"Advancing human capabilities for water security: A relational approach"

INTRODUCTION

Water security is a concept that has gained ascendance in policy circles and academic scholarship, yet it remains loosely defined. Indeed, several review articles and edited volumes attest to the conceptual dynamism in water security research (Cook and Bakker 2012; Lankford et al 2013; Pahl-Wostl et al 2016; Staddon and James 2014; Gerlak and Mukhtarov 2015; Jepson et al 2017). Water security analyses to date have focused on a range of sectors (e.g. agriculture, potable water, ecosystem services) and scales (e.g. household, nation state, river basin), and have considered different external drivers (e.g. climate change, armed conflict, economic growth) and key responses (e.g. water storage infrastructure, water supply technologies, water policy reforms). While these analyses put forward different interpretations of water security – with various emphasis on risk (Garrick & Hall 2014), rights (Bustamente et al. 2012), environmental sustainability and adaptation (Vörösmarty et al 2010; Scott et al 2013), water quality (Cook 2016), and complexity (Zeitoun et al 2016)– these existing approaches almost universally converge on defining water insecurity in terms of material water scarcity. This position, in turn, leads to calls for a variety of metrics and policy measures that result in the long-term provision of water to redress such deficits and deficiencies (Molle & Mollinga 2003; Norman et al 2012; Mason 2013; Jepson 2014; Meier et al 2014; Basu et al 2015).

We see this broad position reflected in water security literature and practice regarding the assessment of water deficiencies among low-income populations around the world, which are increasingly being reframed from integrated water management (IWRM) to water security (Gerlak & Wilder 2011; WaterAid 2012; Staddon & James 2014; Gerlak & Mukhtarov 2015).

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Academic scholarship has done much to identify the direct and indirect burdens of under-provision of water to socially and economically marginalized communities (Cairncross et al 1990; Jepson & Vandewalle 2016; Krumdeick et al 2016; Workman et al 2017), as well as to explore the effectiveness of solutions that range from low-cost technologies to new pricing regimes (Budds and McGranahan 2003; Spronk 2009; Vandewalle & Jepson 2015; Staddon et al 2016). As such, a set of key parameters have been defined to assess household water provision, including access, quantity, quality and affordability (Jepson et al 2017), which are embodied in the Sustainable Development Goals, and have come to be viewed as key benchmarks for evaluating water security by the global community.

Our aim in this paper is not to abandon, but rather re-conceptualize, water security in ways that explicitly tie to broader social and political relations that enable access to water, rather than focus on the materiality of access to water in and of itself. Our conceptualization of water security draws on a normative moral and political philosophical framework that centers on well-being, development and justice, called the "capabilities approach." We envision water security as both grounded in the social relations of access to water, as well as critical to a set of relations and functionings that advance human flourishing. As such, we challenge the dominant view of water security that identifies water as a material object ('H$_2$O') that needs to be 'secured,' which usually point towards interventions to capture water to alleviate or address situations where it is deficient or scarce. Instead, we reposition water security as a hydro-social relation.

The hydro-social relation describes "the process by which alterations or manipulation of water flows and quality affect social relations and structure, which, in turn, affect further alteration of water" – its flow, processes and movement (Linton and Budds 2014, 175). Our use of the hydro-social cycle refers to the co-production of water and society, which is distinct from

ideas around socio-hydrology that aim to recognize social influences on hydrological processes (Pande and Sivapalan 2016). This hydro-social process operates at and through multiple scales – household, city, basin, region, and country. Moreover, the meanings of water, and cultural practices associated with water, are also subject to transformation as its physical flow and processes change and develop. In this way, we advocate a shift from seeing water itself as the object to be secured, and instead emphasize the wider relations through which water is organized by humans and shapes people's lives (Zeitoun et al 2016). Thus, we propose thinking about water security in its broadest sense: securing the ability to benefit from the sustained hydro-social processes that water provides in support of human capabilities and wellbeing.

We identify three interrelated dimensions critical to our more holistic water security framework: human capabilities, politics, and culture. Each dimension allows us to better contextualize water security beyond an object (H_2O) to be secured for a certain population. Instead, the relational perspective demands a fuller consideration of the political structures and processes through which water is secured, with emphasis on the social relations of access as opposed to simply the politics around water supply. It departs from perspectives that emphasize the utilitarian nature of water provision, and pays greater attention to the relations and functionings that advance human wellbeing. We also attend to cultural dimensions, such as the meanings of water and customary practices that are not easily captured by standardized metrics. By including these dimensions, we necessarily broaden analytical space to evaluate water security as a relational and dynamic process tied to lived experience, rather than as *solely* parameterized conditions in relation to access or availability of water. To begin, we need to consider water security as critical to human capabilities.

THE NEED FOR A HUMAN CAPABILITIES APPROACH TO WATER

International targets to improve access to water have catalyzed a series of debates over the human right to water (Gleick 1998; Woodhouse and Langford 2009; Sultana and Loftus 2012; Chenoweth et al 2013; Morinville & Rodina 2013; Zwarteveen and Boelens 2014). A first major critique of a rights-based approach to water is that it is largely compatible with privatization (Bakker 2010; Murthy 2013; Staddon et al 2011), obscures a critical discussion of underlying inequalities (Bond 2012), and reflects an implicit bias toward the individual in the Western philosophical tradition that further underscores the problems that arise when the debate is over an object (Bustamente et al. 2012). Attention to water as an object to which individuals have rights misses the complex dimensions of domestic water use writ large, by narrowly focusing on potable water interventions while sidelining productive or other water needs (Goff and Crow 2014). Nevertheless, the state centricity of the human right to water might be particularly apposite in an era of neoliberalization where state functions and responsibilities have been radically recalibrated (Mirosa and Harris 2012).

The human right to water debate inspired others to question the object of such claims. Linton (2012) asks: "the human right to what?" This question reflects a shift from thinking about water as a material substance that is universally defined ('H_2O'), towards understanding water as outcomes of hydro-social relations ('water'), which are diverse and dynamic across space and time. Linton then describes the hydro-social cycle, which emphasizes water's different physical forms and cultural meanings, as well as its processes of production (for example, treated potable water, desalinated water, bottled purified water), all of which shape, and are shaped by, social relations – including institutional arrangements, discourses, patterns of exclusion and identities (Linton and Budds 2014; Jepson and Brown 2015).

A relational view of water security can be developed and informed by the capabilities approach of Amartya Sen (1999, 2001, 2011) and Martha Nussbaum (Nussbaum and Sen 1993; Nussbaum 2003, 2005, 2009; 2011).[1] The capability approach, originating in welfare economics and political philosophy, is a normative framework to assess how wellbeing and social arrangements contribute to or detract from human flourishing and freedom. This approach defines a person's well-being in terms of beings and doings (functionings) and in terms of his or her capability to choose among such functionings. That is, well-being is linked to justice in terms of people's capabilities to function: a just social arrangement supports individuals' "effective opportunities to undertake actions and activities that they want to engage in, and be who they want to be" (Robyens 2005, 95).[2] The capability approach respects people's different ideas of the good life, and their capacity to achieve it.

We draw on Nussbaum's normative framework and explicit list of capabilities as a guide to link hydro-social relations and human wellbeing. Nussbaum's work, which draws on a moral-legal political philosophy, frames capabilities as a political goal which holds special ethical significance for social and political arrangements. In brief, the capability approach respects peoples' different ideas of the good life, and this is why capability is the political goal. In this way, capabilities are emerging as the basis for individuals to make claims on society, connected to equity, recognition, participation, and democratic rights. Moreover, the capabilities approach extends beyond the individual to communities (Ibrahim 2006; Stewart 2006; Schlosberg and Carruthers 2010). In particular, attention to indigenous claims to environmental justice demonstrate that, "[s]pecific [political] demands focus not only on religious, cultural, and traditional capabilities, but also on the political freedoms and the self-determination that enable community functioning" (Schlosberg and Carruthers 2010, 18).[3] And while there are important

philosophical differences among capabilities scholars, an underlying common thread ties divergent views of well-being, human flourishing and relationships to freedoms rather than concentrating on commodities or the material conditions of wealth.

We pull that thread to connect the capabilities approach to how we envision water security, drawing on insights from scholars who have considered water scarcity and water justice in developing countries through Sen's capabilities lens (Anand 2010; Mehta et al 2014; Goff and Crow 2014). Mehta (2014) considers water scarcity in terms of entitlement and capabilities approaches. She makes a forceful case that the "right to water" (H_2O) in its reproductive (eg., health, bodily requirements, etc.), and productive dimensions (subsistence, maintaining livelihoods, etc.) are necessary to "allow people to enjoy a host of capabilities" (2014, 66). Moreover, Mehta concludes that governments, therefore, "need to prioritize providing poor people with access to water that is safe, affordable and allows them to flourish" (2014, 67).

We explicitly extend Mehta's call to reconsider water scarcity in terms of the capabilities approach by attending to hydro-social relations of water security in discourse and practice. In this way, the goal or normative claim we are making is not the right to H_2O, but a "right to water security," or the ability of individuals, households, and communities navigate hydro-social relations to secure safe and affordable water particularly in ways *that support the sustained development of human capabilities and wellbeing in their full breadth and scope*. In this way, calls for water security as defined thusly provides a normative, individual and collective ethical claim to policy and actions in ways that are broader than previous considerations of water and human capabilities as we develop below.

The ethical foundation of water justice is bound to the material, social, political and cultural capabilities of individuals and groups, and we argue that our approach to water security

offers an approach to. Indeed, this conceptualization of water security resonates with Jamie

Linton's proposition for a relational right to water, one that:

> "…can be formulated in ways that go beyond the usual claim of a quantity of
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> water for individual human needs…to define a relation between the collective
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> identity of people on the one hand and the process by which water articulates with
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> society on the other" (Linton 2012, 57).

Therefore, a definition of water security informed by the capabilities approach necessarily

attends to water as part of a hydro-social process that is simultaneously material, discursive, and

symbolic, differently valued – as neither entirely subjective nor material, operating both at the

individual and collective scales. Focusing on the capabilities approach also places more

attention on the processual dimensions of water as a relation, rather than solely on the outcome

in terms of whether or not one is able to access affordable and safe H_2O.

WATER SECURITY, POLITICS, AND POWER

The application of critical scholarship to household water deficiencies emphasizes the

political processes that limit access to potable water (Swyngedouw 2013). Loftus (2015) brings

this perspective to bear on water security by arguing that the political underpinnings of water

insecurity are insufficiently recognized in the mainstream water security literature. While some

recognize the political dimensions of water provision (Wutich et al 2013), the key distinction is

that the politics are often restricted to water supply issues rather than the ways in which

exclusion and changing social relations of water are produced through changing technology,

governance, and discourse. For our reconceptualization, then, a critical dimension of water

security centers around securing the capacity of individuals and collectives to participate

meaningfully as political actors in the hydro-social system, including key decision-making and governance practices. As Staddon and James remark, a progressive concept of water security "underpin[s] a process of management based on deliberative democracy rather than state or market fiat" (2014, 262-3).

Repositioning water from an object (H_2O) to a relation within the hydro-social cycle informs our approach to water security and opens up new analytic possibilities, including how water is produced, how it is evaluated, how it is meaningful, how it becomes enrolled in wider agendas, and how all of these are influenced by power (Linton and Budds 2014). We argue that for a truly progressive approach to water security, these relations need to be identified and integrated into any assessment. As such, the emphasis of instrumental interventions will be shifted away from the delivery of drinking water as an end. Instead, emphasis must be on the promotion of social relations that are conducive to securing safe and affordable water for individuals and communities so they can live their lives as they choose. In short, the focus would shift towards sustained, sustainable and just hydro-social processes in support of human capabilities.

The value of the hydro-social cycle in this regard is that it directs attention towards a wider range of relations that merit scrutiny. For example, in Antofagasta, northern Chile, the water supply company providing potable water to this coastal city as well as bulk water to the inland mining industry, has diverted inland mountain water from the city's supply in order to serve the mines, which are closer to this source. This resulted in the replacement of the city's water supply with that from a new desalination plant (also now closer by). While the company still provides water to urban areas, the quality is slightly less acceptable to many residents. If we consider mountain water and desalinated water as the same thing ('water'), then the implications

of the switch could easily go unnoticed. However, the change has undermined the urban

population's water security, by instead rendering it dependent on the potentially fluctuating

supply of desalinated water as well as on the high costs of a desalination plant (Fragkou and

Budds, forthcoming). Inevitably, source water change shifts hydro-social relations, as there are

different technologies and institutions that are enrolled in this reconfigured waterscape of

treatment, provision and access.

The increasingly popular privately packaged and vended sachet water sold in West

African cities is another example of how securing water has paradoxical impacts on water

security (Stoler et al 2012; Stoler et al 2015; Stoler 2017). Water sachets, comprising treated

water packaged in 500ml polyethylene plastic bags, may reduce risk of gastrointestinal illnesses

by mitigating the cross-contamination in household storage containers. Yet, the supply of

drinking water is concentrated in the hands of an increasingly formalized corporate network of

manufacturers, many of which operate under collective logics that limit customers' participation

in water governance (Wutich et al 2016). Thus, dependence on sachets renders consumers

vulnerable to price shocks related not to water availability, but to political events such as sudden

shifts in national monetary and regulatory policy (Stoler 2017). Moreover, given that sachet

water is often sourced from municipal piped water, the volumes of water withdrawn can

destabilize public system water pressure and availability, undermining existing water services for

network users who depend on that water for their domestic water needs (Morinville 2012).

Sachets create a stream of plastic waste that, in the absence of adequate solid waste management,

can exacerbate flooding, which potentially increases risk of water-related disease. Moreover,

sachets both shift the politics of provision from the state to the market, as well as provide a stop-

gap solution that may reduce the urgency for more fundamental solutions to address water

insecurity. So, while the innovation of sachet water purports to 'secure' clean drinking water, this young industry simultaneously redistributes water risk and vulnerability in new ways.

We also can better conceptualize the importance of state-society relations and politics from a relational perspective that highlights everyday water provisioning technologies and strategies. Rainwater harvesting and grey-water barrels in Tijuana, Mexico not only save money but enhance local expertise and provide a form of everyday autonomy from state power (Meehan 2014). That is, some households preferred rainwater harvesting and associated technologies that allowed them to be disconnected from the centralized water supply, outside the purview of failed state institutions and surveillance. Meehan writes, "ordinary and domestic infrastructures are constitutive of difference – in effect limiting the jurisdiction of the state, through their scattered and individualized modes of water collection" (2014, 223).   On the other hand, there are counter examples that demonstrate preference for state or utility provision as it enhances a sense of state legitimacy or citizenship, which has other implications for democracy and shifting state society relations (Vandewalle and Jepson 2015, Harris, 2012).

Together, these examples illustrate that securing water involves securing a set of relationships or capabilities in the political or public sphere, which go beyond just securing water (H_2O) delivery. They show that water is a function and outcome of different relationships and hydro-social dynamics, all of which have potential implications for human wellbeing and functioning. Moreover, we contend that attention to water security should include the relations that mediate people's access to water, rather than simply advocate a particular mode of participation (as clients, recipients, customers or even citizens). While the call for "democratic participation in producing flows of water and social power on which life itself depends" offers a progressive opening (Sultana and Loftus 2012, 13), it places too much emphasis on the 'usual

suspects' of civil society organizations as the protagonists, given that other actors (such as politicians and officials) are assumed to be too much part of the problem to be part of the solution. For our purposes, the absence of specificity in terms of political form serves to keep the ever-present tensions of social power, gender inequities, and social marginalization within formal political structures and processes at bay, because social activism is not immune to the power inequities that operate in society (Agarwal 2001). Adopting the relational framework of the hydro-social cycle strikes us as a way of engaging in actions to redress water insecurities without prescribing what sorts of universal actions and actors should be involved.

CULTURAL DYNAMICS OF SECURING WATER

Capabilities are understood as what people are able to do and be, or the genuine (and positive) freedoms and opportunities to realize what a person does or is. Capabilities necessarily include imagination, thought, and emotions, all which inform cultural affiliation, expression, values, and practices central a life worthy of human dignity. Thus, from our perspective --that water security describes the dynamic process by which individuals, households, and communities navigate hydro-social relations to secure safe and affordable water in ways that support sustained development of human capabilities in their full breadth and scope—we must attend to cultural practices, identities, norms, and beliefs as they are central to those ends.

Culture can be defined as "beliefs, attitudes, practices, and spiritual and emotional explanations that we use to create norms…in social institutions" (Singer et al 2016). Culturally-shared views of water fundamentally shape people's understandings and experiences of water security (cf. Donahue and Johnston 1998). In many cultures and societies, the human-water relationship is not conceptualized as merely consumptive or focused on instrumental water

needs. Cross-cultural analysis suggests that, in many contexts, hydro-social relations include spirituality, stewardship, and relational sense of responsibility to other beings. Examining the ways communities themselves define water security broadens our gaze from access and adequacy to include how cultural knowledge, values, and dynamic practices inform the hydro-social relations of water security at community and local levels. From such a perspective, we gain an appreciation of the broader scope of socio-political interactions with cultural practices and ontologies to reshape water access, quality or water-related well-being—often in ways that extend beyond a narrow utilitarian focus on basic needs for human physical health.

Water is culturally conceptualized as spiritually meaningful in many communities. This includes cultural notions and ontologies of water as "sacred" (Shiva 2016, Staddon and Everard, forthcoming), "a gift from the Creator" (McGregor 2004), and "life" itself (Boelens 2014). While these views have been widely documented in Indigenous communities, such relations exist elsewhere as well, including among Western religions that similarly conceptualize water as holy (Oestigaard 2017; Strang 2015). For many, the right to water often cannot be divorced from the responsibility to protect it as part of a common (and therefore not alienable) heritage (Norman 2014). While these views have been widely documented in Indigenous communities, it is important to recognize that all perceptions of water – including its rendering as "modern water" (Linton 2010) – are, in effect, the outcomes of cultural practice (Strang 2015).

The starting point of water as having cultural and spiritual qualities is very different from water that is viewed as utility (H_2O) or a resource that is countable, divisible, fragmented, and policed through multiple jurisdictions, agencies, and technologies (Norman 2013; Donatuto et al 2016). For instance, recent work has opened up space to query what it might mean for water governance to take seriously the possibility that multiple water ontologies exist (Yates et al

2017). This call demands that we take seriously the "possibility and politics of a multiplicity of water-related worlds… ways of being with-water, not just different perceptions of or knowledge systems tied to water's (singular) material existence" (Yates et al 2017, 2). These emerging perspectives add to, but also go beyond, work on the epistemologies of water (Gerlack and Mukhtarov 2015). A key distinction with the 'ways of knowing' approach is that our proposed approach emphasizes the plurality 'water' as co-produced rather than simply the plurality of epistemic positions around physical water flows.

Tensions between water viewed as sacred versus as a resource to be exploited can make defining and enacting water security in culturally-appropriate ways a difficult task. For example, in the Ganga River, conflicts about the power of the river to purify emerged between the state and those who use the river to bathe, drink, and wash their dead (Alley 2002). Overcoming differences in how water is defined can be further complicated by the extra-territorial processes of pollution and water governance (e.g., Sefiha and Lauderdale 2008), particularly when communities are impacted by pollution and activities that are outside of their defined jurisdiction (Cajete 2000; Boelens 2015, Norman 2017).

Beyond the spiritual values of water, many societies have cultural norms for water and sharing that are deeply engrained in their senses of reciprocity, family, and community, all of which support a sense of wellbeing and human flourishing. In many societies, water sharing, which lies outside the modern water paradigm (Linton 2010), is a social obligation that is crucial for survival in times of water scarcity (Wutich 2011, Pearson et al 2015). In remote Alaska Native communities, for example, the elderly, disabled, and households headed by single mothers of small children depend on water sharing norms to overcome periods of water shortage (Eichelberger 2010; 2011). Studies also describe how young men and teenage boys are often

responsible for providing water to their household and sometimes to households within their kin network (Eichelberger 2010, Hennessy and Bressler 2016). Such hauling of water and disposing of wastewater are sources of pride and cultural identity for many young men in remote Iñupiaq and Yupik communities where employment opportunities are few. Therefore, water security in this case necessarily needs to attend to water provision, cultural obligations, and social relations so as not to unduly impinge or constrain freedoms and opportunities to realize what a person or community does or is in relation to water resources.

Cultural variability is particularly salient when we adopt a gender lens for viewing water security. Cross-culturally, women and girls tend to have greater responsibilities for household water acquisition and more intimate knowledge of household water management practices (e.g., Wallace and Coles 2005, Ray 2007, Wutich 2009, Stevenson et al 2012). Yet development interventions to secure water for communities at times destabilize gender roles in ways that work against goals of advancing human functioning or capabilities. In rural India, for example, development projects that focused on the commodification of water destabilized gender roles related to water (O'Reilly 2006). Women's roles shifted from the 'traditional' household water manager to 'modern' notions of femininity that involved cleaning public taps, serving on water management committees, and paying for water. In the end, such shifts did not always serve the goals of enhanced capabilities for the women, nor for the families who often depend on them.

By reconceptualizing water as a relationship, we are better able to incorporate the interconnectedness of water rights and water responsibilities as core to water security. At the same time, care must be taken to avoid the essentialization of culture and to attend to intra-cultural variability in water beliefs and practices. We also understand that culture is not static. Household and communal water practices, resource-based social networks, and water ontologies

are continually reworked or co-produced in relation to political, economic, and material worlds. For example, contemporary technologies attached to neoliberal cost-recovery mechanisms, such as prepaid meters and forced disconnections, create new subjectivities that undermine these social relations and cultural values that promote household water security (Loftus 2006; Eichelberger 2014; Eichelberger 2016; Von Schnitzler 2016). We also see the interplay of cultural politics and power impinge and transform the operation of alternative water sources or long-standing water provisioning modalities. For example, Molden et al. (2016) describe how stone spouts, indigenous socio-technical water systems in Kathmandu, persist and contribute to household water provision for the Newar people. Such systems offer critical spaces and rules of use for social organization, cultural resilience, and spiritual meaning, yet external entities seek to discipline these systems into water management plans. Thus, securing water, in this case as in many others, is a process that is as much about utilitarian needs as it should be to ensure cultural reproduction, collective values, and identity in relation to the waterscape.

CONCLUSION

Water security is a powerful concept that has gained much traction in research and policy. The global scope of its applications –from geopolitics to human health—indicates the diverse ways in which it applies to water policy, practice and governance, across multiple levels and scales. Across the breadth of its use, the common, central object to be secured has been understood as material water (H_2O) –whether for productive purposes (agriculture, industry, resource extraction), conservation (ecosystem services, recreational uses), or reproductive needs (domestic use, human health). Certainly, water security operationalized in these ways brings issues of water resources sustainability to the fore in useful ways.

Yet, we contend that it is time to reorient the concept of water security away from a utilitarian focus on material water and towards a critical approach based on water-society relations. Rather than securing water *per se*, we argue that water security should be about transforming water-society relations to promote human wellbeing and empowerment. In other words, water security is less about obtaining water, and more about fostering human capabilities through water. As such, we put forward a progressive and critical framework that is informed by the human capabilities approach and the concept of the hydro-social cycle. This allows us to pose questions that are fundamentally different to the existing dominant concern about how to improve and/or expand water provision. We thus ask: *What are the social, cultural, and political relationships with water resources and flows that advance a life worthy of human dignity?* And, how are those relationships secured to facilitate the freedom to achieve wellbeing, fulfilling social arrangements, and human flourishing? From our perspective, water security, then, is not simply a *state* of adequate water - however defined - to be achieved, but rather a *relationship* that describes how individuals, households, and communities navigate and transform hydro-social relations to access the water that they need and in ways *that support the sustained development of human capabilities and wellbeing in their full breadth and scope*.

Such a reconceptualization, we suggest, shifts the terms of the water security debate in two new and important ways. First, it draws attention away from physical water scarcity and towards the nature of water-society relations that underpin water insecurity, thereby highlighting the underlying conditions that could be subject to transformation as part of our vision of water security. Second, it emphasizes the broad and different types of social relations that exist between particular individuals, households and communities with water resources, encompassing distinct worldviews, ontologies, traditions and gender relations. These interrelated dimensions

are currently marginalized from mainstream definitions and discussions about water security, yet are often essential to people's wellbeing, empowerment, and identity. We know that addressing hydro-social flows in this way will present some methodological and policy challenges. Yet, if our goal is to increase human capabilities, we argue for some changes in how we think about water. In conclusion, therefore, this relational approach to water security is designed to incite reflection about *what* is being secured, *how*, and to *what* end, and, in turn, to inspire new inroads into water security research and practice that seek to enhance the capacities to achieve human dignity for all.

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ENDNOTES

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[1] The capabilities approach is based on several key works by Sen and Nussbaum. Where they differ is in the specification of capabilities. Nussbaum (2009) argues for a list of capabilities (life; bodily health; bodily integrity; senses, imagination and thought; emotions; practical reason; affiliation; other species; play; and control over one's environment) whereas Sen argues that a normative list precludes the opportunity for communities to actively to determine the capabilities necessary for their own functioning. The items Nussbaum's list, however, are the result of an evaluative argument that asks the question: 'What opportunities are entailed by the idea of a life worthy of human dignity?' (Nussbaum 2011, 25).

[2] Two concepts anchor this approach. First is "functioning." Functioning is defined by what a person does or is; for example, to be nourished, take part in religious community, or engage in political life. There is a second concept: capabilities. Capabilities are understood as what people are able to do and be, or the genuine (and positive) freedoms and opportunities to realize those functionings.

[3] Nussbaum recognizes the material premises for the functioning of capabilities and insists on securing this material basis as a minimal threshold level of capability protection for each person; but there are conceptual gaps in her thinking about the environment and even less so in terms of ecosystem services because her understanding of human-environmental relations is one-dimensional (Holland 2008).