terms of daily human consumption, access to freshwater is essential in order to meet the basic needs of drinking water, food, and personal hygiene — without it our quality of life and development is placed at risk.

Some interesting facts on the use of water came up during a research organized by the CPR

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into rivers, lakes and streams, with one liter of waste water sufficient to pollute about eight liters of fresh water. The ongoing depletion of water quality is having consequences not only on human but also on environmental health. For further information see Ockwell, R.*: Assisting in Emergencies: A resource handbook for UNICEF field staff*, New York, 1986; *Majority of Europeans believe quality and quantity of water is a serious problem.* Press release RAPID, Brussels 2009.

[12]At the same time water quality risks can come also from "natural" sources such as fluoride, arsenic or salinisation (though human management can make these far worse). For further information see Bartram, J., Balance B.: *Water Quality Monitoring — A Practical Guide to the Design and Implementation of Freshwater Quality Studies and Monitoring Programmes*, London 1996.

[13]While the world population increased almost in tree times in the 20th century compared to the 19th century, the utilization of water resources increased in six. In many developing countries water availability is subject to large seasonal or inter- annual fluctuations. The coming years are expected to witness an increasing demand for water. Some forecasts state that more than 3 billion people will be faced with water scarcity by 2025. See further, http://www.p og Bragi Ólafssoneopleandplanet.net/ (last visited on April 29, 2009).

[14]Pressure on water resources is particularly acute in arid regions that support agricultural production or large populations — regions where water use is high relative to water availability. The Middle East, Central Asia, North Africa, South Asia, China, Australia, the western United States, and Mexico are especially prone to water shortages. For further information see Cooper, M.: *Water Shortages: Is There Enough Fresh Water for Everyone?* Washington 2003.

[15]With rapid population growth, wasteful practices, and impending climate change, the situation is likely to get worse. Water resources in semi-arid regions are expected to be especially hard-hit, warned the Intergovernmental Panel on Climate Change in its 2007 summary report. See further *Summary for Policymakers.* Synthesis Report of the Intergovernmental Panel on Climate Change 2007, Valencia 2007, p. 9.

[16]Gleick, P.: *The World's Water 2000-2001: Biennial Report of Freshwater Resources*, Washington 2000, pp. 5-7.

Environmental Education Centre in Chennai.[17] A person requires about 150 to 250 liters of water per day. This total amount includes water for drinking (3-4 liters), cooking (20 liters), bathing (50 liters), personal hygiene (50 liters) and laundry (40 to 60 liters). Peter H. Gleick, an internationally recognized water expert, in his report recommends 50 liters per person for a basic domestic needs.[18]

The water supply that takes place nowadays is far away from being an adequate response to any of those demands. The situation that takes place nowadays in the world is terrifying. According to the World Water Development Report 1.1 billion people do not have access to sufficient clean drinking water and 2.4 billion people lack access to adequate sanitation.[19]

2.4 Respond of the international community

A growing awareness of the need to tackle the problem of water crisis is one of the most important insights humanity has gained in recent times.

It was stressed already in 1977 Mar del Plata Action Plan[20] states that "all peoples, whatever their stage of development and their social and economic conditions, have the right to have access to drinking water in quantities and of a quality equal to their basic needs". According to the 1992 Dublin Statement water is recognized as an economic good, but with recognition of the basic right of all human beings to have access to clean water and sanitation at an affordable price.[21] Chapter 18 of Agenda 21[22] emphasizes the priority to be given to the satisfaction of basic needs of people and to the safeguarding of ecosystems, without being very specific.

The targets set by the Millennium Declaration of 2000[23] and the World Summit on

[17]It is a Centre of Excellence of the Ministry of Environment and Forests, Government of India that strives to increase awareness and knowledge of key target groups about the various aspects of environment. (To find out more, see http://cpreec.org (last visited on April 29, 2009)).

[18]Gleick, P.: *The World's Water 2000-2001: The Biennial Report on Freshwater Resources*, Washington 2000, p. 11.

[19]Water supply and sanitation are typically the key priorities in situations where resources are scarce, supplies irregular and/or water quality is poor. Poor water supply and sanitation have a great impact on health and general well-being. Poor people also often pay higher prices for water in locations with poor services. See further *Water for people, water for life*. Challenge 1. Basic needs and the right to health.

[20]*Mar del Plata Plan for Action.* Report of the UN Water Conference in Mar del Plata, New York 1977. Available online http://www.internationalwaterlaw.org/bibliography/UN/Mar_del_Plata_Report.pdf (last visited on April 29, 2009).

[21]See Ministerial Declaration of The Hague on Water Security in the 21st Century, Hague 2000, para 2.

[22]*Protection of the Quality and Supply of Freshwater Resources: Application of integrated approaches to the development, management and use of water resources*. Agenda 21 of UNCED, Chapter 18, Rio de Janeiro 1992.

[23]UN Millennium Declaration. Resolution adopted by the General Assembly, New York 2000.

Sustainable Development (further WSSD) of 2002[24] reflect the willingness of the international community to address the matter at a global level. In recognition of the importance of the matter, the UN General Assembly (hereinafter GA) took an additional step by proclaiming the year of 2003 as the "International Year of Fresh Water".[25] The GA also proclaimed the period from 2005-2015 as the international decade for action, "Water for Life".[26] The importance of access to water for sustainable development is reflected in the key commitment made at the WSSD to halve by the year 2015 both the number of people without access to safe drinking water and the number of people who do not have access to basic sanitation. These set targets and decisions attest to the importance of managing water resources properly.

2.5 Water resources management

There were lots of debates concerning the most efficient and effective way of exercising control over causes of water crisis. The international community came to the conclusions that, nowadays, huge amount of factors, such as the increasing population in the world, everyday development and industrialization, automatically increases a demand of more strict and workable management of waters, taking into account all kinds of use's interests.

The concept of *water management* has historically meant the regulation of water for specific uses.[27] It has led to independent legal regimes governing the protection of water quality (for drinking, recreation, thermal, water supply and sewerage, irrigation and industrial uses, for instance) and the development of isolated water-based projects (wells, dams, canals and other water-based structures) for single- or multi-purpose uses.

Each of the water uses identified above has valuable impacts. Most often have negative impacts, which may be made worse by poor management practices, lack of regulation or lack of motivation due to the water governance regimes in place. Hence the concept of water management was improved and turned into *water resources management*. It includes the comprehensive protection, development and utilization of

[24]Plan of Implementation of the World Summit on Sustainable Development (further WSSD), UN, Johannesburg 2002.

[25]Resolution № 56/192 of General Assembly (hereinafter GA), 7 February 2002.

[26]*Water for Life*. Press Release of GA, 12 December 2003.

[27]Stephenson, D.: *Water resources management*, London 2003, pp.1-3.

the whole of a given body of water, surface and underground, constituting one single hydrologic unit.[28] Water management within government structures is distributed across many agencies and tends to be dominated by sectoral interests.[29]

A challenge in sharing water resources is to prevent conflict and to promote peaceful cooperation between different interests, be it in a region within a country or in a transboundary context. As was recognized by the ministers at the World Water Forum in Hague this would entail the need to "develop synergies between different uses of water at all levels, whenever possible, within and, in the case of transboundary water resources, between states concerned, through sustainable river basin management or other appropriate approaches".[30]

3 Current approach in international law

3.1 International law on water issues

The current chapter examines the relevant sources of international law in search of governing principles in the non-navigational uses of the international watercourses under recent developments. It analyzes the international legal framework governing the uses of international watercourses, and the various attempts by the international community to arrive at a consensus over the factors to be taken into account when a conflict over water allocation occurs between states.

The focus is made on the UN framework Convention on International Watercourses adopted in May 1997.[31] It is based on the *water basin approach*, which is increasingly being applied in numerous projects in water scarce areas with shared water resources. This chapter analyzes the contribution of the Convention to the problem of growing scarcity and potential conflicts over water.

3.1.1 Water basin approach

Water basin (or it can also be called drainage basin, catchment, catchment area/basin,

[28]William, G., Wouters, P., Rochford S.: "Water Wars in the Near Future? Reconciling Competing Claims for the World's Diminishing Freshwater Resources - The Challenge of the Next Millennium", *The CEPMLP Internet Journal*, vol. 3, 1998, pp. 2-4.

[29]Watson, N.: *Water Resource Management.* London 2004, p. 14.

[30]Ministerial Declaration of The Hague on Water Security in the 21st Century, para 3.

[31]Convention on the Law of Non-navigational Uses of International Watercourses, New York, 21 May 1997, 36 ILM (1997) p. 700. (Hereinafter the Convention)

drainage area, river basin and watershed)[32] covers all waters in the definite area. Hence it includes surface and ground water.

W*ater basin approach,*[33] that is the core issue of the current chapter, combines the water basins (in its geographical meaning) and global comprehensive regulation of these water systems (from legal point of view).[34] Hence the core emphasis in here is the idea of geographical and juridical unity of a water basin,[35] since the method of studying of all the possible uses of water of the entire basin will produce much better results, that forms the basis for the further management of those waters, than a study of only one certain part of the basin, or one way of the use of the water.[36]

3.1.2 Historical aspect of international law on water issues

To understand the current water law with regard to water scarcity and water related problems, it is important to go over brief historical overview of the main policy, legal and institutional developments.

International water law is rather complex topic, which turns out to be particularly important in water-scarce world. However, international law in the field of water resources has a short history.[37] The management of transboundary watercourses was the matter of concern of either riparian states or regional organizations. There existed no international convention that would be a guideline regarding the rights and obligations of riparian states towards the use of shared water resources, since many countries for a long time had been against general codification on the matter.[38]

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[32]Wolf, J.: "Sharing waters: Post Rio International Water Management", *Natural Resources Forum 27*, New York 2003, pp. 163-164.

[33]This term takes its start from Montevideo Declaration (Declaration of the Seventh Pan-American Conference on the Industrial and Agricultural use of International Rivers adopted at Montevideo on December 24, 1933) and Buenos Aires Resolution of 1957, when putting an obligation on the co-basin states to take a drainages basin approach to the development of their common rivers. See also Bressers, H., Kuks, S.: *Integrated Governance and Water Basin Management: Conditions for Regime Change and Sustainability*, Boston 2004, p. 247.

[34]Bressers H., Kuks, S.: *Integrated Governance and Water Basin Management: Conditions for Regime Change and Sustainability*, p. 248.

[35]This idea is the basic one in the Report of the Forty-Seventh Conference of the International Law Association, London 1959, pp. 75-77.

[36]Wouters, P.: *International Water Law: Selected Writings of Professor Charles B. Bourne*, Boston 1997, pp. 3-22.

[37]*Ibid*. pp. 7-8.

[38]Some states have argued that each transboundary basin and dispute has its own peculiarities and characteristics and should therefore be treated separately, there were lots of arguments between upstream and downstream states towards the priorities in regulating shared waters etc. This was also a result of difficult negotiations between the states that were parties to already concluded agreements, and those, who favoured that the Convention supersedes any preexisting agreements if they were in

Bilateral and regional agreements go some way towards addressing the issues on a small scale, but do not sufficiently approach the wider problem.

3.1.3 Contribution of customary international law

The only so called guideline that usually governed the allocation and the use of international watercourses was customary international law.[39] It provided some simple rules to enable nations to coexist peacefully within a single, or either shared river basin.

But by itself it has proven unable to solve the problem of managing transboundary water resources.[40] Because of the general absence of a neutral enforcement mechanism, customary international law often had no better method for sanctioning violations than the law of the vendetta.[41] It seemed to be almost impossible to find the proper solution towards regulation of shared watercourses. On the one hand, upper riparian states claimed that they could use international watercourses the way they want, irrespective of downstream consequences. On the other, lower riparian states advanced the opposite argument claiming the natural flow of watercourses undiminished and uninterrupted.[42]

3.1.4 Non-governmental instruments

One of the most notable contributions to the development of international water law has been made by the International Law Association (hereinafter ILA).[43] In early 1950s the Institute of International Law[44] and ILA started studying the law applicable

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conflict with its basic principles. The former regarded the Convention as a potential threat, as there application to the Convention could have upset an already established balance. See McCaffrey, S.: *The Law of International Watercourses: Non-Navigational Uses*, Oxford 2001, pp. 25-28.

[39]The doctrines of water use, that became a customary international law, are divided into the theory of absolute territorial sovereignty, absolute territorial integrity, limited territorial integrity, community of interests, and, equitable utilization theory. See further Beaumont, P.: "The 1997 UN Convention on the Law of Non-navigational Uses of International Watercourses", *Water Resources Development*, vol. 16, Whales 2000, p. 476; Eckstein, G.: *Development of international water law and the UN watercourse convention*, Washington 2002, p. 82.

[40]Dellapenna, J.: "The Customary International Law of Transboundary Fresh Waters", *International Journal of Global Environmental Issues*, vol.1, Olney 2001, p. 245.

[41]*Ibid*. pp. 246-247.

[42]Wouters, P.: *International Water Law: Selected Writings of Professor Charles B. Bourne*, pp. 9-10.

[43]The International Law Association (ILA) has broader membership than IDI, but also meets regularly and produces reports and adopts resolutions aimed at codifying and progressively developing various topics of public and private international law. For further information visit http://www.ila-hq.org/ (last visited on May 1, 2009).

[44]Institute of International Law more commonly referred to as d'Institut de droit international (IDI), founded in 1873 in Belgium, comprises a restricted number of international lawyers that produce

for the water disputes between riparian states. Declarations, resolutions, researches of both of them made an important contribution to the development of the law relating to international waterways. Though they were not binding and had no lawmaking power.

Over the past 40 years, ILA has passed a number of resolutions, dealing with aspects concerning the substantive and procedural rules that apply to international drainage basins, the flow of water, flood control, marine pollution and groundwater. The most important product of the ILA's work is the 1966 Helsinki Rules on the Uses of the Waters of International Rivers (hereinafter the Helsinki Rules),[45] being supplemented by the Montreal Rules on Pollution[46] and the Seoul Complementary Rules.[47] They have been accepted by many countries in Asia, Africa and Latin America involved with the integrated development of international river basins. The Helsinki Rules have played rather important role in the codification and progressive development in international water law. Some of its main principles laid down the foundation for 1997 UN Watercourses Convention. According to some, the Helsinki Rules enjoy more universal support than adopted later 1997 UN Watercourse Convention.[48]

3.1.5 Incorporation of environmental issues in international water law

International water law was focused primarily, if not exclusively, on the economic aspects of competing claims by riparian states on the matter of water, totally aside of environmental concerns.[49] It has been only through the recent entry of the environmental dimension into the water law process. The close interrelation between water scarcity, different economical and social water uses and environment received some recognition within the body of international water law.

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reports and resolutions on various topics of private and public international law. The ILA and IDI are non-governmental scholarly organizations. For further information visit http://www.idi-iil.org/ (last visited on May 1, 2009).

[45]The Helsinki Rules on the Uses of the Waters of International Rivers. ILA, London 1967 (hereinafter The Helsinki Rules).

[46]Montreal Resolution on Pollution on the waters in an International Drainage Basin. ILA, Montreal 1982.

[47]Seoul Complementary Rules. ILA, Seoul 1986.

[48]Bogdanovic, S.: *International Law of Water Resources: Contribution of the International Law Association (1954-2000)*, London 2001, p. xiii.

[49]Wouters, P.: *Codification and Progressive Development of International Water Law: The Work of the International Law Commission of the United Nations*, London 2002, p.234.

This has been the outcome of the building up of a number of soft law and conventional instruments. Growing global concern over the state of the environment and the impact of environmental issues on human security and political stability has resulted in a series of international conferences to discuss and address environmental concerns. That was a good possibility for the stakeholders to lay down basic strategies to be implemented and goals to be achieved towards achieving a sustainable future.

In response to these issues, and culminating from the international conference dynamic of the past three decades, the close relationship between environmental issues and water, as a part of natural resources, have become crucial in decision making, from the local to the international levels, and have been placed on the political agenda at various levels.

3.1.6 Soft law and the impact on water resource management

As Pierre-Marie Dupuy points out "soft law must be taken into account in the tentative analysis and interpretation of what is certainly already hard law".[50]

The close connection between water scarcity and environmental issues on international, regional and national policy agendas has likewise been duly acknowledged since the 1970s.[51] A growing awareness of the need to tackle the problem of water crisis is one of the most important insights humanity has gained in during the last four decades. In this way the global community agreed on the urgent necessity to respond to the problem of environmental deterioration. Number of international conferences highlighting the interrelation of basic water needs and sanitation and environmental factors in achieving a sustainable world intensively started to take place (See *Figure 2*. Overview of main water policy development milestones (1972 –2006)). Each of them culminated in soft law instruments aiming at eradication of problems of water scarcity and to strengthen global commitment to

[50]Dupuy, P.: "Overview of the existing customary legal regime regarding international pollution" in Magraw, D.B.: *International law and pollution,* Philadelphia 1991, p. 61.

[51]Before that period water scarcity was dealt with by increasing the supply of water to the area of scarcity in order to meet the demand and manage the allocation of water to the various user sectors. Hence water policy became foremost centered on satisfying humanity's rising demand (for irrigation, domestic and industrial water supply, as well as on flood reduction and hydropower generation). However, the rising demand for water in combination with the environmental scarcity, caused the depletion of water supplies and placed a large share of freshwater life at risk of extinction. See Wouters, P.: *International Water Law: Selected Writings of Professor Charles B. Bourne*, Boston 1997, pp. 22-38.

sustainable development encouraging cooperation between states and people.[52] As an overarching outcome of all the international environmental conferences, access to water is now recognized as one of the key issue of sustainable development.

But anyway, there was a great necessary for that worldwide recognition to be codified and to have some legally binding effect towards international water management to guide states in their efforts to provide for the integrated, sustainable, and equitable management of transboundary river basins.[53]

In 1970 UN GA recommended that the International Law Commission of the UN (hereinafter ILC)[54] "take up the study of the law of the non-navigational uses of international watercourses with a view to its progressive development and codification", including environmental matters. After almost a quarter century of study and deliberation, the ILC adopted a set of draft articles on the non-navigational uses of international watercourses. These were referred to the UN GA to be used as a starting point for the drafting of a multilateral water convention.

3.1.7 Johannesburg Plan of Implementation and its impact on sustainable transboundary water management

Johannesburg Plan of Implementation (hereinafter Plan of Implementation) was one of two outcomes after WSSD of 2002.[55] The direct link between a healthy life and access to water is expressed in the Plan of Implementation. It underlines the essential necessity of proper management of natural resources, including water, and to reserve the current trend in natural resources degradation as soon as possible, prioritizing water and sanitation in national sustainable development strategies and poverty reduction strategies where they exist.

3.1.8 References to the right to water in the Plan of Implementation

The Plan of Implementation doesn't give a determination to the right to water, but concentrates more on the obligations of the states and non-states actors in order to

[52]Biswas, A.: *From Mar del Plata to Kyoto: a review of global water policy dialogues,* Oxford 2004, p. 89.

[53]Wolf J.: "Sharing waters: Post Rio International Water Management", pp. 163-164.

[54]Wouters, P.: *Codification and Progressive Development of International Water Law: The Work of the International Law Commission of the United Nations,* p. 234.

[55]Ten years after the Rio Earth Summit the international community renewed its commitment to sustainability at the 2002 WSSD in Johannesburg. In September 2002 representatives of 191 governments gathered in Johannesburg to examine progress on the outcomes of the 1992 Rio Earth Summit and to strengthen global commitment to sustainable development.

ensure, respect, protect and implement the right to water. It stresses that the priority in the allocation of water must be given to the right to water for personal and domestic uses and to the water resources required to prevent starvation and disease.[56]

References to the right of all peoples towards the freshwater resources can be viewed in several international law principles, reflected in Plan of Implementation:

> Peace, security, stability and respect for human rights and fundamental freedoms, including the right to development, as well as respect for cultural diversity, are essential for achieving sustainable development and ensuring that sustainable development benefits all. [57]

In this respect, duty to cooperate,[58] polluter pays principle,[59] common but different responsibilities of states oblige and enable states to insure and guarantee the access of its citizens to drinking water and sanitation. Hence the idea of international cooperation in order to reduce the number of people without access to safe water and adequate sanitation by 2015 is especially underlined in the Plan of Implementation:

> The gap between developed and developing countries points to the continued need for a dynamic and enabling international economic environment supportive of international cooperation, particularly in the areas of finance, technology transfer, debt and trade and full and effective participation of developing countries in global decision-making, if the momentum for global progress towards sustainable development is to be maintained and increased. [60]

The principle of common but different responsibilities of states was established in Rio Declaration,[61] Johannesburg Plan of Implementation, and reflects the idea of the primary responsibility of each country for its own sustainable development and poverty eradication, taking all necessary measures at all levels to enable developing states to achieve their sustainable development goals.[62] Therefore, the required measures include measures to decrease the proportion of people without access to safe drinking water and basic sanitation.

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[56]Para 6 of Johannesburg Plan of Implementation.

[57]Para 5 of Johannesburg Plan of Implementation.

[58]Cooperation is a basic requirement and obligation in international law, that is of vital importance not only to provide the access to water to all people, but to reach the balance between all water interests, that is the core element of sustainable development, in general.

[59]Para 19 (b) of Johannesburg Plan of Implementation.

[60]Para 4 of Johannesburg Plan of Implementation.

[61]Principle 7 of Rio Declaration.

[62]Plan of Implementation, WSSD, para. 6.

3.1.9 Is an access to freshwater resources a recognized human principle?

Access to freshwater resources as a recognized human principle would oblige states to ensure that basic water needs are met and empowers communities to claim their right. It would identify and address the root causes for lack of access to water and it would place people at the centre of the development process.

More deep research of this question points out that access to freshwater resources is not an established human right principle as such. It is not explicitly acknowledged as a separate human right in human right instruments. At the same time, while some still consider a human right to water to be a debatable legal issue, most in the legal and professional water community have come to accept the arguments made in support of such a right.

Indeed, the UN General Comment clearly supports a legal right to water.[63] What can be admitted for sure is that the right to freshwater resources is protected by human rights law and is of great relevance for other human rights, as it is a precondition for their fulfillment. How one can enjoy its right for development, right for health life or right for adequate standing of living, being blighted by the burden of water-related disease, living in degraded and often dangerous environments, without any access to drinking water or sanitation?

3.1.10 Current legal instruments

Against this historical background, the focus now shifts to the current legal and policy framework that serves both to prevent and intervene in water-related conflicts at the international level.

Today the use of the international watercourses is regulated by:

- treaties (such as the UN Watercourses Convention and EC environmental conventions);
- customary international law (as established in ICJ judgments and addressed in literature);
- resolutions and documents of UN bodies (such as UN GA resolutions and UN ILC documents);
- law-making activities and policy documents of regional organizations (such as EU directives);
- declarations and resolutions resulting from conferences (e.g. documents that resulted from UNCED and the World Water Forums);

[63]Substantive Issues Arising in the Implementation of the International Covenant on Economic, Social and Cultural Rights, Committee on Economic, Social and Cultural Rights, General Comment No.15, E/C.12/2002/11, 20 January 2003.

- and activities and documents of NGOs (e.g. work of the ILA and IUCN).
- it moreover includes a survey and analysis of related literature and an interdisciplinary study of sustainable development.

3.2 Framework Convention on the Non-navigational Uses of International Watercourses

The biggest problem that the world was facing utilizing the transboundary water resources was a result of the fact that though numerous bi- and multi-lateral agreements were in force in particular river basins, most regional water agreements provided neither for integrated river basin management, nor for adequate ecosystem protection or pollution control. Many treaties lacked the appropriate enforcement mechanisms and provisions on monitoring and data generation.[64] Management of international watercourses includes the priorities of different uses and since most of these watercourses flow between two or more states, the priorities give rise to regional conflicts. International arena lacked a legal guideline for the riparian states for the proper management of transboundary watercourses.

3.2.1 General characteristics

The situation has changed, when UN General Assembly adopt the Convention on the Non-navigational Uses of International Watercourses in 1997, based on the main provisions of Rio Declaration 1992 and Agenda 21. It took water basin approach, pertaining to the uses and conservation of all waters that cross international boundaries, including both surface and groundwater. The Convention emanated directly from the perception of an emerging water crisis and the probability that water scarcity could lead to a huge increase of regional conflicts over water. The Convention thus emphasized establishing collaborative relationships between countries sharing international watercourses[65] codifying customary international law. As customary international law by itself has proven unable to solve the problem of managing transboundary water resources.

Though the Convention is not yet in force,[66] it provides the legal framework that

[64]Graffy, C.: "Water, Water, Everywhere, Nor Any Drop to Drink: The Urgency Of Transnational Solutions To International Riparian Disputes", *Georgetown International Environmental Law Review*, vol.10, Washington 1998, p. 402.

[65]Hunt, C.: *Thirsty Planet: Strategies for Sustainable Water Management*, London 2004, p. 268.

[66]Only 17 states have ratified the Convention so far, 35 states ratifying the treaty will bring it into effect. Check updates here: Status of the Watercourse Convention.

aims at ensuring the utilization, conservation, management, development and protection of international watercourses based on the principle of inter-generational equity.[67] The Convention combines general principles of international watercourses regarding the management of international waters, that states have to abide by, when concluding regional agreements. It makes an attempt to balance rights and interests of upstream and downstream states. In this respect, it embraces the principle of equitable and reasonable utilization, and lays down certain factors and circumstances that should be taken into account for determining such equitable and reasonable utilization.[68]

3.2.2 Controversial issues when deciding upon the text of the Convention

The issues central to the controversy in the Working Group during the negotiation on the text of the Convention arose in three key areas:[69]

- to what extent did states have to comply with the provisions of the Convention in existing and future watercourses agreements;
- what was to be the substantive content and relationship between the principles of equitable utilization and no significant harm (Articles 5 and 7 of the Convention);
- to what extent were States to be bound by dispute settlement mechanisms?

The compromise reached in each of these areas reveals a central ground acceptable to the majority of states.

3.2.3 The process of creation

Analyzing the whole process of creation of such an international instrument that would regulate and guideline the use of transboundary watercourses, including the prehistory, international situation and negotiations, it took more than 25 years for the Convention to come before the GA for adoption on May 21, 1997.

A majority of states voted in favour (103 in number),[70] which indicates that the

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http://www.internationalwaterlaw.org/intldocs/watercourse_status.html (last visited on May 1, 2009).

[67] See generally, the Preamble to The Convention.

[68] Article 6(1) of The Convention.

[69] See further McCaffrey, S., Sinjela, M.: "The 1997 United Nations Convention on International Watercourses", *The American Journal of International Law*, vol. 92, Washington 1998, p. 97.

[70] Albania, Algeria, Angola, Antigua and Barbuda, Armenia, Australia, Austria, Bahrain, Bangladesh, Belarus, Botswana, Brazil, Brunei Darussalam, Burkina Faso, Cambodia, Cameroon, Canada, Chile, Costa Rica, Côte d'Ivoire, Croatia, Cyprus, Czech Republic, Denmark, Djibouti, Estonia, Federated States of Micronesia, Finland, Gabon, Georgia, Germany, Greece, Guyana, Haiti, Honduras, Hungary, Iceland, Indonesia, Iran, Ireland, Italy, Jamaica, Japan, Jordan, Kazakstan, Kenya, Kuwait, Lao

rules embodied in the convention were acceptable; only three states voted against (Burundi, China and Turkey) and 27 abstained.[71] Burundi, China and Turkey opposed the treaty – all three being upper riparian states and significant actors in the world's major water basins, namely the Nile, the Mekong and the Tigris/Euphrates Rivers respectively.[72] In the case of China and Turkey, both were then in the process of developing their parts of the water resources in a way that might threaten the use by downstream countries, leading to considerable tension in these river basins.[73] The inclusion of groundwater in the scope of the Convention was usually cited as a reason for the abstentions of some states from the vote on the Convention.[74]

3.2.4 Current status of the Convention

The number of ratifications necessary to bring the Convention into force was set at a level of thirty-five[75] which was rather modest in comparison with the number of UN members and the positive votes. Although the 103 affirmative votes show that the Convention is generally accepted and indicates broad agreement, it has been argued that the Convention has not successfully addressed recent environmental challenges, and it is considered a weak legal instrument for resolving conflicts.[76]

As it was stressed by the World Wildlife Fund in 2006,

> "the entry into force of the UN Convention will bring countries together in global and regional initiatives to promote river basin conservation and management, to provide for the equitable and sustainable use of freshwater, to expand access to drinking water and adequate sanitation and enhance living conditions of communities around the world, and to maintain international security through the avoidance and mitigation of inter-State water

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Peoples Democratic Republic, Latvia, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Maldives, Malta, Marshall Islands, Mauritius, Mexico, Morocco, Mozambique, Namibia, Nepal, Netherlands, New Zealand, Norway, Oman, Papua New Guinea, Philippines, Poland, Portugal, Qatar, Republic of Korea, Romania, Russian Federation, Samoa, San Marino, Saudi Arabia, Sierra Leone, Singapore, Slovakia, Slovenia, South Africa, Sudan, Suriname, Sweden, Syria, Thailand, Trinidad and Tobago, Tunisia, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, Viet Nam, Yemen, Zambia.

[71] States that abstained: Andorra, Argentina, Azerbaijan, Belgium, Bolivia, Bulgaria, Colombia, Cuba, Ecuador, Egypt, Ethiopia, France, Ghana, Guatemala, India, Israel, Mali, Monaco, Mongolia, Pakistan, Panama, Paraguay, Peru, Rwanda, Spain, Tanzania, Uzbekistan. Further information on the status of the Convention http://www.africanwater.org/UNPressWater.htm (last visited on May 1, 2009).

[72] See Eckstein, G.: *Development of international water law and the UN watercourse convention,* pp. 82-83.

[73] *Ibid.* p. 83-88.

[74] Verbatim record, UN Doc. A/51/PV.99, UN GA, 21 May 1997, para 5 (Pakistan) and 12 (Rwanda).

[75] *Ibid.* p. 97.

[76] *Ibid.* p.98.

disputes".[77]

3.2.5 Structure of the Convention

The Convention consists of seven parts, 14-article Annex on Arbitration and Statements of Understanding Pertaining to Certain Articles of the Convention.

Part I covers the scope of the Convention, use of terms and agreements, relating to specific watercourses. The most important substantive and procedural provisions are contained in Part II. Part III enshrines a list of procedural measures — the Planned Measures — for the implementation of substantive provisions of the Convention. Part IV deals with Preservation, Protection and Management concerning the environmental matters. Part V is making an attempt to define state's actions in a case of Harmful Conditions and Emergency Situations. Part VI includes Miscellaneous Provisions and Part VII contains Final Clauses.

The major obligations for the riparian states that the international legal text adopts are four: the obligation to cooperate, not to cause significant harm, to utilize their freshwater resources in an equitable and reasonable manner and to protect their ecosystem.

3.3 Scope of Applicability

The main area covered by the Convention is defined within the term "international watercourse", that according to Article 2 ((a), (b)) is:

> a system of surface waters and ground waters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus (...) parts of which are situated in different States.

3.3.1 Correlation between "watercourse" in the Convention and "drainage basin" in Helsinki rules

Compare to the "drainage basin" in Helsinki Rules[78] the "watercourse" approach is considered to be narrower in one aspect — the last one doesn't include the entire area, which contributes water to the watercourse. This definition, basically, replaced the

[77] World Wildlife Fund (WWF) calls on governments to bring into force the Convention on the law of the non-navigational uses of international watercourses, Switzerland, 9 December 2006.

[78] According to ILA's definition, the concept of "international drainage basin" is rather broad and covers not only watercourse itself, but also all the sources of water flowing into watercourse. It also includes the land and the forests in that area, that may have a considerable effect on the water in the basin. See, furthermore Agenda 21, supra note 197, especially at 18.6, 18.8, 18.9.

early use of the drainage basin concept of the Helsinki Rules,[79] which was supported by some countries as the most scientific and rational context for agreements.

The issue of choice between "drainage basin" in Helsinki Rules and "watercourse" in the Convention was rather complex. On this point the opinions were pretty different. Some countries insisted on using a "drainage basin" approach while some wanted to expand the scope of the Convention to include the ecosystem of the river basin.[80]

3.3.2 Covered area under the term "watercourse"

The term *watercourse* applies to the waters as to constitute a *unitary whole*[81] of surface water and groundwater that is connected to the surface waters.[82] The definition, given out by the Convention, takes into account that most fresh water is in fact underground, and that most of this groundwater is related to, or interacts with, surface water.[83] Thus, for example, pollution of surface water can contaminate groundwater, and vice versa, just as withdrawals of groundwater can affect surface water flows. The vital issue of groundwater has been never given adequate attention until recently.[84] Groundwater is often a hidden resource: inadequately monitored, insufficiently regulated, and often over pumped and overused.

Hence, the definition given out by Article 2 of the Convention calls the attention of states to the interrelationship between all parts of the system of surface and underground waters that makes up an international watercourse. Thus it should be clear immediately that an effect on one part of the system would generally be

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[79] There have been lots of debates while drafting the Convention weather there is a difference in definitions between "transboundary waters" used in Helsinki Rules, and "international watercourses" in The Convention. The conclusion was that there is no substantive difference. See further, Johannsdottir, A.: "The Convention on the law of the non-navigational uses of international watercourses — some comments", *Ymparisto-juridikka*, vol.1, 2002, pp. 60-61.

[80] McCaffrey, S.: "The contribution of the UN Convention on the law on the non-navigation uses of international watercourses", *International Journal of Global Environmental issues*, vol.1, Olney 2001, p. 254.

[81] See Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Economic Commission for Europe (ECE), Helsinki, 17 March 1992, 31 ILM (1992) p. 330 (The Helsinki Convention), which goes beyond the traditional definition as it encompasses "a number of different components through which water flows both on and under the surface of land including rivers, lakes, aquifers, glaciers, reservoirs and canals".

[82] Art. 2 (a) of The Convention.

[83] McCaffrey, S.: "The contribution of the UN Convention on the law on the non-navigation uses of international watercourses", p. 256.

[84] *Ibid*. p. 258.

transmitted to other parts.[85]

Good explanation of the consequences of such a situation is given by Stephen McCaffrey,[86] where he points on a very simple and typical example of the utilization of shared watercourse between two states, where mining of the groundwater in aquifer in one state can effect not only groundwater levels in another state, but also surface flows to the extent that the aquifer contributes to those flows. At the same time he underlines, that, nevertheless, the inclusion of groundwater in the Convention was cited as a reason for the abstentions of two states from the vote on the Convention. But it's easy to understand the reason of such a reaction of states, as it limits their right for the development.

There remains considerable doubts weather the activities of states on the land could be totally ignored or excluded from the scope of a legal regime of an international watercourse. It may also have a serious effect on watercourse quality and availability, and, therefore, logically demands a certain regulations. It has been mentioned that any effective control, for instance, of water pollution requires sustainable land use practices.[87] However, despite these failings, the Convention does not confine the obligation to prevent pollution only to activities taking place on a watercourse.

3.3.3 Different uses of water

The Convention is making an attempt to regulate different uses of transboundary watercourses and relations between them. Article 1(1) underlines that in a case of absence of agreement or custom towards the utilization of a certain shared watercourse, no use of international watercourse can enjoy the priority over other uses.

At the same time Article 1(2) of the Convention asserts that the use of the international watercourses for navigation is not within the scope of the Convention, except the cases when other uses affect navigation or are affected by navigation. But that basically means that non-navigational uses are not totally excluded from the

[85]Schwabach, A.: "The United Nations Convention on the Law of Non-Navigational Users of International Watercourses, Customary International Law, and the Interests of Developing Upper Riparians", *Texas International Law Journal*, vol. 33, Austin 1998, p. 94.

[86]McCaffrey, S.: "The contribution of the UN Convention on the law on the non-navigation uses of international watercourses", p. 256.

[87]Kaya, I.: *Equitable Utilization: The Law of the Non-navigational Uses of International Watercourses*, Burlington 2003, p. 85.

scope of the Convention.

3.3.4 Non-navigational uses

The Convention doesn't define the scope of the term *non-navigational uses*. The definition of non-navigational uses is self-evident.[88] It comprises all uses except navigation. The categorization of non-navigational uses can be derived from the ILA's work and includes:[89]

- agricultural uses (irrigation, drainage, waste disposal, aquatic food production);
- economic and commercial uses (energy production, manufacturing, construction, transportation other that navigation, timber floating, waste disposal, extractive);
- domestic and social uses (consumptive (drinking, cooking, washing, laundry etc.);
- waste disposal, recreational (swimming, sport, boating etc.).

3.4 Equitable, reasonable utilization (Art. 5), the no-harm principle (Art.7) and the conflict of users (Art. 10)

Part II is a heart of the law of international watercourses. In order to avoid the possible conflicts between the watercourse states Articles 5 and 7 codifies the cornerstone issues of the Convention. They establish principle of utilizing international watercourses in equitable and reasonable manner, along with a condition of no-harm principle. It imposes an obligation on member states not to cause significant harm to other watercourses states.

Article 5 also provides that watercourse nations shall participate in the use, development, and protection of an international watercourse in an equitable and reasonable manner. The right to participate includes both the right to utilize the watercourse and the duty to cooperate in its protection and development.

3.4.1 Historical background

By the end of 1960s the principle of equitable utilization had been generally accepted as a cornerstone of the customary international law. The fact that the rule of equitable utilization was required by customary international law can be found in many treaties based on this concept, in international judicial and arbitral awards, and in the near-

[88]Kaya, I.: *Equitable Utilization: The Law of the Non-navigational Uses of International Watercourses*, p. 84.

[89]Bogdanovic, S.: *International Law of Water Resources: Contribution of the International Law Association (1954-2000)*, p. 34.

unanimous opinions of the most highly qualified legal scholars.[90]

The principle of equitable utilization was also enounced in Helsinki Rules, as "each basin state is entitled, within its territory, to a reasonable and equitable share in the beneficial use of the waters of an international drainage basin".[91] Later on it was reflected in the Convention within the same meaning, that each water user has a right, within its own area of jurisdiction, to a reasonable and equitable share in the beneficial utilization of the waters of that part of a hydrologic unit comprised within its area of jurisdiction.

3.4.2 What is reasonable and equitable?

Article 5 of the Convention enumerates a number of factors for determining what is reasonable and equitable utilization. According to its content, to be equitable and reasonable, "an international watercourse shall be used and developed by watercourse states with a view to attaining optimal and sustainable utilization thereof and benefits therefrom, taking into account the interests of the watercourse states concerned, consistent with adequate protection of the watercourse", also be consistent with adequate protection of the watercourse from pollution and other forms of degradation.

What amounts to an *equitable* share of the waters of an international water basin often is not clear. Some have argued that equitable sharing must mean equal sharing.[92] The perusal of the standards for equitable utilization demonstrates that while equal access is guaranteed, equal shares are not.[93]

The standards can be actually found in Article 6 of the UN Convention, which contains a long list of relevant factors.[94] Article 6(1) includes a non-exhaustive list of factors to be taken into account for determining equitable and reasonable utilization,[95]

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[90]Benvenisti, E.: "Collective Action in the Utilization of Shared Freshwater: The Challenges of International Water Resources Law", *Texas International Law Journal*, vol. 90, Austin, 1998, pp. 386-388.

[91]Article IV of the 1966 Helsinki Rules of the International Law Associations, see: *International Law Association Rules on International Water Resources*, ed. Bogdanovic, S., Yugoslav Association for Water Law, Yugoslav Branch of the International Law Association in Novi Sad, and the European Centre for Peace and Development (ECPD), Belgrade 1999, p. 206.

[92]McIntyre, O.: *Environmental protection of international watercourses under international law*, Ashgate 2007, p. 194.

[93]McCaffrey, S.: "The contribution of the UN Convention on the law on the non-navigation uses of international watercourses", p. 256.

[94]Tzatzaki, V.: "The UN Convention on International Watercourses and Integrated Water Management: a bridge built", *International Journal of Global Environmental issues*, vol. 5, Olney 2007, p. 45.

[95]The term "equitable share" of the Helsinki Rules was abandoned.

which is regarded by some critics as insufficient.[96] These include:

- geographic, hydrographic, climatic, ecological and other natural factors,
- the social and economic needs of the watercourse states concerned,
- the population dependant on the watercourse,
- the effects of the use of the watercourse by one state on other watercourse states,
- existing and potential uses of the watercourse,
- conservation, protection, development and economy of use of the resources of the watercourse,
- the availability of alternatives to a planned or existing use[97].

Non-lawyers, particularly engineers and hydrologists, sometimes see in this list of factors a poorly stated equation. By this view, if one simply fills in numerical values for each factor, one could somehow calculate each watercourse nation's share of the water without reference to political or other non-quantitative variables.

3.4.3 Relationship between equitable and reasonable utilization and no-harm principles

Comparing to ILA's approach, where it was clear that a use, which causes significant harm, could be justified under the principle of equitable utilization, the same is not quite so evident in the approach adopted in the Convention. Although states could argue that read together, Articles 5-7 mean this.[98]

The obligation not to cause a significant harm, reflected in Article 7 of the Convention, was the most controversial one — while upper riparian countries wished to strengthen the principle of equitable and reasonable utilization, mostly lower riparian states wished that Article 7 might overrule Article 5.[99] Throughout the negotiations in the UN the Article was treated as being closely linked with Article 5 and 6.

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[96] McCaffrey, S.: "The contribution of the UN Convention on the law on the non-navigation uses of international watercourses", pp. 257-259.

[97] *Ibid*. p. 258.

[98] *Ibid*. p. 259-260.

[99] The upper-riparian nations initially base their claims on absolute territorial sovereignty, typically claiming the right to do whatever they choose with the water regardless of its effect on other riparian nations. Downstream nations, on the other hand, generally begin with a claim to the absolute integrity of the river, claiming that upper-riparian nations can do nothing that affects the quantity or quality of water that flows in the watercourse.

3.4.4 Priority of use

If to presume that equitable utilization principle would be recognized as prevailing one, upstream state may develop its water resources in equitable and reasonable manner, even though that development might cause a significant harm to the established uses of downstream states.

If, on the opposite side, an obligation not to cause significant harm will prevail, upstream state may be limited in its development rights, no matter how equitable and reasonable the utilization of the waters will be, if it will end up by causing downstream states a significant harm.

But in this case a significant harm may be caused to upstream state, as it is more commonly around the world, that the lower basin nations are wealthier and more highly developed than the upper basin states. Hence, the tension between protecting historic rights and providing for developmental equity can be managed only if the water is cooperatively managed by the several national communities in such a way as to assure equitable participation in the benefits derived from the water by all communities sharing the basin. Customary international law, in its somewhat primitive state of development, turned out to be not so effective by itself in resolving the management problems of a region.[100]

Hence the Convention represents an effort to strike a balance between the two principles. Though the question is still remaining over the relationship of these two closely related principles, codified in the Convention, today the prevailing view is that no-harm principle is regarded within the limits of equitable and reasonable use and is subordinated to it.[101] Most critics connects this conclusion with the existence of paragraph 2 of Article 7, that basically express the idea that harm may be caused without engaging harming state's responsibility.

This statement is partly connected with the term *significant* that characterizes actual harm and influences the legal consequences or absence of the later for the

[100]A good example in here can be the Case Study of the Nile River, where the Nile Valley nations perfectly epitomize the scenario set out in the text regarding the role of customary international law in resolving international disputes over water. While uncertainty of legal right can induce cooperation among those sharing a resource, it can also promote severe conflict. Nor can a partitioning of the waters be an adequate resolution when there simply is too little water to divide.

[101]Salman, M., Uprety. K.: *Conflict and Cooperation on South Asia's International Rivers: A Legal Perspective*, Washington DC, 2002, p. 28; McCaffrey, S., Sinjela, M.: "The 1997 United Nations Convention on International Watercourses", *The American Journal of International Law*, vol. 92, Washington 1998, p. 99.

riparian states. According to ILA, "significant" means that the harm caused should not be substantial or serious. However, as McCaffrey mentioned once, "the obligation is not a strict one: it is an obligation of conduct rather than an obligation of result",[102] i.e. significant harm is not per se prohibited, but state responsibility refers to a harm that stems from a negligent conduct attributable to the causing state.[103] The harm causing by states is required "to eliminate or mitigate such and, where appropriate, to discuss the question of compensation". And if significant harm nevertheless is caused to another watercourse nation, the nation whose use causes such harm must, in the absence of agreement for the use, take all appropriate measures, having due regard for the provisions of Articles 5 and 6, in consultation with the affected nation, to eliminate or mitigate the harm and, where appropriate, to discuss the question of compensation.

However, as it has been mentioned in section 3.2.3, the final texts of Articles 5, 6 and 7 were not accepted by all states.[104]

The statement, that the "no-harm" rule does not enjoy any inherent preeminence, is also supported by Article 10 of The Convention. It stipulates that no uses of watercourse can enjoy the priority over other uses, and in a case if the conflict arouse between uses, it shall be resolved with a reference to Art. 5-7, but along with a necessity to take into account the vital human needs (Art. 10 (2)).

3.4.5 Interpretation of "Vital human needs"

"In determining "vital human need", — as it was stated in a "Statement of Understanding" accompanying the text of the Convention, based on ILC's commentary — special attention is to be paid to providing sufficient water to sustain human life, including both drinking water and water required for production of food in order to prevent starvation". It's hard not to agree with that. But, as it is usually

[102]McCaffrey, S., Sinjela, M.: "The 1997 United Nations Convention on International Watercourses", p. 99.

[103]See *Task Force on Legal and Administrative Aspects*, in Tanzi A.: "The Relationship between the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the 1997 UN Convention on the Law of the Non-navigational Uses of International Watercourses", Report of the UNECE, Geneva 2000.

[104]The fact that the vote on the substantive rules contained in Articles 5 and 7 was so closely divided is significant in itself. From such a result it can be deduced that both upstream and downstream states find strengths and weaknesses in the final formulation of the Articles. This could attest to the relative fairness of the compromise finally reached regarding the substantive rules — it favoured neither upstream nor downstream states.

stressed in the numerous commentaries to the Convention, some countries may fear that the concept of "vital human needs" could be, so to say, overused by some riparian states in some situations, when in fact its it is debatable whether such vital needs were involved at all.

3.4.6 Principle of equitable utilization and no-harm principle in practice

In practice adopting equitable use with no significant harm can cause quite different results. The no significant harm rule acts as a veto on future development and tends to protect the status quo.[105] This can result in an inequity to the often less developed state.

In the Gabcikovo-Nagymaros case[106] the Court seems to adopt the rule of equitable and reasonable utilization, on the grounds that this is the cornerstone rule in the law of international watercourses.

What is interesting here is that Court's opinion referred twice to the rule of equitable utilization and did not mention the "no-harm rule". According to MacCaffrey, this signifies that "the Court is doubtful of the priority of the obligation not to cause significant harm for the settlement of complicated issues of allocation of the uses and benefits of international sources of freshwater".[107] The Court's failure even to mention the "no-harm" rule despite Hungary's heavy reliance on the principle in its pleadings can be seen as such that actually confirms that the rule of equitable utilization is primary, and that avoidance of harm is to be considered only in analyzing whether a particular use or pattern of use is equitable.

3.4.7 Discussion

Serious conflict in one form or another cannot be avoided under the rule of equitable utilization without a clear definition of the precise standards for managing the shared waters and a peaceful mechanism for the orderly investigation and resolution of the disputes characteristic of the rule. Most disputes over international river systems thus have eventually led to a treaty based on equitable utilization, and several hundred such treaties now have entered into force regarding internationally shared waters[108].

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[105]Such as the prior appropriations of the state first to develop.

[106]Case Concerning the Gabcikovo-Nagymaros Project (Hungery v. Slovkia), ICJ 1997.

[107]McCaffrey, S.: "The contribution of the UN Convention on the law on the non-navigation uses of international watercourses", p. 259.

[108]*Ibid.* p. 119.

But how does the upstream state would know if it uses the watercourse in equitable and reasonable manner, not causing a significant harm to downstream states? Actually, it's really hard to determine if there are no special regulations on the basis of cooperation between the certain states on the certain watercourse. That's why the Convention underlines the importance for the States to cooperate (Art. 8), to exchange of data and all necessary information from other riparian states (Art. 9) that can be considered important and useful in order to create a joint mechanism of managing the shared waters.

3.5 Principles of Cooperation and Exchange of Data and Notification Procedure

In order to achieve a regime of equitable and reasonable utilization and participation for an international watercourse system as a whole the Convention provides a set of procedures to be followed by the member states towards any kind of new activity that may cause an impact on the other states sharing the same watercourse.

3.5.1 Affirmative cooperation

In this case the Convention provides an obligation for the riparian states to cooperate and maintain a regular exchange of data and information.[109] The basic idea behind this concept is that in order to achieve a regime of equitable and reasonable utilization, riparian states must always cooperate with each other by taking affirmative steps, individually or jointly, with regard to the watercourse.[110]

The Convention requires cooperation in the regular exchange of data and information in particular "hydrological, meteorological, hydro-geological and ecological nature and related to water quality as well as related forecasts".[111] But, the obligation of exchanging data and information is rescinded in case they are "vital to national defense or security".[112]

3.5.2 Consultation procedure

Articles 11 and 19 prescribe the consultation procedure for planned measures in case of effects on watercourses states. This procedure, actually, benefits the affected states,

[109]Articles 8 and 9 of the Convention

[110]McCaffrey, S.: "The contribution of the UN Convention on the law on the non-navigation uses of international watercourses", p. 266.

[111]Article 9(1) of the Convention.

[112]Article 31 of the Convention.

if they have "reasonable grounds to believe that another watercourse State is planning measures that may have significant adverse effect upon it".[113]

Basically, the state that plans to conduct any kind of activities on the watercourse, presuming, that it may affect another watercourse country, shall notify the affected state and prepare all the information, including the results of environmental impact assessments towards the planning project "in order to enable the notified States to evaluate the possible effects of the planned measures".[114] And then, the affected state or more correct to say, potentially affected, has a right to study and evaluate possible consequences in conjunction with cooperation and negotiations with the state, that is planning any activities.

3.5.3 Recognition of the importance by ICJ

3.5.3.1. Gabcikovo-Nagymaros case

The utility of this concept is illustrated by the fact that ICJ quoted the entire paragraph of Article 5 that sets forth the obligation of equitable participation in its judgment in already mentioned before the Gabcikovo-Nagymaros case.

The Court highlighted the importance of cooperation between the nine riparian states of the Danube in order to develop commercially and economically. And, as McCaffrey underlined, what is necessary to be done for the Danube is also necessary to be done for every international watercourse.

Moreover, the ICJ also stressed on the obligation to negotiate in good faith. In other words, the Court in its decision of 25/09/2997 said that both Hungary and Slovakia had violated their international obligations and invited both states to negotiate in good faith in order to ensure the purpose of the Convention, taking into account the rules of international environmental law and international law on watercourses.[115]

In this case, ICJ enhanced the importance of adopting preventive measures for the relationship and the sustainable development of the common water resources. One of such measures is environmental impact assessment, which could be considered as one of the "appropriate measures" of article 7 of the Convention in the obligation of the

[113]Article 18(1) of the Convention.

[114]Article 12 of The Convention.

[115]McCaffrey, S.: "The contribution of the UN Convention on the law on the non-navigation uses of international watercourses", p. 265.

states to avoid causing significant harm. In reality, the conduct of environmental impact assessment allows the state that initiates the project to move the burden of proof to the states that have been affected.[116]

3.5.3.2 Pulp Mills case

In the recent case of Pulp Mills[117] the obligation to negotiate is also set by the ICJ. Argentina claims that Uruguay has not abided by the Statute of River Uruguay of 1975 and the obligation to negotiate. The Court, in its decision of 13/06/2006 on the provisional measures that Argentina requested said that the states should proceed with negotiations in good faith, as it is set out in the Statute of 1975 and that the Administrative Committee for River Uruguay is the appropriate forum for their realization.

Moreover, in this case, ICJ referred to the obligation of the riparian states to notify each other on their planned measures. Argentina has initiated the proceedings before the ICJ claiming the violation of the Statute of River Uruguay of 1975, when Uruguay gave its unilateral permission for the construction of a mill near the town of Fray Bentos, without abiding by the obligations to notify and negotiate the project, as they are set out in the Statute of River Uruguay. Argentina also requested by the Court to decide and declare that Uruguay had violated the procedural obligations of the Statute and among others the obligation to prepare environmental impact assessment.

This is a recent example of the way to settle a dispute that arises over a common watercourse, when at least one of the two parties (Argentina in this case) considers that the negotiations have not resulted in a solution.

3.5.4 Discussion

This part of The Convention deal with a number of aspects, including notification or its absence, period for reply, obligations of the notifying state during the period for reply, reply or absence of reply on the notification, consultations and negotiations towards planned measures and its urgent implementation. But the weakness of this principle is that there is no emphasis on the compulsory cooperation in order to prevent and reduce the transboundary impact. Unlike the Convention, the UNECE Convention provides a clear obligation for riparian states to establish joint bodies by

[116] *Ibid*. p. 267.
[117] Case Pulps Mills on the Uruguay River (Argentina v. Uruguay), ICJ 2007.

agreement, where all consultations are to be conducted.[118]

Such an obligation in fact plays quite positive role for repairing states sharing a watercourse as it basically reflects that the international community reject the notion that a state has unfettered discretion to do whatever it wants utilizing international watercourse within its territory.

As McCaffrey emphatically stressed in his commentary to the Convention, that the acceptance of this obligation as a part of the Convention is very welcome, as affirmative cooperation will often be necessary. It helps to convey the message that a regime of equitable utilization of an international watercourse system, together with the protection and preservation of its ecosystems, cannot be achieved solely through individual action by each riparian state acting in isolation.

3.6 Environmental Provision

The Convention, aiming at sustainability, also provides for protecting and preserving the ecosystems of international watercourses.[119] It has been argued from an environmental protection perspective that the absence of any explicit reference to the interaction between water and other environmental components would weaken the protection of a watercourse and its ecosystem. Though the reference in the Convention cannot be considered to be a strong one. There is even no obligation for an Environmental Impact Assessment (EIA), and states are only obliged to provide the result of any EIA if conducted.

At the same time, the provisions of the Convention for protection and preservation show that the obligation does not depend on whether significant harm is caused to co-riparian states, but that protective measures may be necessary even if no pollution is caused to states. It might be surprising that the Convention mentions, in particular, the protection and preservation of the marine environment,[120] which certainly goes beyond the scope of the Convention.

3.6.1 Protection and preservation of ecosystems

Under Article 6 (1(a)) in order to determine if the use is equitable and reasonable, the ecological aspects of a watercourse, along with others, have to be taken into account.

[118] Article 9 of the UNECE Convention comprises a non-exhaustive list of functions of joint bodies.
[119] Article 20 of the Convention.
[120] Article 23 of the Convention.

Since the "details" of ecology are provided for in Article 20, Article 6 (1(a)) should be read together with this Article[121].

Article 20 dealing with protection and preservation of ecosystems, is a simple but potentially quite powerful provision[122]. It says that riparian states have an obligation to "protect and preserve the ecosystems of international watercourses".

3.6.2 Prevention, reduction and control of pollution

Pollution of international watercourses is dealt with in Article 21 — Prevention, Reduction and Control of Pollution. After defining the term "pollution", it uses the standard demand, that riparian states must "prevent, reduce and control" pollution of international watercourses. It is triggered only if the pollution "may cause significant harm to other watercourse states or to their environment". Of course, it is at least arguable that pollution that would harm only the environment of the state of origin would have to be controlled pursuant to Article 20.[123]

3.6.3 Brief overview of the main environmental provisions

Article 22 requires riparian states to prevent the introduction of alien or new species into international watercourses. Like Article 21, the obligation contained in Article 22 applies only where significant harm will be caused to other riparian states.

Article 23 addresses, in a very general way, the problem of marine pollution from landbased sources. Like Article 20, the obligation applies whether or not other states are injured. Article 23 actually goes beyond the problem of pollution, however. Since it requires riparian states to "protect and preserve the marine environment", it would presumably apply also to such things as the protection of anadromous species and of coral reefs. Article 25 requires riparian states to cooperate in responding to needs for regulation, and to participate in the required works on an equitable basis. The proper construction and maintenance of dams and similar works is dealt with in Article 26. Since a faulty dam may pose great danger to downstream states, this article requires that a state in whose territory a dam is located maintain it and protect it from forces that may result in harm to other riparian states.

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[121]Tzatzaki, V.: "The UN Convention on International Watercourses and Integrated Water Management: a bridge built", pp. 47-48.

[122]*Ibid*. p. 51.

[123]McCaffrey, S.: "The contribution of the UN Convention on the law on the non-navigation uses of international watercourses", p. 264.

Part V of the Convention "Harmful Conditions and Emergency Situations" also contains provisions dealing with the environmental issues. "Harmful conditions" are defined as water-borne diseases, ice floes, siltation and erosion. Article 27 requires riparian states to take "all appropriate measures" to prevent or mitigate such conditions, where they may be harmful to other states sharing the watercourse. Article 28 deals with emergency situations. This term is defined broadly to include both natural phenomena such as floods, and those that are caused by humans, such as chemical spills. A state within whose territory such an emergency originates must notify other potentially affected states as well as competent international organizations.

3.6.4 Discussion

The ICJ highlighted the obligation of ecological protection of international watercourses by saying that the development of international law has strengthened the principle of community of benefits on a navigational river for its uses except navigation, as it is demonstrated in the Convention. In other words, the principle of equitable and reasonable utilization of an international watercourse reinforces the obligation to protect the ecosystems.

3.7 An overall assessment

The adoption of the Convention has proven to be controversial, since its efficiency is disputed. Analyzing the utility of the Convention and its contribution to the development of the international water law towards eradicating and solving existing water conflicts, this topic is still rather controversial. Many critical comments on numerous counts can be made on the matter of the Conventional provisions. At the same time there can be underlined its considerable influence on the states and international water law in general.

The current part discusses the positive impact of the Convention on the water law in order to prevent and/or resolve disputes over the water. It focuses on the weak and strong sides of the Convention.

3.7.1 Weak sides of the Convention

3.7.1.1. Number of ratifications

Because of the fact that so far it has not attained enough ratifications, so as to enter

into force, most critics consider this legal framework to be weak. On the one point its hard not to agree with this statement.

The ability of the Convention successfully to prevent and provide a legal framework for intervening in conflicts over water is severely hampered by the fact that those nations appearing not to benefit from the Convention's stipulations are not willing to sign it. Hunt in his comment to the Convention[124] emphasizes that

> there appears to be an interesting but disturbing pattern in the countries ... that still have not signed and ratified the Convention not to be prepared to become signatories to such Conventions because of absence any relevant benefits for the last.

Even UNESCO indicates that "... the Convention ... does not entirely resolve many legal questions concerning the management of internationally shared waters".

3.7.1.2. Questions related to sustainable development

In addition it has been argued that the Convention has not successfully addressed recent environmental challenges, that's why it can also be considered a weak legal instrument for resolving conflicts.

One of the criticisms voiced at the Hague meetings[125] was that the Convention "failed to meet environmental imperatives, including the new mantra of sustainable development".[126]

But as it has been stressed by some opponents[127] the Convention's purpose was to provide a framework for states to define their relations concerning transboundary waters, not to design an environmental conservation package that includes international waters as part of the scheme. In fact, it was repeatedly underlined that the principle of equitable and reasonable use, along with the mechanisms for operationalizing it, incorporates the notion of sustainable development.[128]

In addition, the lack of hierarchy between the water uses within the Convention signifies an integrated approach that takes into account economic development,

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[124]Hunt, C.: *Thirsty Planet: Strategies for Sustainable Water Management*, London 2004, p. 268.

[125]Second World Water Forum, held at Hague, The Netherlands, 17-22 March 2000. Its main task was to develop a widely shared vision of the specific actions needed to achieve a common set of water-related goals as 2025 approaches. See further http://www.waternunc.com/gb/secWWF.htm (last visited on April 28, 2009).

[126]Wouters, P.: *International Water Law: Selected Writings of Professor Charles B. Bourne*, pp. 74-75.

[127] *Ibid*. p. 75.

[128]Article 5 of the 1997 UN Watercourses Convention uses the term "sustainable utilization". Article 24(2)(a) requires a watercourse state to consult to "plan the sustainable development" of an international watercourse.

human needs and environmental protection.

The holistic approach of the international legal text is reflected in article 6 of the Convention, which enumerates a list of non-exhaustive relevant factors that the riparian states should respect when managing an international watercourse. In this respect, some considers "the path curved by the Convention" to be "the most appropriate, efficient and aligned with the notion of sustainable development".[129]

3.7.1.3Effect on the existing watercourse agreements

One more criticism towards the efficiency of the Convention can be found on the matter that, while encouraging states to consider harmonization, it actually does not prevent states from departing from its general principles.[130]

There exist some opinions, that in actual fact, "the present framework Convention does not affect in any way existing watercourse agreements, and the parties are free to deviate".[131] The provision has been criticized for the reason that it will have no impact on the many already existing watercourse agreements, at the same time depriving the Convention of its normative function.

At the same time the opponents consider the suggestion that the Convention is weak because it does not require that all existing watercourse agreements be consistent with its provisions to fail to recognize the consequences of such a proposition. This requirement would declare some 3000 existing watercourse agreements void upon the Convention's adoption, resulting in unnecessary chaos and confusion. Moreover, it is unlikely that the General Assembly of the UN in May 1997 would have adopted the Convention if it had included provisions to this effect.[132]

3.7.2 Utility of the Convention

3.7.2.1 Realistic means to prevent and/or resolve disputes over water

The potential for international conflict over water is evident from the earlier discussion in this thesis. The fact that the UN has now come forward with a framework Convention offers states important rules and guidelines to prevent and

[129]See, for example, Schwabach, A.: "The United Nations Convention on the Law of Non-Navigational Users of International Watercourses, Customary International Law, and the Interests of Developing Upper Riparians", p. 98.

[130]*Ibid*. p. 97.

[131]*Ibid*. p. 99.

[132]Biswas, A.: *From Mar del Plata to Kyoto: a review of global water policy dialogues,* pp. *145-148.*

resolve conflicts over water.

3.7.2.2 Framework guideline

Although the Convention is not a perfect instrument, it is the first and the only one framework convention regulating the relations of the riparian states.

Its hard not to agree with Gabriel Eckstein,[133] who emphasizes that although the document is far from entering into force, the mere fact that the Convention was adopted signals that there is at least broad agreement in the international community on the basic principles that govern transboundary waters and that this Convention is indeed a positive step forward in laying down commonly accepted principles in water governance at the international level.

3.7.2.3. Water basin approach

The Convention calls the attention of states to the interrelationship between all parts of the system of surface and underground waters that makes up an international watercourse. Thus it should be clear immediately that an effect on one part of the system would generally be transmitted to other parts.[134]

3.7.2.4 Substantive rules

The Convention goes a long way toward providing states with a useful framework that facilitates the peaceful development of shared watercourses through substantive and procedural rules.

The main substantive rules provided by the Convention are equitable and reasonable utilization, alone with the obligation not to cause a significant harm. In order to avoid the possible conflicts between the watercourse states Articles 5 and 7 codifies the cornerstone issues of The Convention. They establish principle of utilizing international watercourses in equitable and reasonable manner, along with a condition of no-harm principle. It imposes an obligation on member states not to cause "significant harm" to other watercourses states.

Many governments find it either too strong or too weak depending on the fact weather the state is upstream or downstream. In practice, adopting equitable use with

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[133]Eckstein, G.: *Development of international water law and the UN watercourse convention*, p. 88.

[134]Schwabach, A.: "The United Nations Convention on the Law of Non-Navigational Users of International Watercourses, Customary International Law, and the Interests of Developing Upper Riparians", p. 103.

no significant harm, can cause quite different results. But anyway, the codification of the customary international rules limits the discretion of the states towards managing shared water resources.

3.7.2.5 Procedural rules

The strongest element of the Convention is considered to be its procedural mechanisms.[135] These mechanisms provide predictable and pragmatic guidelines by which states can lawfully develop their international waters, including exchange of information, consultations, establishment of joint mechanisms, notification for planned measures, and other means aimed at avoiding disputes and attaining agreeable solutions.

This is especially important for states that share an international watercourse for which no agreement exists. Hence the participation in the Convention could enhance the opportunity for cooperation as well as attract international financing for the development of the water resources within the entire basin.

3.7.2.6 Regulation of different uses of transboundary watercourse

The Convention is making an attempt to regulate different uses of transboundary watercourses and relations between them. Article 1(1) underlines that in a case of absence of agreement or custom towards the utilization of a certain shared watercourse, no use of international watercourse can enjoy the priority over other uses.

3.7.2.7. Influence on the states

Even if the Convention never enters into force, it already has generated considerable influence on states. And in any event, many of the substantive rules contained in the Convention reflect customary international law, which binds all states regardless of entry into force of the Convention.

This influence is apparent in the drafting of new agreements or the diplomatic negotiations between states regarding their shared watercourses. For instance, the drafters of the Southern African Development Community Protocol on Shared Watercourses have rewritten the protocol to include the main provisions of the

[135]Biswas, A.: *From Mar del Plata to Kyoto: a review of global water policy dialogues,* p. 147.

Convention.[136]

3.7.2.8 Recognition of the importance

The Convention, as the first and the only one international legal framework for the management of water resources, proved to be useful for the ICJ when it was challenged with the settlement of the Gabcikovo-Nagymaros dispute between Hungary and Slovakia for the Danube River. The Court used the Convention as a cornerstone tool in order to reach its decision and highlighted its importance by reminding the riparian states of their obligation to abide by its principles.

ICJ has also used the Convention in the pending case of Pulp Mills between Uruguay and Argentina for Uruguay River. Despite the fact that the dispute regards the environmental protection of the river, the Court has not failed to notice in its dictum for provisional measures the obligation of the states to respect the principles of the UN Convention at the same time.

3.7.3 Discussion

Framework Convention sets out guidelines for future regional agreements between riparian states, obligation to cooperate between riparian states, obligation not to cause significant harm to other riparian states when using a transboundary watercourse reasonable and equitable utilization of freshwater resources obligation to protect the environment. On the substantive side, it places all states on a level playing field. This permits each state to put forth its case based on all factors relevant to its particular needs, emphasizing the equality of riparian states' rights. It also includes protective provisions regarding the ecosystem.

3.8 Conclusions

The potential for international conflict over water in all regions of the world is evident from the earlier discussion in this paper. Subsequently, water resource conflicts have gained increasing attention, and some international institutes have predicted "water wars".

International law is one of the instruments, which helps to settle conflicts and prevents disputes over the use of shared water resources. Judging from the historical

[136]Protocol on Shared Watercourse Systems in the Southern African Development Community (SADC) Region. Available online http://www.sadcwscu.org.ls/protocol/protocol.htm (last visited May 1, 2009).

evidence, the problem of the growing scarcity of fresh water and the continuous threat of conflict have led international community to take more appropriate measures towards effective management of the world's water resources.

In this respect, the 1997 Convention is considered to be a good example of successful codification and progressive development of rules of international law regarding non-navigational uses of international watercourses. The Convention, being based on the water basin approach, helps to clarify the basic minimum standards governing the non-navigational uses of international watercourses. It contains both substantive rights (as to the equitable utilization of international watercourses, not to cause harm) and procedural rights (such as a right to be notified of planned measures) of states in relation to the utilization of a common watercourse.

Moreover, the Convention, aiming at providing a realistic means to prevent and/or resolve disputes over water, represents an effort to strike a balance between different uses of water that might help, may be not to avoid all possible water conflicts, but at least to decrease its amount in relations between upstream and downstream states.

But can it be realistic to expect that relations between upstream and downstream states ever to be completely harmonious? Besides, both upstream and downstream states generally have the potential to derive benefit from the no-harm principle and principle of rational and equitable utilization of shared international watercourses laid down in the Convention. These rules require international watercourse states to cooperate with each other, and provide a framework that promotes the peaceful settlement of disputes.

Although, in some ways it can be regarded as not very strong legal instrument for resolving all the shared water conflicts, nor it doesn't elaborate a detailed implementation strategy for the states to maintain the legal regime on the shared water resources, and although is not even in force yet, the Convention still has a great impact on the regulation of international watercourses nowadays and is a, so-called, step forward. On the other hand, due to the fact that it is a universal, framework agreement, one cannot expect the level of detail or the degree of protection that could be found in bilateral agreements or regional instruments.

Anyway, two important tests have yet to come. The first is weather 35 states will actually ratify the instrument so that it will come into force? And the second one, will the Convention receive universal endorsement of the international community of

states? Only the future will tell. However, regardless of whether these latter two tests are passed, it remains for sure that states will refer to the Convention in their dealings involving international watercourses.

Due to these facts, the influence and importance of the Convention derives mostly from its status as the most authoritative statement of general principles and rules, based on water basin approach, governing the non-navigational uses of international watercourses. Though the fact that the international legal framework needs to be improved doesn't arouse any doubts.

4 Current approach under EC Environmental Law

4.1 The new water policy of EU

The current chapter deals with an integrated water resources management (IWRM). It was successfully implemented within the European countries. Current chapter analyzes the peculiarities of the IWRM on the example of EU water policy, focusing on the EC Water Framework Directive[137] being the most substantial legally binding piece of EC water legislation aiming at improving and integrating the way water bodies are managed throughout Europe.

A quick assessment of strength and weaknesses of the legal instrument represented in the current chapter aiming at investigating the potential of IWRM as a strong legislative tool for dealing with a problem of water crisis. The current chapter discusses upon the question whether EU model of water management can be useful to be transcribed into water policies of other countries.

4.1.1 IWBM

What are the relationships between water basin approach, highlighted in previous chapter, and IWRM? IWRM is based on the water basin approach but extends the scope of the term to the managing water resources taking into account all various impacts on water quality and quantity and its possible uses.[138] The concept of IWBM in contrast to traditional fragmented water resources management, fundamentally is concerned with the management of water demand as with its supply. Thus, integration has to occur both within and between the natural system and the human system taking into account the variability in time and space.

The natural system integration therefore must take into consideration the following:

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[137]Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2002 establishing a framework for community action in the field of water policy, Official Journal (OJL 327), 22 December 2000 (further, the Directive). Available online http://www.wfduk.org/about_wfd/WFD-legislative-text (last visited on May 1, 2009).

[138]Physical, ecological, and chemical characteristics of the water; the interests of all different users; environmental components of water use; the participation of stakeholders in the decision-making process; the intersectoral management of water resources. See further, Savenije, H. and Zaag, P.: "Water as an Economic Good and Demand Management: Paradigms with Pitfalls", *Water International Journal*, vol. 27, Johannesburg 2002, p. 98.

- Integration of freshwater management and coastal zone management.
- Integration of land and water management.
- Integration of surface water and groundwater management.
- Integration of quantity and quality in water resources management.
- Integration of upstream and down stream water-related interests.

The aspects of the human system integration also consist of the following consideration:

- Integration of all stakeholders in planning and decision-making processes.
- Integration of water and waste management.
- Cross-sectoral integration in national policy development.

The basis of IWRM is that different uses of water are interdependent. All this objectives must be integrated for each river basin. All the different uses of water have to be considered together. IWRM aims at coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

The Global Water Partnership (hereinafter GWP) defined IWRM:[139]

> IWRM is a challenge to conventional practices, attitudes and professional certainties. It confronts entrenched sectoral interests and requires that the water resources are managed holistically for the benefits of all. No one pretends that meeting the IWRM challenge will be easy but it is vital that a start is made now to avert the burgeoning crisis.

4.1.2 Evolution of the concept

Historically, one can go back centuries, if not millennia, to discover forerunners of the present IWRM paradigm.[140] In a number of countries, water management has been institutionalized in an advanced and integrated way over centuries.[141] Over the last several decades, there have been serious attempts to implement IWRM in different

[139]Hall, A.: "Making Integrated Water Resources Management Work: Lessons From the Evaluation of Water Sector Programmes", *Working Document*, GWP, Leeds 2000, p. 2.

[140]Placht, M.: "Integrated Water Resource Management: Incorporating Integration, Equity, and Efficiency to Achieve Sustainability", *IDEAS Journal*, vol. 10, Medford 2007, p. 35.

[141]In Valencia, Spain, for example, multi-stakeholder, participatory water tribunals have operated at least since the tenth Century. Miguel Embid writes that Spain was probably the first country to organize water management on the basis of river basins, as it adopted the system of confederaciones hidrográficas in 1926. See further Embid, M.: "Water law in Spain", *Water International Journal*, vol. 28(3), Johannesburg 2003, pp. 290–294.

global regions.[142]

At the UN Conference on Water in the Mar del Plata (See *Figure 2*. Overview of main water policy development milestones), IWRM was the recommended approach to incorporate the multiple competing uses of water resources. Although river basin management has long been issue in the context of international treaty negotiations on rivers, the concept of IWRM reached international agenda not via the treaties but via the general water policy-making process at 1992 Dublin International Conference on Water and the Environment.[143] These principles were supported at 1992 Earth Summit in Rio de Janeiro, Second World Water Forum in 2000, International Conference on Freshwater in 2001, WSSD in 2002 and Third World Water Forum in 2003 that collectively led the IWRM onto the political agenda.

In the year 2000 historical evolution of water management has moved from local sectoral management to IWRM. In 2002, at the WSSD, the Technical Advisory Committee of GWP defined IWRM

> as a process, which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.[144]

It emphasized that water should be managed in a basin-wide context, under the principles of good governance and public participation.

4.1.3 IWBM in EU

The EC, being the world's fifth largest donor, cooperating with its member states, has an important comparative advantage to provide vital and sustaining contributions in the water sector.[145] The river basin and water management within EU is a result of long historical process of fine-tuning the outcomes of complex negotiations between

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[142]In the 1940s, an early version of IWRM occurred when the Tennessee Valley Authority began to develop the water resources for that region (See Barkin, D., King, T.: *Desarrollo Economico Regional (Enfoque por Cuencas Hidrologicas de Mexico)*, Mexico 1986). A later example occurred in 1960 in Hessen, Germany, where IWRM Planning was prepared on the basis of a multidisciplinary integrated approach (Berg, K.: *Die Wasserwirtschafliche Rahmenplanung in Hessen*, Wiesbaden 1960 (in German).

[143]Bressers, H., Kuks S.: *Integrated Governance and Water Basin Management: Conditions for Regime Change and Sustainability*, p. 268.

[144]Integrated Water Resources Management, Background Papers No 4 of the Technical Advisory Committee of GWP, Stockholm 2000. Available online http://www.gwpforum.org/gwp/library/Tacno4.pdf (last visited on May 1, 2009).

[145]Vermaat J., Bouwer L., Turner K.: *Managing European coasts: past, present, and future*, New York 2005, p. 153.

the riparian states.

There were lots of debates concerning the most efficient and effective way of exercising control over causes of pollution. The European Commission was searching for more integrated and holistic approach towards water management, taking into account existing legislation in the water field and also relevant legislation from other environmental sectors.[146] It has been decided at global and also at Community levels, that more attention should be paid to water problems from the angle of sustainable development in order to reach the balance, that will include the basic water needs for human being, present and future generations, for the environment, that will ensure the decent water quality for agriculture, industry, energy etc., without compromising the sustainability of vital ecosystems.

The European Community (further in the text, EC) started to seek the way to implement more proper water policy focusing on assisting partner countries to make certain that adequate supplies of water of good quality be made available for all people, the ones living today and future generations, while preserving required quantity and quality of water to sustain crucial functions of ecosystems.[147] The focus of EC support to water issues in developing countries has evolved during the last few years, to a large extent as a consequence of the international debate leading to a change in approaches taken by partner developing countries for management of their water resources and services.

Hence, EC water and development strategy badly needed to take all these aspects into account — within an IWRM framework, that in a combination with compromise building will be able to balance water uses to available resources and to land use and ecological services. IWRM applied in a river basin approach. It is recognized as a pre-requisite for any water-related intervention.

4.2 The Water Framework Directive

4.2.1 General characteristics

The Water Framework Directive (hereinafter, the Directive), adopted in the year 2000 jointly by the European Parliament and the Council, is considered to be the most

[146]Chave P.: *The EU Water Framework Directive: An Introduction*, London 2001, pp. 5-8.
[147]Vermaat J., Bouwer L., Turner K.: *Managing European coasts: past, present, and future*, pp. 34-35.

substantial legally binding piece of EC water legislation aiming at improving and integrating the way water bodies are managed throughout Europe. It came into force on 22 December 2000 and will be the foundation for many of the changes that will take place in the management of European water environment.

With the Directive environmental policy entered a new era. The traditional approach to solving isolated environmental problems with technological fixes and end-of-pipe solutions has started to shift towards a more thoughtful attitude which involves the development of integrated approaches to problem solving.[148] The Directive introduces the river basin as the management unit, thus following the experience of some European countries (e.g. France) and the example of the management of some international rivers (e.g. the Rhine).[149]

The Directive represents a general shift towards a polycentric understanding of policy making that requires the involvement of stakeholders as active participants into the policy process at different levels of social organization.[150] It requires the inclusion of stakeholders in the process of developing and adopting a river basin management plan. In order to improve stakeholder-based policy design and modeling processes innovation and research is required in linking analytical methods and participatory approaches. Factual knowledge and analytical techniques have to be combined with local knowledge and subjective perceptions of the various stakeholder groups.[151]

4.2.2 Relevance of the Directive

The Directive sets a framework for comprehensive management of water resources in EC, within a common approach and with common objectives, principles and basic measures, aiming at improving the water quality.

The main relevance of the Directive is in a new approach to the management of the water environment. Its provisions relates not only to the standards of water protection but also to how water is managed. It aims to establish an integrated and coordinated approach to management across Europe based on a river basin district

[148]Chave P.A.: *The EU Water Framework Directive: An Introduction*, p. 9.

[149]Paul-Wostl, C.: "The European Water Framework Directive: Challenges for a New Type of Socil and Policy Analisis", *EGS XXVII GA*, abstract No 6756, Osnabrück 2002, p. 15.

[150]*Ibid*. p.17.

[151]Savenije, H. and Zaag, P.: "Conceptual framework for the management of shared river basins; with special reference to the SADC and EU", *Water Policy Journal*, vol. 2, Marseille 2000, p. 15.

structure.

EC is a participant party to a number of international conventions that relate to the prevention of pollution in the marine environment, such as Helsinki Convention 1994,[152] Paris Convention 1998,[153] Barcelona Convention 1997.[154] The Directive aims to assist in meeting the requirements of those conventions by focusing on reduction of discharge of certain priority dangerous substances in water to such an extent that ultimately there should be a concentration of these substances no higher than natural levels in marine waters.[155] The Directive also encompasses the full implementation of a number of other European Directives, such as Waste Water Directive,[156] Bathing Water Directive[157] and Nitrates Directive.[158]

4.2.3 Principles of the Directive

The relevance of the Directive refers to the fact that it is based on the following key principles:

1. The setting of ambitious objectives to ensure that all waters meet "good status" by 2015.[159]
2. Extended water protection covering all surface- and groundwaters.
3. No deterioration of water resource status.
4. The requirement for waters to be managed at river basin level by formulating a River Basin Management Plan.[160] In the case of transboundary water bodies, this needs cooperation between the states.
5. Ensuring the active participation of all stakeholders, including non-governmental organizations and local communities, in water management activities.[161]

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[152]Council Decision 94/156/EC of 21 February 1994 on the accession of the Community to the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention), Official Journal (OJL 73), 16 March 1994.

[153]Council Decision 98/249/EC of 7 October 1997 on the conclusion of the Convention for the protection of the marine environment of the North-East Atlantic (Paris Convention), Official Journal (OJL 104), 3 April 1998.

[154]Council Decision 1999/801/EC of 22 October 1999 on accepting the amendments to the Protocol for the protection of the Mediterranean Sea against pollution from land-based sources (Barcelona Convention), Official Journal (OJL 322), 14 December 1999.

[155]Chave P.A.: *The EU Water Framework Directive: An Introduction*, p. 10.

[156]Directive 91/271/EEC of the European Parliament and of the Council of 21 May 1991 concerning urban wastewater treatment, Official Journal (OJL 135), 30 May 1991.

[157]Directive 76/160/EEC of the European Parliament and of the Council of 8 December 1975 concerning the quality of bathing water, Official Journal (OJL 031), 05 February 1976.

[158]Directive 91/676/EEC of the European Parliament and of the Council concerning the protection of waters against pollution caused by nitrates from agricultural sources, Official Journal (OJL 375), 19 December 1991.

[159]See section 4.5. Objectives of the Directive.

[160]See section 4.6. River Basin Management Plans.

6. Requiring water pricing policies based on the "user pays" principle.[162]

7. Balancing the interests of the environment with those who depend on it.[163]

Hence, the Directive establishes several innovative principles for water management, including public participation in planning and the integration of economic approaches, including the recovery of the cost of water services, more detailed analysis of which is provided in the next chapters of the thesis.

In the tools the Directive offers, there is a strong focus on the water quality and ecology. The water quantity aspect mainly comes back in the allocation between consumptive and non-consumptive uses in order to protect aquatic biodiversity. The Directive is emphatic in its recognition of water primary as a national heritage, not as economic good.[164]

4.3 Common implementation strategy

In order to improve the water environment within the territory of EU, and in the same way to achieve the objectives, the Directive provides the detailed common implementation strategy (hereinafter CIS) for the member states in order to develop common understanding of approaches towards water regulation. It also aims at elaborating informal technical guidelines documents on various technical issues, common for all member states. CIS is to help member states to avoid the duplication of efforts and to limit the risk of bad application, to increase the awareness and exchange information between the states and all interested parties. The European Commission saw the Directive as legal instrument providing a framework for each country to develop a common basis for the protection and sustainable use of water. In order to coordinate and help member states to implement the Directive CIS elaborated several guidance papers, dealing with each separate step of implementation.[165]

Authorities still see the Directive as the most significant legal instrument that provides a clear legal framework and institutional structure that can serve as basis for

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[161]See section 4.7. Public participation.

[162]See section 4.8. Pricing of water.

[163]For further information visit the homepage of the European Environmental Agency http://www.eea.europa.eu/themes/water/water-management/the-water-framework-directive-structure-and-key-principles (last visited on May 1, 2009).

[164]Preamble of the Directive.

[165]Guide papers can be found on the home page of the Directive http://www.euwfd.com/index.html (last visited on April 28, 2009).

proper water basin governance, for the successful management of water quality and quantity.[166] The Directive calls for complete restructuring of water policy in each member state in relation to the river basins. The key unit of focus is river basin. The main goal — "good status" of waters. The Directive is expected to have a major impact on water policy within the EU.[167]

4.3.1 Thee-step process

To ensure the achievement of the ambitious objectives, set by the Directive, and its consistent implementation in all member states and across borders, common implementation is planned cyclically in a three-step process.

First step

The first step cycle includes the designation of river basins[168] on the territory of each member state and the preliminary characteristics of water bodies based upon existing geographical, hydrological and quality data. This allows the identification of water bodies that are "at risk" (significant alteration in the ecological quality as a result of human pressures), "possibly at risk" (lack of sufficient information to decide or moderate alteration) and "not at risk" (no or slight alteration). This first assessment also includes relevant economic analysis.

Second step

The second step of its implementation requires designing the Directive's compatible monitoring network. Based on the results of monitoring, the water body characteristics might be refined, and the status assessment carried out by considering both biological and chemical quality elements. This should be carried out in order to classify the status of the water body as required by the Directive.

Third step

Finally, River Basin Management Plans should be drafted for all river basins including specific programmes of measures.[169] Before Management Plans are finalized and reported to the Commission, river basin authorities have to make sure

[166]Vermaat, J., Bouwer, L., Turner, K.: *Managing European coasts: past, present, and future*, p. 155.

[167]Chave, P.: *The EU Water Framework Directive: an introduction*; Holzwarth, F.: "The EU Water Framework Directive-A key to catchment-based governance", *Water Science and Technology*, vol. 45(8), 2002, pp. 105–112.

[168]See section 4.4. River basin approach.

[169]See section 4.7. River Basin Management Plans.

that plans are presented and discussed openly with the public.[170]

4.3.2 Timetable for the implementation

The Directive sets out key dates for delivery of its requirements for the member states. The timetable for the implementation is really impressive. According to Article 23 by year 2003 the Directive was supposed to be transposed into national legislation. Article 3 demands member states to define river basin districts and to create the responsible authorities by the same terms. By 2006 a monitoring network[171] and the process of public consultation[172] was to be established. River basin management plans were to be finished by 2009[173] and finally the environmental objectives are to be met by 2015.[174]

4.3.3 Challenges during implementing the Directive

The implementation of the Directive was an important step towards more integrated water management in general, and a significant managerial task for the member states.

Though it's hard not to admit the fact that EU member states did face some institutional and administrative challenges during the process of implementation of the Directive in order to achieve IWRM.[175]

Depending on the peculiarities of the water policy in each state, some of them had difficulties connected with the huge administrative change required by the shift from existing water management systems to an administrative structure focused on water basin approach.[176] Some faced the challenge of undertaking water resources management.[177] But each state was and still is trying to cope with the upcoming difficulties in its own way that anyway resulted in more or less coherent approach to

[170]See section 4.8. Public participation.

[171]Article 8 of the Directive.

[172]Article 14 of the Directive.

[173]Articles 11, 13 of the Directive.

[174]Article 4 of the Directive.

[175]Vermaat J., Bouwer L., Turner K.: *Managing European coasts: past, present, and future*, p. 158.

[176]For example, Dutch water management organization was characterized with its high degree of decentralization and a division between water management, environmental management and land use planning (see further Mostert, E.: "River Basin Management and Planning-Institutional structures, approaches and results in five European countries and six international basins", Research Report, No 10, RBA Centre, Delft 1999). Hence the whole organizational structure of management was to be changed to meet the requirements of the Directive.

[177]In Turkey, for example, the water management is presently organized according to sectoral lines, where there is a "limited coordination on environmental matters between the sectoral ministries and different levels of government" (see further Förstner, U., Salomons, W., Vermaat J.: *The EU Water Framework Directive: Challenges for institutional implementation,* Berlin 2006, pp.153-158).

the water management within EU.

4.3.4 Discussion

The aim of the CIS reflected in the Directive is to allow, as far as possible, the coherent implementation of the Directive. It focuses on methodological questions relating to achieving a common understanding of the technical and scientific implications of the Directive.

The Directive provides detailed mechanism of implementation for the member states, supplemented by guidance documents, recommendations for operational methods and other supporting information. But the practical implementation of the Directive is the responsibility of the member state. As such, these documents are informal and non-legally binding in character, but should limit any risks associated with the application of the Directive and help member states to find the best method of the implementation.

4.4 River Basin Approach

The first key stage in the practical implementation of the Directive, common for all member states and based on the river basin approach, is an identification of water basin areas.

A new innovative approach recognizes that water, in its natural environment, is generally related in some way to river systems. The Directive adopts the river basin as a natural management unit for the protection of water.[178] This approach reflects one of the main features of IWRM.

4.4.1 Scope of the Directive

The Directive is very broad in its scope and relates to water quality in rivers, lakes, canals, groundwater, transitional (estuarine) waters and coastal waters out a distance of at least one nautical mile.[179] The virtue of the Directive is that the quality of any water body will be determined not just by what happens within it but also by what happens on the land around it.[180]

Member states identify separate water bodies at the scale, provided by the number

[178]Chave, P.: *The EU Water Framework Directive: An Introduction*, p. 11.

[179]Para 1.1 of Annex V to the Directive.

[180]For example, diffuse pollution, which results from the way in which land is managed, falls within the scope of the Water Framework Directive.

of Annexes to the Directive, in order to reach a good status of water environment, and in the same way, to achieve the objectives of the Directive, where good status means low pollution levels and ecosystem health.

In the Directive a distinction is made between "river basins" and "river basin districts". Article 2 (13) of the Directive defines the "river basin" as

> the area of land from which all surface run-off flows through a sequence of stream, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta.

In other words, the Directive includes the total area of land and part of the sea that forms part of the basin.[181]

Article 2(15) defines "river basin district" as

> the area of land and sea, made up of one or more neighboring river basins together with their associated groundwaters and coastal waters, which is identified under Article 3(1) as the main unit for management of river basins.

4.4.2 Process of establishment

4.4.2.1. National river basin districts

According to the water classification criteria, described below, in order to manage the water environment as a whole, member states are required to define water basins and all of their associated surface and underground waters within their territories and assign them to national River Basin Districts (hereinafter, RBD).[182] The size of the basin must be sufficiently large to permit the establishment of an organization to assume responsibility for their administration.[183] In order to achieve this, small river basins may be combined or large ones can be sub-divided.

4.4.2.2 International river basin districts

In a case when such a water basin is within the territory of more than one state, such states are supposed to cooperate[184] with each other in order to establish an international RBD (hereinafter, IWBD).[185] The states are under the duty to assign river basins extending to more than one member state to an IWBD. According to Article 3(4) member states are to ensure the coordination of their national measures in

[181]Vermaat J., Bouwer L., Turner K.: *Managing European coasts: past, present, and future*, pp. 160-165.
[182]Article 3 of the Directive.
[183]Chave, P.: *The EU Water Framework Directive: An Introduction*, London, p. 12.
[184]Bilateral or multilateral agreements provide the basis for cooperation.
[185]Article 3(3) of the Directive.

such IWBDs.

Article 12 of the Directive provides for a procedure according to which the Commission can help to resolve any issue that has an impact on the management of water and cannot be dealt with at the member states level. Article 3(5) put the obligation on the member states to cooperate even in the situation when that river basin extends to the territory of non-EU state. Though in this case such a river basin is a subject to a less strict duty to ensure coordination. At the same time Article 3(5) underlines that the fact that river basin extends to non-member states doesn't exonerate the member states from the obligation to meet the objectives of the Directive. This actually may cause some difficulties for the downstream member state to meet the environmental objectives of the Directive, where pollution originates in an up-stream non-member state.[186]

4.4.3 Water bodies

After establishing RBDs or IRBDs, states must analyze its main features, the current status of its waters,[187] review the impact of human activities, perform an economic analysis of water use and set up appropriate administrative structures for them.[188] After that member states designate the competent authorities that are directly responsible for applying the Directive in their portion of each river basin.[189]

According to Annex II to the Directive states are supposed to identify water bodies according to ecoregions criteria.

4.4.4 Water status

After the waters are classified according to the regions they belong, further classification is based on ecological status of the waters that is an innovative step for EU water legislation. According to Annex V (para. 1.2) waters are classified as of

- high,
- good,

[186]Jans, J., Vedder, H.: *European Environmental law*, Brussels 2007, p. 355.

[187]The precise criteria for determining surface and groundwater status in the river basins are laid down in Annex V to the Directive.

[188]Article 3(4) of the Directive.

[189]See Green, C., Fernández-Bilbao, A.: "Implementing the Water Framework Directive: How to Define a "Competent Authority", *Journal of Contemporary Water research & education*, issue No 135, Saskatoon 2006, pp. 65-73.

- moderate,
- poor
- bad status.

The identification of the water status demands an examination of water elements, including chemical, physiochemical, biological, hydromorphological ones. In order to achieve a good ecological status, states have to address the factors harming water ecosystems. Though there is one exception where the state can place artificial (e.g. man-made lakes) or heavily modified waters (an estuary that has been transformed into a major industrial port) under the least demanding category, since they are not required to restore these waters to a good ecological status.

The goal of such a calibration of the waters is not to establish common assessment systems, but rather to ensure that the different national systems achieve comparable results,[190] that will help to place the status of a certain waters on a scale between the upper and lower boundaries of good status. The line between "good" and "moderate" status is particularly important, as it defines whether or not a water body will meet the Directive's goal of good status in 2015.

4.4.5 Preliminary review

When in 2005 member states made a preliminary identification of all their water bodies under the requirements of the Directive, more than 70,000 surface water bodies were designated across the EU. About 80% of these are river water bodies, 15% lakes and the remaining 5% coastal and transitional water bodies. At the same time, member states assessed which bodies are at risk of not reaching "good status" by 2015. This preliminary review found about 40% of surface water bodies at risk, and a further 30% needed additional data for assessment.[191]

The results vary significantly across each member state. In the Netherlands, for example, over 95% of surface water bodies are considered to be at risk. In contrast, in

[190]For further information see: "Intercalibration: a common scale for Europe waters", Water note No 7 of European Commission, WISE 2008.
http://ec.europa.eu/environment/water/water-framework/pdf/water_note7_intercalibration.pdf (last visited on May 1, 2009).

[191]For further information see: "Cleaning up Europe's waters: Identifying and assessing surface water bodies at risk", Water note No 2 of European Commission, WISE 2008.
http://ec.europa.eu/environment/water/water-framework/pdf/water_note2_cleaning_up.pdf (last visited on May 1, 2009).

Estonia less than 20% of surface water bodies are considered at risk.[192] Though according to the results of the environmental analysis carried out in 2004, the risk assessment for many water bodies in some member states has not been concluded due to lack of data. Percentages of water bodies were not assessed for 23 countries due to insufficient data.[193]

4.4.6 Discussion

Despite some difficulties that EU is facing on the first key stage of implementing the Directive, positive results in improving the status of many water bodies can be already underlined. By designating separate water bodies and identification of their status, member states can now focus on monitoring the problems affecting specific water bodies and provide special measures to improve conditions in the water bodies at risk. Governments, stakeholders and the public will be able to follow and track the progress of these measures in improving the status of the bodies at risk.

In this respect the Directive is likely to be one of the most significant legal instruments yet adopted in the environmental field as it directs how an environmental sector is to be managed, institutionally, and as a whole. The overall objective of river basin projects is to establish an integrated monitoring and management system for all waters within a RBD, to develop a dynamic programme of management measures and to produce a River Basin Management Plans, which will be continually updated.

4.5 Objectives of the Directive

Ecosystem health is a new objective for European water policy. Previous legislation focused on cleaning up chemical pollution, while the Directive itself addresses pollution through its objective of "good chemical status", but it goes further by recognizing that water should also be able to support healthy ecosystems.

The term "good" reflects a new concept of ecological quality, which is based on

[192]Further information on the water status in different European Member States can be found on the web site of the Water Information System for Europe
http://ec.europa.eu/environment/water/water-framework/facts_figures/index_en.htm (last visited on May 1, 2009).

[193]For example, Germany did not present any risk assessment results provided for the Rhine RBD. Finland, Greece and Italy didn't provide any risk assessment results also; Poland submitted data only for the Odra and Vistula RBDs. Current information was found at
http://ec.europa.eu/environment/water/water-framework/facts_figures/pdf/2007_03_22_swb_no_risk.pdf (last visited on May 1, 2009).

biological, chemical and physical information,[194] but there's still remaining the open question how this term will be interpreted.[195]

In this respect, the purpose of the Directive is to establish a framework for the preservation and, where necessary, the improvement of water quality of inland surface waters (Article 4((1)(a)), protected areas (Article 4((1)(c)) and groundwater (Article 4((1)(b)). Moreover, within the category of surface water there is a separate category for artificial and heavily modified bodies of surface waters.

Surface water according to Article 2(1) of the Directive includes inland waters, transitional waters and coastal waters. All water that is below the surface in the saturation zone and is in direct contact with a ground Article 2 (2) refers to the term *groundwater*. *Protected areas*, according to Annex IV to the Directive, are areas designated for the abstraction of a drinking water; areas designated for the protection of economically significant aquatic species, bathing waters, nutrient-sensitive areas, and areas protected by virtue of European nature protection legislation.[196]

4.5.1 Common EU objectives for water

The Directive introduces new, broader ecological objectives, designed to protect and, where necessary, restore the structure and function of aquatic ecosystems themselves, and thereby safeguard the sustainable use of water resources. Future success in managing Europe's water environment will be judged by the achievement of these ecological goals.

Hence, the Directive rationalizes and updates existing water legislation by setting common EU wide objectives for water. The aims of the Directive are listed in Article 1 and include:

1. Preventing any deterioration in the existing status of the whole water ecosystem in each and every region of the EU and beyond, including the protection of good and high status where it exists, and to ensure that all waters are restored to at least good status by 2015.[197]

2. Regulating and eliminating the hazardous substances.[198]

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[194]Vermaat, J., Bouwer, L., Turner, K.: *Managing European coasts: past, present, and future*, pp. 160-165; Chave, P.: *The EU Water Framework Directive: an introduction*, pp. 112-115.

[195]Lanz, K., Scheur, S.: *EEB Handbook on EU water policy under the Water Framework Directive*, Brussels 2001, p. 219.

[196]Annex IV of the Directive.

[197]Articles 1(a), 4(1) of the Directive.

3. Regulating water supply.[199]

As a result of these objectives, the Commission expects to maintain sustainable balanced and equitable use of water in the countries of the EC, to reduce ground water pollution, to protect territorial and marine waters and meet international obligations related to toxic substances. Thus, member states will have to ensure that a coordinated approach is adopted for the achievement of the objectives of the Directive and for the implementation of programmes of measures for this purpose.

4.5.2 Exceptions

Much of the complexity of the Directive is due to the exceptions contained in it.[200] According to Article 4 (4) the 2015 deadline for the objective of achieving a good ecological status of waters may be extended in accordance with criteria, laid down in Article 4(4 (i) (iii)), that contains a wide margin of discretion for the member states. Article 4(4 (a) (ii)), for example, allows such an extension if the measures needed to be complied with "would be disproportionately expensive".[201] And according to Article 4(4 (c)) the extension can be allowed for an indefinite period if the natural conditions are such that the objectives cannot be achieved on time. Assessing the term "disproportionately", it is used in a meaning of "expensive".[202] It is generally agreed that to be considered as "disproportionately expensive" the costs should exceed the benefits by a significant margin.

Moreover, Article 4(5) allows member states to aim for less stringent environmental objectives if achieving these objectives would be recognized as infeasible or disproportionately expensive. It applies only to surface waters, not to groundwaters or protected areas. Article 4(7) allows an exception from the environmental objectives and the duty to prevent deterioration of the status of a body of water if this is the result of new

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[198]European Commission adopted in 2001 a list of thirty tree priority substances. See Council Decision № 2455/2001/EC of 20 November 2001 establishing the list of priority substances in the field of water policy and amending directive 2000/60/EC, Official Journal (OJL 331), 15 December 2001.

[199]Article 1(e) of the Directive. Here the cost-recovery principle is represented, that obliges states to take into account the costs of water services by conducting an economic analysis (Annex III to The Directive).

[200]Jans, J., Vedder, H.: *European Environmental law*, p. 351.

[201]Holzwarth, F.: "The EU Water Framework Directive-A key to catchment-based governance", *Water Science and Technology*, vol. 45(8), 2002, pp. 109-110.

[202]*Ibid.* p. 111.

modifications to the physical characteristics to the surface water or alterations of the groundwater level or new sustainable human development activities. But the problem in here may occur on the basis of absence of the definition of the term "sustainable human development activities".

In any case, in order to achieve the environmental objectives of the Directive, member states are obliged to establish programmes of measures for each RBD (or part of an IRBD within its territory) included in the relevant River Basin Management Plans.

4.6 River Basin Management Plans

The third step of the implementation of the Directive is an obligation of the states to provide European Commission with a list of the competent authorities on the water basins within the territory of each state and competent authorities of international basins, which will be responsible for the production of River Basin Management Plans (hereinafter, the plans) to be completed before 2009,[203] based on close cooperation towards the development of the RBDs.

The plans integrate environmental goals, social concerns and economic factors for all types of bodies of waters — rivers and lakes, estuaries and other transitional waters, coastal waters and groundwater. For each RBD, the plans define the bodies of water that do not meet the Directive's environmental targets and describe the reasons for this, what is causing problems and risks.

According to the Directive, each plan should contain the following information:

- General description of the characteristics of the RBD, including maps;
- Summary of the main pressures and human impacts;
- Map of the specially protected areas (e.g. bathing waters, areas for habitats or species protection);
- Map of the monitoring networks;
- List of the environmental objectives or targets;
- Summary of the programme of measures to maintain or improve water status;
- Summary of the public consultations and their influence on the plan;

[203] Article 13 of the Directive.

- List of competent authorities and a contact point for receiving more information on the current status of implementation.

The developing process of such plans involves the identification of point and diffuse pollution sources and the design of appropriate control measures, including measures to address pollution from industrial, transport and other accidents. The Directive's combined approach for point and diffuse sources links the requirements established in the other directives through the programmes of measures.[204]

4.6.1 Programme of measures

Annex VII gives a detailed list of the requirements for the plans, which also has to include a "programme of measures".[205] It includes both basic and compulsory measures and optional supplementary measures, where the basic measures are supposed to be harmonized with the standards in specific directives, such as mentioned above the Nitrates Directive, the Bathing Water Directive, the Wastewater Directive etc.

Programme of measures usually contains the main means and methods that the states authorities are planning to use in order to improve status of water, and in the same way, meet the objectives of the Directive. In other words, it identifies what needs to be done in order to restore waters and to achieve a good ecological status. Success and effectiveness of preparing and implementation of these plans and programmes depends, of course, on coordination and cooperation between the states.

4.7 Public participation

One of the key activities under the joint implementation for the Directive is the improvement of the information exchange between states, European institutions, various stakeholders and the interested public. In achieving the objectives of the Directive, the role of citizens and citizens' groups is defined to be crucial. It is important that everyone becomes involved in achieving the end result.[206] Consultation with all interested parties, including public, is an essential part of new regime under the Directive.

According to Article 14 the competent authorities shall encourage the public to

[204]Jans, J., Vedder, H.: *European Environmental law*, p. 353.
[205]Article 11 of the Directive.
[206]Chave, P.: *The EU Water Framework Directive: An Introduction*, p. 37.

take part in implementation of the plans in each and every step, allow to have an access to draft river basin plans, with timetable and programme of production of the plan and information on consultation procedures at least tree years before the plan period. In other words, public is allowed to take part in production, review and updating of the plans.

States also are required to supply all interested parties with the background documentation and information used during the preparation of the plans. The Directive provides six months period for the public to study all the information and prepare comments on the documents they receive.[207] The Directive requires states to send copies of the plans and updates to the European Commission within three month after their publication along with summaries of monitoring and analysis. States are obliged to make regular reports on progress.

Hence, public participation in the context of the Directive means giving the public and stakeholders the opportunity to influence the outcome of the plans and then working processes. It is one of the "Aarhus rights"[208] that all EU citizens enjoy.

4.7.1 The scope of the right

Public participation extends to all water users, to non-governmental organizations, such as local and national environmental groups, and to other stakeholders. Key organizations and citizens' groups likely to be affected by the plan need to be identified and involved. In some cases, such as in large or geographically varied districts, authorities may want to put in place consultation mechanisms for individual sub-basins.

4.7.2 Public consultation

Such participation occurs via consultation mechanisms that government bodies use to consult people and interested organizations (stakeholders) to gain from their knowledge and experience and to jointly develop solutions to problems. Consultation can be either written (the basic form of consultation) or oral, where members of the

[207] Art.14 (2) of the Directive.

[208] The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, Aarhus 1998 (adopted by the EU in 2003 through two directives: Directive 2003/4/EC on public access to environmental information and Directive 2003/35/EC providing for public participation in environmental plans and programmes) gives a number of rights to the public: the right to have access to information on the environment held by government authorities; the right to participate in the decisions taken by these authorities that affect the environment; and the right to review and legally challenge such decisions.

public and stakeholders discuss issues in an open meeting with the authorities. Both methods are often used.

Public consultation can play rather important role in helping to identify the main activities that affect surface water and groundwater. In addition, public discussions can raise awareness of key problems that affect the aquatic environment and the ways to address them.[209]

4.7.3 Public information

Public participation depends on another Aarhus right such as public information. Here, the Directive calls for providing information to the public on the plans.

4.7.3.1. WDF CIRCA

This principle is highlighted by setting up internet-based platform, the so-called "WFD CIRCA" (Communication Information Resource Centre Administrator)[210] in order to promote an increased information exchange and to facilitate the work in the numerous expert groups. Further, to inform the public and administrative units what is being done under the Directive's CIS the WDF Newsletter[211] was developed and is published by the EC on a regular basis. The Newsletter informs on the progress, which has been achieved and on new issues arising from the process. The new WISE Newsletter is the information bulletin of the Water & Marine unit of the Environment General-Directorate of the European Commission. This newsletter replaces and complements the former "WFD Newsletter".[212]

4.7.3.2.WISE

Water Information System for Europe (WISE)[213] is a new interactive Internet tool that informs citizens about water quality and EU water policy. It was jointly released by

[209]For example, in France, the government organized a national consultation on the draft plans in 2008, which involved activities in each RBD. In the Loire-Bretagne basin consultation included open discussions, exhibitions, information centers and activities such as guided tours and theatre productions (see http:// www.prenons-soin-de-leau.fr (last visited on May 1, 2009).

[210]Public part to CIRCA site can be entered through the following link http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive&vm=detailed&sb=Title (last visited on May 1, 2009).

[211]WDF Newsletter can be entered through the following link http://ec.europa.eu/ (last visited on May 1, 2009).

[212]WISE Newsletter site can be entered through the following link http://ec.europa.eu/environment/water/water-framework/index_en.html (last visited on May 1, 2009).

[213]WISE home page http://water.europa.eu/ (last visited on May 1, 2009).

the European Commission and the European Environment Agency (EEA) at the European Water Conference 2007 in Brussels. This new tool offers citizens the opportunity to monitor water quality in their neighborhood. By entering their region and RBD, the user can check drinking water quality, bathing water quality and wastewater treatment. Experts can also find further data and in-depth analysis of all European river basins. The system also offers the public access to water data and information reported by member states to the EEA and the European Commission under the Directive.

4.7.3.3 ***HarmoniCOP***

In order to improve public participation in river basin management planning, EU created a new project called HarmoniCOP (Harmonising Collaborative Planning)[214] that deals with studying the participative methods used across Europe. Partners from 15 member states together with experts from NGOs, local government, policy makers, water industry and the agricultural sector participated in HarmoniCOP. The project developed a handbook based on the examples of best practice that were found.[215]

4.7.4 Discussion

There are many key benefits in involving public in the implementation process. Public input helps member states to balance environmental, economic and social priorities in the plans. It makes the implementation more effective, increases the public acceptance, decreases a number of litigations, provides more open and integrated governance and brings more transparency in the planning process. So, in general, the decision making process is better informed, through the use of stakeholder's knowledge and experience, and is, as shows the practice, much more creative.

4.8 Economic principles

The Directive also introduces economic principles and methods for the management of Europe's waters. Indeed, it is the first piece of EU water legislation to explicitly integrate economics into its measures. For many member states the Directive's use of

[214]The project home page: http://www.harmonicop.uos.de/handbook.php (last visited on May 1, 2009).

[215]Handbook "Learning together to manage together — Improving participation in water management" can be found on the project website: http://www.harmonicop.uos.de/handbook.php (last visited on May 1, 2009). It focuses on building a robust framework of public participation in river basin management planning.

economics has brought a new approach to water management.[216]

4.8.1 Two key economic principles

The Directive introduces two key economic principles.

First, it calls on member states to use economic analysis in the management of their water resources and to assess both the cost-effectiveness and overall costs of alternatives when making key decisions.[217]

Second, the Directive calls on water users, such as industries, farmers and households, to pay for the full costs of the water services they receive.[218] Article 2 (38) defines "water services" as "all services which provide, for households, public institutions or any economic activity". The Directive states that water pricing should create incentives for the efficient use of water resources. If users pay the real costs of the water they use they will certainly waste less of it. This brings economic efficiency and reduces the financial burden on public authorities while improving the environment.

Under the Directive the recovery of costs refers to several elements. The prices users pay for water should cover the operational and maintenance costs of its supply and treatment and the costs invested in infrastructure. The Directive goes further and requires that prices paid by users also cover environmental and resource costs. This is a key step towards implementing the economic principle that polluters and users should pay for the natural resources they use and the damage they create.

4.8.2 Environmental costs

Environmental costs include damage to ecosystems such as pollution that harms fish and wildlife in waters. Extracting water for human causes repercussions such as reducing water levels in rivers and lakes and this may also harm ecosystems. These costs do not appear on financial balance sheets, but they can be measured.[219] When a water resource is partly or fully depleted and less water is available for other users the cost of that resource goes up. Recovering such resource costs is especially important

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[216]Chave, P.: *The EU Water Framework Directive: An Introduction*, p. 188.
[217]*Ibid*. p. 191.
[218]*Ibid*. pp. 193-194.
[219]Schernewski, G., Schiewer, U.: *Baltic Coastal Ecosystems: Structure, Function, and Coastal Zone Management*, Berlin 2002, p. 238.

in river basins where water is scarce.[220]

4.8.3 Discussion

To implement these principles fully member states need to consider all activities that use water resources. Recovering costs from only certain activities does not guarantee the sustainable use of water. Collective water systems and individual factories and farms that pump groundwater must pay in equal measures.

Appropriate pricing is an incentive element in order to achieve sustainable use of water resources and the goals of the Directive related to the environment. Member states are supposed to set prices reflecting the actual cost of the water in each river basin. An innovation suggested by the Directive is the determination of the water pricing for the whole European Community, which complies with a "polluter-pays" principle.

4.9 Monitoring

Monitoring is the main tool that states use to direct the effectiveness of measures that were prepared for each WBD in order to achieve the objectives of the Directive. The Directive sets out the common approach towards monitoring of water quality, but its up to states what method they will use for it. According to the Directive, states were required to prepare monitoring programmes till December 2006,[221] that, again, are supposed to be based on state cooperation in the case of IWBD.

The main objectives of such monitoring programmes are as follows:

- To provide a coherent and comprehensive overview of ecological and chemical status,
- To permit the classification of water bodies into five classes; high, good, moderate, poor and bad,
- To be based upon the characterization and impact assessment carried out for the RBD,
- To cover parameters which are indicative of the status of each relevant quality element.

While prior European legislation considered chemical contamination in water, the directive provides a major innovation by addressing aquatic ecosystems as well. Monitoring now assess the health of ecosystems.[222] This is a complex task, as

[220] *Ibid*. pp. 239-240.
[221] Article 7(2) of the Directive.
[222] Chave, P.: *The EU Water Framework Directive: An Introduction*, p. 173.

ecosystems differ across Europe, and therefore calibration process was required to ensure harmonized results.

Monitoring also tackles human impacts on hydromorphology, the physical shape of river systems.[223] Such impacts include changes in the flow of rivers as a result of water extraction or dams. These changes can harm the health of surface waters and their ecosystems, but for some member states, measuring these changes is a new monitoring activity.

The monitoring of surface waters thus covers the chemical composition of water, a number of key biological elements, and the hydrological and morphological characteristics of water bodies in order to provide a comprehensive overview of the health of Europe's waters. Groundwater monitoring programmes cover water quality and water quantity.

4.9.1 Three types of monitoring

The Directive separates three main types of monitoring: surveillance, operational and investigative monitoring.

Surveillance monitoring[224] gives a possibility to have the most clear and broad understanding about the health of the waters and helps on the stage of classification of the waters based on their status.

Operational monitoring[225] focuses on waters that are under ecological risk and are far from reaching the purposes of the Directive. It basically, defines what water bodies should be paid more attention and be a subject of specific measures to be restored.

In a case if that information on the surface water bodies is not enough to define the reason of the failure of some waters to reach the objectives of the Directive, states refer to *investigative monitoring.*[226]

Additionally, the Directive mentions *frequency of monitoring*[227] and in requirements for more detailed analysis for protected areas for drinking waters or

[223]For further information see: "Monitoring programmes: taking the pulse of Europe's waters", Water note No 6 of European Commission, WISE 2008. Available online http://ec.europa.eu/environment/water/water-framework/pdf/water_note6_monitoring_programmes.pdf (last visited on May 1, 2009).

[224]Para 1.3.1 of Annex V to the Directive.

[225]Para 1.3.2 of Annex V to the Directive.

[226]Para 1.3.3 of Annex V to the Directive.

[227]Para. 1.3.4 of Annex V to the Directive.

natural habitats or species.[228] Besides, for coordinating the monitoring activities in shared water basin districts within Europe, such as Danube, Rhine, Meuse, states use *transboundary monitoring*.[229]

The Directive required member states to provide an overview of their monitoring programmes in 2007. The reports show that Europe's water monitoring programmes have more than 54,000 surface water stations — around 24,000 for surveillance monitoring, 40,000 for operational monitoring and around 12,000 common to both — and more than 51,000 groundwater stations.

Member states have made good progress in establishing monitoring programmes for aquatic ecosystems. Though still reporting on the monitoring of protected areas appears to be weak. In addition, many Member States did not provide information on the design of their monitoring programmes, including methodological aspects. The Commission is currently analyzing the information received and will publish a report by the end of 2008.

4.10 An overall assessment

Analyzing the utility of the Directive and its contribution to the development of the European water law towards eradicating and solving existing water conflicts, the Directive is considered by the majority to be the most substantial piece of water legislation. It is expected to provide the major driver for achieving sustainable management of water in the EU member states for many years to come.[230] The Directive aims at protecting and restoring clean water across Europe and ensure its long-term and sustainable use.

4.10.1 Weak side of the Directive

There are some concerns that the Directive is little bit too complex for the member states to be implemented right away. Depending on the peculiarities of the water policy in each state, some of them had to go through the huge administrative and institutional changes in order to meet the requirements of the Directive. Hence, the Directive appears to be too costly for the member states to be implemented.

[228]Para 1.3.5 of Annex V to the Directive.
[229]"Monitoring programmes: taking the pulse of Europe's waters", Water note No 6.
[230]Chave, P.: *The EU Water Framework Directive: An Introduction*, p. 202.

4.10.2 Utility of the Directive

4.10.2.1IWBM

The Directive sets a framework for comprehensive integrated water management of water resources in EC aiming at improving the water quality. Its provisions relates not only to the standards of water protection but also to how water is managed. It aims to establish an integrated and coordinated approach to management across Europe based on a river basin district structure.

4.10.2.2Broader ecological objectives

The Directive introduces new, broader ecological objectives, designed to protect and, where necessary, restore the structure and function of aquatic ecosystems themselves, and thereby safeguard the sustainable use of water resources. Future success in managing Europe's water environment will be judged principally by the achievement of these ecological goals.

4.10.2.3River basin planning

One more key change presented by the Directive is the introduction of a river basin management planning system. This can be seen as the key mechanism for ensuring the integrated management of groundwater, rivers, canals, lakes, reservoirs, estuaries and other brackish waters, coastal waters and the water needs of terrestrial ecosystems that depend on groundwater, such as wetlands.

The planning system provides the decision-making framework within which costs and benefits can be properly taken into account when setting environmental objectives, and proportionate and cost-effective combinations of measures to achieve the objectives can be designed and implemented. It will also provide new opportunities for anyone to become actively involved in shaping the management of river basin districts — neighboring river catchments, together with their associated stretches of coastal waters.

The management of large European River Basins (e.g. Danube, Rhine, Schelde or Maas) has been confirming the success of this approach for years. The Directive was passed in 2000 and fully incorporates this management philosophy providing an innovative legal basis for reaching water management objectives on the European scale. Already during its current implementation phase successful results of this transboundary management procedure become obvious and both basin wide

cooperation and the achievement of common objectives are improved across country borders.[231]

4.10.2.4 Public Participation

There are many key benefits in involving public in the implementation process. Public input helps member states to balance environmental, economic and social priorities in the plans. It makes the implementation more effective, increases the public acceptance, decreases a number of litigations, provides more open and integrated governance and brings more transparency in the planning process. So, in general, the decision making process is better informed, through the use of stakeholder's knowledge and experience, and is, as shows the practice, much more creative.

4.10.2.5 Economical principles

The Directive is the first piece of EU water legislation to explicitly integrate economics into its measures. Pricing of water and environmental recovery costs reflect the EU aim to achieve the sustainability of the water resources.

4.10.2.6 Grounds for more close cooperation

The case studies of some states implementing the Directive show that not only EU countries are trying to develop institutional responses to this challenge, but also aspirant countries are seriously trying to adapt their domestic water policies[232]. The case studies illustrate that in developed water management system the Directive leads to more cooperation between the different water management organizations.

4.10.3 Discussion

Problems and constraints arise in each water use area. But recognizing the interrelated nature of different sources of water and thus also the interrelated nature and impacts of the differing water uses gives EU an opportunity to solve the problem of water crisis within its member states. In this respect the Directive seems to be an effective tool for wise and comprehensive management of water resources.

4.11 Conclusions

In the year 2000 historical evolution of water management within EU has moved from

[231] Vermaat J., Bouwer L., Turner K.: *Managing European coasts: past, present, and future*, p. 167.

[232] Like Turkey, for example. See Förstner, U., Salomons, W., Vermaat J.: *The EU Water Framework Directive: Challenges for institutional implementation*, pp.153-158.

local sectoral management to IWRM.

In the case of shared water resources EU places a great importance on the IWRM and transboundary cooperation by creating legislative tools, like the Water Framework Directive, in order to harmonize the methodologies and enhance cooperation. The Directive seems to be a successful framework for comprehensive management of water resources, within a common approach and with common objectives, principles and basic measures.

The Directive introduces three major legal innovations. The first one is a river basin approach for the development of integrated and coordinated river basin management plans for all European river systems. Second one is the introduction of water pricing that reflects the EU aim to achieve the sustainability of the water resources. And the third innovation is the participation of the public in the development of river basin management plans encouraging active involvement of interested parties including stakeholders, non-governmental organizations and citizens, that brings more transparency in the planning process. The Directive makes a significant contribution to cooperation between member states through integration with other sectoral policies.

Integrated water basin approach has already shown some positive results. Important is that the countries get started with the implementation process. Quite a number of steps, particularly in the legal transposition into national law as well as in the coordination process within bilateral agreements have taken place.

Of course, its hard to define now for sure upon the question whether this model can be useful to be transcribed into water policies of other countries since the objectives of the Directive have not been reached yet. But analyzing what have been reached so far, integrated water basin approach towards the transboundary water regulations seems to be really workable. It incorporates qualitative and quantitative aspects of water by developing transboundary-monitoring mechanisms, for controlling and assessing the different water parameters and it promotes common water development plans through integrated designing of water projects. The most significant in here is the fact that the Community starts paying attention to the water problems from the environmental angle. This seems to be a correct way to ensure that the specific water problems would be solved in the near future and it give us a hope to reach a sustainability in managing water resources for present generation without

compromising for the future ones.

5 Evaluation

5.1 Introduction

Competition over shared resources, in particular water, can be a root cause to social, economic and political tension. This is particularly true in a water scarce region, whether within a country where sectors or different population groups may have competing interest, or between countries in an upstream/downstream position.

There were lots of debates concerning the most efficient and effective way of exercising control over causes of water crisis. The international community came to the conclusions that, nowadays, huge amount of factors, such as the increasing population in the world, everyday development and industrialization, automatically increases a demand of more strict and workable management of waters, taking into account all kinds of use's interests. The interdependence between water, health, well being and economic growth make it clear that water services policy and practices should not be viewed in isolation but seen as an integral part of social and economic development and the creation of sustainable environment.

This chapter discusses and addresses the prospects of IWRM, since it seems to combine and provide the regulation of many cross-sectoral considerations that are defined in section 2.3 of the current thesis as factors causing water scarcity. Hence it can be rather effective in resolving the problem of water scarcity all over the globe and in the same way to make a major contribution to avoiding/decreasing the conflicts of interest over allocations of water between stakeholders, poverty eradication, health improvements, quality of life and protection of the environment.

5.2 IWRM in resolving water crisis

The following sections analyze how IWRM deals with each factor causing water crisis that certifies its effectiveness towards better management of water resources. The challenges include to meet basic water needs for human being, for the living as well as for coming generations, and for the environment, and to secure enough water of acceptable quality for agriculture, industry, energy etc. without compromising the sustainability of vital ecosystems, including such as downstream coastal areas and adjacent marine ecosystems. An integrated water resources management and compromise building is required to balance water uses to available resources and to

land use and ecological services.

Each of the water uses identified above has valuable impacts. Most also have negative impacts, which may be made worse by poor management practices, lack of regulation or lack of motivation due to the water governance regimes in place.

IWRM combining the principles of social equity, economic efficiency and environmental sustainability is a key instrument to ensure water security.

5.2.1 Water basin approach

IWRM is based on the water basin approach, highlighted in chapter 3 of the thesis, but extends the scope of the term to the managing water resources taking into account all various impacts on water quality and quantity and its possible uses. The multiple nature of water resource values and the multiplicity of water users are fundamental features of any assessment of water resources.

In this respect IWRM approach seems to be attractive since it provides a framework to manage competition for limited resources and the potential conflicts and inefficiencies that may arise, providing mechanisms to resolve the trade-offs between different users.

5.2.2 Water quality and quantity

First of all, the clear linkage between water quantity and water quality is recognized by the IWBA. Water quantity and water quality are to be managed together.

Secondly, IWBM is mainly designed to develop and support a coordinated strategy on the use of water resources, with the main purpose to ensure sustainable development in all water-related sectors within a country and in a transboundary context. The environmental concern for water is a pre-requisite for sustainable use.

Thirdly, management system according to IWRM integrates land and water management to ensure the security for the water quality and quantity.

5.2.3 Increasing demand and need for water

IWRM is key to water security, particularly in areas with competing interests in water resources. IWRM of shared, including transboundary, water systems aiming at balancing economic efficiency against social equity or environmental sustainability. That is realized through the allocating available water resources between sectoral uses (food security, industry, energy, environment). Such allocation challenge is

particularly necessary in areas where the overall availability is poor. It can be handled only through a combination of regulatory measures and managing principles provided by IWRM.

5.2.4 Unequal distribution around the globe

IWBM seems not to deal with the problem of unequal distribution of water as such, but at the same time, it aims at more effective management of water resources, that basically won't allow the water "situation" to get worse. But, in any way, water, unlike many other natural resources, is not easy to transport from one region to another in order to address the distribution problem.

5.2.5 Water supply and sanitation

The limitations of traditional approaches based on supply provision have been recognized in the principles of IWRM. Ensuring the access to safe water and sanitation systems and to hygiene to meet basic human needs is one of the important aspects of IWRM. Improved access to water supply and basic sanitation can make a major contribution to poverty eradication, health improvements, quality of life and protection of the environment.

Since poor cost recovery leads to lack of investment/maintenance of proper water supply and sanitation, IWBM introduces economic principles and methods for the management of waters, providing the demand of water pricing.

Moreover, IWBM, being based on water basin approach, recognizes the fact that the pollution of surface water can contaminate groundwater, and vice versa, just as withdrawals of groundwater can affect surface water flows. Before the vital issue of groundwater has been never given adequate attention.

IWRM contributes also to the problem of competition between water supply and sanitation and other uses. The water supply and sanitation sector, although typically given priority allocations by policy in most developing countries, increasingly has to "fight" for its water resources. In this respect IWBM aims at balancing different uses of water and managing water resources more holistically to the benefits of all. This approach to competition and scarcity is part of the general move away from seeing water and its management in physical terms and instead assessing it in terms or resource values within an IWRM context.

At the same time, where IWBM initiatives are seeking to improve management of

water resources for all users, this may be considered to be unfair or irrelevant when large sections of the population have inadequate access to water supply and sanitation for their basic requirements.

5.2.6 Limited knowledge

Many water resources problems reflect limited knowledge, and especially a lack of understanding of the needs and the impact of actions of one group of resource managers (e.g. irrigators) on other interests (e.g. drinking water supplies). Awareness-raising according to IWBM is based on a minimum of the right information, combined with active dialogues between the different interests to establish the best possible consensus. In this respect IWRM introduces the principle of public participation, public consultation and access to water information.

5.2.7 Conflict prevention

IWRM also provides a framework to promote peace and security in transboundary watercourses. Cooperation is one of the main focuses of IWRM development aid that makes a significant impact in addressing conflict prevention concerns.

5.3 IWRM in practice

The efficiency of IWRM can be seen on the example of EU water policy. IWRM is a key framework for most of the EU member states in their water development assistance. On the basis of the given analysis of implementation of IWBM in EU in chapter 4 of the current thesis, relevant amount of benefits for the member states can be underlined, such as:

- A great effect on how European countries change their ways of managing their water systems;
- A great step forward to improve the protection and enhancement of the water environment leading to cleaner and healthier rivers, lakes, estuaries and coastal waters as well as the protection and enhancement of aquatic wildlife;
- Since IWBM promotes more efficient uses of water, it seems rather helpful in reducing the pressure on the water environment that makes the use of water resources more effective and sustainable;
- It gives the opportunities for the member states for becoming involved in shaping the management of the water environment increases during the preparation of the River Basin Management Plans and Programmes of Measures;
- The quality of information on the water environment and the ways it is managed is improved due to the principle of public participation;

- It creates much more integrated and precautionary approach to whole water basin management.

5.4 Failings of the approach

The last three decades of summits and mega-conferences were essential in raising the international community's awareness of the urgency of IWBM. Over time, wise water management has been recognized as an effective way to combat water crisis and improve quality of life.

In this respect IWRM would be the most effective if implemented at global, regional, and national levels, designed to support stakeholders in the practical implementation of IWRM. Unfortunately, some problems are emerging that have the potential to deflect attention from the whole approach.

5.4.1 Absence of implementation

Three decades of conferences have resulted in many commitments to IWRM that, unfortunately, were often not implemented. There is no point in putting up theoretically excellent solutions if they are not going to be implemented.

The integration of different sectors related to water management is very challenging. Moreover, the problems and solutions associated with IWRM implementation in different regions may not be universal. Overly general or universal policies and guidelines for implementing IWRM may become counterproductive.

5.4.2 Over complex manner

There are concerns that the IWRM approach is too complex to be readily understood or implemented, and as such might be potentially disabling in terms of providing a basis for effective change. It is rather hard to expect any and all individual projects or other activities to do everything at once. As practice shows, the best projects are simple ones. Hence, IWRM is increasingly seen as being too complicated, and too costly at the same time.

5.5 How to adopt this approach in practice?

The target to develop IWRM and water efficiency plans in all countries from the first look seems hard to be reached. But the principle of integration is in fact generally accepted. What is less apparent is how these principles can be put into practice.

A number of recent studies have shown how communities can effectively develop,

operate and maintain IWBM. A favourable policy and regulatory framework (such as Water Framework Directive in EU) is required, promoting integration along the lines of IWRM principles.

There is a number of examples from around the world where governments are attempting to adopt IWRM through reforms to the laws and policies that define the basic character of water resources management and to government institutions that are the means through which these policies and laws are put into practice.

For instance, EU and its Water Framework Directive, described in chapter 4, based upon IWRM principles. And though the way of implementation was different for each country and each water basin, and some states did face some challenges while meeting the requirements of the Directive, the current experience certifies and presents one of the possible ways to turn IWRM into practice.

What can be underlined for sure is that to be implemented successfully IWBM has to be based on a strong knowledge base. This should include a better understanding of how to:

- Estimate the status, trends, and options for achieving various aims/objectives. Who, where, how?
- Determine the value of water uses: economic, social, environmental, political.
- Establish or improve water management mechanisms to address quantity and quality issues associated with competition for a finite resource.

There are consequently real opportunities in many countries to relate new initiatives to ongoing changes in thinking, laws and policies. To realize these opportunities, however, will require a careful process when principles of integration could be turned into practice.

There is also a clear need to document cases where innovative approach has worked so that these can provide models of good practice that can further be used for adaptation and adoption in other countries.

5.6 Discussion

IWRM appears to be rather effective towards the improvement of the management of water resources, including transboundary river basins and aquifers. It provides the basis to ensure the best possible balance between economic efficiency, environmental sustainability and social equity and the reduction of conflicts associated with the

distribution and use of water at different levels.

Therefore, there is a need for a coordinated and comprehensive effort to turn theoretically excellent solutions into practice, following the experience of the countries that already managed to do so.

6 Conclusions

A crucial, but finite, resource, water is vital to country's economic and social development and it is the cornerstone of sustainable development. Many countries share water resources and transboundary water-related problems are growing more complex and acute worldwide, and peoples are facing critical challenges: lack of water supply and sanitation, growing conflicts and competition for the use of freshwater, deteriorated environments and nations prosperity. These troubles point to the fact that today's water problem is largely one of governance.

According to the objectives defined in part 1.2 the current thesis resulted in the next conclusions.

International law is one of the instruments, which helps to settle conflicts and prevents disputes over the use of shared water resources. The UN Convention on International Watercourses is the only legal framework of the international community for the management of available fresh water resources. In spite the fact that it has to be strengthened in order to be more efficient, a view of the international waters through the water basin approach is a relevant step forward for the management of international watercourses. But at the same time although the Convention represents an effort to strike a balance between different uses of water, aiming at providing a realistic means to prevent and/or resolve disputes over water, it can be regarded as not very strong legal instrument for resolving the growing problem of water scarcity resulting in a water crisis.

As demand increases, water resources are becoming increasingly scarce. Population growth, economic development and changing trade policies are the main driving forces behind increasing demand and need for water.

Here appears the importance of more holistic approach towards the management of the water resources that takes into account economic development, human needs and environmental protection. Since the problems related to the regulation of transboundary water resources was recognized to have an impact on people as well as on the environment.

In this respect IWRM seems to combine and provide the regulation of many cross-sectoral considerations causing the problem of water scarcity. Hence it provides

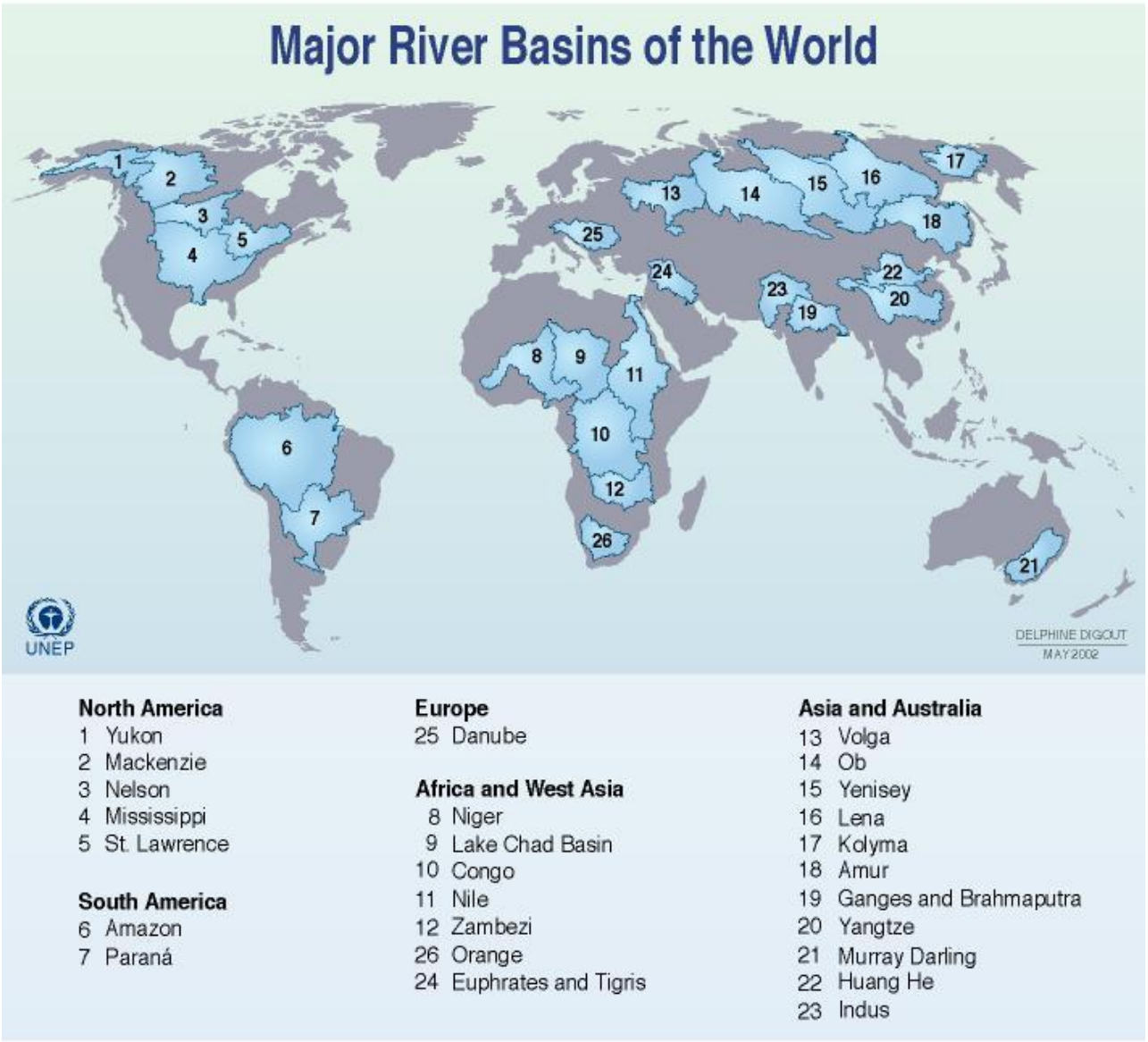
opportunities for resolving the problem of growing water scarcity all over the globe and in the same way for making a major contribution to avoiding/decreasing the conflicts of interest over allocations of water between stakeholders, poverty eradication, health improvements, quality of life and protection of the environment. A challenge in sharing water resources is to prevent conflict and to promote peaceful cooperation between different interests, be it in a region within a country or in a transboundary context.

Water will be one of the most important natural resources of the future. How it is managed will affect not only the lives and well-being of billions of people, but determine national economic policy and strategy in many regions of the world.

IWRM has a potential to contribute to the peaceful management of international watercourses around the world. The only challenge left is to find the best way to turn theoretically excellent solutions into practice, following the experience of the countries that already managed to do so.

Figure 1 Major River Basins of the World

04



North America
1 Yukon
2 Mackenzie
3 Nelson
4 Mississippi
5 St. Lawrence

South America
6 Amazon
7 Paraná

Europe
25 Danube

Africa and West Asia
8 Niger
9 Lake Chad Basin
10 Congo
11 Nile
12 Zambezi
26 Orange
24 Euphrates and Tigris

Asia and Australia
13 Volga
14 Ob
15 Yenisey
16 Lena
17 Kolyma
18 Amur
19 Ganges and Brahmaputra
20 Yangtze
21 Murray Darling
22 Huang He
23 Indus

Source: United Nations Environment Programme (UNEP); World Conservation Monitoring Centre (WCMC); World Resources Institute (WRI); American Association for the Advancement of Science (AAAS); *Atlas of Population and Environment*, 2001.

Figure 2 Overview of main water policy development milestones (1972 –2006)

Year	Conference/event	Outcome
1972	UN Conference on Human and Environment, Stockholm	Stockholm Declaration, Action Plan
1977	UN Conference on Water, Mar del Plata	Action Plan
1981-1990	International Drinking Water and Sanitation Decade	
1990	Global Consultation on Safe Water and Sanitation for the 1990s, New Delhi	New Delhi Statement
1992	International Conference on Water and Environment, Dublin	Dublin Statement on Waterand Sustainable Development
1992	Earth Summit in Rio de Janeiro	Rio Declaration on Environment and Development, Agenda 21
1994	Ministerial Conference on Drinking Water Supply and Environmental Sanitation, Noordwijk	Programme of Action
1997	First World Water Forum, Marrakech	Marrakech Declaration
1998	International Conference on Water and Sustainable Development, Paris	Paris Declaration
1998	International Conference on International River Basin Management, Bonn	
2000	Second World Water Forum, The Hague	World Water Vision
2000	Ministerial Conference on Water Security in the 21st century, The Hague	Ministerial Declaration
2001	International Conference on Freshwater, Bonn	Ministerial Declaration
2002	World Summit on Sustainable Development (WSSD), Johannesburg	Johannesburg Plan of Implementation, Political Declaration
2003	International Year of Fresh Water	
2003	Third World Water Forum, Kyoto	Portfolio of Water Actions
2006	Fourth World Water Forum, Mexico	
2005 – 2015	International Decade for Action "Water for Life", UN	

Source: Own construction

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