Introduction: the concept and traditions of water management law

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1 BACKGROUND REMARKS

As the basic natural source of life, water resources play a decisive role in the development and welfare of societies. Due to the economic and social value of the resource and related interests, conflicts between different categories of users as well as states have gradually led to the adoption of rules and guiding principles for the distribution and protection of water resources.¹ At the same time, legally supported priority positions concerning the use of waters have emerged. Such positions and priorities within groups of interested owners and users or actors enjoy at least occasional legal protection on a constitutional basis. This is a reality where some regions suffer from water scarcity,² public interests tend to restrict the full enjoyment of water priorities under the control of a national water policy, for instance concerning the right to establish water-consuming plants. Also, where states have no problems with water quantity, they are, for different reasons, interested in adopting national or regional water management plans as the basis for legal decision-making in permitting cases and for the organization of public water services. Partners to international water regimes and member states of regional alliances are obliged to follow jointly adopted requirements concerning environmental quality, planning procedures, international cooperation,

¹ See e.g. the Water Conflict Chronology, maintained by the Pacific Institute, <<http://worldwater.org/water-conflict/>> accessed 12 December 2016.

² The UN 'Water for Life Decade' states: 'Around 1.2 billion people, or almost one-fifth of the world's population, live in areas of physical scarcity, and 500 million people are approaching this situation. Another 1.6 billion people, or almost one quarter of the world's population, face economic water shortage (where countries lack the necessary infrastructure to take water from rivers and aquifers).' <<http://www.un.org/waterforlifedecade/scarcity.shtml>> accessed 10 January 2017.

civil rights and more. This legal trend works in favour of international harmonization, which again enables a better approach to manage large water areas also beyond state borders.

Environmental philosophy and ethics emphasize the need to respect nature.³ In order to build a foundation for such actions, legal theory has developed instruments, based on political programmes and environmental principles (soft law).⁴ To some extent those principles are sector-specific and, in case of water law, they serve as a basis for further development of better and more dynamic practices (the basin principle). A functioning legal system for water management includes models, techniques and standards for solving imminent threats and meeting challenges, not only nationally but also internationally. The origin of soft law instruments is partly a consequence of the open structure of international agreements, as these are incomplete in wording, and enforcement allows for the use of guidelines, standards and recommendations. In environmental law, interpretative principles are developed and sometimes incorporated in hard, i.e. 'clear', law elements. Typical principles of this kind are the causation or polluter pays principle and the precautionary principle.⁵

One problem with soft law arguments is the denouncement of the categorical interpretation of hard law sources, since legal uncertainty in decision-making affects the management of projects as long as soft law instruments are not 'hardened' and tend to be political rather than legal. But the distinction between hard and soft law is not clear: environmental (hard) law consists of a large number of dynamic or discretionary elements, and the margin of 'valid' alternative interpretations and solutions is broad. Within this margin, soft law instruments tend to play a significant role by complementing traditional 'command and control' instruments with voluntary measures, for instance agreements by the project manager with the state or the municipality. One observes hardening of soft law instruments especially in the fields of environmentally based human rights and nature conservation. Here for instance the vague term 'interest of future generations' may be used as a soft argument with

³ Henryk Skolimowski, *Eco-Philosophy* (Boston M Boyars 1981), 36: 'Eco-philosophy, perceived as global and comprehensive, is a process philosophy which is integrative, hierarchical and normative – self-actualizing with regard to the individuals, and symbiotic with regard to the cosmos.'

⁴ For an overview of the topic see Gregory Shaffer and Mark A. Pollack, 'Hard vs. Soft Law: Alternatives, Complements and Antagonists in International Governance' (2010) *Minnesota Law Review*, Vol. 94, 706–89.

⁵ Nicolas de Sadeleer (ed.), *Implementing the precautionary principle. Approaches from the Nordic countries, EU and USA* (Earthscan 2007), 10–35.

varying interpretations in different situations or, following Alan Boyle: 'An important advantage of the procedural interpretation of environmental right is that it avoids problems of anthropocentricity to the extent that such rights can be exercised on behalf of the environment ... They can also be employed in the interests of future generations.'⁶

A democratic concept of national water stewardship should function in line with the population's needs and expectations concerning health, food safety and private economy.⁷ However, most kinds of water utilization require technical installations, operating institutions and, primarily, capacity to finance works, pumps, dams, purification plants and pipelines. A state or a municipality would hardly be capable of satisfying all needs in a growing community without participation of specialized actors and financing institutions. Such actors again would not be interested in investing without expectation of an economic profit or a legally protected status in the water management system. The involvement of investors in projects that are carried out in a globalized world by enterprises, without responsibility to investors, is a challenge to ecological and also to social sustainability.

2 THE ORIGIN OF WESTERN WATER LAW

The concept of water law as a modern legal discipline has its origin in the eighteenth and nineteenth centuries, when industrialization multiplied the modes of profitable utilization of waters for various purposes. Diversified rules were adopted for different categories of water management. Already at the beginning of the eighteenth century, environmental concerns drew the attention of legislators. Two main lines of the

⁶ Alan Boyle, 'The Role of International Human Rights Law in the Protection of the Environment' in Alan Boyle and Michael Anderson (eds), *Human Rights Approaches to Environmental Protection* (OUP 1996), 62.

⁷ The following definition of water stewardship is adopted by EWS (European Water Stewardship): 'Water Stewardship: Use of freshwater that is socially beneficial, environmentally responsible and economically sustainable. (Source: AWS Glossary):

- (a) Socially beneficial: water use recognizes basic human needs and ensures long term benefits (including economic benefits) for local people and society at large.
- (b) Environmentally responsible: water use maintains or improves biodiversity and ecological processes at the watershed level.
- (c) Economically sustainable: water use is secure, reliable and financially viable in the long term.'

development of water legislation have been dominant. The first one is sectoral and manifests certain areas of water law as closed systems. This is the case in states where specific or sectoral laws are enacted for the establishment and maintenance of waterways, for water supply and sanitation, in some states also for the installation of hydropower plants. In addition, in several cases there is a general set of rulings (water acts) concerning all categories of water utilizations (Germany, Austria, Finland). Such general water law provides for valid principles of conduct, rules for compensation and protection of civil rights. The other line incorporates traditional water law in a broader environmental context: environmental 'codes' minimize the particularities of water law (Sweden). The integration of water regulations may also take place in the context of land-use planning (France).

It is common knowledge that documented rules concerning the utilization of watercourses already existed in ancient times, for instance in the Middle East.⁸ The best known, but not oldest example is the Code of Hammurabi, dating from the seventeenth century B.C.⁹ In the preamble to the Code one finds a vision of good governance, which in the region of Mesopotamia even today means well-organized water conditions: 'They have prospered under my protection. I have made the people lie down in well-watered pastures. I am the shepherd who brings peace.' Some examples of rules concerning the use of waters (Harper's translation):

53. If a man neglect to strengthen his dyke and do not strengthen it, and a break be made in his dyke and the water carry away the farm-land, the man in whose dyke the break has been made shall restore the grain which he has damaged ...

55. If a man opens his canal for irrigation and neglect it and the water carry away an adjacent field, he shall measure out grain on the basis of the adjacent fields.

56. If a man opened up the water and the water carry away the improvements of an adjacent field, he shall measure out ten GUR of grain per GAN.

Classical Roman law dealt with water issues on a practical basis. According to Roman law, waters were classified as public domain (*res*

⁸ For the history of water resources management see Thomas V. Cech, *Principles of Water Resources: History, Development, Management, and Policy* (3rd edn, John Wiley & Sons 2010), 9–14.

⁹ The text, including the account of its historical origin is quoted from the Harper translation: Robert Francis Harper: *The Code of Hammurabi, King of Babylon: About 2250 B.C.* (The Lawbook Exchange, Ltd 1904).

publicae), an object belonging to everyone (*res communis omnium*). Private use of minor watercourses (*aquae privatae*) or access to major watercourses was possible as long as the utilization of public waters was not negatively affected. Private ownership of minor waters was therefore limited to small waterbodies.¹⁰ The use of water resources was also under some circumstances submitted to authorization. Private disputes concerning modes of water utilization were dealt with on the basis of *actio in rem* (claim based on possession). The classification of waters as *res publicae* was consolidated by later codes, especially *Corpus Iuris Civilis*, the most famous legal code of the Roman Empire, enacted by the Byzantine Emperor Justinian (AD 535). The *Institutes* of this Code is considered fundamental for the further development of western legal systems, since it reflected early ideals of humanism¹¹ as natural law and introduced the separation of public (law of nations) and private law.¹²

The Roman law tradition has prevailed in most successor states of the Roman Empire. French water law in the thirteenth century developed and through centuries maintained the principle that sovereigns were empowered to control the use of watercourses. Presently there are three categories of waters, those under public domain (*cours d'eaux domaniaux*), the waters under private regime (*cours d'eaux non-domaniaux*) and the 'mixed' waters (*cours d'eaux mixtes*).¹³ In modern times the state domain has been enlarged to cover not only the bed of navigable rivers but also the flow from tributaries and land-based sources (section 29 of the Act of 16 December 1964).¹⁴ This corresponds with the basin principle, which in that period became a guiding concept for the planning of new water enterprises and for the overall management of

¹⁰ The distinction or categorization of waters, especially private ones, was in the end not clear. Sea shores were not included in the system of watercourses; public waterways were characterized as being open for the use of everyone (*usus publicus*). For details see Alfred Ossig, *Römisches Wasserrecht* (Leipzig 1898), 47–140.

¹¹ Book I, Title I, '(1) Jurisprudence is the knowledge of matters divine and human, and the comprehension of what is just and what is unjust.' Translation by S. P. Scott (1912) <<http://www.constitution.org/sps/sps02.htm/last>> accessed 9 January 2017.

¹² Book I, Title II, 1–2.

¹³ Jean-Louis Gazzaniga, Jean-Paul Ourliac and Xavier Larrouy-Castera, *L'eau: usage et gestion* (Litec 1998), 116–42.

¹⁴ Michel Prieur, *Droit de l'environnement* (4th edn, Dalloz 2001), 674–6.

water areas (so it is also present in the European Water Framework Directive 2000/60/EC¹⁵).

In other parts of the western legal orders the legal development was different. The distinction between public waters and private waters was not fully followed in the countries of the common law tradition. Common law maintained the Roman principle that flowing waters are *res publicae*, and flowing water is considered *publici iuris* in the sense that none has an exclusive title to the water itself.¹⁶ The access principle of Roman law developed into the doctrine of riparian rights in the nineteenth century and still is characteristic for the water regimes in England and North America.

In old Germanic, including Scandinavian law, the title to use waters was connected to the acquisition of land for new agricultural settlement areas. Within settlement areas water resources were used or allocated as joint units (*Allmende*), especially for traffic and fisheries.¹⁷ During the later development, specific rights of utilization were recognized, in particular for the construction of mills, water works and more. During the feudalist period in continental Europe the influence of landlords and crowns increased and led towards public governance of major watercourses. In most parts of Scandinavia that development did not take place and the principle of joint private property rights within communities prevailed.¹⁸ Watercourses beyond the borders of communities were open to the public as joint property or *res communes omnium*, later declared as state dominium. According to the present federal system of Germany¹⁹ watercourses are public goods (*öffentliche Sachen*). The legislative competence is shared between the federal state and the states (*Länder*); each state has its own water act. The states define the extension of private ownership to waters but, in principle, the uniform rules concerning planning and utilization of waters of the Water Management Act apply to

¹⁵ Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy [2000] OJ L327/1.

¹⁶ A.S. Wisdom, *The Law of Rivers and Watercourses* (3rd edn, Shaw and Sons 1976), 86.

¹⁷ Michael Kloepper, *Umweltrecht* (2. Auflage, C.H. Beck 1998), 68–70.

¹⁸ The principle of private ownership to adjacent waters of a community had already been declared in Sweden in provincial laws of the thirteenth century. Annette Hoff, *Recht und Landschaft: Der Beitrag der Landschaftsrechte zum Verständnis der Landwirtschafts- und Landschaftsentwicklung in Dänemark ca. 900–1250* (Walter de Gruyter 2006), 18–22.

¹⁹ Water Management Act 1957 (Wasserhaushaltsgesetz) with amendments.

all water resources.²⁰ The federal legislation also transposes European water law.²¹

Comparative studies of national laws show that despite the differences in legislative structures concerning property rights and administration, the goal-setting in terms of water management projects is comparable. In states with centralized state control, national planning interests have a stronger guiding impact on the possibility of starting new installations than is the case in states with a private-initiative approach because, here, owners' participation may be required. Since global environmental regimes (UN water conventions) and supranational water guidance (European Union) influence national laws in a harmonized manner, differences in national legislative structures tend to decrease continuously.

3 CATEGORIES OF WATER RIGHTS

Water rights and interests may be structured into two groups, the original ones (owners, shareholders of water resources) and derived ones (operators and owners of licenced water installations and water services). A peculiarity particularly in developing states and within areas of indigenous populations is that the utilization of natural resources has historically been organized by customary law only – and with respect for the belief that Nature cannot be owned!²² In this context the later legislative and administrative measures of modern states may neglect such traditional positions and overrule them by legal decision-making in favour of, for instance, internationally financed water management projects. Also, in western traditions customary law serves historically as the foundation for water regimes but the legislators have incorporated those principles into written law (e.g. public use of private waters or the protection of minority peoples).

In addition to these individual property rights, including riparian rights, other 'rights', i.e. legally admitted modes of public use, have long traditions, based on the principle of accessibility to waters or openness of watercourses. Access rights are typical for systems based on the rule of public water ownership or public stewardship (Roman law). No less in

²⁰ Rüdiger Breuer, *Öffentliches und privates Wasserrecht* (2. Auflage, München 1987), 50–56.

²¹ *Ibid.*, 244.

²² James L. Merrill, 'Aboriginal water rights' (1980) *Natural Resources Journal* Vol. 20, 45–70.

states with private water rights or mixed systems (Germanic and Anglo-Saxon law), there is a strong public interest in allowing access to private waters for transportation and water catchment as well as for fisheries. Such public and neighbourhood civil rights are implemented by means of restrictions on owners' rights to forbid access to private waters; owners and possessors have to tolerate a reasonable use of their waters by the public.²³

The human rights approach extends access rights to all citizens and obliges society to organize necessary services unless the water resource is naturally available otherwise. This category of the enlarged public of citizens and other individuals, when depending on access to water, should, in a democratic state, be entitled to have free access to water resources at a reasonable cost, notwithstanding the property-rights context.²⁴ These access rights are internationally acknowledged and in some states also constitutionally manifested.²⁵ In a modern society access to drinking water is organized by institutions, which in practice means that the public-user has to pay for the services, since financiers of public services expect to be compensated for offering free access to the population, either by the user or the state administration.

4 MAINSTREAM OF INTERNATIONAL WATER LAW

Most large waterbodies straddle the borders of one or more states. National water rights and licences do not normally prevail over the interests of other states, and national authorities should not grant allocation permits that have negative influence on citizens' rights in neighbouring states. However, without agreements between states, an indirect impact on over-the-border rights is difficult to prevent. The international principle of proper conduct in inter-state relations would be suitable for such situations, but the use of the principle would be problematic due to the principle of state sovereignty.²⁶

²³ In Scandinavian states *usus publicus* is called 'allmansrätt', in German law 'Gemeingebrauch'.

²⁴ See e.g. Article 27 of the South African Constitution: 'Everyone has the right to have access to ... sufficient food and water ...'

²⁵ Jonathan Verschuuren, 'Climate change adaptation and water law' in Jonathan Verschuuren (ed.), *Research Handbook on Climate Change Adaptation* (Edward Elgar Publishing 2013), 253–7.

²⁶ See e.g. the Finnish-Russian Agreement on the Utilisation of Transboundary Watercourses (1964), Article 4: 'Without a procedure, provided for in chapter

Water law originated as an international doctrine in the 1950s, when the United Nations started to adopt rules for cooperation between states in cases of water conflicts and crises. Before that, international case law had cemented certain leading principles to be applied especially in water conflicts.²⁷ In cases where there is no bilateral agreement between states, customary international law still applies today.²⁸ Such conflicts originated to some extent from the state sovereignty principle, and case law started to set out rules concerning the respect for justified needs of other states and in fact to some extent overruled the sovereignty principle.²⁹ Cooperation between states and regions presupposes consideration of the impacts on waters beyond state borders. Case-law concerning projects in transboundary watercourses proves that the involvement of neighbouring states or jurisdictions in planning and decision-making procedures facilitates the setting of mutually acceptable conditions for the project.³⁰ The state sovereignty argument must not be used to the extent that states or actors beyond the border suffer losses: ‘... the “Harmon Doctrine” of absolute territorial sovereignty should, one hundred years after it was enunciated, be laid to a richly-deserved rest.’³¹ Unfortunately, under

II of this agreement, no measure may be executed in a transboundary watercourse or on the banks thereof where it is likely to cause damage or harm to the water area, fisheries, land, buildings within the territory of another Party or other property, or it may cause a risk of flooding or significant water scarcity, alter the streamlet, impede the use of traffic or floating ways, or in any other manner jeopardizes the public interest.’

²⁷ The Corfu Channel case, the Lake Lanoux case and others, see Tuomas Kuokkanen (ed.), *Seminal cases of international environmental law* (Helsinki 1999) passim.

²⁸ In the famous Trail Smelter case (United States v. Canada) the Tribunal Decision 18 April 1938 confirmed (Part three) that states shall refrain from causing damage in the other state when deciding on harmful activities; Patricia Birnie and Alan Boyle, *International Law and the Environment* (OUP 1992), 139–52.

²⁹ Charles B. Bourne, ‘Contribution to international water resources law’ in Slavko Bogdanović (ed.), *International Law of Water Resources* (Kluwer Law International 2001), 18–20.

³⁰ International Court of Justice (ICJ) Case concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment of 20 April 2010: ‘101. The Court points out that the principle of prevention, as a customary rule, has its origins in the due diligence that is required of a State in its territory. It is every State’s obligation not to allow knowingly its territory to be used for acts contrary to the rights of other States (Corfu Channel (United Kingdom v. Albania)).’

³¹ Stephen C. McCaffrey, ‘The Harmon Doctrine One Hundred Years Later: Buried, Not Praised’ (1996) *Natural Resources Journal* Vol. 36, 965. ‘The theory

difficult political or diplomatic conditions, conflicts may emerge into water crises, and eventually into 'water wars' between states. One reason for conflicts is that downstream states do not receive the necessary quantity of drinking water while upstream states are using water abundantly for irrigation and water installations.

International water law consists of two main sets of rulings, the law on the international sea and the law on transboundary watercourses or so-called international lakes and rivers. Within these regimes specified subcategories emerged, mainly in order to regulate water quality, oil spills, and waste dumping and, later, to meet challenges caused by climate change, including flood control, threats to food safety and social welfare as a whole. The work of the United Nations has resulted in several important international conventions, to start with the global 'Code' UNCLOS (UN Convention on the Law of the Sea), which was signed in 1982 and entered into force in 1994.³² One particularity of this Convention is the establishment of exclusive economic zones (EEZ), that extend legislative competences of shore states beyond their territorial waters up to 370 kilometres from the shore line. This instrument enables states to control impacts from seabed-based activities and also facilitates the establishment of national installations in the close international sea. The regional Convention of the UNECE on the Protection and Use of Transboundary Watercourses and International Lakes, was adopted in Helsinki (1992) and entered into force in 1996. This Convention provides for detailed rules concerning activities affecting water resources in transboundary basins. Almost all states in the region of the United Nations Economic Commission for Europe (ECE) are parties to the Convention. A third international water convention of the UN is the Convention on the Law of the Non-navigational Uses of International Watercourses (1997, entered into force in 2014). This global Convention is the main treaty governing shared freshwater resources internationally. According to this Convention (Article 3),

that states have exclusive or sovereign rights over the waters flowing through their territory which they can use regardless of their infringement of the rights of other states.' (Definition in *The Manual of Human Rights* by the Council of Europe, 2012, 136), <http://www.echr.coe.int/LibraryDocs/DH_DEV_Manual_Environment_Eng.pdf> accessed 9 January 2017.

³² Within the UN the International Maritime Organization (IMO) is the specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships.

Watercourse States shall in their respective territories utilise an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilisation thereof and benefits therefrom, taking into account the interests of the watercourse States concerned, consistent with adequate protection of the watercourse.

In addition to setting up general and, to some extent, detailed provisions for international respect and cooperation in matters concerning the sea and transboundary waters, the Conventions also commit to modern environmental principles, in particular the basin principle and the polluter pays principle.³³ In addition, general international environmental agreements and principles apply for the most part also to water resources. This is in line with the modern environmental integration principle³⁴ and concerns in particular the environmental quality control and the regulation of civil rights concerning participation. The integration principle is repeatedly pronounced in the international context; for instance, the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992) declares (Article 3.i) that '[S]ustainable water-resources management, including the application of the ecosystems approach, is promoted ...' For states without former national legislation in this area the development of international water law favoured and intensified the elaboration of national provisions. This kind of interaction between national and international regimes has been substantially fruitful for the adoption of a globally acceptable concept of water management, concerning especially the responsibility of states and authorities for the sustainable maintenance of water resources and to safeguard the fundamental civil rights of the population.

Along with international water conventions there are numerous bilateral agreements for transboundary waters between the states concerned. Such agreements often have their background in the principles of

³³ The polluter pays principle, originally developed by the OECD in the 1960s, is based on the calculation that environmental costs for prevention are lower than the costs for reparation of a polluted site. Also, in case of reparation the lesson had been that in the end the state often had to take the costs because the original polluters could not be found or made liable.

³⁴ In European law, one good example is the IPPC (Integrated Pollution Prevention and Control) Directive 96/61/EC: '8. Whereas the objective of an integrated approach to pollution control is to prevent emissions into air, water or soil wherever this is practicable, taking into account waste management, and, where it is not, to minimize them in order to achieve a high level of protection for the environment as a whole.'

national laws but they may be enriched or motivated by the cited UN Conventions. An important source for the development of rules for transboundary waters is the set of rules elaborated by the International Law Association (ILA). The work of the ILA has functioned as a support for the preparation of the UN Conventions on transboundary waters (the Helsinki Rules 1966). Despite lack of legal validity the ILA Rules enjoy considerable recognition worldwide. Today the Rules have enlarged their focus to cover environmental threats as well (the Berlin Rules 2004).³⁵

5 CATEGORIES OF WATER MANAGEMENT PROJECTS

Water governance is a term used for the organization and management of waters and services. According to Rogers and Hall 'water governance refers to the range of political, social, economic and administrative systems that are in place to develop and manage water resources, at different levels of society, and the delivery of water services (Global Water Partnership 2002)'.³⁶ It is not reasonable to study water-related interests without consideration of the type or mode of water use. Groundwater plays an important role in terms of water supply; surface watercourses serve different purposes. Also, the technical realization of water-related projects varies from case to case, from region to region and from state to state. At a very general level water management, water strategies and water legislation are composed of two modern approaches and there is also a strong link between them, namely (1) the profitable or economic use of water resources and (2) the protection of the aquatic environment. Modern law to a high extent combines these modes of water management in one common principle, the principle of sustainable and environmentally friendly use of all water resources.

What are, globally, the guiding principles when initiating new water management projects? There are varying perspectives, some of them are purely financial by nature, and others are more social or development-oriented. Generally, all water management projects are based on the principle of economic viability. No water management initiative is successful without the involvement of economic interests. This does not

³⁵ Salman M.A. Salman, 'The Helsinki Rules, the UN Watercourses Convention and the Berlin Rules: Perspectives on International Water Law' (2007) *Water Resources Development*, Vol. 23, No. 4, 625–40.

³⁶ Peter Rogers and Alan W. Hall, *Effective Water Governance* (GWP Novum 2003), 7.

mean that water management has a balanced or equitable ground of interest considerations. In reality, the situation may be the opposite. In particular, mega size water management projects may locally affect existing human societies, local economies and environmental conditions in a hard and negative way. In such situations it is reasonable to argue also in favour of open participation, public hearings, human rights, minority protection and more. But there is also another, strongly opposing reality in addition to that of preservation, namely the reality and the needs of growing and developing economies. Often, economic sustainability requires rarely internationally supported and subsidized large-scale infrastructures, traffic and industrial areas. Satisfactory access to water resources is not naturally available in all such cases. Therefore internationally funded developing projects in the land-use sector are supported by or even based on water management projects of remarkable extension. In addition to growth, other aspects also demand improvement in water conditions, especially health and food safety. Dellapenna and Gupta state in a study concerning the evolution of law and politics of water that

Global water governance is diffuse and the related international law, while binding, suffers from the shortcomings of international law generally. Furthermore, global water goals are defined but scarcely adequate or achievable ... Global water meetings and discussions provide only an elusive arena of global governance and global water 'ideology' is marketed through a variety of instruments worldwide.³⁷

Water management projects may be classified into different categories according to their purpose. Enforcement strategies and financing systems vary depending on the impact and the extent of the project. Examples of such categories of water management are projects aimed at the improvement of water supply, health structures, traffic networks, energy supply, food production and agriculture. In addition to the operative task of a project, the infrastructure, including installations or the creation of industrial and urban sites, is also significant. This kind of management project will here be classified as 'growth-oriented water management projects'.³⁸

³⁷ Joseph W. Dellapenna and Joyeeta Gupta (eds), *The Evolution of the Law and Politics of Water* (Springer Science 2009), 5.

³⁸ The World Bank project 'The first component is investment in integrated water resources development and management. This component includes three sub-components. The first sub-component is identification, preparation and implementation of selected priority investments through a participatory planning

Other types of water management projects are initiated in particular to ensure maintenance or balance of resources in a changing environment. These projects are here characterized as ‘adaptive water management’. Examples are found in modern land-use strategies that are adopted in order to combat negative impacts caused by natural or anthropocentrically induced erosion or deforestation. In relation to climate change the term ‘adaptation’ or ‘adaption’ is used to cover measures or strategies aimed at the limitation of further destruction. The intention may also be to adapt human societies to cope with new agricultural technologies and services. In that sense adaptive management projects may be growth-oriented but the policy basis is different. Behind adaptive measures there is often a direct national or regional strategy, not a direct economic incentive. It seems that social losses caused by adaptive water management projects are of minor intensity compared to those caused by growth-based water management projects. On the other hand, it seems that the differences between the two types of water management projects are vanishing because development projects often include adaptive aspects as well.

6 INVESTMENT PRINCIPLES FOR WATER MANAGEMENT PROJECTS

Today the regulations and the technological solutions tend to be softer, more sophisticated than was the case before the 1980s. Financing institutions have started to stand up for human and environmentally friendly values in developing countries and they require that measures, while still being economically profitable, are sufficiently adapted to local and regional conditions and support.³⁹ In addition to development-oriented projects, targeted nature conservation is one category of water

process in the Kyoga and Upper Nile Water Management Zone (WMZs) ... The second component is infrastructure investments in urban water supply and sanitation/sewerage and catchment/source protection. This component includes two sub-components. The first sub-component is town water supply and sanitation under National Water and Sewerage Corporation (NWSC) ...’ <<http://projects.worldbank.org/P123204/water-management-development-project?lang=en/>> accessed 9 January 2017.

³⁹ See e.g. the Uttarakhand Watershed Sector Project in India, financed by the World Bank. The objective of the Sustainable Land, Water and Biodiversity Conservation, and Management for Improved Livelihoods Project is to improve the productive potential of natural resources and increase incomes of rural inhabitants in selected watersheds through socially inclusive, institutionally

management project, in particular in the framework of biodiversity strategies.⁴⁰ A large number of endangered sites and ecological systems are situated in aquatic areas, mainly wetlands.⁴¹

Some developing countries and their governments may welcome even mega size water management projects if there is an international financial basis and the outcome would be a benefit for the majority of the population. But how does the national system, often without proper legislation, ensure that the rights of citizens, rights to homes and life, rights of minorities, human rights and serious environmental considerations are taken into account when projects are to be carried out by a foreign project manager? In the history of large water management projects it has not been unusual for foreign or international financing to be granted without any realistic conditions concerning respect for human rights and environmental values. Today it seems that most international banking institutions expect from project managers a solid analysis-based plan that takes into account internationally practiced rules concerning social and environmental protection. This should be the conduct code for all international investors. The World Bank is the leading representative for modern project investment practices. Environmental and other conditions are determined by agreement with the borrower; the investor still has no risk or legal liability, other than suspension of the loan, for negative impacts caused by the financed project. Mohammed Abdelwahah Bekhechi states:

and environmentally sustainable approaches, <<http://documents.worldbank.org/curated/en/887531468051261974/India-Sustainable-Land-Water-and-Biodiversity-Conservation-and-Management-for-Improved-Livelihoods-in-Uttarakhand-Water-shed-Sector-Project-additional-financing/>> accessed 9 January 2017.

⁴⁰ Most of the large-scale nature protection programmes are initiated by the Convention on Biological Diversity (1992), Article 6: 'Each Contracting Party shall, in accordance with its particular conditions and capabilities: (a) Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes ...' At the international level, the main conventions under the UN are seen as tools for the enforcement of biodiversity strategies (Secretariat of the Convention on Biological Diversity, Technical Series 40, Transboundary water resources management (2008, 12) <<https://www.cbd.int/doc/publications/cbd-ts-40-en.pdf/>> accessed 14 January 2017.

⁴¹ The Ramsar Convention on protection of wetlands of international importance was adopted in 1971. For the future the task of its strategies is to achieve reliance in ecosystems, to contribute to mitigation of climate change and to combat desertification, <<http://www.ramsar.org/document/the-fourth-ramsar-strategic-plan-2016-2024/>> accessed 10 January 2017.

... projects are the borrowers' own projects where the Bank plays the role of a supportive financier ... These general covenants requiring the borrower to exercise due regard to the environment are viewed as no more than non-binding guidelines for project execution and operation, especially when they do not refer to specific standards to be applied to project activities. These covenants are based on a vague standard ('due regard'), and do not provide for remedies.⁴²

One problem with international financing is corruption, which will just be mentioned here. If states and state authorities act as initiators for internationally financed development projects they should also control compliance with legislative conditions in their territory. Here a conflict of interests cannot be excluded because the state may be keen to get a politically supported water management project financed on profitable terms and therefore turn a blind eye when environmental risks occur. It may also be that the developing state has no enforceable environmental legislation and the project manager makes use of the lack of control.

A report by Aled Williams and others presents the example of Kyrgyzstan in relation to corruption in local water management. The authors report the following findings: 'Poor water infrastructure in Kyrgyzstan from the Soviet era led international donors to support investments in agricultural irrigation and potable freshwater systems. The financial investments made, however, did not always underpin improvements in local water delivery and the Kyrgyz Vice President once noted that "the lion's share of the credit was stolen".'⁴³ Also this case shows that international financing institutions play an important role in control of the enforcement of a financed project. The conditions of financing agreements should, in terms of project enforcement, be as strict as contractual provisions legally can be in this respect. One solution might be that the project manager would have to apply in the project state the same rules, practices and principles concerning environmental liability and human rights as are required in the home state of the project manager. One could, theoretically, even envisage a system where the

⁴² Mohammed Abdelwahab Bekhechi, 'Some Observations Regarding Environmental Covenants and Conditionalities in World Bank Lending Activities' (1999) Max Planck UNYB 3, 302.

⁴³ Aled Williams, Gulnaz Isabekova, Kubanychbek Ormushev, Toktobek Omokeev and Natalia Zakharchenko, 'Leaking projects: Corruption and local water management in Kyrgyzstan' (U4 Practice Insight 2013:3), 1(-8). The authors mention that 20 per cent of the World Bank investment was lost to corruption.

home state authority of the project manager had to decide upon the minimum of environmental conditions to be respected for the project in a third state.

7 FINAL REMARKS

Due to the geological and climatic characteristics of water resources as a basin or a flow, the legal settlement of rights to use water turns out in most cases to be artificial but also loaded with changing demands and safeguards. Comparative studies report different ways of addressing the use of and rights to water resources legally but, basically, law requires uniformity, equality and universality. The diversity of water resources in location and importance constitutes problems when striving for uniform legal rules for the protection of individual needs, as is the case for instance in the European Union and also in the international conventions on transboundary waters. As a result, legal history has developed certain, still rather general, rules or principles to serve as guidance for the utilization of rights to waters. One additional difficulty is related to the fact that different types of large water management projects are composed of several measures on land and on water. In addition, the often far-reaching impacts vary from local nuisance to erosion, flood and even climatic problems. An integrated and balanced legal and financial model for large-scale water management projects should be grounded on political, preferably international, strategies, adaptive land use planning, settlement of legal disputes and more. Modern and future law on water management law should at the same time be practice-oriented, dynamically precautionary and predictive for future risks and changes.