

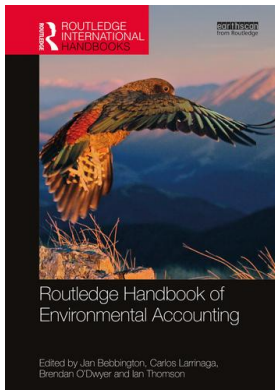
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Jan Bebbington, Carlos Larrinaga, Brendan O'Dwyer, Ian Thomson

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Shona Russell

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27

WATER

Shona Russell

Introduction

Water – a crucial constituent of any society (Bijker 2012:625) or socio-ecological systems – has garnered less attention amongst accounting scholarship than climate change (Chapter 26) and biodiversity loss (Chapter 28). As a major challenge in the Anthropocene, water scarcity, flooding and ongoing debates about rights to water sit alongside concerns about “clean water and sanitation for all” (UN SDG 6) and sustainable water management. This chapter reviews water-related accounting research by identifying and discussing prominent themes, theoretical framings and approaches to research, issues being addressed and concludes by outlining future research areas.

Water has attracted the attention of many across the social sciences. Insights from anthropology and geography have enriched understanding of how water is embedded in social, cultural and political domains (Orlove and Caton 2010); theorised the material and symbolic dimensions of water (Linton and Budds 2014); and emphasised the politics of water (Bakker 2012). Science and technology studies attend to the multiple ontologies of water (Barnes and Alatout 2012) and see water and societies as intertwined. Accounting scholarship must engage with such debates and assumptions about and configurations of the relationships between water and society. These ways of thinking about water effect and are affected by accounting and accountability for the provision of water and sanitation services; the use and management of water by organisations; and the governance of water and freshwater ecosystems. By explicitly considering what is water (an ontological question) and how water can be understood and represented (an epistemological question), accounting scholarship may provide deeper and more critical analysis of existing arrangements and generate important recommendations that enhance accounting’s contributions to more sustainable ways of living and organising.

To orientate ourselves to the scope and scale of water issues around the world, we first explore two recently published United Nations World Water Development Reports (UNWWDR). Second, common themes in water-related accounting research are reviewed and future research areas are identified. Third, we discuss the need to consider perspectives on water–society relations ensuring that future research supports more socially and ecologically sustainable ways of managing water before bringing the chapter to a conclusion.

Water in our world

While water is integral to everyday lives, the scale and scope of challenges vary around the world and are featured prominently in both the Millennium Development Goals and Sustainable Development Goals. Key insights from the two most recent UNWWDR (WWAP 2019, 2020) provide a context in which to examine water accounting scholarship in the next section. The reports, from the UNESCO World Water Assessment Programme (WWAP), provide authoritative and comprehensive overviews of global water use and projections for future pressures demonstrating water's importance to global and regional socio-economic development regions. Since its first publication in 2003, subsequent reports examined important connections between water and energy (WWAP 2014), jobs (WWAP 2016), wastewater (WWAP 2017), inclusion (WWAP 2019) and climate change (WWAP 2020). With each report drawing on various global databases and experts.

Global water demand has increased by 600% over the past 100 years (Wada et al. 2016). Growth in global water use is a result of increasing population, economic development and changing consumption patterns. While progress has been made in terms of access to clean water and sanitation, 2.1 billion people continue to lack access to safe, readily available water at home, and 4.5 billion people lack safely managed sanitation in 2015 (WWAP 2020). Inequalities remain within and between countries, between genders and persist between the richest and the poorest. For example, almost half of people drinking water from unprotected sources live in sub-Saharan Africa (WHO/UNICEF 2017), where the burden of collecting water lies mainly on women and girls, many of whom spend more than 30 minutes on each trip to collect water (UNICEF/WHO 2019). Lack of access to safe water and sanitation is associated with poor health and living conditions, malnutrition and lack of opportunities for education and employment. Water stress, including insufficient access to water and sanitation services, has also been associated with social unrest, conflict, violence and, increasingly, in human displacement and migration (Miletto et al. 2017).

Climate change will aggravate challenges concerning availability, quantity and quality in existing water-stressed regions, and generate water stress in areas where water resources are currently abundant (WWAP 2020). Water resource management will be further complicated by increasing the frequency and magnitude of extreme climate events, including heat waves and storm surges; adverse impacts on water quality due to higher temperatures or higher pollutant concentrations during drought; degradation of ecosystems leading to loss of biodiversity; diminished provision of water-related ecosystem services; and demand for water for agriculture, fisheries and recreation (WWAP 2020).

Contemporary responses to these water challenges are shaped by a collective of international, national and regional policy frameworks. For example, accounting scholars may need to attend to frameworks including the 2030 Sustainable Development Agenda (Bebbington and Unerman, 2018), focusing on water through UN SDG 6 “Ensure availability and sustainable management of water and sanitation for all”; the Paris Agreement where water is not explicitly mentioned but recognised to be essential to all mitigation and adaptation strategies (WWAP 2020); and the Sendai Framework for Disaster Risk Reduction (UNDRR 2015) where water is relevant to all priorities for action. These international frameworks inform much of the work of the public and private sectors and as such shape the understanding and possibilities of enacting water accounting and accountability.

These reports and policy frameworks map a range of water challenges that have considerable potential for future accounting research projects. By taking a problem-centred approach to research (Bebbington & Larrinaga 2014), promising areas for accounting scholarship emerge at

the intersection of water, other environmental, societal and economic concerns, and governing institutions. Regarding the challenges listed in Table 27.1, accounting scholars could:

- Investigate financing and investment in water infrastructure (new and existing) as part efforts to meet SDG 6 and adapt to climate change (SDG 13)
- Examine and design accounting and accountability systems to support conservation of freshwater ecosystems as part of climate mitigation
- Examine and evaluate generation and use science-based targets to guide responses to water challenges (Pacific Institute 2017).

Table 27.1 Challenges emerging from trends in the world's water resources

Challenges	Supplementary information to support future research projects
Water equity, availability & demand	<ul style="list-style-type: none"> • Water use has been increasing worldwide by approximately 1% per year since the 1980s and is expected to continue to increase at a similar rate until 2050, which is an increase of 20–30% above current levels of water use. • Globally, agriculture (including irrigation, livestock and aquaculture) uses most water (69% of annual water withdrawals); industry (including power generation) accounts for 19% and households (12%).
Water quality	<ul style="list-style-type: none"> • Worldwide over 80% of wastewater returns to the environment without treatment. • Several water-related diseases, for example, cholera, remain widespread across developing countries, where only a small fraction of domestic and urban wastewater is treated before being released into the environment. • Nutrient loadings remain a prevalent form of water pollution and agriculture remains the main source of nutrient emissions. • In the future, rapidly growing cities in developing countries are projected to be major sources of nutrient emissions, especially where households lack adequate wastewater treatment systems.
Water-related disasters and extreme events	<ul style="list-style-type: none"> • About 90% of natural disasters are water-related. Floods accounted for 43% of all documented natural disasters, affecting 2.3 billion people, killing 157,000 more and causing US\$662 billion in damage between 1995 and 2015. • Droughts accounted for 5% of natural disasters, affecting 1.1 billion people, killing 22,000 more and causing US\$100 billion in damage over the same period.
Water supply and sanitation	<ul style="list-style-type: none"> • In 2015, 181 countries had achieved over 75% coverage with at least basic drinking water services and the global population using at least basic drinking water services has increased to 89% from 81% between 2000 and 2015. About three out of ten people did not use a safely managed drinking water service in 2015. • The number of people affected or killed by inadequate water and sanitation outnumbers challenges presented by climate change.
Water infrastructure	<ul style="list-style-type: none"> – Significant investment in water infrastructure is required. Global estimates range from US\$6.7 trillion by 2030 to US\$22.6 trillion by 2050. – To achieve the WASH component of SDG 6 by 2030, it is estimated that capital investment needs to triple (to reach US\$1.7 trillion), and operating and maintenance costs will be commensurately higher. – The Food and Agriculture Organization has projected that an estimated US\$960 billion of capital investment is needed to expand and improve irrigation until 2050 in 93 developing countries, compared to the 2005–2007 levels of investment.

(continued)

Table 27.1 Cont.

Challenges	Supplementary information to support future research projects
Freshwater ecosystems	<ul style="list-style-type: none"> - Over the past 100 years, it is estimated that half of the world's natural wetlands have been lost and with this a significant number of freshwater species. - The loss rate of wetlands is three times higher than that of forests - Wetlands, including peatlands, accommodate the largest carbon stocks amongst terrestrial ecosystems and store twice as much carbon as forests. - Climate-induced harmful algae blooms are increasing due to warmer water temperatures and climate change is severely affecting efforts to control such blooms. - Many lakes and estuaries around the world, which provide drinking water for millions of people and support ecosystem services, already have toxic, food web-altering, hypoxia-generating blooms of harmful cyanobacteria. - Poor water quality due to eutrophication (mostly from poor sanitation and poor nutrient management) is one of the most widespread problems affecting available water supplies, fisheries and recreational activities. For example, the estimated cost of damage caused by eutrophication in the United States of America (USA) alone is approximately US\$2.2 billion annually.

Source: Adapted from WWAP2019, 2020.

The two most recent reports have identified several key water challenges that are relevant to accounting research. These are water equity, availability and demand; water quality; water-related disasters and extreme events; water supply and sanitation, water infrastructure; and freshwater ecosystems. Having outlined global water challenges to identify potential research areas, we now turn to a literature review that identifies what and how water has been considered in accounting scholarship.

Tracing the contours of water accounting scholarship

“Water” is an emerging topic for environmental accounting scholars, with published studies on issues of quality, quantity, access, rights and water use, sustainable resource management, company and industry management (Kurland and Zell 2010) that touch upon all of the themes outlined in the UN reports. A review of accounting-related research published from 2010 onwards identified four streams that concern:

- i) *The provision of water and sanitation services*
- ii) *Water governance*, most notably Australia's General Purpose Water Accounting
- iii) *Organisations and water management* incorporating disclosures and management accounting, and
- iv) *Water resource management*, addressing water issues, including freshwater ecosystems and impacts from social and commercial practices.

Each stream of work is discussed before outlining future research areas.

Provision of water and sanitation services

The provision of water and sanitation services by water utilities (including state suppliers, local governments and corporatised publicly owned companies) is a primary site for accounting

research reflecting a long-term interest in this sector. This can be traced back to accounting studies of UK water privatisation (Ogden 1997; Shaoul 1997). Unsurprisingly, water utilities are common institutions selected to explore water accounting and reporting. For example, recent work has explored institutionalisation of sustainable and environmental management (accounting) in water organisations in Australia (Ferdous et al. 2019; Moore 2013), the diffusion and decline of voluntary environmental reporting by municipal water utilities in Finland (Vinnari and Laine 2013) and the role of accounting in moral legitimation processes connected to water sustainability in an Italian water utility (Passetti and Rinaldi (2020)). The early accounting privatisation studies (e.g. Shaoul 1997) have been extended to consider the inclusion of social and environmental concerns in water infrastructure (Kennedy 2011; McDonald-Kerr 2017); the mobilisation of accounting concepts in politicised debates of water sector reform (Jollands and Quinn 2017) and sustainable water management (Cashman 2011; Egan and Agyemang 2019).

In this stream, case studies (single or comparative) are a common research design offering in-depth insights into the contexts and histories that shaped the provision and regulation of water and wastewater services in particular sites and over time. For example, Egan and Agyemang's (2019) study of sustainable urban water management in Ghana between 2005 and 2017 offers important insights into the impact of changing configurations of agencies and other institutions involved in sustainable development initiatives. Similarly, Jollands and Quinn's (2017) longitudinal study of the mobilisation of accounting concepts in the reform of Ireland's water sector, through the lens of actor-network theory, highlighted the persistent influence of accounting on the delivery of this important public service.

Recent work from political ecology demonstrates the value of attending to artefacts, such as smart meters, in the continued reconfiguration of responsibilities and accountability amongst water utilities and consumers (Loftus et al. 2016). Inspired by such work and continuing work informed by actor-network theory (Jollands and Quinn 2017) and performativity (Egan 2014), future research could explore the reflexive impacts of artefacts, technologies, institutional reconfigurations, accounting practices, concepts and ideologies to further enrich our understanding of their consequences on the performing of water and sanitation services.

If accounting scholarship is to contribute to the achievement of SDG 6, then much needs to be done, particularly concerning investments in sustainable water supply and accounting information systems in areas of multiple deprivation (see Truslove et al. 2020), and the less palatable, but critically important, issue of sanitation and wastewater.

Water governance

The second stream examines the contributions and consequences of accounting in water governance spanning voluntary and regulatory institutions, where water accounting systems provide information to users to inform and evaluate decisions (Chalmers et al. 2012a,b). Different theoretical approaches and research designs have been used in this stream. For example, underpinned by a rights to information framework, Hazelton (2013) differentiated types of accounts regarding the scale, entity and use of water information as part of designing water governance systems. These included national water accounts to reflect the stocks and flows of water in particular countries; catchment-based reports that provide information to stakeholders regarding water quality, allocation and use; corporate accounts that disclose aspects of their use and impacts on water and associated freshwater ecosystems; and accounts of water associated with individual products or services.

The development and implementation of Australia's General Purpose Water Accounting System have garnered much research scrutiny. Studies have covered the initial proposed institutional arrangements (Chalmers et al. 2012b); the contribution of the accounting discipline (Chalmers et al. 2012a); potential and actual use and understanding of accounts and accounting systems by stakeholders, at different levels (site and catchment) including groundwater (Leong et al. 2014; Tello and Hazelton 2018). While formal water accounting systems associated with regulatory systems have emerged in practice, the research findings to date suggest that further work is required to understand how they can contribute to the sustainable management of surface and groundwater.

Voluntary initiatives concerning disclosure or stewardship standards have attracted less attention. One notable exception is Mundle et al.'s (2017) study of the Alliance of Water Stewardship and associated meta-governance frameworks that guide future multi-stakeholder partnerships. Another more prominent initiative, the Global Reporting Initiative (GRI 2018), also shapes water governance and organisational disclosure, most recently through the GRI 303: Water and Effluents 2018 Standard. While most GRI-related works concern comparing disclosures against these standards (see the next section), future research could investigate the processes by which any new accounting and accountability standards, regulatory and voluntary, are negotiated, finalised and applied (see, e.g., Hewawithana 2019). This would enrich the understanding of the design and operation of water governance, the appropriate role of water accounting and accountability, as well as identifying possible areas for change. If accounting research is to contribute to future sustainable water governance outcomes, it is important to understand how organisations are responding to and perhaps shaping existing governance initiatives as well as the impacts of doing so. The next section will discuss research that has examined water management, accounting and reporting by organisations.

Organisations and water management

There's growing interest in organisational accounts of water management spanning external (reporting) and internal (management accounting) interests. Reflecting water management as a nascent research area, there is a need for conceptual papers that debate and establish the need for water-related accounting and disclosures. This research stream is dominated by assumptions that "water" accounting information, including external disclosure, is important for decision-making. This assumption echoes the conceptual underpinnings of water governance and the proliferation of water accounting guidelines and standards. For example, Christ and Burritt's (2017b) conceptual framework accounts for the water issues arising within organisations, primarily corporations, in water-intensive industries to understand water impacts, dependencies and how to integrate such understandings into existing accounting systems. Despite the recognition of water crises, associated impacts and wealth of guidance available to businesses, the authors observe a lack of water accounting by corporations.

Reflecting trends in carbon and biodiversity research, much research in this stream draws on secondary data to assess the level and quality of water-related disclosure often regarding reporting standards with a focus on multi-national companies in specific countries (Gibassier 2018) or events. See, for example, Burritt and Christ's (2018) study on water risk associated with the failure of the Samarco dam in Brazil. Many of these studies suggest that disclosures are of poor quality and call for improvements in water disclosures within operations and across supply chains (Linneman et al. 2015; Christ and Burritt 2017a). Other disclosure works examine the performance of industries including agriculture (Tashakor et al. 2019), food and beverage

(Egan 2015) or mining (Burritt and Christ 2018) reflecting their high exposure to water-related concerns.

Management accounting studies include individual (Christ 2014) or industry-wide case studies (Egan 2015). These studies have considered the need and contribution of environmental management tools to support water management within organisations. In-depth case studies provide important insights into the efforts required to design and embed water accounting systems and support organisational transformation for sustainability (Ferdous et al. 2019), the contribution of accountants (Egan 2017) and the role of existing knowledge systems (Tingey-Holyoak and Pisaniello 2019).

Future work could examine organisational and sectoral efforts to translate regulatory and voluntary frameworks into practice. While much of the work above focuses on Australia, studies from other jurisdictions and industries would broaden our understanding of water-related dependencies and impacts across the world, as well as the regulatory contexts in which organisations operate. Recognising that the primary industries are commonly high water users, it may be useful to investigate their water use analysed by particular catchments and the materiality to these ecosystems following similar work in marine ecosystems (see Österblom et al. 2015). Additional approaches to data collection may need to be developed recognising the limited amount of water disclosures. Public sector bodies may be charged with monitoring water use and impacts, or privately-owned company could be shaping water use and management around the world, without having to disclose this information. As ever, a deep understanding of the particular contexts in which organisations are operating is imperative as part of investigations of organisations and water management.

Finally, a noticeable feature of recent conceptual or reviews of water management accounting is the assertion of the need for monetisation of corporate water accounting information to provide a common metric upon which to base decisions (Burritt and Christ 2017). Monetisation raises questions about how knowledge is constructed, meaning is created and water is valued linking back to Hines's (1991) mediation on the value of nature (in this case, water). Undoubtedly, such debates about the multiple values of water will continue to percolate water accounting research and should be welcomed in light of concerns that economic value on water could crowd out other ways of accounting for and relating to water and in doing so detract from possible ways to contribute to water sustainability (Pasetti and Rinaldi 2020).

Water resource management

A fourth stream concerns accounting and accountability in connection with natural disasters, infrastructure and management of lakes and rivers. While garnering less attention than other streams, this collection of work demonstrates rich opportunities to enliven and enrich understanding of past, contemporary and future accounting and accountability to support water resource management. Natural disasters, experienced or expected, have sparked a series of studies concerning flood events in Italy and Australia (Lai et al. 2014; Sciulli 2018), investment in flood infrastructure and the use of cost-benefit analysis (Samiolo 2012); Hurricane Katrina in the United States (Baker 2014) as well as historical analysis of the impact of drought in 1930s America (Walker 2014). Studies here draw on qualitative data and narrative analysis to understand breakdowns in accountability (Baker 2014), the facilitative (Walker 2014) and socialising effects of accounting (Lai et al 2014; Sciulli 2018).

Given predicted increases in water-related natural disasters and recognition that water is the primary medium through which climate change is experienced (UNDRR 2015; WWAP 2020), traditional accounting and accountability systems are likely to be found wanting in

post-recovery phases. However, this research has illustrated opportunities for alternative accounting and accountability to be engaged in dialogues in these contexts. These studies illustrate the diverse and differential temporal, spatial and socio-political impacts of drought and floods where the former can be “long-term and pernicious” (Walker 2014:606) and the latter happen over shorter periods with varying consequences for those affected (Baker 2014). As such, further work could centre on historical and contemporary cases, thereby informing the design and development of adaptive and anticipatory accounting and accountability systems rather than traditional forms of accounting that look to the past (see Chapter 6 on environmental accounting and 21st-century sustainability governance).

Rivers and freshwater ecosystems perhaps surprisingly feature in the accounting literature. Rivers provided a metaphor for Hines’ (1988) discussion of financial accounting’s ability to construct and communicate reality. This observation resonates with more recent debates about catchments. Just as Hines challenged the boundaries and concreteness of organisations, the same applies to catchments. It is often assumed that catchments are objectively defined by science and a static geographic entity around which to organise water resource management and associated responsibilities. However, catchments themselves are boundary objects and where those boundaries lie and how they change is politically, culturally and scientifically determined (Cohen 2012). The interplay between science, politics and culture produces new configurations of entities and what is to be accounted for and what is to be discarded or that which is supposed to be within or outside the responsibilities of those producing or receiving accounts. Thus, if practices and systems of accounting and accountability are to be designed around catchments, as well as organisations, it is pertinent to be aware of the political, cultural, ecological and social implications (Hines 1988).

Rivers and their catchments provide empirical sites in which to examine accounting. Recent work has evaluated accounting the building of dams for hydro-electricity (Hrasky and Jones 2016), access to water rights in Canada (Schneider and Andreus 2018) and river restoration in Scotland (Dey and Russell 2014). Collectively these studies illustrate water’s importance to connected socio-ecological systems and the need for analytical approaches that take account of the multiplicity of human and non-human actors involved in the management and governance of water. While many studies focus on particular individual actors or industries, studies of accounting and water resource management may benefit from the arena framework to illuminate the web of responsibilities associated with the management and governance of water (see Georgakopolous and Thomson 2008). Finally, responsibilities for rivers remain with regulatory authorities or collaborative initiatives; thus, those interested in accountability for such freshwater systems should focus on organisations such as catchment management bodies attending to their institutional history and how that is shaping accountability as it is enacted today and in the future – for example, Duncan’s (2017) examination of water management reforms in Aotearoa, New Zealand.

Surveying the landscape of water scholarship

This literature review has identified an array of different motivations for water accounting scholarship. These include drought, water scarcity, flooding, climate change, innovation and experimentation in policy and practice amongst public, private and civil society. The studies reviewed above signal broad agreement that water merits sustained attention from accounting scholars and practitioners. Issues of water rights and water sustainability to date have garnered less interest amongst the accounting community compared to the provision of water and sanitation and organisational management of water. However, as outlined above, further work is still

required to support efforts to ensure access to clean water and sanitation, in line with SDG 6, and the impacts of climate change on water infrastructure, including flooding.

Theoretical interests and methodological approaches vary across the studies yet share a common position that accounting is seen as a social and institutional practice that enacts and produces certain ways of organising, accounting and accountability relationships (Miller and Power 2013). Against this backdrop, various theoretical perspectives can be identified in the studies reviewed, including institutional theory to investigate changes to management accounting (Ferdous et al. 2019) or stakeholder theory to analysis water-related disclosures in Japan (Burrirt et al. 2016); performativity to understand organisational change (Egan 2014) and orders of worth to establish moral legitimacy (Passetti and Rinaldi 2020). Such perspectives will likely continue to inform theorisation of accounts, accounting and accountability in years to come. Fewer studies draw upon primary fieldwork or qualitative data. To date, research has been dominated by desk-based research exploring secondary data in the form of documents, policies and corporate reports. Building on the emergent insights from the body of works in Australia, Europe and North America, future research could turn to other contexts where water-related issues are particularly acute, such as the provision of water and sanitation in sub-Saharan Africa (Egan and Agyemang 2019; Truslove et al. 2020).

While many studies cite the need to contribute to sustainable water resource management, questions arise as to their actual and potential contribution to sustainability science and practice. Disclosure studies firmly anchored in existing streams of accounting scholarship have their place as do in-depth investigations of particular empirical sites and case studies that enrich and enliven theorisation of accounts, accounting and accountability. Efforts to encourage further water disclosure need to sit alongside in-depth investigations of the efforts of managers, professionals and others and the technologies that shape water management in organisations (Egan 2015) and wider governance arrangements and aspirations for sustainability.

Conclusion

Drought, flood, access to clean drinking water and sanitation and degradation of freshwater ecosystems continue to present challenges around the world. Evidently, accounting scholars are beginning to attend to these concerns (Bebbington and Unerman 2018) focusing on primary industries and water utilities through studies of disclosure and management accounting, engaging with water governance and examining the role of accounting profession in addressing water-related concerns. Global water trends extend beyond these themes and identify a series of promising areas for future research, including flooding and investment in water infrastructure.

Increasingly, scholars recommend interdisciplinary and transdisciplinary research to further enhance water accounting practice and frameworks (Christ and Burrirt 2018) echoing a problem-centred sustainability science approach (Bebbington and Larrinaga 2014). Future scholarship should follow this stream, perhaps addressing the global water trends and challenges outlined and responding to gaps identified above. Reflecting the multidisciplinary nature of water issues, others could document and examine the experiences of collaboration and contribution to policy and practice, which in turn may include consideration of the ontological and epistemological assumptions that inform how research issues are formulated, research approaches are undertaken and recommendations are made.

The studies reviewed illustrate that water and associated industries or events have provided a backdrop to deepen theoretical and empirical understanding of accounting and accountability (see, e.g., Baker 2014). In other cases, water has been treated as a resource or externality

to be managed, demonstrating a seemingly common perspective of “modern water”, which is distinct from society (Linton 2014). Only some studies have recognised the social and cultural dimensions of water or considered the ontological and epistemological perspectives of water–society relations (see Jollands and Quinn 2017; Passetti and Rinaldi 2020). Future research could extend the view that accounting, as a productive force, to consider how accounting shapes and is shaped by water–society relations (Linton and Budds 2014). By explicitly considering multiple perspectives on what water is (ontology) and how it is represented (epistemology) (Yates et al. 2017), future analysis may be sharper and richer, understanding of the politics of water may be enhanced, and be able to offer innovative contributions to theorising and practising accounting and accountability for water. To do so requires engagement with water scholarship in fields of anthropology, geography and science–technology studies, as well as engineering and law. This review of contemporary research is intended to inspire, provoke and inform future work. To conclude, water merits sustained attention. Accounting scholars have much to offer and to learn.

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