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ORIGINAL PAPER

Boundaries of benefit sharing: interpretation and application of substantive rules in the Lake Malawi/Niassa/Nyasa sub-basin of the Zambezi Watercourse

Joanna Fatch[1] · Alex Bolding[2] · Larry A. Swatuk[3,4]

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Abstract
The primacy of state sovereignty in transboundary water resources management raises questions regarding how riparian states determine "who gets what, where, and why" in a shared watercourse. To facilitate peaceful coexistence, substantive rules—"equitable and reasonable utilisation (ERU)" and "the duty to prevent the causing of significant harm"—define rights and responsibilities of riparian states in the utilisation of shared watercourses. The duty of riparian states to cooperate, as a principle of international law, plays an important part in realising these substantive rules. This article critically reflects on the principles underlying transboundary water management by focusing on the interpretation and application of substantive rules in the Lake Malawi/Niassa/Nyasa sub-basin of the Zambezi River Basin in Southern Africa. The case study demonstrates how interpretation and application of international water law are generally in line with customary practices, but are subject to highly localised decision contexts which challenge Southern African Development Community (SADC) attempts to establish a firm legal foundation upon which to guide access, use and management across the region's shared river basins.

Keywords Equitable and reasonable utilisation · The duty to prevent the causing of significant harm · International water law · Transboundary water law · Southern Africa · Zambezi river basin · Lake Malawi/Niassa/Nyasa · UN convention on the law of non-navigational uses of international watercourses · Customary international law · Malawi · Mozambique · Tanzania

✉ Larry A. Swatuk
lswatuk@uwaterloo.ca

Joanna Fatch
joannafatch@sun.ac.za

Alex Bolding
alex.bolding@wur.nl

[1] Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH, Gaborone, Botswana

[2] Water Resources Management Group, Wageningen University & Research, Wageningen, The Netherlands

[3] School of Environment, Enterprise and Development, University of Waterloo, Waterloo, Canada

[4] Institute for Water Studies, University of the Western Cape, Cape Town, South Africa

1 Introduction

The primacy of state sovereignty in transboundary water resources management raises questions regarding how riparian states determine "who gets what, where, and why" in a shared watercourse. To facilitate peaceful coexistence, substantive rules—"equitable and reasonable utilisation (ERU)" and "the duty to prevent the causing of significant harm"—define rights and responsibilities of riparian states in the utilisation of shared watercourses. The duty of riparian states to cooperate, as a principle of international law (UN, 1945), plays an important part in realising these substantive rules. These principles guide how countries come to deciding "who gets what, where, and why" on a shared watercourse. Such decisions consider issues that include trade-offs, sovereignty, trust and the extent to which access, utilisation and management are determined (Cascão and Zeitoun, 2010). This article critically reflects on the principles underlying transboundary water management with a focus on riparian states' interpretation of substantive rules and their application in the Lake Malawi/Niassa/Nyasa[1] sub-basin of the Zambezi Watercourse. The paper argues that how riparian states interpret these substantive rules gives an indication of the way in which they lay claim to the shared resource. Riparian state claims as influenced by their interpretation of substantive rules enhance or hinder the effective management—i.e. development, use, protection, allocation, regulation and control (ILA, 2004)—of the water resources in the sub-basin. This work builds on Fatch and Swatuk (2018) which focused on mapping conflict and cooperation in the same sub-basin that zeroed in on riparian state interactions in the different parts of the sub-basin termed "decision contexts".

In order to achieve the objective set above, the study was qualitative and utilised the extended case study approach. Primary data were collected through in-depth interviews with key informants and a checklist used to guide the discussions. Initial respondent selection was carried out using purposive sampling focusing on possible respondents that would serve given purposes in the study. Snowball sampling assisted in finding other relevant respondents. Document surveys that included reports and agreements from and between public institutions, consultants and international organisations complementing other relevant literature were employed to gather secondary data. Data were analysed using content analysis and the thematic approach. The analysis was guided by:

1. Examining the interpretation or understanding of the substantive rules by riparian states. Focus was on the extent to which riparian state understanding reflected and was in accordance with international law. Equitable and reasonable utilisation and the prevention of significant harm are considered general principles of international law. This makes them binding on all parties.
2. Application of the rules by riparian states, considering the general principles of international law and relevant international agreements binding on the parties (McIntyre, 2011).
3. Compliance (or lack thereof) with rules.

[1] Each riparian state names the water body differently: in Malawi it is Lake Malawi, in Tanzania it is Lake Nyasa, and in Mozambique it is Lago [Lake] Niassa.

Data analysis also took into consideration the argument that the right to access, and hence utilisation of the shared resource, raises questions regarding the related claims of ownership by riparian states in order to protect the resource.

The article proceeds as follows: Section 2 presents an overview of substantive rules in international water law. Sections 3 and 4 discuss substantive rules in international frameworks. Section 5 discusses the substantive rules as they have been interpreted and applied in the Lake Malawi/Niassa/Nyasa sub-basin of the Zambezi Watercourse. Section 6 concludes the paper and reflects on the relationship between region-wide, basin-specific and sub-basin positions and practices and offers some insights for future research.

2 Overview of substantive rules: (i) equitable and reasonable use; (ii) the duty not to cause significant harm

2.1 Substantive rules

Sovereignty, which confers powers on states to make rules and laws that govern their territories without foreign interference, entails the duties and rights of riparian states in a transboundary basin. These rights and responsibilities also lie at the heart of the substantive rules (McIntyre, 2010).[2] Sovereignty, in this regard, forms the theoretical underpinning of substantive provisions in international water law. In application, however, "sovereignty" manifests in several ways. In relation to transboundary watercourses, it includes, among others, the Harmon doctrine which advocated for absolute territorial integrity that has been argued to favour upstream states. This was based on the argument that any transboundary watercourse originating in or traversing a given territory or jurisdiction was the property of that state and gave it the authority to harness the resource in any way "deemed suitable to its national interest irrespective of the effects beyond its borders" (Menon, 1975: 445). Limited territorial sovereignty promotes equitable and reasonable utilisation recognising the holistic nature of the river basin and asserting the rights and interests of all riparian states. Community of interests (or community of co-riparian states) promotes the development of common policies and the establishment of joint arrangements for basin management and development (McIntyre, 2010; Menon, 1975; Salman, 2007).

Of the different forms of sovereignty, limited territorial sovereignty which argues that "every riparian state has the right to use the waters of the international river, but is under a corresponding duty to ensure that such use does not harm other riparians" (Salman, 2007: 627) is widely accepted and has widespread recognition within treaty law, state practice, court law and expert writing (McIntyre, 2010: 64–67; UN, 1945 specifically Article 38 of the Statute of the International Court of Justice (on sources of international law)). Nonetheless, the theory of community of interests has also gained a foothold in many river basins. Southern African Development Community (SADC) Member States, for instance, recognise the sovereign equality of states and vest limited powers to cooperative arrangements such as river basin organisations. The theory of community of interests draws several parallels with the doctrine of limited sovereignty. Indeed, it not only reinforces the latter

[2] McIntyre (2010) presented a comprehensive summary and analysis of substantive rules giving a run through of their evolution and interpretation right from the period before the Institute for International Law (IIL), the International Law Association (ILA) and the International Law Commission (ILC) took it upon themselves to further develop and elaborate on them.

doctrine, but it also better describes the relationships that exist between riparian states. Community of interests alludes to shared governance and collective action whereas limited sovereignty urges unilateral restraint. According to Salman (2007), limited territorial sovereignty forms the basis of modern international water law.

2.2 Equitable and reasonable utilisation

The inclusion of equitable and reasonable utilisation (ERU) as a theory or principle of international watercourse rights and obligations in treaty practice can be traced back to 1856 in the treaty between the Netherlands and Belgium on the River Meuse to the 1909 Boundary Waters Treaty between Great Britain and the USA. McIntyre (2010: 65) also provided extensive examples of state practice of ERU, including the use and utilisation of waters shared between Mexico and the USA. More recently, the principle is included in the 1997 United Nations Convention on the Law of Non-navigational Uses of International Watercourses (hereinafter Watercourses Convention) and the revised SADC Protocol on Shared Watercourses of 2000 (hereinafter the revised Protocol) among others.[3] As court practice, the International Court of Justice's (ICJ) reference to ERU in its rulings on the *Gabčíkovo-Nagymaros* case in 1997 is considered the most notable.[4] As works of a specialised body, ERU is the trademark of the International Law Association (ILA) having dominated the Association's agenda since its inception in 1956. This is evident in the 1956 Dubrovnik Statement, through to the 1966 Helsinki Rules on the Uses of the Waters of International Rivers where it is captured as a basic principle of international water law (ILA, 1966).

ERU is regarded as customary international law due to widespread and consistent state practice and applies in the absence of conventional rules. The principle recognises the equal rights of states in the use of a shared watercourse and the need to balance state interests (McIntyre, 2010). Its application is case specific and as such cannot be prescribed to a shared watercourse as the issues at play—water quality and quantity, number of riparian states, socio-economic development of states and water use for example—differ. However, despite widespread acceptance as cited in case and treaty law and state practice, there still exists a failure in applying a degree of determinacy to this customary norm (Masgig, 2015). This, McIntyre (2015: 57) argued, is because while ERU is cited in the *Gabčíkovo-Nagymaros* case, the ICJ did "not specify what should be considered as an equitable and reasonable share". In McIntyre's view (2020: 601), ERU "embodies a high degree of flexibility and adaptability and suffers from a corresponding degree of normative indeterminacy".

While "equitable utilisation" refers to the apportionment of the resource or the fairness in the use of a shared water resource, "reasonable utilisation", refers to the extent of use. In other words, reasonable utilisation denotes sound and rational use of a shared watercourse (Vick, 2012). Reasonable utilisation, therefore, limits the excessive and irrational use of a resource in the name of equitable utilisation. Put differently, a riparian state cannot claim an equitable allocation or use of a resource and at the same time use the resource in a

[3] See Article 5 of the Convention on the Law of the Non-navigational Uses of International Watercourses; Article 3(7) and Article 3(8) of the Revised Protocol on Shared Watercourses in the Southern African Development Community.

[4] See McIntyre (2010: 66) and Salman (2007: 634, 637) for discussion on the relationship between ERU and the *Gabčíkovo-Nagymaros* case.

wasteful manner in the name of equitable allocation. While a country may be entitled to a proportion of the shared resource in line with equitable utilisation, the use must be sound to protect and conserve the resource and ensure sustainability. Thus, to claim ERU, one can argue, is to also recognise the rights of other riparian states in the use of a shared watercourse and the accompanying responsibility to prevent the causing of significant harm as captured in Article V (II) (11) of the Helsinki Rules. Similarly, it is also to understand the accompanying rules of procedure that facilitate the application of ERU and give the principle effect.

2.3 The duty to prevent significant harm (prevention of significant harm)

The duty to prevent significant harm can be traced back to the seventeenth century in Europe but "truly emerged in State, judicial and arbitral practice in the late nineteenth and early twentieth centuries with recognition of the duty of States to take reasonable measures to protect aliens within their territory" (McIntyre, 2020: 603, quoting Dunn 1932). The Institute of International Law's (IIL) 1911 Madrid Declaration absolutely prohibited states from activities that could cause harm. The Salzburg Resolution of 1961 relaxed the principle and allowed riparian states to use a shared watercourse only after due advance notice. Where there was a possibility of affecting another riparian state, the aggrieved party was to be compensated for losses and damages incurred (IIL, 1961; Salman, 2007). The 1979 Athens Resolution recognised the sovereign rights of states to use shared watercourses if pollution did not affect other riparian states which would be considered a breach hence a liability under international law.[5] The obligation not to cause significant harm was common in all these resolutions (Salman, 2009: 53).

The "significant" in the phrase refers to magnitude. McIntyre (2010: 65) and Biswas (1999: 439) use "appreciable harm" while Salman (2007) uses "significant harm" to mean the same thing (see Commentary 13 of Article 3 in UN 2005:94). The ILC recommended the use of the term "significant" in the Watercourses Convention. Prevention of significant harm as defined in Article 1 of the revised Protocol "means non-trivial harm capable of being established by objective evidence without necessarily rising to the level of being substantial" (SADC, 2000). Thus, significant harm is "higher than merely perceptible or trivial … but … less than severe or substantial … impairment of a use, with a detrimental impact of some consequence upon the environment or the socio-economic development of the harmed state" (Rieu-Clarke et al., 2012: 120; also see Commentary 15 of Article 3 of UN, 2005; Salman, 2007). The principle, therefore, provides a riparian state the opportunity to utilise a shared watercourse provided that all appropriate measures are followed and undertaken to prevent the causing of significant harm beyond its territory.

[5] Article II of the IIL (IIL, 1979) The Pollution of Rivers and Lakes and International Law (English translation), Session of Athens, 1979 stated: "In the exercise of their sovereign right to exploit their own resources pursuant to their own environmental policies, and without prejudice to their contractual obligations, States shall be under a duty to ensure that their activities or those conducted within their jurisdiction or under their control cause no pollution in the waters of international rivers and lakes beyond their boundaries; compare with article V(II)(k) of the Helsinki Principles which states "The degree to which the needs of a basin State may be satisfied, without causing substantial injury to a co-basin State", in ILA, The Helsinki Rules on the Uses of the Waters of International Rivers, (with commentary and supplementary rules (1971–1996)), adopted by the International Law Commission at the fifty-second conference, Helsinki, August 1966.

The duty to prevent significant harm is also recognised as customary international law and relies heavily on procedural rules[6]—the duty to consult and negotiate, exchange information and notify. These due diligence requirements make practical this obligation and place a duty on a riparian state intending to utilise a shared watercourse to take all necessary measures and avoid any omissions that would result in causing significant harm to other riparian states (ILA, 2004; McIntyre, 2011). Prevention of significant harm does not mean that a use that may have harmful consequences is inherently inequitable and unreasonable. Rather, it is an obligation on the conduct of the state. Where all necessary procedures have been followed and some harm has, nonetheless, occurred, the state utilising the shared watercourse is under obligation to remedy the situation (UN, 1997). The injured party is also obliged to provide evidence to substantiate its claim (Commentary 14 of Article 3 in UN, 2005:94). It, as such, gives room for states to try to their very best ability to act in good faith in preventing the cause of significant harm in utilising a shared watercourse. At the same time, it demands that the state that may be harmed exercises the same good faith in its evaluation of another state's notification of a planned measure. The prevention of significant harm, therefore, rests on effective cooperation among states and the recognition of the rights and duties of all riparian states in utilising a shared watercourse.[7]

3 Substantive rules in the 1997 UN convention on the law of the non-navigational uses of international watercourses

With at least twenty-seven years in the making, the Watercourses Convention presents progressive development and codification of international water law by the International Law Commission (ILC) (Biswas, 1999: 428). The Watercourses Convention is a "framework convention that aims at ensuring the utilisation, development, conservation, management and protection of international watercourses, and promoting optimal and sustainable utilisation thereof for present and future generations" (Salman, 2007: 632). The Watercourses Convention borrows heavily from state practice and makes reference to the works of the ILA and the IIL and deliberations of the ILC with equitable and reasonable utilisation (Article 5) and the duty to prevent the causing of significant harm (Article 7) as its substantive principles.[8] To Salman (2007: 632), the Watercourses Convention presents "basic

[6] These procedural rules not only facilitate the duty to prevent the causing of significant harm but they are also important in realising equitable and reasonable utilisation.

[7] The 'Special Issue: No Significant Harm in International Water Law', *International Environmental Agreements,* November 2020 (20:4) presents a number of theoretical and practical applications of the concept.

[8] Article 5 (Equitable and Reasonable Utilisation and Participation) para. 1 of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses: "Watercourse States shall in their respective territories utilize 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. 2. Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present Convention." Article 7 (Obligation not to cause significant harm) para. 1: "Watercourse States shall, in utilizing an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse States"; para. 2: "Where significant harm nevertheless is caused to another watercourse State, the States whose use causes such harm shall, in the absence of agreement to such use, take all appropriate

procedural aspects and a few substantive ones" whose interpretation and finer details are left to riparian states to determine considering their specific basin contexts. Biswas (1999:439), however, argued that the Watercourses Convention "is full of vague, broad, and general terms" and as such fails to conceptually break new ground. This observation, however, ignores the very essence of a framework convention; it must be vague enough to allow states to subscribe to it without feeling the pressure of ceding state sovereignty, while at the same time have enough substance to present something worth adhering to.

Though received with mixed feelings, the Watercourses Convention was cited as authority in the September 1997 ICJ ruling of the *Gabčíkovo-Nagymaros* case that recognised and, thus, endorsed equitable and reasonable utilisation[9] as the fundamental principle (Salman, 2007: 634). The criteria for determining what is meant by ERU are as provided for in the Helsinki Rules of 1966, save for relevant factor (k)—"the degree to which the needs of a basin State may be satisfied, without causing substantial injury to a co-basin State"—which is redundant.[10] Yet, Biswas (1999: 440) argued that none of these factors "can be defined uniquely or precisely since they are general and broad in character". However, McIntyre (2010: 66–67) conceded that the principle of equitable utilisation is absolutely central to the Watercourses Convention even though complexity exists "in the process of balancing diverse interests and weighing up relevant factors, coupled with the uncertainty in application of the principle due to lack of juridical elaboration". This limitation could be helped where joint management structures were able to agree on basin-specific formulae of arriving at and applying ERU. Nonetheless, Biswas (1999) maintained that even if that were the case, this could be difficult to achieve especially among states with varying and vested interests. Lankford (2013: 131), while acknowledging the built-in flexibility of the Watercourses Convention, concurred with Biswas on its ambiguity and feared that Article 6 could "misdirect" as it "runs the risk of steering riparians towards *equalizing* shares … within [Transboundary Water Commissions] TWCs while creating an illusion of guiding equitable water allocation".[11]

Footnote 8 (continued)
measures, having due regard for the provisions of articles 5 and 6, in consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation.".

[9] For a discussion on the *Gabčíkovo-Nagymaros* case in reference to equitable and reasonable utilisation see McIntyre 2011: 66 and Salman 2007: 634.

[10] Article 6 of the UN Convention articulates "1. Utilisation of an international watercourse in an equitable and reasonable manner within the meaning of article 5 requires taking into account all relevant factors and circumstances, including:
(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;
(g) The availability of alternatives, of comparable value, to a particular planned or existing use.
2. In the application of article 5 or paragraph 1 of this article, watercourse States concerned shall, when the need arises, enter into consultations in a spirit of cooperation.
3. The weight to be given to each factor is to be determined by its importance in comparison with that of other relevant factors. In determining what is a reasonable and equitable use, all relevant factors are to be considered together and a conclusion reached on the basis of the whole." Also see Salman 2007, p. 629.

[11] The author later attempts to justify his claim using 'jurimetrics' to allocate water in the Zambezi and Orange River Basins in southern Africa where he argues that in basins with numerous riparian states allocation tends to lean towards "mathematical equality" and not necessarily "jurisprudential equity" and there-

One can argue that to make the Watercourses Convention prescriptive, especially regarding ERU, increases the assumed burden on and responsibilities of states in a shared watercourse. This can be perceived as limiting the amount of flexibility or manoeuvring states can have in negotiating what is meant by equitable and reasonable utilisation as well as in determining significant harm. In addition, by being prescriptive the Watercourses Convention may fail to capture everything that can be termed as acceptable to all state parties. Leaving it open, therefore, allows states, within cooperative arrangements, to deal with the details that reflect and respond to local realities. Besides, when one traces the evolution of the codification of these rules, one finds that the vagueness is in-built to cater for all while not satisfying all at the same time. This is evidenced from the report of the 28th Session of the International Law Commission in 1976 (ILC, 1976):

> [A]ttention should be devoted to beginning the formulation of general principles applicable to legal aspects of the uses of those watercourses [and] … every effort should be made to *devise rules which would maintain a delicate balance between rules too detailed to be generally applicable and rules too general to be effective*. Furthermore, the rules should be designed to promote the adoption of regimes for individual international rivers and for that reason should have a residual character. Effort should *also be devoted to making the rules as widely acceptable as possible and the sensitivity of States regarding their interests in water must be taken into account* (emphasis added[12]).

Thus, determining ERU, therefore, also depends on a mixture of prevailing national political sentiments and incentives to negotiate in good faith (Biswas, 1999).

The duty to prevent the causing of significant harm draws controversy of its own (Gupta & Schmeier, 2020; Schmeier & Gupta, 2020). Debate relates to whether prevention of significant harm is subordinate to ERU especially as provided for in article 7(2) of the UN Convention.[13] McIntyre (2006) argued that the prevention of harm is a primary rule of customary international environmental law that facilitates ERU. Furthermore, it gives rise to other rules that are relevant in discharging due diligence standards necessary to determining equity in use. The precautionary principle plays an important role in identifying necessary due diligence standards key to actualising prevention of significant harm (ibid: 172). However, Kazhdan (2011:527–528) cautioned that the ICJ's interpretation of the precautionary principle in its ruling on the Pulp Mills case "strongly limited" the principle thereby rendering it "vaguely defined and weak".

Weighing in, Salman (2009: 639) emphasised that the debate about which provision takes priority created "unwarranted controversy" and referred to the relationship between the two principles as a "fictitious dichotomy" that need not hinder cooperative management

Footnote 11 (continued)

fore goes on to propose reducing Article 6—though one could argue that not all uses of water in a shared watercourse require volumetric water allocated—and refining the article (Lankford, 2013: 133–140).

[12] Principle decision—http://legal.un.org/ilc/documentation/english/A_31_10.pdf

[13] Compare with Salman (2007: 629–630; 635–638) who, in analysing the works of the ILA, argued that the Helsinki Rules prioritised ERU over the prevention of significant harm by including the latter as but one of the principles in determining the former, yet Article 12(1) of the 2004 Berlin Rules, in revising the Helsinki Rules and other ILA rules on international water resources, attempted to balance the two substantive rules and in so doing "downgraded the established and cardinal principle of international water law or equitable and reasonable utilization, and equated it with the obligation not to cause significant harm" (ibid: 638).

and optimal utilisation of shared watercourses. Suffice to say that the Watercourses Convention makes it incumbent upon riparian states to "take all appropriate measures, having due regard for the provisions of Articles 5 and 6, *in consultation with the affected States*" (emphasis added). Similarly, Article 7(2) suggests that the prevention of significant harm should serve the purpose of triggering discussion between concerned states in the context of an overall regime of equitable and reasonable utilisation. Figure 1 illustrates the relationship between the two substantive rules.

Thus, the Watercourses Convention not only cements the complementary nature of the two principles as shown in Fig. 1, but also the need for cooperation between and among riparian states. Cooperative arrangements facilitate joint management and utilisation of shared watercourses while procedural rules go a long way in enabling and balancing ERU and prevention of significant harm thereby assisting the reconciliation of riparian state interests (Daoudy, 2010; Tanzi, 2020; Wouters, 1999). As illustrated, procedural rules include notification of planned measures, consultation and negotiation in good faith, exchange of relevant information. Moreover, early warning and transboundary environmental impact assessments provide a basis for amicable resolution of disputes in the utilisation of shared watercourses. The duty to cooperate, as an international obligation and a general principle under international law as affirmed in the UN Charter (UN, 1945) and many other cooperative arrangement frameworks and agreements (e.g. SADC Treaty, Watercourses Convention and the revised Protocol among others), plays an important role in balancing national interests and in recognising the equality of states.

4 Substantive rules in the SADC context

The revised SADC Protocol on Shared Watercourses (2000), previously signed in 1995 as the SADC Protocol on Shared Watercourse Systems, represents the Southern African region's effort in codifying international water law to facilitate the management of shared watercourses. The 1995 Protocol (SADC, 1995), largely based on the 1966 Helsinki Rules, was an off-shoot of the process to formulate a cooperative arrangement for management of the Zambezi Basin and entered into force in 1998. This was based on the realisation that there was no regional water management framework in line with the SADC Treaty (Ramoeli, 2002). Therein, equitable and reasonable utilisation was the main principle with prevention of significant harm being recognised as but one of the criteria in determining the former (see Article 2(7)). This indeed was in line with the Helsinki Rules where the prevention of significant harm was considered subordinate to ERU (also see footnote 13). However, the signing of the Watercourses Convention in 1997 and the perceived prioritising of ERU over prevention of significant harm in the 1995 Protocol, among other reasons, created concerns and provided grounds that led to its revision[14] (ibid). The amendment process resulted in the revision of the Protocol into its current form where, borrowing wholesale from the Watercourses Convention, equitable and reasonable use and the prevention of significant harm are recognised as complementary principles guiding the management

[14] Compare Article 1 on general principles (substantive rules) of the 1995 SADC Protocol on Shared Watercourse Systems, 1995, (repealed), and Article 3 of the revised Protocol where, in the former, one can argue that the prevention of significant harm was not explicitly mentioned but rather inferred in implementing equitable utilisation than in the latter. Also see Ramoeli 2002: 106 where the author substantiated the need for the revision of some provisions in the 1995 Protocol.

of shared watercourses in the region (see Article 3(7) and (8) and Article 3(10)). Similar to the Watercourses Convention, the revised Protocol is a framework convention that seeks to "foster closer cooperation for judicious, sustainable and co-ordinated management, protection and utilisation of shared watercourses and advance the SADC agenda of regional integration and poverty alleviation" (Article 2). Differing slightly from the UN Convention, the revised Protocol also took on board the navigational uses of the region's watercourses, key among which is the Zambezi.

Discussions on coming up with a cooperative arrangement for the Zambezi Basin[15] can be traced back to the United Nations Environmental Programme Conference of Plenipotentiaries on the Environmental Management of the Common Zambezi River System whose objective was to draft the Zambezi Action Plan (ZACPLAN). The International Agreement on the Action Plan for the Environmentally Sound Management of the Common Zambezi River system was signed by Botswana, Mozambique, Tanzania, Zambia and Zimbabwe. According to Biswas (1999: 436) "real progress in terms of the implementation of the plan … [was] miniscule" while Shela (2000: 75) observed that by 2000 only four of the nineteen agreed projects, scheduled for 1996 completion, had been financed and implemented; with none having been completed. The last phases of ZACPLAN titled "The Development of an Integrated Water Management Plan" hung in limbo due to lack of decision regarding an appropriate institution to host the implementation and lack of leadership in the finalisation of the project document although funding had principally been made available by the Nordic countries in 1995 (ibid.).

The Agreement on the Establishment of the Zambezi Watercourse Commission (hereafter the ZAMCOM Agreement) took almost 20 years of consultations starting in the late 1980s. The process was suspended to make way for the negotiations of the 1995 SADC Protocol. The ZAMCOM agreement was signed in July 2004 by 7 of the 8 riparian states, apart from Zambia and entered into force in June 2011 after ratification by two thirds of the basin states. Zambia subsequently acceded in 2014 while Malawi has not ratified the ZAMCOM Agreement. The ZAMCOM Agreement establishes the Zambezi Watercourse Commission (ZAMCOM) and is based on the revised SADC Protocol and the Watercourses Convention. By default, it is also based on the Helsinki Rules of 1966 because of the revised Protocol.[16] The mandate of the ZAMCOM (Article 5) is to advise riparian states on

[15] The Zambezi Basin is the largest and most shared river basin wholly situated in southern Africa. The river itself is the fourth largest in Africa, after the Nile, Congo and Niger rivers. It rises in the Kalene Hills in northwest Zambia and flows into Angola before returning to Zambia and forms the borders between Zambia and Namibia and Botswana, Zambia and Zimbabwe before flowing into Mozambique and into the Indian Ocean draining an area of almost 1.4 million square kilometres in its eight riparian states. The Basin receives on average 900 mm of rainfall per year and is home to nearly 40 million people, approximately 13.3 per cent of the total population of the Southern Africa Development Community (SADC). The basin covers twenty five per cent of the land area of the eight riparian states where water use in the basin include from tourism – the Victoria Falls (one of wonders of the natural world) and Lake Malawi/Niassa/Nyasa (the third deepest lake in the world with the most endemic fish species) – to hydropower, irrigation, domestic supply, industry, and the environment. The capital cities of Malawi, Zambia and Zimbabwe and other urban areas in the other basin states are situated in the basin (Shela, 2000; Malzbender and Earle, 2008: 13–14 and Beck, 2010).

[16] In its preamble, the SADC Protocol states: " Bearing in mind the progress with the development and codification of international law initiated by the Helsinki Rules and that the United Nations subsequently adopted the United Nations Convention on the law of Non-navigational Uses of International Watercourses". One could argue that the acknowledgement of the Helsinki Rules, apart from them informing the UN Convention, is because of the SADC Protocol's inclusion of navigation as one of the uses in its scope. *See* Article 1 where "'navigational use' means use of water for sailing whether it be for transport, fishing, recreation or tourism."

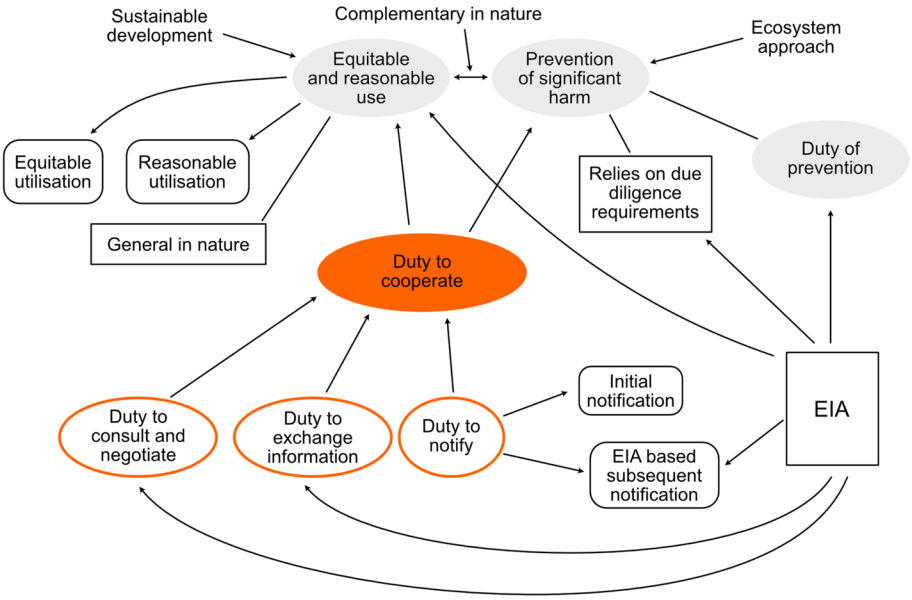

Fig. 1 Relationship between ERU and the duty to prevent significant harm (adapted from McIntyre, 2011)

equitable and reasonable utilisation, efficient management and sustainable development of the Zambezi watercourse. Three organs are entrusted with enabling the Commission in the discharge of its duties namely: the Council of Ministers; the Technical Committee; and the Secretariat.[17]

The ZAMCOM Agreement presents a set of principles in Article 12(1) guiding its implementation which include: (a) sustainable development; (b) sustainable utilisation; (c) prevention of harm; (d) precaution; (e) inter-generational equity; (f) assessment of trans-frontier impacts; (g) cooperation; and (h) equitable and reasonable utilisation. One may argue that the principles attempt to balance the principles of ERU and prevention of significant harm. In other words, these principles facilitate the realisation of the different rights and show the interrelationships and interdependency of "equitable and reasonable use" and "prevention of significant harm" in enabling the achievement of stated basin objectives. At the same time, the principles are not exclusive to each provision but reinforce each other in implementing the substantive rules.[18] One may also argue that the attempt at balancing presented in the guiding principles is not surprising given the need to satisfy the needs of all riparian states paying particular attention to the concerns of downstream states.

The scope of the agreement (Article 1) defines ERU "as provided for in Article 3(7)(a) and (b) and Article 3(8)(a) and (b) of the SADC Protocol". Article 13 provides for ERU and 13(2) states that "the rules of application of ERU shall be developed by the Technical

[17] Article 6 and the composition and functions of these organs are as articulated in Articles 7, 8, 9, 10 and 11 of the ZAMCOM Agreement.

[18] See McIntyre 2006: 172–175 for a general discussion on the relationship between some of the principles and both ERU and the prevention of significant harm.

Committee as provided for in Article 10(1)(c)".[19] This, thus, leaves it to basin states to agree. This is similar to what occurs in the Orange-Senqu Basin where the Council—same as Technical Committee in the ZAMCOM Agreement—advises states on ERU (Article 5.2.2 of the Agreement on the Establishment of the Orange-Senqu River Commission). Article 10(1)(c), regarding the function of the Technical Committee, states that its purpose is, *inter alia*, to "develop and propose for consideration and approval by the Council, rules of application to facilitate ERU … pursuant to Article 13". Article 13 presents ERU, specifically in 13(3) and 13(4), and includes factors that should be considered which are the same as those contained in article 3(8) of the revised SADC Protocol. Given reservations on the interpretation of the factors to determine ERU by Biswas (1999) and Lankford (2013), it remains interesting to see how the rules to facilitate ERU will be negotiated, agreed and applied in the basin. However, despite the reservations, one can argue that the ratification of the ZAMCOM Agreement went a long in strengthening institutional arrangements for shared watercourses management in the region and signified a common vision among riparian states. It remains to be seen how the development of the rules happens, as already pointed out, given that "[t]here is also lack of awareness of international management issues, their importance and required capacity" (Shela, 2000: 77) at the riparian state level.

Subsections (i), (ii) and (iii) of Article 10(1)(c) add a layer onto the factors to consider in determining ERU under Article 13 regarding information gathering and sharing. Furthermore, Article 13(5), states that "In the application of ERU, Member States shall take into account of Article 14(4)", which presents how to remedy the situation in the event that "significant harm is nevertheless caused to another state". One can argue that this was a necessary addition in an attempt at balancing the two provisions. The ratification of the agreement by Mozambique is telling in that regard. However, Article 14(4) may present a challenge for the balancing act as a country may proceed with a planned measure, within reason, as long as they can remedy the situation in the event that significant harm is caused. This is bearing in mind that even from a narrow legal injury perspective, the law may permit causing of some factual harm if it is within the actor's right of equitable and reasonable utilisation having paid due regard to procedural rules. Yet, flouting a rule of procedure does not, in itself, necessarily, result in contravening a substantive rule.

In addition, while the Technical Committee is mandated with proposing the rules to facilitate ERU, it is worth pointing out that they only recommend what can be done while the final decision rests with the Council of Ministers.[20] This, one could argue, goes back to Biswas' (1999) argument that in the end it will depend on the prevailing political sentiments and the incentives to negotiate in good faith. All in all, while Malawi has not ratified the ZAMCOM Agreement, the country has ratified the revised Protocol and is bound by the substantive principles contained in the ZAMCOM Agreement as they are customary international law.

[19] This supports McIntyre's argument that the specificities of ERU are best left to basin agreement *supra* note 6 and is the same in the Orange-Senqu Basin where the Council advises states on ERU (see Article 5(2)(2) Agreement on the establishment of the Orange-Senqu River Commission (Botswana, Lesotho, Namibia, South Africa) (ratified November 2000), (entered into force 2003)).

[20] See article 10 of the ZAMCOM Agreement on the functions of the Technical Committee and Article 8 of the same for the functions and powers of the Council.

5 Substantive rules and the Lake Malawi/Niassa/Nyasa sub-basin

The Lake Malawi/Niassa/Nyasa sub-basin is one of the thirteen sub-basins of the Zambezi Watercourse. Upstream, the Songwe River rises in the highlands of Malawi and Tanzania and serves as the border between the two countries before emptying into the Lake. Downstream, the Shire River drains the Lake, flowing through southern Malawi and is the largest tributary flowing into the Lower Zambezi. Fatch and Swatuk (2018) showed that rather than a unified whole, water management in the sub-basin is constituted by a set of four distinct decision contexts informed by riparian state interaction: (i) the Songwe River (Malawi and Tanzania); (ii) the northern portion of the Lake (Malawi and Tanzania); the central-southern portion of the Lake (Malawi and Mozambique); and the Shire River (Malawi and Mozambique). Each portion of the sub-basin raises distinct challenges for water management in the context of local and national ambitions of economic development. In this section, we investigate how the substantive rules described above manifest in each of these decision contexts.

5.1 The Songwe decision context

The discussion on how substantive rules apply to the Lake Malawi/Niassa/Nyasa sub-basin cannot be removed from the history of the riparian states. In the Songwe decision context, as contained in the 1890 Anglo-German Agreement (Germany & Great Britain, 1890), the Songwe River marks the boundary between Malawi and Tanzania. Article 2 of the 1901 Anglo-German Agreement (The United Kingdom and Germany, 1901)[21] specifically points to the *thalweg* as defining the boundary. These provisions, as they stand today, confer upon each riparian state the rights of access to the river within its respective territory. The persistent meandering of the Songwe River created problems for both countries not only by "tampering" with the juridical boundary, but also creating socio-economic woes for basin inhabitants on both sides of the river (Msilimba et al., 2009). A common interpretation of substantive rules by the riparian states, therefore, exists influenced by common needs that include, primarily, the pursuit of a fixed juridical boundary between the two states and hence the need to train the river to stop it from meandering. Thereafter came the need or the recognition of the wider benefits that could be derived and shared among the two riparian states not least of which is access to funds for the realisation of those benefits because of their cooperation. The evolution of what is now known as the Songwe River Basin Development Programme (SRBDP) from a joint river stabilisation project serves as testimony in this regard.

As demonstrated in the operationalisation of the SRBDP, arriving at what is deemed to be equitable and reasonable use of the shared watercourse has been a negotiated process with formulae developed and agreed upon by both riparian states to satisfy national and shared interests. Among the many benefits to be derived from the programme are irrigation projects and hydropower generation where the two countries will benefit as follows: irrigation (based on an estimation of possible irrigable land in each country within

[21] "In all cases where a river or stream forms the boundary, the *Thalweg* of the same shall form the boundary; if, however, no actual *Thalweg* is to be distinguished, it shall be the middle of the bed." (Article 2 of the Agreement between the United Kingdom and Germany relative to The Boundary of the British and German Spheres of Interest Between Lake Nyasa and Tanganyika. Signed at Berlin, February 23, 1901. Treaty Series. No. 8 of 1902.).

the sub-basin and available water)—3050 hectares in Malawi and 3150 hectares in Tanzania; and power generation—an estimated 340 MW are to be generated from the 3 dams to be shared equally and connected to grids in both countries. This was guided by a shared agenda that is "to contribute to the economic growth, reduced poverty, improved health and living conditions, and enhanced food and energy security for the people of the Songwe River Basin in the context of the overall economic development of the two countries" (Lahmeyer International GmbH and ACE Consulting Engineers, 2013). The primary interests of the riparian states and how the project has evolved exemplifies the benefits riparian states can derive from transboundary watercourses and emphasises the important role common (national) interests play in accelerating cooperation in a shared watercourse. However, the deliberate construction of the SRBDP as a development programme removes (and deliberately ignores) the contentious nature of the relationship between the two riparian states downstream the system on the Lake. The SRBDP exists isolated from the wider sub-basin politics affecting the holistic management of the sub-basin. Thus, the SRBDP, while demonstrating the catalytic nature of the shared watercourse in propelling socio-economic development, cooperation in solving transboundary water resources problems and benefit sharing, overlooks the geo-physical nature of the basin—the waters from the Songwe Basin flow into the Lake Malawi/Niassa/Nyasa.

5.2 The Lake Malawi/Nyasa decision context

On Lake Malawi/Nyasa (between Malawi and Tanzania), again the 1890 Anglo-German Agreement defines the existing boundary—on the eastern shoreline of the Lake—between Malawi and Tanzania as well as the right of access to the resource. Yet both the demarcation of boundary and rights of access bring about contentious claims of "ownership" of the Lake that have fuelled a longstanding dispute between the two countries. To date, no legal rectification of the boundary as adopted at independence has been negotiated and concluded as provided for in the Article VI of the same Agreement. Article VIII provides for the right to utilise the Lake and prohibits unequal treatment of inhabitants in riparian states regarding use of the resource. This provision holds true today, as Tanzania continues to utilise the Lake for irrigation, fisheries, transport and communication among other uses. As such, the 1890 Anglo-German Treaty, while regarded as the root of the contentious relationship among the two riparian states, nevertheless facilitated the realisation of ERU by providing for unhindered access to the resource for both states.

In the case of the riparian states: for Malawi, while respecting the right of Tanzania to access the resource in line with Article VIII of the Anglo-German Agreement, the same Treaty, in placing the boundary on the eastern shoreline of the Lake, has been understood to mean Malawi's "ownership" of the entire northern portion of the Lake and, as such, permission to do as the country wills with it. This is shown in the unilateral nature in which the country conducted itself in issuing licences for the exploration of hydrocarbons beneath the lakebed. One can argue that while Malawi may claim territorial sovereignty as there has not been a legally binding revision of the boundary provision contained in the 1890 Anglo-German Treaty, the country is bound by customary international law hence adherence to substantive rules in its use of the shared watercourse. These substantive rules, as already shown, are made practical by the use of a suite of procedural rules among them the duty to notify, consult and negotiate and exchange information hinged on the duty to cooperate in good faith. Therefore, Malawi's realisation of its right to use the resource to

its benefit is bound by the accompanying obligations of that right. It can be further argued that the country contravened substantive rules in the manner in which it conducted itself in the shared watercourse.

Tanzania disputes Article I(2) and related "ownership" claims made by Malawi. For Tanzania, Article VIII of the 1890 Anglo-German Agreement that allows for unrestricted access to the resource has been (mis)construed to mean acquiescence on the part of Malawi to its claims of "joint ownership" of the northern portion of the Lake. These claims are contained in an official Government of Tanzania communication to the SADC Secretariat in 2002. Therein, Article VIII is argued to translate into equitable and reasonable utilisation and claimed to include the right of ownership of the resource based on historic and current utilisation as well as the associated duty to protect the resource in realising ERU[22] (see Mayall, 1973 and Fatch & Swatuk, 2018 for context). Malawi disputed Tanzania's acquiescence claims and submitted a formal response to SADC. The interpretation of ERU, especially the argument that ownership is inherent in ERU arising from the responsibility of riparian states to protect the resource, draws attention to the early conceptual thinking of the Watercourses Convention. According to Vick (2012: 159), draft articles submitted to the UN Committee in 1981 suggested that ERU could be translated into "shared natural resource", thereby "characterising international watercourses as shared natural resources". Subsequent draft articles, 1984 and 1986 and maintained in the 1997 UN Convention, moved away from the "shared natural resource" concept to "shared utilisation" in so doing referring to the "sharing in the use of water in a reasonable and equitable manner" (ibid: 160). The former concept was opposed by the International Law Commission and the Sixth Committee of the UN General Assembly as it was felt that it touched on sovereignty sensitivities of Member States (ILC, 1986: 94). The need to protect the resource arising from ERU is provided for in Article 5(1) of the Watercourses Convention and similarly in Article 3(7)(a) of the revised Protocol. The latter provision reads: "an international watercourse shall be *used* and *developed*…in view to attain *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" (emphasis added). Furthermore, Vick (2012) argued that "reasonable use" as part of ERU places a limitation on a riparian state's use of an international watercourse thereby taking into consideration the protection of the resource. Reasonable utilisation considerations include the natural conditions, competing uses as well as the changing circumstances as a result of natural conditions, changing water use patterns or needs. Thus, reasonable use can be seen to include the use of water for economic benefit, efficient utilisation without waste, and thereby no unreasonable injury to other riparian states. Protection of the resource, as a result, comes about because of the reasonableness in the shared use of an international watercourse and not necessarily from the ownership claims of the said resource. Therefore, the duty to protect accompanies the rights of riparian states to use, develop and benefit from a shared

[22] In 1960 Julius Nyerere was quoted as saying'I must emphasise again…there is now no doubt at all about this boundary. We know that not a drop of the water of Lake Nyasa *belongs* to Tanganyika under the terms of the agreement, so that in actual fact we would be asking a neighbouring Government…to change the boundary in favour of Tanganyika. Some people think this is easier in the case of water and it might be much more difficult in the case of land. I don't know the logic about this'. In 1962 the Prime Minister, Rashidi Kawawa, made two points: (i) that no part of Lake Nyasa fell within German East Africa; (ii) that since the boundary had not been altered by Great Britain after the assumption of the mandate…whatever the disadvantages to Tanganyika the Government could negotiate…with the Government of Nyasaland itself and must wait the attainment by Nyasaland of full independence (Mayall, 1973: 615–616).

watercourse. Reasonable utilisation and the prevention of significant harm act to limit the extent of use (or abuse) of the resource in this decision context. However, as already mentioned, realisation of both rules result from a negotiated process as seen in the case of the Songwe and especially considering sovereignty sensitivities on the Lake Malawi/Nyasa.

5.3 The Lake Malawi/Niassa decision context

The southern portion of the Lake shared between Malawi and Mozambique is somewhat uneventful in comparison with the north. The revision of the 1890 Anglo-Portuguese Treaty in 1954 that rectified the boundary between the two states from the eastern shoreline to the median line does away with a boundary-based dispute. As a result, each country has an equal right to access and utilise the water resources under its jurisdiction. The two riparian states exercise equitable and reasonable utilisation of the shared watercourse, literally, within their "respective territories". However, in utilising the said water resources, each country is still obliged to prevent the causing of significant harm. The duty to prevent significant harm can be said to also be adhered to not least because of there being no events that have pointed towards contravening the said rule. The revised Protocol facilitates the prevailing cordial relationship. An agreement establishing a joint water commission to advise on matters of conservation, development and utilisation of waters of common interest between the two countries was signed in November 2003. Nearly 20 years later, the commission is yet to be established.

5.4 The Shire-Zambezi decision context

Downstream, on the Shire-Zambezi, the Lake's outlet to the Zambezi, the relationship between Malawi and Mozambique and the experience with substantive rules between the riparian states is somewhat different. The *"centre of the channel"* on the Ruo and Shire Rivers, as provided for in Articles I(1) and (2) of the 1890 Anglo-Portuguese Convention and treaty signed in 1891, forms the boundary between the two countries making cooperation over the management of the transboundary resource inevitable. Indeed, respective ministries responsible for water in both riparian states share data and periodically exchange information. However, Malawi's desire to explore the re-navigability of the Shire and Zambezi to "create a gateway to the sea" and diversify and reduce the costs of transportation of exports from and imports into the country brought to the fore the importance of substantive rules and their accompanying procedural rules. To start with, Malawi's navigation ambitions, while backed by the SADC and COMESA (Common Market for Eastern and Southern Africa) (AfDB, 2011; SADC 2009), were seen to be incompatible with Mozambican interests. Mozambique has invested heavily into road and rail networks connecting Malawi and other landlocked countries in the region to the sea as well as port improvements.[23]

[23] It has been put forward that the Shire-Zambezi Waterway, if reopened, would not only serve Malawi but also Zimbabwe, Zambia and inland Mozambique and Tanzania. Mozambique has among other things offered Malawi preferential port rates in order to dissuade Malawi from further pursuing the navigation project (also see http://www.nyasatimes.com/2015/09/23/mozambique-deals-blow-to-malawis-shire-zambezi-waterway/). Furthermore, others have argued that apart from Mozambique trying to protect its own national interests by trying to dissuade Malawi from further pursuing the navigation project, Mozambique is also using the navigation project to persuade Malawi to ratify the ZAMCOM Agreement, i.e. no cooperation unless you cooperate.

Procedurally, initial notification regarding the project was made by Malawi and a MoU guiding interactions between the two riparian states including Zambia was signed in 2009. The project was funded by the African Development Bank under the SADC. The MoU contained procedures to be followed to facilitate the operations of the project. These included the need to conduct a transboundary EIA (Article 6(a) and (c)) to enable all interested parties to make an informed decision on the project based on the study's outcomes. The need for a transboundary EIA is not only good practice for projects with possible transboundary impacts, but it is also in line with Article 4(1)(b) of the revised Protocol. EIA findings facilitate effective notification among riparian states and satisfy due diligence requirements of the duty to prevent significant harm by paying attention to agreed-upon parameters. A transboundary EIA's role in ensuring adequate notification and possibility of meaningful consultations makes it a non-negotiable part of transboundary watercourse development (McIntyre, 2011: 140–143). However, Malawi flouted procedural rules and the 2009 MoU by not conducting the transboundary EIA prior to the "symbolic" launch of the Nsanje Inland Port in 2010. The absence of the transboundary EIA disregarded Malawi's duty to notify and share information on a planned measure and in so doing compromised the riparian's duty to prevent the causing of significant harm. This caused a diplomatic rift between the two governments at the time. Yet, it has been argued that, indeed, while Malawi had not conducted the transboundary EIA, the Nsanje Inland Port launch merely exacerbated already strained relations between the then Presidents Bingu wa Mutharika and Armando Guebuza of Malawi and Mozambique, respectively. That aside, in 2014, a feasibility study that included the transboundary EIA was resumed. While Malawi and Mozambique hold different opinions on the navigability project, they stand to be guided by the findings of the joint study.

The Shire-Zambezi Waterway project raises interesting issues regarding national and somewhat political interests in the use of a shared watercourse. Specifically, how, in the pursuit of national (sovereign) interest, substantive rules are compromised which results in limitations in the realisation of the use, development and benefits from a shared watercourse. At the same time, the success of the navigation project relies on the cooperation of Mozambique that is technically "downstream" on the Shire-Zambezi but "upstream" in terms of allowing Malawi's goods to move from the coast, through Mozambique, inland to its port. In this regard, Malawi's navigation ambitions make negotiation and cooperation over the utilisation of the transboundary resource non-negotiable. Exploring the navigability of the Shire and Zambezi, thus, brings to the fore the importance of interpretation, application and compliance with substantive rules and procedural rules to facilitate the realisation of the project. The Shire-Zambezi Waterway Project also highlights how "unilateral development initiatives produce international tensions making cooperative behaviour difficult and hampering regional development by impeding joint projects and mutually beneficial infrastructure" (Wolf et al., 2005: 87; cf. Grzybowski et al., 2010).

6 Conclusion

To recall, substantive rules—equitable and reasonable utilisation and the duty to prevent significant harm—are customary international law and complementary in nature. For the Lake Malawi/Niassa/Nyasa sub-basin, they present opportunities and facilitate long-term cooperation in shared watercourses as is the case of the Songwe (with SRBDP and the Shared Vision) to enable common socio-economic development in riparian states. At the

riparian state level, interpretation of substantive rules is, in most cases, guided by national (sovereign) interests unless where circumstances necessitate riparian states to cooperate and be guided by a shared interest as seen in the Songwe. However, at the same time, substantive rules present challenges where without a common understanding of what they exactly entail, it is left to the whims of whichever riparian state claims their application to serve national (sometimes political) interests in the name of international water law.

The Lake Malawi/Nyasa decision context between Malawi and Tanzania points to the need for further clarification and debate on how ERU relates to territorial sovereignty and related ownership claims by riparian states. These claims also arise in riparian states' interpretation of ERU attributed national boundaries and to the accompanying obligation to protect the resource. In addition, the legality and practicality of attributing "ownership" to ERU based on longstanding access and use of a shared watercourse in this decision context remains debatable as international water law further evolves. Similarly, riparian state claims in the decision context must be cautiously noted considering the need to further weigh ERU and prevention of significant harm vis-à-vis existing and potential uses in the decision context.

The Shire-Zambezi decision context brings to the fore the importance of procedural rules that accompany and facilitate the application of substantive rules. The decision context illustrates the adage that "we are all downstream" and highlights the interdependencies created by shared watercourses. In the spirit of cooperation and good neighbourliness, there exist established procedures that enable riparian state actions. These procedural rights and duties also act to enable ERU while at the same time preventing the cause of significant harm, thereby taking care of the interests of all riparian states.

In summary, arriving at what is meant by ERU or prevention of significant harm is a negotiated process and cannot be assumed given sovereignty sensitivities. The duty to prevent significant harm and the accompanying due diligence requirements, when properly applied, act to limit riparian state "abuse" of a transboundary watercourse. Even where a country claims "ownership" of the shared resource, substantive rules as customary international law and accompanying treaties to which riparian states are party, limit such claims and facilitate shared utilisation and protection of shared watercourses. Essentially, realisation of the substantive rules relies on the duty to cooperate in good faith. This realisation also rests on the ability of all riparian states to understand, interpret and apply these rules as well as articulate and negotiate their positions regarding the management—development, use, protection, allocation, regulation, and control—of a shared watercourse. At the same time, the inability of riparian states to understand and interpret substantive rules limits the application of substantive rules and challenges cooperative shared watercourse management. This presents a gap that cooperative arrangements at the sub-basin and the larger basin scale can fill. In a way, substantive rules emphasise the significance of cooperative mechanisms especially in providing space for state interaction, negotiations and guiding interpretation, application as well as compliance with international water law.

The Lake Malawi/Niassa/Nyasa sub-basin case study raises several important questions, suggesting directions for future research. As shown above, there is no one application and interpretation of the substantive rules across the sub-basin: behaviour is decision context specific, reflecting state interests in water resource development. Thus, what does variation in application mean for international water law broadly defined? On the one hand, scholars such as Biswas (1999) regard the vagueness of the principles as an impediment to sustainable, equitable and efficient resource use. On the other hand, the case study suggests that flexibility in interpretation and application inherent in the vagueness of the principles can be an advantage, particularly in historically complex contexts where colonial agreements

still shape notions and facts of sovereignty. Another pressing issue is the application of international law within the broader basin commission context. If ZAMCOM is to be the foundation for sovereign state (cooperative) action moving forward, does the basin organisation have the requisite capacity and skills as well as the juridical power to act accordingly? Lastly, in light of the previous two questions, and in the presence of all ZAMCOM riparian states having acceded to the SADC Water Protocol, does Malawi's reticence to ratify the ZAMCOM agreement suggest that macro-scale river basin organisations need not serve as the governance framework for water resources? If the answer to this question is yes, what does this say about Agenda 2030's Sustainable Development Goal 6 Target 6.5 wherein RBOs are to be operationalised by the end of this decade? In conclusion, it seems to us that existing controversies over ERU versus or in relation to the duty to prevent significant harm and in relation to sovereignty will continue to bedevil law makers interested in a unified approach applicable across all cases and contexts in time and space. As shown in the case study above, however, this need not be an impediment to the realisation of the ideals embedded within these articles of agreement.

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References

African Development Bank (AfDB) (2011). Multinational—Malawi, Mozambique, Zambia: Feasibility study for the Shire-Zambezi Waterways development project: appraisal report. https://www.africanwaterfacility.org/fileadmin/uploads/awf/Projects/AWF-Project-appraisal-report-MULTIN-SHIREZAMBEZI.pdf.

Beck, L. (2010). Transboundary water allocation in the Zambezi River Basin. Doctor of Sciences dissertation submitted to Eth Zurich, Switzerland, October 2010, DISS.ETH NO. 19048. https://doi.org/10.3929/ethz-a-006205803

Biswas, A. K. (1999). Management of international waters: Opportunities and constraints. *International Journal of Water Resources Development, 15*(4), 429–441.

Cascão, A., & Zeitoun, M. (2010). Power, hegemony and critical hydropolitics. In A. Earle, A. Jagerskog, & J. Ojendal (Eds.), *Transboundary water management: principles and practice* (p. 2010). Earthscan.

Daoudy, M. (2010). Getting beyond the environment-conflict trap: Benefit sharing in international river basins. In A. Earle, A. Jagerskog, & J. Ojendal (Eds.), *Transboundary water management principles and practice.* Earthscan.

Fatch, J., & Swatuk, L. A. (2018). Boundaries of benefit sharing: Mapping conflict and cooperation in the Lake Malawi/Niassa/Nyasa sub-basin. *Water Security, 4–5*, 26–36.

Germany & Great Britain. (1890). Anglo-German Treaty [Heligoland - Zanzibar Treaty]. July 1, 1890.

Gupta, J., & Schmeier, S. (2020). Future proofing the principle of no significant harm. *International Environmental Agreements, 20*, 731–747.

Grzybowski, A., McCaffrey, S. C., & Paisley, R. K. (2010). Beyond international water law: Successfully negotiating mutual gains agreements for international watercourses. *Pacific McGeorge Global Business & Development Law Journal, 22*, 139–154.

Institute of International Law (IIL). (1961). *Resolution on the use of international non-maritime waters*—Salzburg. http://www.fao.org/docrep/005/w9549e/w9549e08.htm. Accessed 11 Sept 1961.

Institute of International Law (IIL). (1979). *The pollution of rivers and lakes and international law, (English translation)*, session of Athens, 1979, http://www.idi-iil.org/idiE/resolutionsE/1979_ath_02_en.PDF.

International Law Association (ILA). (1966). *The Helsinki rules on the uses of the waters of international rivers*. http://www.unece.org/fileadmin/DAM/env/water/meetings/legal_board/2010/annexes_groundwater_paper/Annex_II_Helsinki_Rules_ILA.pdf.

International Law Commission (ILC). (1976). First report on the law of the non-navigational uses of international watercourses. Mr. Richard D. Kearney, Special Rapporteur. In Yearbook of the International Law Commission 1976 vol. II(1). Document A/CN.4/295. Available at: j/https://legal.un.org/ilc/documentation/english/a_cn4_295.pdf. Accessed 13 Oct 2022.

International Law Commission (ILC). (1986). Second report on the law of the non-navigational uses of international watercourses. Mr. Stephen C. McCaffrey, Special Rapporteur. In Yearbook of the International Law Commission 1986 vol. 11(1). Document A/CN.4/399 and Add. 1 and 2. Available at: https://legal.un.org/ilc/publications/yearbooks/english/ilc_1986_v2_p1.pdf. Accessed 13 Oct 2022.
International Law Association (ILA). (2004). *Berlin rules on water resources.* http://www.internationalwaterlaw.org/documents/intldocs/ILA_Berlin_Rules-2004.pdf.
Kazhdan, D. (2011). Precautionary pulp: Evolving dispute between international tribunals over the reach of the precautionary principle. *Ecology Law Quarterly, 38*, 527–552.
Lankford, B. (2013). Does article 6 (factors relevant to equitable and reasonable utilisation) in the UN Watercourses Convention misdirect riparian countries? *Water International, 38*(2), 130–145.
Magsig, B. (2015). *International water law and the quest for common security*. Earthscan.
Malzbender, D and Earle, A. (2008). *The impact and implications of the adoption of the 1997 un watercourse convention for countries in southern Africa*. http://www.internationalwaterlaw.org/bibliography/WWF/RASADCstates.pdf
Mayall, J. (1973). The Malawi-Tanzania boundary dispute. *Journal of Modern African Studies, 11*(4), 611–628.
McIntyre, O. (2006). The role of customary rules and principles of international environmental law in the protection of shared international freshwater resources. *Natural Resources Journal, 46*(1), 157–210.
McIntyre, O. (2010). International water law: Concepts, evolution and development. In A. Earle, A. Jagerskog, & J. Ojendal (Eds.), *Transboundary water management: principles and practice.* London: Earthscan.
McIntyre, O. (2011). The world court's ongoing contribution to international water law: The pulp mills case between Argentina and Uruguay. *Water Alternatives, 4*(2), 124–144.
McIntyre, O. (2015). Benefit-sharing and upstream/downstream cooperation for ecological protection of transboundary waters: Opportunities for China as an upstream state. *Water International, 40*(1), 48–70.
McIntyre, O. (2020). The current state of development of the no significant harm principle: How far have we come? *International Environmental Agreements, 20*, 601–618.
Menon, P. K. (1975). Water resources development of international rivers with special reference to the developing world. *International Lawyer, 9*, 441–464.
Msilimba, G., Juma, I., & Swatuk, L. A. (2009). Transboundary water resources governance in the Songwe river basin, Malawi and Tanzania: Conventional management techniques, local perceptions and developmental needs. In L. A. Swatuk & L. Wirkus (Eds.), *Transboundary water governance in southern Africa: Examining underexplored dimensions* (pp. 179–196). Nomos Press.
Ramoeli, P. (2002). The SADC protocol on shared watercourse: history and current status. In A. Turton & R. Henwood (Eds.), *Hydropolitics in the developing world: A southern African perspective.* Centre for International Political Studies.
Rieu-Clarke, A., Moynihan, R., Magsig, B. (2012). UN watercourses convention—user's guide. IHP-HELP Centre for Water Law, Policy and Science.
Southern Africa Development Community (SADC) (1995). Protocol on shared watercourse systems. SADC.
Southern Africa Development Community (SADC) (2000). Revised protocol on shared watercources. SADC.
Southern Africa Development Community (SADC) (2009). SADC infrastructure development status report for council and summit. https://www.sadc.int/files/2113/5293/3523/Infrastructure_Development_Status_Report.pdf.
Salman, M. A. S. (2007). The Helsinki rules, the UN watercourses convention and the Berlin rules: Perspectives on international water law. *Water Resources Development, 23*(4), 625–640.
Salman, S. M. A. (2009). *World Bank policy for projects on international waterways: An historical and legal analysis*. World Bank Publications.
Schmeier, S., & Gupta, J. (2020). The principle of no significant harm in international water law. *International Environmental Agreements, 20*, 597–600.
Shela, O. N. (2000). Management of share river basins: The case of the Zambezi river. *Water Policy, 2*, 65–71.
Tanzi, A. M. (2020). The inter-relationship between no harm, equitable and reasonable utilisation and cooperation under international water law. *International Environmental Agreements, 20*, 619–629.
The United Kingdom and Germany. (1901). Agreement between the United Kingdom and Germany relative to The Boundary of the British and German Spheres of Interest Between Lake Nyasa and Tanganyika. February 23, 1901.
United Nations (1945). Statute of the international court of justice. https://treaties.un.org/doc/source/docs/charter-all-lang.pdf#page=23

United Nations. (1997). Convention on the Law of the Non-Navigational Uses of International Watercourses. 21 May 1997, General Assembly resolution 51/229, annex, Official Records of the General Assembly, Fifty-first Session, Supplement No. 49 (A/51/49).
Vick, M. J. (2012). The law of international waters: Reasonable utilisation. *Chicago-Kent Journal of International and Comparative Law, 12*(1), 143–178.
Wolf, A. T., Kramer, A., Carius, A., & Dabelko, G. D. (2005). Managing water conflict and cooperation. *Worldwatch institute, state of the world: Redefining global security* (pp. 80–95). W.W. Norton and Company.
Wouters, P. (1999). The legal response to international water scarcity and water conflict: The UN watercourses convention and beyond. German Yearbook of International Law 42 (pp. 294–337). Duncker and Humblot.