

Article

Water-Energy-Food Nexus within the Framework of International Water Law

Antti Belinskij

Law School, University of Eastern Finland, Joensuu Campus, P.O. Box 111, Joensuu FI-80101, Finland; E-Mail: antti.belinskij@uef.fi; Tel.: +358-46-920-9189

Academic Editor: Marko Keskinen

Received: 31 May 2015 / Accepted: 11 September 2015 / Published: 12 October 2015

Abstract: International water law, which regulates the uses of international watercourses that are situated partly in different States, is a highly topical sector of law. In 2014, two conventions covering the subject matter entered into force globally. At the same time, a water-food-energy nexus has become part and parcel of the development canon that emphasises the importance of the complex relationship between water, energy and food. In this article, it is discussed whether international water law supports the water-food-energy nexus approach, which aims to reconcile the different water uses in international basins. The analysis also covers the human rights to water and food from the nexus viewpoint. The legal regime of the Mekong River is used as an example of the possibilities and challenges of the nexus approach in international water law. It is concluded that despite its deficiencies international water law provides a very useful platform for the cooperation between States and different sectors that aim at guaranteeing water, food and energy security.

Keywords: international water law; water-energy-food nexus; transboundary cooperation; principle of equitable and reasonable utilisation; right to water; right to food; water uses; Mekong River

1. Introduction

International water law, which regulates the uses of international watercourses that are situated partly in different States, is a highly topical sector of law. In 2014, after a time when no general agreements were in existence in the field, two conventions covering the same subject matter entered into force globally: the 1997 UN Convention on the Law of the Non-navigational Uses of International

Watercourses (UN Watercourses Convention) [1] and the 1992 United Nations Economic Commission for Europe (UNECE) Convention on the Protection and Use of Transboundary Watercourses and International Lakes (ECE Water Convention) [2]. The process of codification of international water law—dating back to the 1966 Helsinki Rules of the International Law Association (ILA Helsinki Rules) [3]—has thus culminated into binding international agreements, which are mutually compatible and complement each other [4–6]. The general principles of the two conventions, such as cooperation, equitable and reasonable utilisation and the no-harm rule, correspond to customary norms of international water law [7].

International water law has traditionally applied to inter-State relations concerning transboundary watercourses and not to the relationship between an individual and a State that defines the scope of international human rights law [8]. In recent years, however, human rights have also been increasingly discussed within the sphere of international water law. While the General Assembly of the United Nations recognised the right to safe and clean drinking water and sanitation as a human right in July 2010 [9], the 2004 ILA *Berlin Rules on Water Resources* (ILA Berlin Rules) [10] had already contained the right of access to water to meet every individual's vital human needs (Art. 17). In the legal literature, the discussion on the relationship between the right to water and international water law began in the 1990s [11].

At the same time as when the international water law conventions have entered into force, a water-food-energy nexus has become part and parcel of the development canon. The nexus approach emphasises the importance of recognising the complex relationship and interlinkages between the water, energy and food sectors and also aims to safeguard the human rights to water and food [12–14]. Hoff underlines the need for a nexus approach as follows:

Improved water, energy and food security can be achieved through a nexus approach—an approach that integrates management and governance across sectors and scales. A nexus approach can also support the transition to a Green Economy, which aims, among other things, at resource use efficiency and greater policy coherence. Given the increasing interconnectedness across sectors and in space and time, a reduction of negative economic, social and environmental externalities can increase overall resource use efficiency, provide additional benefits and secure the human rights to water and food. Conventional policy- and decision-making in “silos” therefore needs to give way to an approach that reduces trade-offs and builds synergies across sectors—a nexus approach. Business as usual is no longer an option [15] (p.7).

In international water law, the nexus approach is currently being discussed within the regime of the ECE Water Convention. The Convention's program of work for 2013–2015 includes an assessment of the water-food-energy-ecosystems nexus that aims to improve the understanding of the interactions between water, food, energy and water-related ecosystems in international basins. Further, it intends to strengthen synergies and policy coherence between water, food and agriculture and land management sectors in the transboundary context [16]. In a transboundary setting, while water, energy and agricultural issues are often strongly interlinked in the international watercourses and aquifers [17], the possible frictions between the riparian countries and different interests make the nexus approach even more challenging than at the national level [14,18].

The legal regime of the Mekong River provides a concrete example of the challenges of a water-energy-food nexus approach in international river basins. As is well known, the Mekong River is

one of the largest rivers in the world both according to its estimated length (4909 km) as well as its mean annual volume (475 km³). The River supports a diverse and productive freshwater ecosystem and provides the basis of livelihoods for millions of people. While there are six riparian countries, Cambodia, China, Laos, Myanmar, Thailand and Vietnam, only four of them have signed the 1995 Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (1995 Mekong Agreement) [19]. This means that China and Myanmar are not among the members of the Mekong River Commission [20–22].

All the riparian countries of the Mekong River are going through periods of rapid changes and some are planning or have already realised large-scale water development projects. These include the construction of hydropower dams and irrigations projects, which on the one hand are important for the countries' economic development, but on the other hand may have remarkable negative impacts on ecosystems and thus on the livelihoods of people [20–22]. For instance, the hydropower dams in China have been suspected to cause a series of detrimental environmental impacts such as changes to the river's natural flood-drought cycle and to the transport of sediment on the Lower Basin of the Mekong. In addition, the hydropower dams in Vietnam in the Sesan River, which is a tributary of the Mekong, have had adverse effects on, e.g., fishing and river-side farming and thus, on the livelihoods of the communities in Cambodia [23,24].

In this article, it is discussed whether international water law supports the water-food-energy nexus approach, which aims to reconcile the different water uses in international basins. The principles of international water law (cooperation, equitable and reasonable utilisation, no-harm) will be studied from the nexus perspective following especially the methodology of the UNECE for the nexus assessment [13]. The analysis also covers the human rights to water and food from the nexus viewpoint. The legal regime of the Mekong River is used as an example of the possibilities and challenges of the nexus approach in international water law. Rather than providing complete answers on the relationship between international water law and the nexus approach, the article aims to add an important element to the nexus discussion, namely international water law.

The article consists of four sections. First of all, the relationship between the procedural features of the nexus approach and international water law is studied. Second, it is observed whether it is possible to reconcile different water uses in order for the nexus approach to be effective. Third, how the human rights to water and food—which the nexus approach aims to secure [15] (p. 7)—are regulated in international law is discussed. Fourth, the conclusions are presented at the end of the article.

In regard to the UN Watercourses Convention and the ECE Water Convention, the two important sources of the article, it must be noted that none of the Mekong countries is a party to the ECE Water Convention and only Vietnam is a party to the UN Watercourses Convention. Therefore, international customary law in addition to the 1995 Mekong Agreement largely determines their rights and obligations regarding international waters. The general principles of the UN and ECE conventions can be regarded as a source of international customary water law also in the Mekong River context.

In general, the role of international customary law is notably significant in international water law. Especially, the UN Watercourses Convention is reckoned to reflect the fundamental rules of customary law [17,24]. As McCaffrey points out:

For the most part, it (the UN Watercourses Convention) should be viewed not as an instrument that seeks to push the law beyond its present contours, but as one that reflects a general consensus as to the principles that are universally applicable in the field [7] (p. 261).

Also the non-formal ILA Helsinki Rules and ILA Berlin Rules are widely understood to reflect international customary water law, although some experts' approach towards those parts of the ILA Berlin Rules that seek to incorporate the requirements of international environmental and human rights law has been a bit cautious [25,26].

2. Procedural Features

2.1. Nexus Approach

The nexus approach is characterised by the UNECE by the following core features: participatory process, knowledge mobilisation, sound scientific analysis, capacity building, collective effort and benefits and opportunities [13]. From the viewpoint of international water law these are largely procedural features linked to the cooperation between riparian countries and different sectors. Cooperation provides an opportunity for early identification of possible disagreement between riparians and for means to prevent them escalating into conflicts [27].

According to the UNECE methodology, the participatory process of the nexus assessment in an international basin requires intersectoral cooperation between officials and experts from the countries sharing the basin. In addition, the consultation of various stakeholders such as local decision makers, planning authorities, practitioners, the representatives from different sectors and analysts is of utmost importance in order to ensure the responsiveness of the nexus approach to basin-specific needs and circumstances [13,18]. On the basis of the nexus assessment, the various interlinks between water, food and energy sectors should be illustrated thoroughly [28].

The methodology of the nexus assessment discussed within the regime of the ECE Water Convention includes the following steps: (1) identification of basin conditions and its socioeconomic context, (2) identification of key sectors and stakeholders to be included in the assessment, (3) analysis of the key sectors, (4) identification of intersectoral issues, (5) nexus dialogue and future developments, and (6) identification of opportunities for improvement. On a basin level, one can understand that the nexus cooperation requires a careful step-by-step approach that allows for enough time to build trust and deepen the intersectoral approach between States [13]. In this respect, international water law may offer a useful platform.

2.2. Principle of Cooperation

The principle of cooperation is one of the main features in international water law [29,30]. In the UN Watercourses Convention, it is stated that watercourse States shall cooperate on the basis of sovereign equality, territorial integrity, mutual benefit and good faith in order to attain optimal utilisation and adequate protection of an international watercourse (Art. 8.1). In a rather similar manner, the ECE Water Convention requires that the Riparian Parties cooperate on the basis of equality and reciprocity in order to develop harmonised policies, programs and strategies aimed at the prevention, control and reduction of transboundary impact and at the protection of the environment of

transboundary waters or the environment influenced by such waters (Art. 2.6). While the ILA Helsinki Rules include numerous provisions implicitly requiring cooperation such as articles on equitable utilisation and on pollution prevention, the ILA Berlin Rules explicitly emphasise the duty to cooperate between basin States as the most basic principle of international water law (Art. 11). All in all, cooperation is seen as a logical extension of the principle of equitable and reasonable utilisation in international water law and is instrumental to full compliance with it [27,29].

The 1995 Mekong Agreement provides at the very start that the Parties agree to cooperate in all fields of sustainable development, utilisation, management and conservation of the water and related resources of the Mekong River Basin. These fields include, but are not limited to, irrigation, hydropower, navigation, flood control, fisheries, timber floating, recreation and tourism (Art. 1). The cooperation is characterised by the principles of sovereign equality and territorial integrity (Art. 4) in the same manner as in the UN Watercourses Convention. Thus, the perspective of the Mekong Agreement for the cooperation is rather wide and includes also water related resources such as energy and food. The development of the cooperation is at the heart of the Mekong Agreement since it is actually an agreement to agree on the further development of the regime [21].

In order to follow the participatory process in the nexus assessment of an international basin, both the UN Watercourses Convention and the ECE Water Convention include a number of subsequent provisions specifying the normative content of the cooperation between States. While the UN Watercourses Convention only suggests that watercourse States may consider the establishment of joint mechanisms for the facilitation of the cooperation (Art. 8.2), the ECE Water Convention requires that the Riparian Parties enter into bi- or multilateral agreements or other arrangements that provide for the establishment of joint bodies (Art. 9). According to the ILA Berlin Rules, basin States have the right to participate in the management of waters of an international drainage basin (Art. 10), and they should establish a basin wide or joint agency or commission with the authority to undertake the integrated management of international waters (Art. 64). Bi- and multilateral agreements and especially joint bodies offer a platform for the intersectoral cooperation between basin States [18,27]. Although it is unrealistic to expect that watercourse States could be compelled to establish strong and all-encompassing joint bodies from scratch, it is of the utmost importance that States enter into some kind of institutional arrangements to begin to build the mutual trust needed for effective cooperation in a transboundary context.

In the 1995 Mekong Agreement the Mekong River Commission provides an institutional framework for cooperation. It has three permanent bodies, namely the Council, Joint Committee and Secretariat as well as wide competence concerning the uses of waters in the basin (Arts. 11–12). The decisions of the Commission, however, have to be unanimous if not otherwise provided for in its rules of procedures (Arts. 20, 27, 34). While the structure of the Commission and the reliance of its decision-making on the governments have been reasonably criticised [21,24], the Commission nevertheless enables the Parties of the Mekong Agreement to develop their cooperation step-by-step to cover also intersectoral water-energy-food issues. The agreement does not specifically mention intersectoral cooperation but does not place any obstacles for that either.

Obviously, the efficiency and the geographical coverage of the Mekong Agreement is limited because Myanmar and China are not the Parties of the Agreement and thus not included in the actual cooperation in the Mekong River Commission. In addition, the Agreement does not include for

regulating development on tributaries even though the tributaries provide almost a half of the flow to the Mekong River. China, especially, has a prominent role and massive plans for the development of the part of the Mekong River situated on its territory [20,21,31]. The construction projects of hydropower dams in China, for instance, have not included proper transboundary consultation and environmental impact assessment procedures [23].

However, the 1995 Mekong Agreement allows any riparian State to become a Party to the Agreement with the consent of the parties, and in 1996 China and Myanmar became so-called dialogue members of the Mekong River Commission. In 2002, China also signed an agreement with the countries of the Mekong River Commission on the provision of hydrological information on the Mekong River. Thus, although there are many challenges in the cooperation, the regime of the Mekong River is also an encouraging example of the development and management of an international watercourse despite several international conflicts in the area in recent decades [20,21,31].

The geographical scope of cooperation in international water law is a bit restricted from the nexus perspective. The UN Watercourses Convention refers to international watercourses, which are a system of surface waters and ground waters that constitute a unitary whole, parts of which are situated in different States (Arts. 1–2). In the ECE Water Convention, in contrast, transboundary waters are any surface or ground waters that mark, cross or are located on boundaries between two or more States (Art. 1) [27,29]. A more broadly expressed scope of international water law comprising all waters within a State in addition to international drainage basins can be found in the ILA Berlin Rules (Art. 1), but the extension of the Rules to cover national waters has also been subject to critique from the viewpoint of traditional international water law [25].

While it is safe to say that international water law regulates the use and protection of international basins, in regard to the security of water, energy and food there may be a requirement that cooperation should not be contained within river-basin boundaries [15] (p. 32). The nexus approach in international water law cooperation might necessitate that the water, energy and food security and the alternatives for the use of international water resources are taken into account on a wide geographical scale. International water law does not place any restrictions, however, on the widening of the geographical scope of transboundary cooperation, and the principle of equitable and reasonable utilisation actually covers, as will be analysed below, a wide range of water related and other factors that extend beyond international waters.

2.3. Knowledge Mobilisation

International water law offers some water-specific tools for the mobilisation of knowledge in international basins. According to the UN Watercourses Convention, watercourse States must exchange on a regular basis readily available data and information on the condition of the watercourse, and they need to employ their best efforts to comply with the request of non-readily available data by another watercourse State (Art. 9), whereas the ECE Water Convention states that the parties have to provide as early as possible for the widest exchange of information on issues covered by the Convention (Art. 6) [27,29]. The ILA Helsinki Rules recommend that basin States furnish relevant and reasonably available information to each other concerning international waters and their use

(Art. XXIX), while the Berlin Rules call for the regular provision of all relevant and available information on the quantity, quality and state of international waters and the aquatic environment (Art. 56).

The ECE Water Convention, as well as the ILA Berlin Rules (Art. 29), requires that environmental impact assessment be applied within the authorisation regime of a planned measure (Art. 3 h), whereas the UN Watercourses Convention states that the notification of planned measures must include the results of any environmental impact assessment (Art. 12) [27,29]. The International Court of Justice has since stated in a case concerning pulp mills on the River Uruguay in 2010, that an environmental impact assessment can be considered a requirement under general international law where there is a risk that a proposed industrial activity may have a significant adverse impact in a transboundary context; in particular, on a shared resource [32]. Thus, international customary law indeed includes a requirement for an environmental impact assessment whenever there is a risk that a planned water use activity may have significant and adverse transboundary impacts.

The ECE Water Convention invites all the Parties concerned to perform scientific data gathering and analysis on the conditions of transboundary waters. First of all, the Parties must establish programs for monitoring the conditions of transboundary waters (Art. 6). Second, the tasks of joint bodies include, *inter alia*, data gathering and analysis to identify pollution sources, the elaboration of joint monitoring programs concerning water quality and quantity as well as the participation in the implementation of environmental impact assessments relating to transboundary waters (Art. 9). Third, the riparian parties have to undertake specific research and development activities in support of achieving and maintaining the water quality objectives and criteria that they have agreed to set and adopt (Art. 12) [27]. The ILA Berlin Rules, for their part, demand that a joint mechanism has authority over e.g., the coordination of their research programs and the establishment of networks for permanent observation and control (Art. 65).

In the 1995 Mekong Agreement, the regulations on the mobilisations of knowledge in the basin are rather general. In its institutional provisions it is stated that one of the functions of the Joint Committee is to regularly obtain, update and exchange information and data that is necessary to implement the Agreement (Art. 24 C). The Joint Committee also conducts appropriate studies and assessments for the protection of the environment and maintenance of the ecological balance of the Mekong River Basin (Art. 24 D), whereas the Secretariat maintains databases of information (Art. 30). While one of the most obvious deficiencies of the Agreement is that it completely lacks a provision for transboundary environmental impact assessment [21], the requirement for the assessment follows from international customary law, as is reflected by the International Court of Justice in the aforementioned Pulp Mills case.

When it comes to planned measures having possible transboundary impacts, the UN Watercourses Convention lays down rules on the process of information exchange and consultation. Accordingly, watercourse States must exchange information, consult and, if necessary, negotiate on the possible effects of planned measures on the condition of an international watercourse (Art. 11). The Convention includes specific rules on the consultations process concerning planned measures (Arts. 12–18) [29]. In addition, according to the ILA Helsinki Rules, a State should serve notice of any proposed construction or installation that would alter the regime of the basin in a way which might give rise to a dispute, while the Berlin Rules call for basin States to promptly notify other States or competent international organisations that may be affected significantly by a program, plan, project or activity and set out provisions on consultations (Arts. 57–58).

A good example of the participatory process and knowledge mobilisation under international water law is the Finnish–Russian transboundary cooperation that is based on the 1964 Agreement Concerning Frontier Watercourses [33]. The cooperation was originally motivated by the need to develop hydroelectric power sources and water protection. Other main topics addressed so far have concerned flood control and fisheries as well as log floating and transport [34] (p. 133). The cooperation is largely based on the collaboration between the two countries under the framework of the Joint Finnish–Russian Transboundary Water Commission. In practice, a wide range of expertise has been represented in the Commission, ranging from the management of natural resources including fisheries to hydropower production [35] (pp. 59–60). The 1991 Discharge Rule of Lake Saimaa and the River Vuoksi is the most significant individual outcome of the transboundary water cooperation between Finland and the Russian Federation.

3. Reconciliation of Different Water Uses

3.1. Nexus Approach

The nexus approach may help uncover the co-benefits as well as the external costs at the international level associated with the actions of different sectors. In the framework of international water law, water cooperation can generate diverse and significant benefits such as economic growth, human wellbeing and environmental sustainability for cooperating States. Indeed, the nexus approach invites States to consider intersectoral implications beyond narrowly focusing on sharing water in transboundary water cooperation. However, there might be a need to reconcile water uses of different sectors after joint identification of opportunities for benefits and of solutions for capitalising on the synergies and addressing trade-offs in the interlinked pillars of the water-food-energy nexus [13,36]. Optimising and sharing the benefits of water uses between watercourse States is at the essence of international water law (Art. 5 of the UN Watercourses Convention).

The reconciliation of different uses of international water resources—including also groundwater [7]—is needed when there is a conflict of uses. This means that all reasonable and beneficial uses of all watercourse States cannot be fully realised. From the viewpoint of the water-food-energy nexus, for instance, there might not be enough international waters to fully meet all food, biofuel and hydropower production and domestic and environmental water needs. In that case, some adjustments or accommodations might be required in order to preserve sustainable utilisation and the equality of the right of each watercourse State. The equality of rights in international water law does not mean, however, that each State is entitled to an equal share of the uses or to identical quantitative portions of water [37] (p. 98). It rather means that the reconciliation of different water uses has to be based on the idea that each watercourse State is entitled to uses and benefits from a watercourse in an equitable manner [27] (p. 23).

The reconciliation of different water uses along the lines of the nexus approach requires thorough assessments based on detailed data and indicators. The nexus assessment of an international watercourse consists of different steps such as the identification of basin conditions, its socioeconomic context and economic sectors. Further on, different sectors as well as their intersectoral relationships and the synergies between them must be analysed. Water cooperation in the framework of international

water law can generate significant benefits for States, and through the nexus approach these benefits can be considered in a broad intersectoral sense [13].

3.2. Principle of Equitable and Reasonable Utilisation

In international water law, the reconciliation of different water uses is based on the principle of equitable and reasonable utilisation and on the no-harm rule. The UN Watercourses Convention (Arts. 5–7) as well as the ECE Water Convention (Art. 2) obligate States to guarantee that the use of shared water resources is equitable and reasonable and does not cause significant harm to other States. These provisions are largely based on the ILA Helsinki Rules, according to which, each basin State is entitled, within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin (Art. IV) [27,29]. The principle of equitable and reasonable utilisation is one of the cornerstones of the ILA Berlin Rules as well although the Berlin Rules have faced some criticism for emphasising the equitable and reasonable management of international waters and the no-harm rule (Art. 12) over the right to the beneficial uses of those waters [25,26].

The equitable and reasonable utilisation principle is the central piece of international water law when deciding on the utilisation of international watercourses between watercourse States and has been recognised as part of customary international law by the International Court of Justice in the judgment on the Gabčíkovo-Nagymaros Project on the Danube River, which referred to an equitable and reasonable sharing of the resources of an international watercourse [8,21,27,38]. The ECE Water Convention provides that the Parties ensure that transboundary waters are used in a reasonable and equitable way by taking into account their transboundary character (Art. 2.2), whereas the UN Watercourses Convention, as well as the ILA Helsinki Rules (Art. IV), lays down more specific rules in this regard. According to the UN Watercourses Convention, watercourse States must in their respective territories utilise international waters in an equitable and reasonable manner with a view to attaining optimal and sustainable utilisation thereof and benefits therefrom by taking into account the interests of the watercourse States concerned (Art. 5) [5]. Thus, the general definition of the equitable utilisation makes it possible to take intersectoral nexus perspectives into consideration.

The no-harm rule is linked to the principle of equitable and reasonable utilisation in international water law and means an obligation for a State not to cause significant harm to other States when utilising an international watercourse in their territories. Basically, the no-harm rule lends itself to any activities causing or likely to cause transboundary impacts regardless of where an activity is located in the area of a State. The UN Watercourses Convention provides that States shall take all appropriate measures to prevent the causing of significant harm to other watercourse States and eliminate and mitigate such harm by having due regard for the principle of equitable and reasonable utilisation (Art. 7). The ECE Water Convention, for its part, requires States to take all appropriate measures to prevent, control and reduce any transboundary impact (Art. 2). The ILA Helsinki Rules clearly render the no-harm rule as subordinate to the principle of equitable utilisation by, e.g., stating that water pollution which would cause substantial injury to another State must be prevented in keeping with the principle of equitable utilisation (Art. X). The threshold of significant harm or transboundary impact as well as the sufficiency and appropriateness of the measures taken can be assessed in detail only on a case-by-case basis. A use of a watercourse that causes harm to other States does not necessarily mean

that it is assessed as inequitable or unreasonable if all appropriate measures have been taken to minimise transboundary impacts [7,8,21,25,27].

The UN Watercourses Convention provides, largely following the ILA Helsinki Rules (Art. V), that the utilisation of an international watercourse in an equitable and reasonable manner requires taking into account all relevant factors and circumstances (Art. 6). According to the Convention, the factors include:

- (a) geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;
- (b) the social and economic needs of the watercourse States concerned;
- (c) the population dependent on the watercourse in each watercourse State;
- (d) the effects of the use or uses of the watercourses in one watercourse State on other watercourse States;
- (e) existing and potential uses of the watercourse;
- (f) conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect; and
- (g) the availability of alternatives, of comparable value, to a particular planned or existing use.

The ILA Berlin Rules add the sustainability of proposed or existing uses as well as the minimisation of environmental harm to these factors (Art. 13).

On the one hand, the factors relevant to equitable and reasonable utilisation of international watercourses are very much compatible with the water-energy-food nexus approach. For instance, the factors of the social and economic needs, potential uses of the watercourse, development and economy of use of the water resources direct towards the nexus approach as well as the requirement to take into account the availability of alternatives of comparable value. On the other hand, however, the needs of energy and food sectors are not particularly mentioned and the careful consideration of different factors requires thorough assessments. Thus, the development of the means for nexus assessments within the framework of international law is of the utmost importance from the nexus approach viewpoint.

The UN Watercourses Convention, as well as the ILA Helsinki Rules (Art. V) and the Berlin Rules (Art. 13), states that the weight to be given to each factor relevant to equitable and reasonable utilisation is to be determined by its importance in comparison with that of other relevant factors (Art. 6). It has to be taken into account, however, that circumstances pertaining to the factors relevant for equitable and reasonable utilisation are subject to change. The existing uses of a watercourse are only one of the factors that have to be taken into account when determining on the utilisation of an international watercourse. Therefore, while a use of transboundary waters may be regarded as equitable and reasonable at a given point of time, there might be a need to reverse such an assessment at a later stage [27]. Circumstances and thus the balance between different factors of equitable and reasonable utilisation may change or the nexus assessment, for instance, may provide new and more in-depth information on the factors relevant to equitable and reasonable utilisation such as the social and economic needs of the watercourse States and direct towards the reconciliation of different water uses. In the ILA Helsinki Rules, it is indeed stated that an existing reasonable use may continue in operation unless the factors justifying its continuance are outweighed by other factors leading to the conclusion that it be modified or terminated so as to accommodate a competing incompatible use (Art. VIII).

In accordance with the principle of equitable and reasonable utilisation and the no-harm rule, the goal of the 1995 Mekong Agreement is to optimise the multiple-use and mutual benefits of all riparians and to minimise the harmful effects that might result from natural occurrences and man-made

activities. Further, the cooperation covers all fields of sustainable development, utilisation, management and conservation of the water and related resources of the Mekong River Basin (Art. 1). Parties have also agreed to make every effort to avoid, minimise and mitigate harmful effects from the development and use of the Mekong River Basin water resources or discharge of waters and return flows (Art. 7). While the equitable and reasonable utilisation is defined in the agreement basically only through procedural obligations to notify and consult the Joint Committee on water uses (Art. 5), the Mekong countries are subject to the principle of equitable and reasonable utilisation also under customary international law [24].

In the Mekong context, however, it has proved to be difficult to determine whether uses of the watercourse such as the construction of hydropower dams in China and Vietnam are indeed equitable and reasonable and whether all the efforts expected of a diligent State to avoid harmful effects to the interests of other countries have been taken. There have been some obvious shortages in data sharing and cooperation that have made the analysis of development difficult, if not impossible. In addition, the interpretations of the ambiguous substantive rules and principles of international water law depend on the local context and the States concerned [24]. When it comes to hydropower dams in the Mekong River Basin, their harmful effects on other basin States and the environment are easily overshadowed by potential benefits in energy production in the States where the dams are constructed [23].

3.3. *Vital Human Needs*

According to the UN Watercourses Convention, in the absence of an agreement or custom to the contrary no use of an international watercourse enjoys inherent priority over other uses (Art. 10.1). In addition, the ILA Helsinki Rules state that there are no inherently preferred uses over other uses (Art. VI). These provisions mean that the order of priority between different uses must be decided on a case-by-case basis by taking all the relevant factors into account [27,29]. However, in the event of a conflict between uses special regard is given to the requirements of vital human needs (Art. 10.2). Vital human needs must be taken into account as part of the social and economic needs of the watercourse States when deciding on the equitable and reasonable utilisation of international waters [5,37].

The special regard given to the requirements of vital human needs may lead to the actual priority of vital human needs over other uses in the event of a conflict between uses of international waters [8]. If there are no comparable alternatives such as using national water resources over the use of international waters to meet vital human needs, these needs must enjoy the highest priority in the light of the UN Watercourses Convention (Art. 10.2). The ILA Berlin Rules that comprise international as well as national water resources mention clearly that in determining an equitable and reasonable use States have to first allocate waters to satisfy vital human needs (Art. 14).

In the commentary of the International Law Commission, it is stated that in the UN Watercourses Convention vital human needs refer to water to sustain human life, including not only drinking water but also water required for the production of food in order to prevent starvation [37]. In the context of international law, drinking water usually means water that is used in addition to drinking for cooking, food preparation, personal hygiene and similar purposes to meet basic human needs, and there are different estimations on the amount of water needed for these purposes; ranging from 20 to 100 L per day [39]. The ILA Berlin Rules outline that vital human needs means waters used for immediate human survival

that includes cooking and sanitary needs as well as water needed for the immediate sustenance of a household (Art. 2.20).

3.4. *Community of Interests*

The principle of cooperation and, in general, the procedural requirements of international water law cannot be emphasised too much when reconciling the uses of international water resources on the basis of equitable and reasonable utilisation and the nexus approach. Indeed, cooperation is seen as a logical extension of the principle of equitable and reasonable utilisation in international water law [7,29], and the UN Watercourses Convention requires that watercourse States participate in the use, development and protection of an international watercourse in an equitable and reasonable manner (Art. 5). In general, the determination of equitable and reasonable utilisation and of significant harm to other States requires close collaboration between States or third party intervention [24].

In the regime of the 1995 Mekong Agreement, a basin development plan could be used as a tool to reconcile different water uses. According to the Agreement, the aim of the basin development plan is to identify, categorise and prioritise the development projects and programs at the basin level. In this way the development of the full potential of sustainable benefits for all riparian States could be promoted, supported and coordinated and the wasteful use of Mekong River Basin waters prevented (Art. 2). The effective reconciliation of different water uses does not seem realistic in the Mekong context in the near future when taking into account the aforementioned contradictions in the uses of waters, the lack of cooperation between States in the Mekong River Basin as well as the relative weakness of the Mekong River Commission.

In general, international water law as well as the regime of the Mekong River provides a framework where different water uses can be reconciled in the light of the nexus approach. However, one must take into account that as opposed to absolute duties international water law creates due diligence obligations to comply with its provisions in the best and most rational way. The due diligence nature is reflected, for instance, in the duty to take all appropriate measures to prevent, control and reduce any transboundary impact (Art. 2 of the ECE Water Convention) [7,27]. Thus, international water law allows the nexus approach and can be seen to direct cooperation to that direction. Perhaps in the future the nexus assessment can be seen as part of the best international practice and due diligence obligations of international water law. Nevertheless, it is very difficult, if not impossible, to enforce reluctant States to undergo thorough nexus assessments and to accept the reconciliation of different water uses by means of international law.

In order for the nexus approach to be effective in the framework of international water law States should be guided by the concept of community of interests in their cooperation concerning international waters. While the claims of States over the uses of transboundary waters might have been based upon absolute doctrines of territorial sovereignty (upstream States) and territorial integrity (downstream States) in the past, international water law has been characterised by the doctrine of limited territorial sovereignty, which has evolved upon the principles of equitable and reasonable utilisation and of cooperation as well as the no-harm rule. The concept of community of interests would represent another step forwards and is based on the perfect equality of the riparian States in the uses of international waters [27,29]. From the nexus perspective the community of interests would require that

riparian States identify long-term common interests and common means to guarantee water, food and energy security through cooperation and through the reconciliation of different water uses.

Riparian States should negotiate mutual gains agreements for international watercourses as put forward by Grzybowski *et al.* [17] to put the nexus approach into practice. The idea for the mutual gains agreements is that the development of joint opportunities outweighs the benefits of acting independently. The negotiations concerning, for example, significant hydropower developments in an international watercourse in the territory of one riparian State should include alternative scenarios that attempt to maximise the benefits of the project for other riparian States; for example, energy supply and flow regulation. These kind of negotiations, based on the identification and development of opportunities with reciprocal sharing of benefits, expand the cooperation between riparian States from only reflecting sovereignty and the legal principles of international law to planning and devising opportunities for mutual gains associated with cooperation from the viewpoint of the community of interests [17]. The nexus approach requires that instead of only concentrating on water demand and uses the mutual gains agreements should deal with water, energy and food strategies that aim to optimise benefits from all viewpoints [14].

4. Human Rights to Water and Food

The nexus approach aims to secure water, energy and food security in-line with human rights and basic human needs [15]. While water security means sustainable access to adequate quantities of water of an acceptable quality for basic human needs, also availability and access to water for other critical human and ecosystem uses can be included in it from the nexus perspective [15,40]. Energy security is defined by the International Energy Agency as the uninterrupted availability of energy sources at an affordable price [41], whereas for an individual it refers to access to clean, reliable and affordable energy services for cooking, heating, lighting, communication and productive uses [42]. Food security for its part is defined to exist when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food, which meets their dietary needs and food preferences for an active and healthy life [43]. The rights to water and food are two of the most essential human rights from the nexus perspective.

In July 2010, the General Assembly of the United Nations recognised the right to safe and clean drinking water and sanitation as a human right [9]. The recognition is a significant milestone in the debate that focuses on the rights related to access to water during the last decades [44]. In the resolution, the United Nations recognises the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights; and calls upon States and international organisations to provide financial resources, capacity-building and technology transfer, through international assistance and cooperation in particular, to developing countries in order to scale up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all [9].

The General Assembly recalls in its resolution different human rights treaties and instruments that lend support to the right to water. These include, among others, the International Covenant on Economic, Social and Cultural Rights (ICESCR) and the International Covenant on Civil and Political Rights (ICCPR). Although water is not explicitly mentioned in these covenants, the right to water is usually derived from articles 11 and 12 of the ICESCR. According to articles 11 and 12 of the

ICESCR, everyone has the right to an adequate standard of living including adequate food, clothing and housing and to the enjoyment of the highest attainable standard of physical and mental health. The right to water is seen to implicitly fall under the elements of the adequate standard of living [45].

Within the framework of international water law, the right of access to water is recognised in the ILA Berlin Rules in substantially the same way as in the General Assembly resolution. Accordingly, every individual has a right of access to sufficient, safe, acceptable, physically accessible and affordable water to meet that individual's vital human needs. States should ensure the implementation of this right on a non-discriminatory basis and progressively realise the right by various means (Art. 17). In regard to the right of access to water, the Berlin Rules are based on the national constitutions as well as human rights and water law instruments.

International water law also includes a concrete tool for the implementation of the human right to water in the form of the 1999 UNECE Protocol on Water and Health to the ECE Water Convention [8]. According to the Protocol, the Parties must pursue the aims of access to drinking water and the provision of sanitation for everyone (Art. 6) and take all appropriate measures for the purpose of ensuring adequate supplies of wholesome drinking water as well as adequate sanitation (Art. 4). National and local targets for the standards and levels of performance are revised periodically (Arts. 6–7). In general, the UNECE Protocol on Water and Health represents a step that international water law is taking in the direction of the protection of the right to water also at the domestic level [8].

Unlike water, food is explicitly mentioned in Article 11 of the ICESCR as an element of the right to an adequate standard of living. The right to food or the right to adequate food is defined as a right to all nutritional elements that a person needs to live a healthy and active life and to the means to access them [46]. The right to food is realised when everyone has physical and economic access at all times to adequate food or means for its procurement [47].

In order to have access to food, a person must be able to either buy or produce their own food. The rights to food and water are interlinked in a way that the right to food necessitates the access to safe drinking water for personal and domestic uses such as food preparation and food production. In addition, the obligation to fulfill the right to food means that States have to strengthen people's access to and use of resources such as water for food production [46].

The special regard and preference given to the vital human needs in the UN Watercourses Convention (Art. 10.2) and ILA Berlin Rules (Art. 14) respectively combined with the resolution on the human right to water, the right of access to water in the Berlin Rules (Art. 17) as well as the right to food provide strong grounds for the priority of the indispensable water use to meet basic human needs over other uses. However, also in this regard the possible alternatives to the water uses (Art. 6 of the UN Watercourses Convention) must be taken into account. The priority of indispensable water use needed to meet basic human needs is very much in line with the nexus approach, which aims, as stated earlier, to secure the human right to water and food.

The relevant question is, however, whether international water law provides wider support than the traditional inter-State dimensions in regard to the regulation of international waters for the human rights to water and food. From the traditional point of view, the priority of indispensable water use in international water law proves only partial and indirect help for the protection of individual needs through inter-State claims that cannot deal with situations pertaining to exclusively domestic waters. Nevertheless, first of all the UNECE Protocol on Water and Health is redirecting this tradition through

a strong emphasis on the access to water and sanitation and with its mainly domestic scope of application [8]. Secondly, the ILA Berlin Rules reflect the requirements of international environmental and human rights law in addition to traditional international water law by including waters within a State in their scope (Art. 1) and by the specific provision on the right of access to water (Art. 17). Thus, international water law is gradually taking steps in the direction of securing the basic human needs related to water uses in a wide geographical scope.

The 1995 Mekong River Agreement contains no specific provisions on how to guarantee the basic human needs for water and food in the River Basin. However, the Agreement regulates the maintenance of the flows on the mainstream from diversions, storage releases or other actions of a permanent nature (Art. 6). Accordingly, for instance, during the dry season the minimum monthly natural flow is to be maintained at the acceptable level through cooperation between Parties. The maintenance of flows, for its part, makes it possible that there is enough water for individuals to meet basic needs for water and food.

According to Article 2 of the ICESCR, States have to take steps by themselves but also through international cooperation, to the maximum of their available resources, with a view to achieving progressively the full realisation of the rights recognised in the Covenant. The means for this purpose include particularly the adoption of legislative measures. Thereby, the ICESCR also obligates that the rights to water and food are taken into account in the cooperation between watercourse States.

5. Conclusions

It is obvious that there are many challenges for the water-food-energy nexus cooperation in the regime of international water law. One may start by mentioning, for example, the general nature of the procedural and substantive provisions of international water law and its weakness in situations where riparian countries are not willing to cooperate. However, at the same time, international water law provides a very useful platform for the cooperation between States and different sectors aiming at guaranteeing water, food and energy security. It not only allows but also supports the nexus approach in the cooperation between States.

International water law and especially its two conventions (UN Watercourses Convention and ECE Water Convention) provide footsteps that riparian States can follow in their cooperation and when concluding bi- and multilateral water agreements. While the 1995 Mekong Agreement offers an encouraging example of the possibilities of international water law in enhancing cooperation, it also includes serious deficiencies from the nexus and holistic water management perspectives: not all of the basin countries are members of the Mekong River Commission, there are no specific provisions for development on tributaries and a transboundary environmental impact assessment is not required in the Agreement although it nowadays is a part of international customary law. All in all, the Agreement emphasises the sovereignty of States more than the UN and ECE conventions and international customary water law [21]. However, the Agreement also provides the tools and possibilities for the Basin countries to develop their cooperation in the direction of the nexus approach.

International water law offers an institutional framework for the nexus approach but does not offer concrete specifications for its procedural elements. It is up to States sharing the same watercourse to implement the main features of the nexus assessment (participatory process, knowledge mobilisation,

sound scientific analysis, capacity building and collective effort [13]) into their cooperation within joint bodies or other arrangements. International water law provides a clear basis for the participatory process between States as well as knowledge mobilisation and analysis. In addition, capacity building and collective effort can be included in the cooperation.

The most difficult part of the nexus cooperation in the framework of international water law is the reconciliation of different water uses in a situation where there is not enough water to meet all the competing needs. International water law contains the general provisions on equitable and reasonable utilisation and on the minimisation of harmful transboundary effects. From the nexus perspective the most relevant factors of equitable and reasonable utilisation are the social and economic needs of the watercourse States concerned, the population dependent on the watercourse and the availability of alternatives for a particular planned or existing use. While existing uses of the watercourse is also one of the factors to be taken into account when deciding on equitable and reasonable utilisation, the nexus approach requires that States understand their common interests in enhancing water, food and energy security in a transboundary context and are willing to negotiate on the changes to existing use patterns.

The understanding of the community of interests of watercourse States can lead to fruitful negotiations and mutual gains agreements for international watercourses. If, however, watercourse States are not willing to cooperate, international water law does not contain any strong enforcement provisions to back up the compliance of its general norms. After all, very few international water disputes, for instance, have been dealt with in the International Court of Justice [17]. As for the Mekong context, the enforcement tools of the Mekong River Commission consist mainly of diplomacy, negotiation and persuasion [24]. Thus, in order to put the nexus cooperation in action in the framework of international water law, watercourse States have to understand its benefits to them. In this regard, the negotiations based on the nexus approach must include the different goals, actors and development alternatives that are attempting to maximise the long-term benefits of intersectoral cooperation between riparian States along the lines of the UNECE methodology for the nexus assessment of an international basin.

International human rights law as well as international water law supports the idea of the nexus approach to secure human rights to water and food. They lend clear support to the prioritisation of access to water to meet basic human needs over other water uses at both the international and national level. Therefore, when planning the uses of waters of international basins such as the Mekong, the rights to water and food must be guaranteed before allocating international waters for other purposes. At the same time, however, it must be taken into account that there might be alternative water resources such as national waters to be allocated for meeting these basic human needs. All in all, the traditionally strict divisions between international and national waters as well as inter-State and internal legal relations are gradually reshaping in the field of international water law by taking into account e.g., the emphasis on the access to water in the UNECE Protocol on Water and Health and the ILA Berlin Rules.

The general nature of the procedural and substantive requirements of international water law is a problem and an advantage at the same time from the nexus perspective. On the one hand, the rules on cooperation, on data gathering and analysis and on equitable and reasonable utilisation are ambiguous and concentrate on the uses and protection of international waters with no clear references to the energy and food sectors. On the other hand, international water law does not place any restrictions

whatsoever on the consideration of energy and food sectors when the joint bodies of riparian countries cooperate and when different needs for water uses are reconciled. However, the thorough consideration of energy and food issues requires also viewpoints that go beyond the scope of traditional international water law.

The nexus approach to transboundary cooperation requires a long-term capacity and trust building between riparian States to create new opportunities through cooperation. It cannot be emphasised too much that it is of the utmost importance to create a reliable institutional structure as a basis for that cooperation. Cooperation is a step-by-step process that starts, for example, with the regular meetings of a joint committee and develops towards the in-depth nexus approach with intersectoral working and expert groups and public hearings. The essential building blocks of the cooperation are reciprocity and good faith between States as well as mutual benefits [27,30]. The nexus approach to the transboundary watercourses cooperation requires that riparian States perceive that the cooperation is in their common interests in the long term.

Of the two international water law conventions there are no institutional provisions in the UN Watercourses Convention, while the ECE Water Convention regulates on the Meeting of the Parties and the Secretariat with a view to be able to review the implementation of the Convention (Arts. 17–19). Thus, the ECE Water Convention is a living and dynamic convention [27] that offers a regime where the nexus approach can be developed further in the general framework of international water law.

The water sector provides an entry point for a nexus analysis and international water law is thus one of the starting points for the discussion on the nexus approach and law [18]. However, that discussion requires specific attention also from the viewpoints of energy and food law and national laws. It is a massive task to try to combine all the elements of the nexus approach and law and would require long-term cooperation between States and different organisations such as the UN, Food and Agriculture Organization of the United Nations (FAO) and UNECE. In addition to the coordinated and intersectoral discussions between the representatives of States, international non-governmental organisations such as the International Law Association could play an important role in enhancing the nexus approach in the context of international law.

Acknowledgments

The author have participated in the research project “Legal framework to promote water security” (WATSEC), financed by the Academy of Finland (268151). The author would like to thank the anonymous reviewers for their very valuable suggestions.

Conflicts of Interests

The author declares no conflict of interests.

References and Notes

1. *Convention on the Law of the Non-Navigational Uses of International Watercourses* (adopted 21 May 1997, entered into force 17 August 2014) UN Doc A/51/869.

2. *Convention on the Protection and Use of Transboundary Watercourses and International Lakes* (adopted 17 March 1992, entered into force 6 October 1996) 1936 UNTS 269.
3. International Law Association. *The Helsinki Rules on the Uses of the Waters of International Rivers, Adopted by the International Law Association*; International Law Association: London, UK, 1967; pp. 7–55.
4. Eckstein, G. (Ed.) Specially invited opinions and research report of the international water law project: Global perspectives on the entry into force of the UN Watercourses Convention 2014: Part one. *Water Policy* **2014**, *16*, 1198–1217.
5. Tanzi, A. *The Economic Commission for Europe Water Convention and the United Nations Watercourses Convention: An Analysis of their Harmonized Contribution to International Water Law*; United Nations Publication: Geneva, Switzerland, 2015.
6. McCaffrey, S.C. International Water Cooperation in the 21st century: Recent developments in the law of international watercourses. *Rev. Eur. Comp. Int. Environ. Law* **2014**, *23*, 4–14.
7. McCaffrey, S.C. The contribution of the UN convention on the law of the non-navigational uses of international watercourses. *Int. J. Glob. Environ. Issues* **2001**, *1*, 250–263.
8. Tanzi, A. Reducing the gap between international water law and human rights law: The UNECE protocol on water and health. *Int. Community Law Rev.* **2010**, *12*, 267–285.
9. United Nations. *Resolution Adopted by the General Assembly on 28 July 2010: The Human Right to Water and Sanitation*; United Nations: New York, NY, USA, 2010.
10. International Law Association: Berlin Conference (2004), Water Resources Law. Available online: http://internationalwaterlaw.org/documents/intldocs/ILA_Berlin_Rules-2004.pdf (accessed on 17 July 2015).
11. McCaffrey, S.C. A human right to water: Domestic and international implications. *Georget. Environ. Law Rev.* **1992**, *5*, 1–24.
12. Bizikova, L.; Roy, D.; Swanson, D.; Venema, H.D.; McCandless, M. *The Water-Energy-Food Security Nexus: Towards a Practical Planning and Decision-Support Framework for Landscape Investment and Risk Management*; International Institute for Sustainable Development: Winnipeg, MB, Canada, 2013.
13. United Nations Economic Commission for Europe (UNECE). *Methodology for Assessing the Water-Food-Energy-Ecosystems Nexus in Transboundary Basins*; ECE/MP.WAT/WG.1/2015/8, 15 June 2015.
14. Bach, H.; Bird, J.; Clausen, T.J.; Jensen, K.M.; Lange, R.B.; Taylor, R.; Viriyasakultorn, V.; Wolf, A. *Transboundary River Basin Management: Addressing Water, Energy and Food Security*; Mekong River Commission: Vientiane, Laos, 2012.
15. Hoff, H. *Understanding the Nexus*; Background Paper for the Bonn2011 Conference: The Water, Energy and Food Security Nexus. Stockholm Environment Institute: Stockholm, Sweden, 2011.
16. United Nations Economic Commission for Europe. *Report of the Meeting of the Parties on its Sixth Session, Programme of Work for 2013–2015*; Economic Commission for Europe: Geneva, Switzerland, 2015.
17. Grzybowski, A.; McCaffrey, S.C.; Paisley, R.K. Beyond international water law: Successfully negotiating mutual gains agreements for international watercourses. *Pac. McGeorge Glob. Bus. Dev. Law J.* **2010**, *22*, 139–154.

18. Lipponen, A.; Howells, M. Promoting Policy Responses on the Water and Energy Nexus Across Borders. In *Water & Energy*; Water Monographies II-2014; Oficina de Naciones Unidas de apoyo al Decenio «El agua, fuente de vida» 2005-2015/Programa de ONU-Agua para la Promoción y la Comunicación en el marco del Decenio, WCCE-World Council of Civil Engineers; Fundación Aquae: Madrid, Spain, 2014; pp. 44–55.
19. *Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin* (entered into force 5 April 1995 by signature) 2069 UNTS 3.
20. Keskinen, M.; Mehtonen, K.; Varis, O. Transboundary cooperation vs. internal ambitions: The role of China and Cambodia in the Mekong region. In *International Water Security: Domestic Threats and Opportunities*; Pachova, N.I., Nakayama, M., Jansky, L., Eds.; United Nations University Press: Tokyo, Japan, 2008; pp. 79–109.
21. Bearden, B.L. Legal regime of the Mekong River: A look back and some proposals for the way ahead. *Water Policy* **2010**, *12*, 798–821.
22. MacQuarrie, P.R.; Viriyasakultorn, V.; Wolf, A.T. Promoting cooperation in the Mekong Region through water conflict management, regional collaboration, and capacity building. *GMSARN Int. J.* **2008**, *2*, 175–184.
23. Pottenger, S.G. Biodiversity conservation v. hydropower dams: Can saving the fish save the Mekong River basin? *Pac. McGeorge Glob. Bus. Dev. Law J.* **2009**, *22*, 111–133.
24. Rieu-Clarke, A.; Gooch, G. Governing the tributaries of the Mekong—The contribution of international law and institutions to enhancing equitable cooperation over the Sesan. *Pac. McGeorge Glob. Bus. Dev. Law J.* **2010**, *22*, 193–224.
25. Salman, S.M.A. The Helsinki rules, the UN watercourses convention and the Berlin rules: Perspectives on international water law. *Water Resour. Dev.* **2007**, *23*, 625–640.
26. Bogdanovic, S.; Bourne, C.; Burchi, S.; Wouters, P. ILA Berlin Conference 2004—Water Resources Committee Report, Dissenting Opinion. Available online: http://www.internationalwaterlaw.org/documents/intldocs/ila_berlin_rules_dissent.html (accessed on 17 July 2015).
27. United Nations Economic Commission for Europe. *Guide to Implementing the Water Convention*; United Nations Economic Commission for Europe: Geneva, Switzerland, 2013.
28. Rahman, M. Legal Knowledge Framework for Identifying Water, Energy, Food and Climate Nexus. Available online: <http://ceur-ws.org/Vol-1105/paper3.pdf> (accessed on 27 May 2015).
29. Rieu-Clarke, A.; Moynihan, R.; Magsig, B.-O. *UN Watercourses Convention User's Guide*; IHP-HELP Centre for Water Law, Policy and Science: Scotland, UK, 2012.
30. Leb, C. One step at a time: International law and the duty to cooperate in the management of shared water resources. *Water Int.* **2015**, *40*, 21–32.
31. Eckstein, G. (Ed.) Specially invited opinions and research report of the International Water Law Project: Global perspectives on the entry into force of the UN Watercourses Convention 2014: Part two. *Water Policy* **2015**, *17*, 162–186.
32. International Court of Justice. *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment. International Court of Justice: The Hague, Netherlands, 2010.
33. *Agreement between the Republic of Finland and the Union of Soviet Socialist Republics Concerning Frontier Watercourses* (signed 24 April 1964, entered into force 6 May 1965) 537 UNTS 231.

34. Kotkasaari, T. Transboundary cooperation between Finland and its neighbouring countries. In *Management of Transboundary Rivers and Lakes*; Varis, O., Tortajada, C., Biswas, A.K., Eds.; Springer: Berlin, Germany, 2008.
35. Kaatra, K. Outcomes of Vuoksi River cooperation and tasks between Finland and Russia since the 1960s. In *Creating a Peace and Ecology Lake Park in the Upriver of Bukhan River and the Cases of International River Cooperation*; Korea DMZ Council: Seoul, Korea, 2012.
36. United Nations World Water Assessment Programme. *The United Nations World Water Development Report 2015: Water for a Sustainable World*; United Nations Educational, Scientific and Cultural Organization: Paris, France, 2015.
37. International Law Commission. Draft articles on the law of the non-navigational uses of international watercourses and commentaries thereto and resolution on transboundary confined groundwater. In *Yearbook of the International Law Commission*; International Law Commission: Geneva, Switzerland, 1994.
38. International Court of Justice. *GabCikovo-Nagymaros Project (Hungary/Slovakia), Judgment*; International Court of Justice: The Hague, The Netherlands, 1998.
39. Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation. Available online: http://www.ohchr.org/Documents/Issues/Water/FAQWater_en.pdf (accessed on 5 September 2014).
40. UN-Water. *Water Security the Global Water Agenda—A UN-Water Analytical Brief*; United Nations University: Tokyo, Japan, 2013.
41. International Energy Agency. Energy Security. Available online: <http://www.iea.org/topics/energysecurity/> (accessed on 20 April 2015).
42. Energy for a Sustainable Future. Available online: <http://www.un.org/chinese/millenniumgoals/pdf/AGECCsummaryreport%5B1%5D.pdf> (accessed on 20 April 2015).
43. Committee on World Food Security. Available online: <http://www.fao.org/cfs/cfs-home/en/> (accessed on 20 April 2015).
44. McIntyre, O. The human right to water as a creature of global administrative law. *Water Int.* **2012**, *37*, 654–669.
45. Committee on Economic, Social and Cultural Rights. General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant). Available online: http://tbinternet.ohchr.org/_layouts/treatybodyexternal/Download.aspx?symbolno=E%2fC.12%2f2002%2f11&Lang=en (accessed on 7 April 2015).
46. Office of the United Nations High Commissioner for Human Rights. *The Right to Adequate Food*; Office of the United Nations High Commissioner for Human Rights: Geneva, Switzerland, 2010.
47. Committee on Economic, Social and Cultural Rights. General Comment No. 12: The Right to Adequate Food (Art. 11 of the Covenant). Available online: http://tbinternet.ohchr.org/_layouts/treatybodyexternal/Download.aspx?symbolno=E%2fC.12%2f1999%2f5&Lang=en (accessed on 7 April 2015).