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# WATER STEWARDSHIP AND NORTH AMERICA'S FOOD AND BEVERAGE COMPANIES:

## A CASE STUDY IN CORPORATE SUSTAINABILITY

### **Abstract**

The aim of this paper is to provide an exploratory review of the extent to which the leading North American food and beverage companies are publicly addressing water stewardship as part of their corporate sustainability strategies. The paper begins with an introductory outline of the growing importance of water stewardship and a brief discussion of corporate sustainability. The paper draws its empirical material from the most recent information on water stewardship posted on North America's top twenty food and beverage companies' corporate web sites. The findings reveal that the vast majority of the selected companies address a number of elements concerning water stewardship as part of their more general approach to corporate sustainability. However corporate commitments to water stewardship can be interpreted as being driven as much by business imperatives as by any specific concerns for environmental sustainability or a genuine desire to maintain the viability and integrity of natural ecosystems. More critically the authors suggest that the selected companies' commitments to water stewardship are framed within existing business models focused on technological improvements in eco-efficiency and continuing economic growth. The paper provides an accessible review of the water stewardship issues being pursued by North America's food and beverage industry and as such it will interest academics, students, political commentators and business managers interested in water stewardship and corporate sustainability.

**Keywords**-Water stewardship; corporate sustainability; technology; North America

### **Introduction**

The natural resources on which business corporations rely are becoming ever more difficult and costly to access. In reviewing the '*business environment*' in a '*more complex and fast-moving world*' KPMG (2012, p. 10) argue that '*shortages of a number of key resources are becoming apparent*' and suggest that '*companies in all sectors need to prepare themselves for a world where raw materials may be in short supply and subject to price volatility including large prices and increased disruption to supplies.*' At the same time KPMG (2012, p. iii) suggest that '*consumer and investor values are changing*' and that '*as they change more corporations are recognising that there is profit and opportunity in a broader sense of responsibility beyond the next quarter's results*' and that '*the bold, visionary and innovative recognise that what is good for people and the planet will also be good for the long term bottom line and shareholder value.*' In response to the dynamic and potentially unpredictable changes in the availability of natural resources and changing consumer and investor values sustainability is becoming an increasingly important issue for many companies.

In identifying *'six growing trends in corporate sustainability'* (Ernst and Young and GreenBiz 2013, p.1) argue that the growing awareness that *'corporate sustainability and access to natural resources are inextricably linked.'* More specifically In identifying the *'top sustainable business trends of 2014'* Makower (2014, p.13) suggests that *'companies, communities and countries are coming to recognize that water is increasingly being paired with the words crisis or risk'*. In identifying *'water scarcity'* as one of *'ten global sustainability megaforges'* that it *'believes will impact every business over the next two decades'* KPMG (2012), for example, claims *businesses may well be vulnerable to water shortages, declines in water quality, water price volatility and to reputational challenges'* and that *growth could be compromised and conflicts over water supplies may create a security risk to business operations.'* More specifically Lambooy (2011, p.856) suggests that *'water stress is increasingly viewed as a potential constraint on economic growth'* and argues that *'it can be considered part of CSR to adopt policies on sustainable water use.'*

Water is a major element within the food and beverage industry's supply chain though there are variations in the ways it is used across this sector. Within the agricultural sector it is an essential raw material for plant growth, in animal production and for irrigation. It is a primary, and often the major, ingredient for many products and within the food processing and manufacturing industries it is used in cleaning, boiling, cooling, pasteurisation, fermentation, dilution, retrieval, blanching, brining, to trigger germination and for the conditioning and transport of raw material. At the same time water quality is a major consideration within the food and beverage industry and many food and beverage companies also increasingly need to address a wide range of waste water treatment issues. In acknowledging that water is *'a vital resource'* for the food and beverage industry the Institute for Grocery Distribution (IGD) argued that *'the combination of limited availability and high demand, including the expected impacts of climate change, means food companies are subject to increasing water-related risks'* and more pointedly has asked if *'water scarcity'* is *'the biggest threat to global food security'* (IGD 2012). With this in mind this paper offers an exploratory review of the extent to which the food and beverage industry in North America is publicly reporting on water stewardship as part of its general commitment to corporate sustainability. The paper provides brief introductions to corporate sustainability and water stewardship, a description of the framework for the review and the method of enquiry, an exploration of the various water stewardship issues reported by the top twenty foods and beverage processors in North America and offers some wider reflections on water stewardship within the food and beverage industry. The paper is based on secondary source material namely the corporate web sites of the top twenty North American food and beverage companies.

### ***Corporate Sustainability and Water Stewardship***

The concept of sustainability can be traced back as far as the thirteenth century but in more recent times it re-appeared in the environmental literature in the 1970's (Kamara et. al. 2006) and since then it has attracted increasingly widespread attention. Diesendorf (2000) has argued that *'sustainability'* can be seen as *'the goal or endpoint of a process called sustainable development.'* The most widely used definition of sustainable development is *'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'* (World Commission on Environment and Development 1987) which Diesendorf (2000) suggests *'emphasises the long term aspect*

*of the concept of sustainability and introduces the ethical principle of achieving equity between present and future generations.'* However defining this concept is not straightforward and a number of contrasting and contested meanings can be identified. More specifically, there are sets of definitions that recognize that all human beings live on one planet with finite quantities of natural resources and fragile ecosystems on which all human life ultimately depends.

The term 'corporate sustainability' is now in widespread use within the business world. However Polentz (2011, webpage) claims *'ask ten different experts to define corporate sustainability you are likely to receive ten different answers'* and suggests that *'part of the problem in defining such an amorphous term arises from its continuing evolution along with the ever-increasing entry of new stakeholders, an inconsistent set of state and federal laws and the constant onslaught of newly adopted federal and state laws.'* On the one hand there are definitions which seem to emphasise business continuity more than environmental and social sustainability. Dyllick and Hockerts (2002), for example, define corporate sustainability as *'meeting the needs of a firm's direct and indirect shareholders (such as shareholders, employees, clients, pressure groups, communities etc.), without compromising its ability to meet the needs of future stakeholders as well.'* Texas Instruments (2014) for example, uses *'the term sustainability primarily in relation to the operation of our business. We believe responsible, sustainable business can meet current resource needs without compromising the needs of future generations.'* More specifically Texas Instruments (2014) states *'we work towards sustainability by reducing waste and inefficiency in operations including our manufacturing facilities, office buildings and distribution activities.'*

On the other hand there are definitions that more explicitly embrace environmental and social goals and look to integrate these into a company's mission and core business strategy. Here corporate sustainability is concerned with *'companies contributing effectively to a global partnership for sustainable development. It is about companies delivering wide societal value including support for health and human rights improvements, regional development and fair globalisation and respecting the environment by promoting technologies to reduce the emission of greenhouse gases and by implementing effective environmental risk management'* (CSR Quest 2014). van Marrewijk and Werre (2002) argue that *'corporate sustainability refers to a company's activities – voluntary by definition – demonstrating the inclusion of social and environmental concerns'* but they suggest that companies develop different levels of corporate sustainability. They further argue that at the *'holistic'* level in which corporate sustainability *'is fully integrated and embedded in every aspect of the organization'* and its fundamental objective is the *'survival of life on the planet'* (van Marrewijk and Werre (2002). More generally corporate sustainability has been defined as *'the discipline by which companies align decision-making about the allocation of capital, product development, brand and sourcing with the principles of sustainable development, in a resource-constrained world'* (Global Association of Corporate Sustainability Officers (2012).

In examining recent trends in corporate sustainability strategy and performance Ernst Young and GreenBiz (2012) argued that *'over the past 2 decades corporate sustainability efforts have shifted from a risk based compliance focus where rudimentary, voluntary, sometimes haphazard initiatives have evolved into a complex and disciplined*

*business imperative focused on customer and stakeholder requirements.'* Many business leaders have been developing sustainability plans and programmes as an integral component of their corporate strategies. A number of factors appear to be important in helping to explain this trend. These include the need to comply with a growing volume of environmental and social legislation and regulation; concerns about the cost and scarcity of natural resources; greater public and shareholder awareness of the importance of socially conscious financial investments; the growing media coverage of the activities of a wide range of anti-corporate pressure groups; and more general changes in social attitudes and values within modern capitalist societies. More specifically a growing number of companies are looking to publicly emphasize and demonstrate their commitment to sustainability in an attempt to help to differentiate themselves from their competitors and to enhance corporate brand reputation. The increasing rationale for corporate sustainability is perhaps succinctly made by the United Nations Global Compact (2013) namely *'in short the case for corporate sustainability has strengthened in response to the deep interdependencies between markets, communities and people in today's globalized world.'*

However it is important to recognise that a number of critics see the growing business interest in sustainability as little more than a thinly veiled and cynical ploy, popularly described as 'green wash', designed to attract socially and environmentally conscious consumers while sweeping pressing environmental and social concerns under the carpet. So seen, the moves towards sustainable marketing might be characterised by what Hamilton (2009) describes as *'shifting consciousness's'* towards *'what is best described as green consumerism.'* This he sees as *'an approach that threatens to entrench the very attitudes and behaviours that are antithetical to sustainability'* and argues that *'green consumerism has failed to induce significant inroads into the unsustainable nature of consumption and production.'* Perhaps more radically Kahn (2010) argues that *'green consumerism'* is *'an opportunity for corporations to turn the very crisis that they generate through their accumulation of capital via the exploitation of nature into myriad streams of emergent profit and investment revenue.'*

Water stewardship is concerned with the responsible management and future planning of water resources and it is rooted in the belief that all water users have a role to play in the sustainable management of the earth's freshwater resources. That said there seems to be no agreed definition of water stewardship, (and in part it is a contested concept,) but it is now in increasingly common usage to describe corporate engagement with water use. The Alliance of Water Stewardship (2013) defines water stewardship as *'the use of water that is socially equitable, environmentally sustainable and economically beneficial, achieved through stakeholder-inclusive process that involves site and catchment based activities.'* More specifically the World Wildlife Fund (2013) has defined *'water stewardship for business'* as *'a progression of increased improvements of water use and a reduction in the water related impacts of internal and value chain operations.'* In outlining water stewardship as an increasingly important concept for businesses CDP (2013) argued that *'companies with robust water stewardship strategies are typically characterised by having a comprehensive knowledge of water use across their value chain and the impact (current and projected) that water related issues have on their business and vice versa. More importantly, they have appropriate plans and procedures in place to mitigate risks that give adequate consideration to priorities of the local watershed in which they operate.'* More

generally Hepworth and Orr (2013) make a clear distinction between integrated water resource management and water stewardship. The former being *'actions by an authority mandated by the state (within which ownership of the resource is vested by law) to manage water resources on behalf of all water users'* whereas water stewardship is about *'private actors increasingly involving themselves in the management of the common pool-public good regarding water'* (Hepworth and Orr 2013, p.222).

### ***Frame of Reference and Method of Enquiry***

In an attempt to obtain a preliminary picture of the extent to which food and beverage industry is publicly addressing water stewardship as part of their corporate sustainability reporting, the top twenty food and beverage companies in North America in 2013, as ranked by Food Processing (2014) were selected for study (See Table 1). The companies vary considerably in the nature and diversity of their business operations and in their geographical reach and many are household names. PepsiCo, for example, is a leading global food and beverage company with operations in over 200 countries, a net revenue of 65 billion US \$ in 2012 and a product portfolio that includes Pepsi-Cola, Seven Up, Aquafina, Tropicana, Quaker Oats, Doritos and Fritos. Tyson Foods produces a variety of chicken pork and beef products and processed foods, it employs some 115,000 people at a large number of production facilities, feed mills, tanneries and hatcheries in the US and overseas and works with over 6,000 independent chicken farmers and supplies customers throughout the US and in over 130 countries. MillerCoors are the second largest beer company in the US accounting for almost 30% of the country's beer sales, it operates eight major breweries within the US and its portfolio include the premium light brands Coors Light and Millers Lite as well as Coors Banquet, Miller Genuine Draft and Miller High Life. Hershey is the largest producer of quality chocolate in the US and it markets and sells a range of chocolate and sugar confectionery in some 70 countries. Overall the selected companies might be seen to reflect cutting edge approaches to water stewardship within the food and beverage industry and to be keen to publicise their water stewardship commitments and achievements to a wide audience. As such the selected companies provide a simple but suitable framework to explore how large companies are addressing water issues as part of the corporate sustainability strategies and they might be expected to reflect cutting edge thinking and practice.

During the past two decades *'sustainability reporting has evolved from a marginal practice to a mainstream management and communications tool'* (Global Reporting Initiative 2007). Companies use a wide variety of platforms to communicate and report on environmental commitments and programmes and the European Commission Directorate-General for Enterprise lists a number of methods that businesses currently utilise including *'product labels, packaging, press/media relations, newsletters, issue related events, reports, posters, flyers, leaflets, brochures, websites, advertisements, information packs and word-of-mouth'* (European Commission Directorate-General for Enterprise undated). During recent years *'the importance of online communications as part of an integrated CSR communications strategy has grown significantly'* (CSR Europe 2009) and sustainability reporting *'is now undeniably a mainstream business practice worldwide'* (KPMG 2013). With this in mind the authors undertook an Internet search for material on water stewardship on each of the selected company's corporate web sites (See Table 1) in April 2014 using the key words 'sustainability report' and Google as the search engine.

The precise patterns of search and subsequent navigation varied from one company to another but the information revealed by this search procedure provided the empirical material for this paper. The specific examples and selected quotations from the selected corporate websites within this paper are used primarily for illustrative purposes and there is no attempt to provide a systematic analysis and comparative evaluation of the ways companies are addressing water stewardship. Rather the focus is on conducting an exploratory examination of how water stewardship is currently being addressed, conceptualised, operationalized and packaged for public consumption within the North American food and beverage industry. That said the authors recognise that this approach has its limitations in that there are issues in the extent to which a company's public statements realistically, and in detail, reflect strategic corporate thinking on water stewardship and whether or not such pronouncements are little more than thoughtfully constructed public relations exercises. However given the need to drive forward exploratory research in this increasingly important area for businesses and to begin to understand the extent to which major companies are addressing water stewardship as part of their sustainability strategies the authors believe that the Internet based approach adopted in this paper offers an appropriate entry point for analysis and a readily accessible pool of data to underpin the current study. In discussing the reliability and validity of information obtained from the Internet, Saunders et.al. (2009) emphasise the importance of the authority and reputation of the source and the citing of a contact individual who can be approached for additional information. In surveying the selected companies the authors were satisfied that these two conditions were met.

## **Findings**

The Internet search revealed that 16 of the selected companies, namely PepsiCo, Tyson Foods, Nestle, Anheuser Busch, General Mills, Smithfield Foods, Mars, Coca-Cola, Conagra Foods, Kellogg's, Cargill, MillerCoors, Pilgrim's Pride, Unilever, Mendelez and Hershey posted sustainability reports which included material on water stewardship. Three companies, namely JBS, Dean Foods and Hormel provided varied but more limited information on their approach to sustainability and water stewardship and there was no information on water stewardship posted on Kraft Food's corporate website. Within the sustainability reports and information there was considerable variation in both the nature and the volume of the information provided but a range of water stewardship issues were addressed, albeit in different measure and under different headings, including water stewardship strategy; water footprinting; efficiency and reduction in water use; water conservation and recycling; employee engagement; water risks; water resource management; water in the supply chain; and community engagement. While a minority of companies look to publicly report on a wide range of issues, the majority offer a narrower focus on what they perceive to be the major issues.

A small number of companies explicitly stress both the strategic importance of water to their business and their corporate commitment to water stewardship. Nestle, for example, claims *'a long history of leadership on water stewardship because it is critical to the future success of our business and our value chain.'* More specifically the company reports the launch of the *'Nestle Commitment on Water Stewardship'* in 2013 which embraces five key commitments namely to *'work to achieve water efficiency'*; *'advocate for effective water policies and stewardship'*; *'treat the water we discharge effectively'*; *'engage*

*with suppliers especially those in agriculture’ and to ‘raise awareness of water access and conservation.’ More generally Smithfield Foods claims that ‘sustainability has permeated our entire company and that it is important to all our stakeholders including our investors.’ Anheuser Busch report that ‘high quality water is critical to our products and central to many of the processes we use to produce them’ and Coca Cola emphasises its corporate commitment to water stewardship thus ‘Inside every bottle of Coca-Cola is the story of a company that understands the priceless value of water, respects it as the most precious of shared global resources and works vigorously to conserve water worldwide.’*

In some of the selected companies, water footprinting is seen as an important element in underpinning and informing water stewardship strategy. A company’s water footprint is simply defined as the total volume of freshwater used to produce a company’s goods and services. Unilever, for example, reports on conducting *‘detailed measurement and analysis of our water footprint to inform our strategy.’* This analysis revealed that some of the company’s product categories are more water intensive than others and potentially yield the major opportunities, for example, for water reduction. More specifically in 2012, for example, Unilever calculated the water use used to produce a range of agricultural products and identified tomatoes and sugar as its key crops and a number of specific locations where water reduction programmes could have the greatest impact.

Programmes and Initiatives to reduce the volume, and to improve the efficiency, of water consumption against set targets are reported by the majority of the selected companies. Dean Foods stresses that *‘understanding how we use water is at the heart of our water conservation efforts, which include both reducing water usage and finding ways to return clean water to ecosystems.’* More specifically the company reports its employment of water audits to identify, measure and record water use and to identify best practice for asset protection and improved efficiency. The company further reports that this auditing process has led to the identification of over 250 individual water efficiency projects across its operations and looking to the future the goal is to achieve a 35% reduction in the intensity of water use (namely the volume of water per unit of production) by 2020. Hormel provides a number of specific examples to illustrate its attempts to reduce water consumption including the introduction of new spray nozzles in its smokehouse ovens at Austin, Minnesota which reduce water usage by almost 50% and the installation of a new blanching at Dubuque, Iowa which reduced annual water usage by almost 6 million gallons.

Kellogg’s report a range of water saving initiatives including the installation of a reverse osmosis system at its manufacturing plant in Manchester UK in 2013 and the replacement of manual washing by an automated washing process at the company’s cereal plant at Charmhaven in Australia which reduced water usage by 90%. By way of a further illustration of its water reduction initiatives the Kellogg corporate Social Responsibility Report also included a mini case study of its Georgia factory in Rome, Italy. The company reports that this production facility employs some 50 hoses and nozzles to clean the sticky conveyor belts with high pressure streams of water which, when in operation, each uses some 45 litres of water per minute. The company reports that it has introduced and installed a new more efficient conveyor belt washing system which has reduced the water used per hose to less than 14 litres per minute. Overall Kellogg’s reports that the changes outlined above along with improvements to heating and sanitation systems within the



factory have led to it to reduce its water use per tonne of food produced by 69% during 2012.

Commentaries on reductions in water use are also often linked to wastewater treatment and recycling. Coca-Cola, for example, claim that *'in addition to improving our water efficiency, we are also reducing our impact on water systems and contributing to improved water quality by appropriately treating wastewater and returning it to the environment.'* The Coca-Cola reports that all its company owned production plants worldwide are compliant with local wastewater treatment legal requirements and standards though it recognises the challenges involved in attempting to ensure that independent bottling plants in some 200 countries are similarly compliant. Tyson Foods stresses its commitment *'to protecting the water bodies that we discharge to'* and the company reports on operating some 34 full treatment and another 43 pre-treatment wastewater facilities in North America and that its long term aim *'is to eliminate Notices of violation and permit exceedances related to the operation of these facilities.'* More specifically it reports reducing the former by 86% and the latter by 48% during the period 2010-2012.

The role of employee engagement in water stewardship is emphasised by some of the selected companies. MillerCoors, for example, stresses that *'our employees drove great progress in reducing our water usage in 2012'* and the company reports that monitoring brewery performance in real time at frequent intervals during each work shift not only enables brewery managers to directly engage employees to be constantly alert to water usage but also helped to identify changes to improve the efficiency of water use. In a similar vein Nestle suggest that *'by continuing to engage our people with the national and local water stewardship agenda, they can see the issues first hand and prioritise opportunities for shared value with our suppliers, partners and stakeholders.'* Nestle also reports on its investment in its training and education programme for employees, which *'enables them to make better informed decisions that lead to effective water stewardship'* and which *'fosters a systematic, employees-involved, continuous improvement culture.'* A mini case study of improvements in water efficiency at Nestlé's confectionary factory at La Penilla in Spain concludes *'the project has also improved awareness of water stewardship among our employees, creating positive behavioural change for the long term.'*

The issues of physical and regulatory risk and water conservation measures designed to mitigate such risks are explicitly addressed by some of the selected companies. Physical risk concerns the availability and quality of water while regulatory risk is bound up with what is often increasing strict government legislation and regulations on water allocation and pricing, wastewater treatment and the issue of operating licenses. ConAgra Foods, for example, explicitly recognises that managing physical water risk is critical to its continuing business success and that the nature of such risks can change dramatically over a short space of time. By way of an illustration of such changes ConAgra reports that during 2012 the company managed the risks associated with the major flooding of the Missouri and Mississippi Rivers in the central US when the flood waters were very close to its production facilities and affected the everyday lives of many of its employees. The following year the same area of the country faced a major drought which seriously damaged crop yields. Many of the leading food and beverage companies report on their regulatory compliance including, for example, action to ensure that extraction licenses are in place and that waste

water discharges meet, and in some cases, exceeds standards set by locally applicable legislation.

In its sustainability report Smithfield Foods provided a mini case study on a major programme to help conserve aquifers in North Carolina. Here the company's slaughterhouse at Tar Heel, which opened in 1997, initially withdrew 2 million gallons of water each day from two local aquifers and while the area offers abundant water resources there is '*a significant shortage of high-quality fresh water.*' In 1997 Smithfield Foods installed a '*water rescue system*' designed to recycle over 1 million gallons of water per day which in turn allowed the company to increase production while reducing not only its water demands but also the volume of treated water being discharged into the local river system. JBS provided some brief illustrative pen pictures of its water conservation projects. The company's wholly owned Five Rivers feeding subsidiary, for example, recycles and reuses water in an attempt to extend '*the life of underground aquifers and surface water resources*' while the company reports that its beef processing division is '*saving over 10 million gallons per week of water.*'

Coca-Cola reports requiring each of its 860 bottling plants to conduct local water source vulnerability assessments. The company also reports requiring a water source sustainability assessment as an integral part of the due diligence process when acquiring new land for a new factory or purchase a business with existing manufacturing plants. Such assessments embrace the social, environmental and political risks to the water resources which will supply the production facilities and the local communities. They include a description of the water resources available to the plan for both water supply and waste treatment; a review of available water quality; an inventory of the local relevant water resource management agencies and their policy regulation and planning priorities; and an evaluation of how water use could limit both the availability and quality of water for local communities. These assessments provide the framework for bottling plants to develop and implement action plans for risk mitigation at the watershed level. Nestle reports its use of the '*Nestle Combined Water Stress Index*' to assess water stress at given locations. This index helps the company to determine the risks associated with reduced water quantity or quality as well as that from possible competition from other local users.

Looking beyond their own operations, some of the selected companies address water in the supply chain and the issue of community engagement. Nestle, for example, argues that '*the greatest challenge to reduce our water consumption lies in addressing the impacts beyond our factories- in our complex supply chains.*' The scale of this challenge is enormous not only in that Nestle work directly with some 690,000 farmers but also in that the company's '*sphere of influence touches millions more through the commodities we purchase.*' At the same time Nestle explicitly recognises that engaging with its diverse and geographically widespread supply chain is critical if the company is to meet its own water security and water stewardship goals. The '*Sustainable Agriculture Initiative at Nestle*' is a global programme designed to support farmers and to address some of the major challenges in water management and irrigation including farmer and crop resilience to drought and flooding and wastewater and organic waste treatment. Kellogg reports on its work with grain breeders and growers to improve water management and irrigation practices and to introduce more draught tolerant crop varieties while ConAgra's sustainable

agriculture programme focuses upon reducing water use for crops where the company has a direct relationship with growers.

There are a number of strands to the theme of community engagement which operates at a variety of scales. Locally and as part of its more general sustainability commitments to *'People and Communities'* MillerCoors reports on working with not for profit organisations and local volunteers to improve and preserve water resources in over twenty local communities where the company has production facilities. The company also reports on being a primary sponsor of the *'Water As A Crop'* pilot project designed to implement conservation practices on privately owned land along the Trinity River in Texas. Here in an attempt to encourage voluntary conservation, farmers and ranchers receive financial reimbursement for watershed projects that manage water runoff, reduce soil erosion, improve water quality and enhance the economic viability of farms and MillerCoors reports that by the end of 2012 some 39 landowners had signed agreements to improve over 16,000 acres of land.

On a much wider scale Coca-Cola reports on its support for the United Nations Development Programme and more specifically on the *'Every Drop Matters'* programme which has undertaken up to 100 projects embracing watershed restoration, sustainable agriculture initiatives and capacity building among government water managers in over 20 countries mainly in the former Soviet Union. More generally Coca-Cola also reports on its initiatives in addressing the *'water-energy-food nexus'* and in working towards the ambitious and challenging task of seeking to *'ensure water, energy and food security for everyone.'* Here some projects are increasing the ability of watersheds to absorb some of the threats associated with increasingly severe weather events while others are attempting to build resilience in response to ever increasing demands for water, energy and food. More generally Nestle reports on its approach to *'public policy engagement.'* While the company believes that *'governments must take the lead to establish water policies that give people universal access to clean and safe water, within which Nestle and other water users can operate'* it asserts its willingness to *'assist in this process, by advocating for effective water policies and water stewardship.'*

## **Discussion**

The findings suggest that the vast majority of North America's leading food and beverage companies address water stewardship as part of their more general approach to corporate sustainability. Many of the selected companies also report on future plans to increase their drives for further water efficiency and to develop and/or enhance some of the existing initiatives on water stewardship. As such the findings would seem to support Makower's (2014) position that concerns about water are becoming an increasingly important element in corporate sustainability strategies. At the same time the findings reveal considerable variation in the information the leading North American food and beverage companies publicly provide on their approach to water stewardship. In part this would seem to reflect a number of factors including the importance the selected companies attach to water stewardship, their strategic corporate commitment to water stewardship, the resources they are prepared to commit to corporate sustainability reporting and the extent to which they want or feel it necessary to commit to the public disclosure of their water stewardship strategies, targets and achievements. While many of North America's

food and beverage companies are, in reality, at the beginning of their water stewardship journey, a number of issues merit general discussion and reflection.

Firstly there is a set of issues concerning the ways in which the top twenty North American food and beverage companies report on their approach to water stewardship. Generally the accent on providing a simple narrative of water stewardship initiatives and programmes, sometimes illustrated with basic descriptive statistics and mini case studies with pictures and simple diagrams being widely used to illustrate broad themes. Currently there are no clear, agreed or definitive international standards for water stewardship disclosure though some of the selected companies do utilise water specific voluntary reporting frameworks including the CDP (formerly the Carbon Disclosure Project) Water Disclosure key indicators and the United Nation's CEO Water Mandate reporting template. More generally while some of the selected companies, including Hershey's, PepsiCo and MillerCoors, claim their corporate sustainability reports reflect and/or comply with the Global Reporting Initiative guidelines others provide information on water stewardship in their own idiosyncratic house style. Overall the lack of common and agreed frameworks and standards and the use of simple case studies makes it difficult not only to make any meaningful comparison between one company and another but also to assess the contribution that these companies are making towards the water stewardship at regional, national and international levels.

At the same time there is little evidence of independent external assurance of the information on water stewardship posted on their corporate websites by the selected food and beverage companies. Unilever, for example, employed external auditors to undertake limited assurance of a number of the performance measures included in their sustainability report but water stewardship was not explicitly covered in either of these assurance exercises. The widespread lack of independent external assurance can be seen to undermine the transparency, reliability and integrity of the sustainability information posted by the selected companies. That said it is important to remember that many of these companies are large, complex and dynamic organisations. Capturing and storing comprehensive information and data across a diverse range of business activities throughout the supply chain in a variety of geographical locations and then providing access to allow external assurance is a challenging and a potentially costly venture and one which many of the selected currently choose not to publicly pursue. In part this would seem to reflect the more general reflection at *'supply chains area roadblock to improved performance'* (United Nations Global Compact 2013) in improving corporate sustainability.

Secondly while there are variations in the ways in which North America's leading food and beverage companies have implicitly defined water stewardship, collectively their approach can be interpreted as being built around business efficiency and business continuity. The dominant concern, for example, is to reduce the volume, and improve the efficiency, of water consumption which not only helps to safeguard current and future operations but also to reduce costs. As such even though the water stewardship initiatives and programmes within the selected companies' sustainability reports can be seen to be driven as much by business imperatives as by commitments to sustainability. In the opening message to Tyson Foods sustainability report, for example, Kevin Igli, the company's Chief Environmental Health and Safety Officer, argues *'our focus on "People, Planet, Profit and*

*Products” must be in line with our business practices and strategies, or the desired outcomes will simply not be achieved.’* More specifically Smithfield Foods water conservation programme outlined earlier in this paper which the company reported would *‘protect existing groundwater supply, reduce drought risk and provide the infrastructure needed to support future economic development’* also allowed Smithfield Foods to increase production. In a similar vein a number of Coca-Cola’s reported watershed projects in Illinois developed in partnership with the US Department of Agriculture, for example, supply water to the company’s plants as well as to other local users.

More generally such an approach would seem to be consistent with the claim by Deloitte (2012) that companies develop sustainability issues *‘based upon what matters most to the business’* and this would, in turn, seem to privilege commercial imperative in the construction and development of sustainability agendas. More critically Banerjee (2008) has argued that *‘despite their emancipatory rhetoric, discourses of corporate citizenship, social responsibility and sustainability are defined by narrow business interests and serve to curtail the interests of external stakeholders.’* This, in turn, echoes Hobson’s (2006) argument that rich and powerful groups will construct sustainability agendas that do not threaten consumption, *per se*, but seek to link them *‘to forms of knowledge – science, technology and efficiency – that embody the locus of power’* already held by large business corporations.

Thirdly in their pursuit of efficiencies in water stewardship a number of North America’s leading food and beverage companies have looked to harness technological innovation and to promote the diffusion of seemingly environmentally friendly technologies. PepsiCo, for example, reports on innovative solutions to conserving water at its food facility in Funza in Columbia. Here the company installed a high efficiency water reclamation system uses a specialized membrane bioreactor which enables the reuse of 75% of the water entering the plant. This membrane bioreactor technology, combined with low-pressure reverse osmosis produces recycled water that meets the US Environment Protection Agency standards. More generally Nestle argues that its approach to sustainability involves, inter alia, *‘large investments in technology with lower environmental impact.’* However Huesemann (2003) suggests a number of reasons *‘why technological improvements in eco-efficiency alone will be insufficient to bring about a transition to sustainability’* and potentially more divisively Vorosmarty et. al.(2010) argue that *‘massive investment in water technology enables rich nations to offset high stressor levels without remedying their underlying causes, whereas less wealthy nations remain vulnerable.’* In extending this political argument Schor (2005) has suggested that not only do *‘advocates of technological solutions argue that more intelligent design and technological innovation can dramatically reduce, or even stop the depletion of ecological resources’* but also that *‘the popularity of technological solutions is also attributable to the fact that they are apolitical, and do not challenge macrostructures of production and consumption.’*

Fourthly there are issues about the nature of the relationship between corporate strategies and public sector policies in pursuing water stewardship and about the locus of power within this relationship. The United Nation’s CEO Water Mandate (2014), for example, has argued that corporate strategies are *‘grounded in the premise that they advance the public interest and are mutually beneficial to companies, their stakeholders and other actors in the watershed’* and that current concerns and perceptions about the growing incidence of water stress *‘offer a much greater incentive for companies to align their water-*

*related policies and practices with the public interest than in the past.'* In a similar vein Hepworth and Orr (2013) suggest that *'for those who strive for greater user engagement in managing water, the rousing of the private sector represents breakthrough; releasing potential to influence society and the global economy towards more sustainable means of production and resource use.'* While Hepworth (2012) suggests that *'as yet there is little evidence of whether corporate engagement is merely a cynical attempt by business to extend control over the resource'* there are arguments that corporate water stewardship strategies privilege private interests over wider public interests. Hall and Lobina (2012), for example, argued that while a number of large corporate users of water *'use the idea of water efficiency and reducing their global water footprint to claim that this is offsetting local impacts'* but that *'these measures do nothing to reduce the actual impact in these specific locations, and have to be understood as public relations exercises.'* Further Hepworth (2012) argued that *'a primary concern about corporate engagement on water from a social equity perspective is that multiple processes of capture will work to exclude or subdue other stakeholder views, resulting in policy that favours narrow vested interests to the detriment of the public good.'* More politically Hepworth and Orr (2013, p.231) argue corporate water stewardship emphasises *'capital's unique ability to appropriate and sublimate critiques against it and a threat to future water equity and justice.'*

Finally there are tensions between commitments to water stewardship as part of corporate sustainability programmes and the pursuit of continuing growth. Coca-Cola, for example, stresses the company is *'firmly committed to advancing our growth trajectory'* while Nestle claims to be committed to *'sustainable growth'* without explicitly defining the term. Corporate commitments to continuing growth are certainly consistent with the argument by Reisch *et al.* (2008), that while moving towards sustainability is a major policy agenda, *'growth of income and material throughput by means of industrialisation and mass consumerism remains the basic aim of western democracy.'* There are also arguments that economic growth, dependent on the continuing depletion of the earth's finite natural resources, is incompatible with sustainability and that harnessing technology will not offer a long term solution. Huesemann (2003), for example, claimed that business leaders have promoted the concept of eco-efficiency in order *'to ensure that continued economic growth and environmental protection can go hand in hand'* but argued that *'improvements in eco-efficiency alone will not guarantee a reduction in the total environmental impact if economic growth is allowed to continue.'* Looking to the future Huesemann (2003) further argued that unless growth in consumption is restrained *'technological improvements only delay the onset of negative consequences that as a result, will have increased in severity, thereby reducing our freedom to choose satisfying solutions.'*

## **Conclusions**

The findings of this exploratory study suggest that the vast majority of North America's leading food and beverage companies publicly address water stewardship as part of their wider approach to corporate sustainability. However many of the reported water stewardship achievements and commitments can also be interpreted as part of a wider search for operational efficiencies and cost reductions which are driven as much by business imperatives as by any genuine commitment to the sustainability of natural ecosystems and resources. There is only limited evidence of any independent external assurance of the corporate sustainability reports and information the leading food and beverage companies

provided on their water stewardship achievements and this in turn undermines the integrity and reliability of these reported achievements.

More critically, the authors suggest that the selected companies' commitments to water stewardship are couched within existing capitalist business models focused on technological improvements in eco-efficiency and continuing economic growth. Here concerns that *'policy and regulatory capture that will prioritise water allocation for highest value economic value use over environmental and social well-being, livelihood, cultural values and functions, enabling the already powerful to buy out or capture the resource'* (Hepworth and Orr 2013, p. 231) clearly resonate. Looking to the future in the short to medium term the leading players in the leading food and beverage industry may be well advised to provide more comprehensive and verifiable commentaries on their approach to water stewardship achievements and on their achievements in promoting socially equitable and environmentally beneficial outcomes within their corporate sustainability reports. More pessimistically Toffel and Schendler (2013) have argued that *corporate sustainability is not sustainable* and in the longer term, and in the wake of potentially dramatic and unpredictable climate changes, existing business models may be inherently unsustainable and while that poses major business continuity risks for the whole of the food and beverage industry such risks may in turn be dwarfed by greater and more daunting challenges facing humanity.

## TABLE 1: WATER STEWARDSHIP

### TOP TWENTY FOOD AND BEVERAGE COMPANIES IN NORTH AMERICA

PepsiCo	<a href="http://www.pepsico.com/">http://www.pepsico.com/</a>
Tyson Foods	<a href="http://www.tyson.com/">http://www.tyson.com/</a>
Nestle	<a href="http://www.nestle.com/">http://www.nestle.com/</a>
JBS	<a href="http://www.jbssa.com/">http://www.jbssa.com/</a>
Anheuser-Busch	<a href="http://www.ab-inbev.com/">http://www.ab-inbev.com/</a>
Kraft Foods	<a href="http://www.kraftfoodsgroup.com/home/index.aspx">http://www.kraftfoodsgroup.com/home/index.aspx</a>
General Mills	<a href="http://www.generalmills.com/">http://www.generalmills.com/</a>
Smithfield Foods	<a href="http://www.smithfieldfoods.com/">http://www.smithfieldfoods.com/</a>
Dean Foods	<a href="http://www.deanfoods.com/">http://www.deanfoods.com/</a>
Mars	<a href="http://www.mars.com/global/index.aspx">http://www.mars.com/global/index.aspx</a>
Coca-Cola	<a href="http://www.mars.com/global/index.aspx">http://www.mars.com/global/index.aspx</a>
ConAgra Foods	<a href="http://www.mars.com/global/index.aspx">http://www.mars.com/global/index.aspx</a>
Kellogg's	<a href="http://www.kelloggcompany.com/en_US/home.html">http://www.kelloggcompany.com/en_US/home.html</a>
Cargill	<a href="http://www.kelloggcompany.com/en_US/home.html">http://www.kelloggcompany.com/en_US/home.html</a>
Hormel Foods	<a href="http://www.kelloggcompany.com/en_US/home.html">http://www.kelloggcompany.com/en_US/home.html</a>
MillerCoors	<a href="http://www.kelloggcompany.com/en_US/home.html">http://www.kelloggcompany.com/en_US/home.html</a>
Pilgrim's Pride	<a href="http://www.pilgrims.com/">http://www.pilgrims.com/</a>
Unilever	<a href="http://www.unilever.com/">http://www.unilever.com/</a>
Mondelez International	<a href="http://www.mondelezinternational.com/">http://www.mondelezinternational.com/</a>
Hershey	<a href="http://www.mondelezinternational.com/">http://www.mondelezinternational.com/</a>

(Source: Adapted from Food Processing's Top 100. Food Processing



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