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# Investigating Food and Agribusiness Corporations as Global Water Security, Management and Governance Agents: The Case of Nestlé, Bunge and Cargill

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**ABSTRACT:** This article investigates the agency of the world's largest food and agribusiness corporations in global water security via case studies of Nestlé, Bunge and Cargill by analysing their position in the political economy of the world agro-food system and the ways they intentionally and non-intentionally manage and govern water in their value chains and wider networks of influence. The concentrated power of a few corporations in global agro-food value chains and their ability to influence the agro-food market dynamics and networks throughout the world pose asymmetric conditions for reaching not only global food security but also water security. The article will analyse the different forms of power exercised by the corporations in focus in relation to global water security and the emerging transnational water governance regime, and the extent to which their value chain position and stakeholder interaction reflect or drive their actions. Due to their vast infrastructural and technological capacity and major role in the global agro-food political economy, food and agribusiness corporations cannot avoid increasingly engaging, for endogenous and exogenous reasons, in multi-stakeholder initiatives and partnerships to devise methods of managing the agro-food value chains and markets to promote global water security. However, their asymmetric position in relation to their stakeholders demands continuous scrutiny.

**KEYWORDS:** Global water security, food and agribusiness corporations, agro-food value chains, water management, transnational water governance

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## INTRODUCTION

The agriculture sector is responsible for 92% of water consumption globally (Hoekstra and Mekonnen, 2012). Accordingly, major water management and security decisions are made in the world agro-food system. In principle, these decisions are made by farmers managing irrigation efficiency with different techniques and water endowments, by the agricultural input industry supplying factors of production such as seeds and fertilisers to farmers affecting water use, by global agribusiness traders sourcing virtual water embedded in products from different parts of the world, by processors and retailers setting sustainability parameters for their brands and products, by consumers choosing the products they buy, and by policy makers setting the wider regulatory framework for production and trade. However, the concentrated and consolidated power of corporations in global agro-food value chains and the global political economy make this decision-making setting blurred and arguably asymmetric. Although only some 15% of the global agricultural output is traded internationally, a Western corporate-dominated agro-food system has emerged after the Second World War that influences agricultural production frameworks, market dynamics and consumption throughout the world (e.g.

McMichael, 2000, 2009; Clapp and Fuchs, 2009; Murphy et al., 2012). Hence, it also influences the way water resources are managed and governed globally.

A small group of Western agribusiness corporations, notably ADM, Bunge, Cargill and Louis Dreyfus (Murphy et al., 2012), with close ties to political and economic elites in the main agricultural production regions of the world have become the biggest traders of virtual water embedded in commodities (Sojamo et al., 2012). Due to their power in the agro-food system they are key agents in water security also beyond their value chains. Sojamo et al. (2012) and Keulertz and Sojamo (2012) argue that the most recent example of their wider influence is reflected in the current global rush for land and water: new investors from countries with growing demand but with pressing water scarcity currently challenge the Western market hegemony by entering regions such as sub-Saharan Africa with apparently underutilised water resources, arousing a lot of controversy with regard to local water and food security (see e.g. Allan et al., 2012; Mehta et al., 2012). At the same time, an increasing number of corporations facing direct consumer, investor and advocacy group pressure have become active in developing their water risk management and stewardship and disclosing their actions. They are also engaging in the development of the associated tools and practices contributing to an emergence of a private water-governance regime (see Daniel and Sojamo, this issue). This may indicate a shift by the corporations towards transnational water governance as in the case of climate governance, with constructions of a rule regime independent of international institutional developments (Pattberg and Stripple, 2008; Okereke et al., 2009).

At a time of resource crises, climate change and power shifts in the global political economy, further investigations are needed on the nature of the agency of the most powerful food and agribusiness corporations in global water security, management and governance. This article will respond to this need by investigating how and why some of the world's largest food and agribusiness corporations engage in global water management and governance in agro-food value chains and political economy networks (intentionally and non-intentionally), and in the emerging forms of transnational water governance.

First, an analytical framework for conceptualising the agency of the food and agribusiness corporations in global water security, management and governance will be constructed. The framework will be based on theories of global value chain governance, stakeholder interaction and corporate social responsibility, and political economy approaches to analysing corporations as global governance agents. Second, the materials and methods of the study will be briefly introduced. Third, case studies of Nestlé (world's largest food corporation, publicly owned), Bunge (one of the largest global agribusiness corporations, publicly owned), and Cargill (one of the largest global agribusiness corporations, privately owned) will be explored in light of the analytical framework developed. Fourth, the research findings and their implications to literature and practice of water security, management and governance will be discussed, and finally, main research results and a way forward will be concluded.

### **CONCEPTUALISING FOOD AND AGRIBUSINESS CORPORATIONS AS GLOBAL WATER SECURITY, MANAGEMENT AND GOVERNANCE AGENTS**

No robust theory exists for corporate engagement in global water security, management and governance. Global water governance, like global environmental governance in general, is in a state of 'institutional ambiguity' with "no agreed upon norms, procedures or constitution on where and how decisions should be made" (Hajer and Versteeg, 2005). However, the lack of an institutional framework does not mean non-existence of policy making: decisions on sustainability of water management and water security are made intentionally and non-intentionally in dynamic governance networks expanding beyond the water sector, where non-state actors such as corporations are increasingly powerful agents. Agency here is seen as "the capacity of individual and collective actors to change the course of events or the outcome of processes", including "agency unconscious about itself" (Pattberg

and Stripple, 2008). In this analysis the network structure of global water governance and the dynamics between its different agents are strongly embedded not only in the world agro-food system, in its markets, value chains and networks and in the global political economy context, but also increasingly in an emerging form of transnational water governance. Accordingly, the analysis aims at partly navigating in a "'conflict area' with no set institutional structure" mapping also the architecture of the relevant "non-environmental governance systems" (Biermann et al., 2010).

Next, global value chain governance theory, stakeholder theory and power theories of corporations in the political economy of global environmental and agro-food governance will be discussed for the purpose of the analysis.

### **Power of corporations in global value chain governance**

A value chain analysis acknowledging the impact of the wider political economy network helps in identifying the crucial water management and governance dynamics of the agro-food chain. Global agro-food production and distribution processes are highly complex and dynamic network structures where a variety of agents besides corporations, such as consumers and governmental and non-governmental organisations, can take part in the governance standard setting (Henderson et al., 2002; Sexsmith and Potts, 2009). However, power asymmetry is a key driving force in value chain governance and examination of the sources of power, and the ways that it is used is central to the value chain analysis (Henderson et al., 2002; Gereffi et al., 2005; Gibbon et al., 2008; Sturgeon, 2008). Concentration and consolidation of corporate power highlight the value chain actors that should be the focus of the analysis of the governance architecture, pinpointing the agents whose actions need to be changed if different outcomes are to emerge (Sturgeon, 2008).

According to the literature, the agro-food value chains and networks seem to represent two types of dynamics. On the one hand, concentration and consolidation especially in the US and UK retail sector and among the brand-name firms supplying them who are focusing on design and marketing dictate the global demand (OECD, 2001; Gereffi et al., 2005; UNCTAD, 2009). As noted by Humphrey and Schmitz (2001), "because brands stand for high quality or well-defined images, they need to define and enforce product and process parameters. Branding and chain governance thus tend to go together". On the other hand, concentration and consolidation among the non-branded "high volume, low value" agribusinesses enforce a countering system (Gibbon, 2001; Hendrickson and Heffernan, 2002). Nevertheless, the corporations in focus in this analysis represent *lead firms* in Gereffi's terms (Gereffi, 1994). As Kaplinsky and Morris (2002) put it, "participation in global markets is not just governed by trade policies in final market countries. It also reflects the strategic decision [making] of the lead firms in the value chains". According to Sturgeon (2008) "[l]ead firms, because they have the agency (within limits) to choose and replace suppliers, wield purchasing power. Although it is not always exercised, purchasing power allows a lead firm to explicitly coordinate the activities of its supply chain and to pressure suppliers". Furthermore, according to Humphrey and Memedovic (2006), "[c]oncentration among buyers in the value chain (input supplies, processing, retailing, etc) is likely to lead to concentration in production where economies of scale can be obtained. Buyers will seek out low-cost producers, favouring those with large-scale operations".

Kaplinsky and Morris (2002) continue that power in value chain governance can be exercised by forcing other actors in the chain to comply with one's strategy or self-refusing to adapt to others' needs. The most powerful are able to enjoy both points of leverage as they have the capacity to move from one chain to another. However, ultimately even the most powerful agents in value chains are also influenced by the interaction with their stakeholders, which will be discussed next in light of stakeholder theory and corporate social responsibility.

## Stakeholder interaction and corporate social responsibility

Increasing corporate water management in value chain and engagement in water governance is not just a set of unilateral corporate practices, but rather it rises out of internal and external influencing factors. Water management is partially a political response to stakeholder pressure over water security. While corporations yield significant power in their value chains, their water risks can be managed effectively only via stakeholder interaction (Sarni, 2011).

Stakeholder theory suggests that the success and survival of an organisation depend on meeting both its economic and non-economic objectives by meeting the needs of stakeholders, but corporations are more likely to respond to stakeholder demands if the stakeholder in question is a resource that is valuable to the firm (Pirsch et al., 2007). Traditionally, the stakeholder groups have been seen to include shareholders, investors, employees, customers, suppliers, and government entities or other public organisations which govern commerce (Clarkson, 1995). However, multinational corporations operate in ever more diverse environments with a growing diversity of stakeholder groups (Rodriguez et al., 2006). For example, increasing awareness of stress and risks related to depleting shared resources such as water is forcing corporations to consider also stakeholder groups not directly related to their operations such as other water users in the basins where their operations are located (WWF, 2009).

The wider stakeholder interaction relations of a corporation are most clearly reflected in its corporate social responsibility (CSR) activities. CSR activities can be classified on a continuum ranging from promotional to institutional CSR (Pirsch et al., 2007). Promotional CSR includes first, programmes that lack a broad stakeholder approach, and instead meet the minimum requirements and could be used for marketing (Pirsch et al., 2007); second, compliance-driven programmes that adhere to the regulations of social responsibility that are set out by the relevant authority; and third, profit-driven CSR including programmes that are designed solely to increase the profits of the firm through improving their image to stakeholders and customers (van Marrewijk, 2003). On the other end of the spectrum, institutional CSR programmes attempt to fulfil a company's social obligations to all of its stakeholders through different levels of action across the organisation. They include a) caring institutional CSR that goes beyond regulatory compliance and profit considerations to balance social, economic, and ecological concerns, b) synergistic CSR, that is, a search for a well-balanced approach to addressing social and ecological issues while creating value for the shareholders, and finally, c) the most institutionalised approach, the holistic approach, in which CSR is fully integrated and embedded into all aspects of the organisation (van Marrewijk, 2003). Firms which engage in holistic type of CSR are argued to do so because they see themselves as mutually dependant on society, and CSR as the only way in which to fulfil their obligation to their shareholders and create value for all stakeholders (van Marrewijk, 2003).

The CSR theory took a step forward in January 2011, when Porter and Kramer published an article in the Harvard Business Review entitled *Creating Shared Value* (CSV). They define shared value as "policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities where it operates" (Porter and Kramer, 2011). CSV recognises that societal needs can define markets, and looks to economic opportunities in making sustainable improvements to the environment and communities in which businesses operate. It makes a link between creating value for the firm while simultaneously building communities and improving resources (Porter and Kramer, 2011) while bringing CSR deeper into the core of the firm (Porter, 2011). Porter and Kramer have successfully redefined and re-branded the idea of sustainable value into a concept that is attractive to the businesses, including food and agribusiness corporations in focus in this analysis.

The three companies examined in this article are distinguished by their different positions toward their stakeholder groups. The analysis of their water management and governance actions will consider

their interaction with their stakeholder groups in the development of their CSR policies. However, how the policies eventually materialise in the corporate actions, and whether they deliver added value to the stakeholders while ensuring also environmental sustainability remain difficult to evaluate and are beyond the scope of this analysis. Nevertheless, in order to better understand their water security impacts, the programmes and actions need to be first reflected in a wider governance interaction and political economy context. For this purpose, theories of power of corporations in global agro-food and environmental governance will be utilised next in building up a theoretical lens for investigating multinational food and agribusiness corporations as water governance agents in the global political economy context.

### **Food and agribusiness corporations as water governance agents in the political economy context**

While theories of value chain governance and stakeholder interaction are useful in investigating largely 'vertical' and material dimensions of corporate water management and governance in value chains, theories of power of corporations in global agro-food and environmental governance help to take in account also the more 'horizontal' political economy networks and how the corporations influence the wider rules of the game they themselves are governed by.

Clapp and Fuchs (2009), based on, for example, Fuchs, 2007, Lukes, [1974] 2004, and Levy and Egan, 2000, provide a compelling classification of corporate power in global agro-food governance including instrumental power (e.g. influence via political lobbying and financing), structural power (bargaining position in value chains and in wider political agenda setting supported by material structures), and ideational and discursive power (ability to frame certain issues and debates) in the global political economy context. The classification here can be utilised in illustrating wider agro-food system dynamics influencing water security. Neo-Gramscian concepts of contestation, resistance, and accommodation to governance regime can then be again applied in exploring corporate strategies and actions in relation to water management and governance regime in a political economy context (Levy and Newell, 2002; Clapp, 2005; Newell and Levy, 2006), here, however, also considering corporations as "regime actors of their own right" (e.g. Okereke et al., 2009) playing a role in transnational water governance regime building.

In the environmental governance context, corporations are often seen as capable of exercising different forms of power to contest and resist governance regimes, or to engage in organisational and discursive practices inside the regime applying accommodation strategy in order to position their business interests as collective concerns (e.g. Levy and Newell, 2002). However, as entities important to global economy whose functionality and licence to operate may be at risk due to resource depletion and whose 'technological power' could also contribute to more sustainable management and governance reform (Falkner, 2004), corporations are here investigated as having potentially also a more proactive role in regime building, manifested via concepts such as 'Creating Shared Value' (Porter and Kramer, 2011) presented earlier. Furthermore, as Newell and Levy (2006) emphasise, also contesting and resisting strategies and, more importantly, non-intentional forms of corporate power matter when investigating their role in societal issues such as water security. Therefore, analysis of the agency of the food and agribusiness corporations in global water security has to expand beyond their evident engagement in water management and governance, linking back to their wider role in the agro-food value chains and the global political economy context.

Based on the analytical framework presented, the agency of the food and agribusiness corporations in global water security, management and governance can be investigated by building the analysis on 1) their instrumental power in the global agro-food political economy and in their countries of operation, 2) their structural and bargaining power in the global agro-food value chain and network governance and in their countries of operation, and 3) their ideational and discursive power by scrutinising the nature of their discursive practices in relation to their role in the global agro-food political economy,

global water security, CSR and the emerging transnational water governance regime. It will be next explored via case studies of Nestlé, Bunge and Cargill, for which, first, a methodology will be explained.

## **METHODOLOGY**

The multi-disciplinary analytical framework presented suggests multiple research strategies and methods. However, due to the exploratory nature of this study the general research strategy deployed in the investigation was necessarily qualitative.

Based on the ideas of global water management (e.g. Allan 2001, 2003; Hoekstra and Chapagain, 2008; Aldaya et al., 2010), the first step of the study was the identification of the world's largest food and agribusiness corporations as major water managers in the global context through their dominance in the global agro-food markets and trade. A review of academic and grey literature confirmed the consolidated and concentrated power of a small number of corporations in the world agro-food system and revealed gaps in the literature and theory of corporations and global water security, management and governance. Nestlé was chosen as one of the case studies due to its lead position among branded global food companies and renowned work on water issues, Bunge and Cargill due to their as well concentrated and consolidated power upstream in the value chains dominating the global agribusiness and trade, but the two companies having differing ownership structures and stakeholder interaction relations.

Twelve semi-structured elite interviews were conducted on the strategies of the corporations and factors in their decision making in agro-food value chains and the wider market setting, on their water management practices, on their relation to their stakeholders and the emerging transnational water governance regime, and on their views on their role in global water security. The respondents represented the corporations themselves, agro-food specialists and value chain and network stakeholders giving a cross-validated view of the corporations and global water management and governance (Hoggart et al., 2002; Berry, 2003). In order to reach the best-suited informants, a purposive snowballing sampling strategy was adopted at the beginning. Later a theoretical sampling technique was adopted in order to gain theoretical saturation of the pre-defined and emerged categories (Glaser and Strauss, 1967; Bryman, 2003). When it came to the choice of the interview method, the semi-structured interview was deemed a valid method due to its flexibility in researching a new and complex topic (Berry, 2003; Bryman, 2003). Overall theoretical saturation of the research categories was reached and validity issues managed via triangulation of the interview data, content analysis of the discursive practices in the corporate publications on water and water security and complementary findings in the associated literature.

## **CASE STUDIES**

### **Nestlé**

Nestlé S.A. is the world's largest branded food company with revenues of US\$ 105.3 billion and profits of US\$ 32.8 billion reported in 2011 (Fortune Magazine, 2011). It has a presence in every country in the world (Nestlé, 2012). Nestlé's branded products include bottled water, cereals, baby food, frozen foods, coffee, dairy, ice cream, and chocolates (Nestlé, 2011). In 2011, the company was awarded with the Stockholm Industry Water Award at the World Water Week for its "leadership, performance and efforts to improve the water management in its supply chain... the honour also acknowledges the Company's efficient operations and its work with suppliers, particularly farmers" (Nestlé, 2011). However, Nestlé's role in global water security is based on a wider range of interaction and power relations between the company and its stakeholders in value chains and wider political economy networks.

Due to its world market dominance and strong position in value chains in production and trade of processed foods, Nestlé has been described as one of the global 'food empires', exerting "considerable monopoly power: it is becoming difficult, if not often impossible, for farmers to sell food ingredients or for consumers to buy food outside of the circuits that they control" (Van der Ploeg, 2010). Besides its structural and bargaining power in the world markets and value chains, the company has capacity to exert instrumental power over the world economy and trade policies via close linkages to powerful lobby groups to e.g. US and EU, World Bank, IMF, and direct positions at WTO, World Economic Forum (Corporate Watch, 2012; Nestlé, 2012). Hence, the company is in a strong position in influencing the wider regulatory framework for production and trade and the way water resources and virtual water flows embedded in trade are managed globally.

As commended by the Stockholm Industry Water Award, Nestlé has started to pay closer attention to their supply chains to affect how farmers materially manage water. Nestlé owns agricultural production agents such as farms and therefore does have the direct bargaining and material power to implement sustainable water management practices in parts of its supply chain. For example, with the Sustainable Agriculture Initiative, it has launched water saving projects in several of its sourcing locations (Nestlé, 2012). However, at the time of the research these projects remained single case studies and had not been scaled up to systemically include a larger group of Nestlé suppliers.

With a highly visible brand, Nestlé is subject to the social pressures of consumer activism and in this regard, has been under major consumer scrutiny and boycotting since late 1970s, especially due to its promotion of baby milk formula in countries lacking access to safe drinking water (O'Nions, 2006). On the other hand, due to the visibility of its brand in comparison to its suppliers, the company also faces most of the consumer criticism instead of the non-branded agribusiness suppliers and traders behind it. According to one of the interviewees in a high-level position in the company, even though Nestlé demanded more sustainable products such as palm oil from the suppliers and traders, the biggest ones "do not need to respond to the pressure as they can sell their produce to growing Asian markets with less stakeholder scrutiny". This illustrates the power of the mid-chain corporations such as agribusiness traders also in focus in this analysis over the branded food corporations in global value chains.

Besides consumers, Nestlé has come under pressure from its shareholders to increase CSR activities. Shareholder advocacy campaigns have been successful in persuading Nestlé to adopt extended producer responsibility programmes (As You Sow, 2011). Large branded companies such as Nestlé are facing growing pressure also from investors to explore their water security risk in the value chain. As Usha Rao-Monari, the Global Head of Water for the International Finance Corporation, stated in a panel discussion following Nestlé's Stockholm Water Industry Award at World Water Week in 2011, "water has become a business risk that you cannot ignore".

Nestlé has actively responded to the value chain and stakeholder pressure over sustainability in general, and during the past years, especially on water, adopting a leading role in corporate water accountability. It is powerfully framing the global discourse on water security and sustainability, positioning itself among the key actors possessing solutions to the water crisis (see e.g. [www.water-challenge.com](http://www.water-challenge.com), the water blog by Nestlé's Chairman Peter Brabeck). The company is an active member of 2030 Water Resources Group, Sustainable Agriculture Initiative (SAI), Water Footprint Network and signatory to the UN Global Compact CEO Water Mandate among others. Via these forums it has accommodated itself into the emerging transnational water governance regime, taking a prominent position in its agenda setting. Nestlé long resisted and contested the claims for needs to improve its sustainability, but during the past decade, under growing value chain and stakeholders pressure, it has adopted the idea of 'business case' (Tallontire and Greenhalgh, 2005) on sustainability, strongly promoting the idea of CSV. Nestlé proudly advertises being at the forefront of the CSV concept: Nestlé's Chairman Peter Brabeck was inspired by Michael Porter's idea of competitive corporate social responsibility, and contracted him in 2006 with the idea that a company could create value for society as well as its shareholders (Brabeck-Letmathe, 2011). However, an interviewee from a large

international NGO indicated that Nestlé's CSV plan is first and foremost an outward expression, and is marketed for consumers. Bureau Veritas, an independent assuring organisation of Nestlé's CSV programme, also remarks on the lack of performance orientation and overall objectives in the company's CSV work and calls for a methodology to verify, evaluate and compare project results and impacts across different markets (Bureau Veritas Solutions, 2012). Hence, Nestlé has responded to activism by stakeholders through a widely-publicised CSV policy advocating an institutional approach to CSR, but the holistic materialisation of CSV in its operations remains unverified.

In sum, Nestlé's agency in global water management and governance is growing stronger and more intentional but the water security impacts of its work are still debatable. The company has started to address its wider instrumental, structural and bargaining power in the world agro-food system and value chains in its water discourse and actions in arenas like World Economic Forum and 2030 Water Resources Group, actively engaging with stakeholders. However, concerns of this leading to increasing allocation of water to higher-value uses away from the still voiceless stakeholder groups were raised by several of the interviewees and are reflected in the general corporate critical discourse on water (see e.g. Kay and Franco, 2012; Mehta et al., 2012). Nevertheless, among the world's largest food and agribusiness companies, Nestlé is clearly one of the leaders in its water work that other companies such as Bunge and Cargill studied next follow.

### **Bunge**

Bunge is one of the world's largest agribusiness corporations by revenues and market share along with Cargill, ADM and Louis Dreyfus (Murphy et al., 2012). It was founded in 1818 and currently has its headquarters in White Plains, New York. Bunge has been listed on the New York Stock Exchange since 2001. In the 2011 fiscal year, Bunge reported US\$ 45.7 billion in revenues and US\$ 2.4 billion in profit (Fortune Magazine, 2011). In that year it produced, stored, or traded 117 million metric tons of agricultural commodity products (Bunge, 2012a). Along with the other commodity giants, it has been able to increase its profits despite the recent volatility in the world food market due to the flexibility of its internal assets, experience in hedging risks/speculation and its position in several global value chains (Kaufman, 2011; Murphy et al., 2012).

Bunge acts as a trader between farmers and governments or branded food companies and provides financial services in the agro-food market. It buys, sells, stores and transports oilseeds and grains worldwide, produces sugar and ethanol from sugar cane, processes oilseeds to make protein meals for animal feed and edible oil products, mills wheat and corn for ingredients used by food companies, and sells fertiliser to farmers in North and South America (Bunge, 2012a). It is the largest soya bean originator, processor and exporter in North and South America, and the largest global exporter of soya bean by volume (Kneen, 2002; Nascimento, 2006; Murphy et al., 2012); together with ADM, Cargill, and Louis Dreyfus it has been estimated to hold a share of up to 70-90% of the international trade in staple food commodities (e.g. Lawrence, 2011).

Bunge, like its competitor Cargill, studied later in this analysis, is a pronounced advocate for a freer world trade (see e.g. Hausmann, 2010b), but at the same time it is among the companies receiving the largest agricultural subsidies and shares of food aid deals in the US (Clapp, 2009) and among the biggest funders of the US crop production and processing lobby (OpenSecrets.org, 2012) illustrating its instrumental power in the agro-food system. The company positions itself as a facilitator of global supply and demand, but due to its massive financial and infrastructural capacity and increasingly consolidated power in the value chains, its structural power and bargaining position in political economies of its countries of operation and on the global level is also remarkable. Accordingly, Bunge manages a major share of international virtual water flows and influences the wider political economy framework for global food and water security (Sojamo et al., 2012).



According to the interviews, Bunge has long understood that water is a critical ingredient in the grain-growing process, but has recently started to understand wider implications of the resource crisis and the company's position in it.

In principle, Bunge claims to have very little direct bargaining power over the way its suppliers, the farmers, make use of water resources since they do not own the farms. However, it has, among other agribusiness traders, reportedly started to make also direct investments in land as a part of the ongoing land investment boom (GRAIN, 2012). Furthermore, the scale of Bunge's operations is such that it influences and reflects national political agendas and management frameworks in the areas in which it chooses to make financial and infrastructural investments for sourcing agricultural products. These investments and relationships with producers have the potential to be active for up to 100 years. As a result, Bunge becomes a player in the agricultural and trade politics of the region and its financial interest in the policies sets it up for interaction and bargaining with local authorities and unions. The company positions that the lifespan of the investments and growing awareness of global water crisis motivates it to make these investments in areas that are water sustainable in the long term (Hausmann, 2010b). How its stance materialises throughout its operations remains unclear.

Unlike Nestlé, at the time of the research Bunge was not outspoken about the reduction of water use by its suppliers or changing the valuation of agricultural water. According to an interviewee, most grain sourced by Bunge is being grown with rainwater or sustainable sources of water. However, the interviewee also noted that in many cases governments unsustainably subsidise the cost of water to benefit the farmers or "to keep them out of cities", and it is not Bunge's role to question these decisions. The company's view is that its role alone in the agro-food political economy is not significant enough to influence the agricultural water management regime. An interviewee spoke about Bunge's willingness to be a pioneer in using its influence to shape more responsible water management, but stressed that water is an issue over which the industry will make the most progress by sticking together and making changes as a block. The company has started applying different water risk, footprint and stress assessment tools, thereby accommodating to the emerging transnational water governance regime, but it has not been as active in the regime development nor overt about its actions than, for example, Nestlé. By disclosing the assessment data in its 'Bunge Citizenship' reports (Bunge, 2012b), the company is demonstrating the growing importance that managing water risks takes in their CSR policy. However, by keeping it within the confines of 'citizenship', Bunge does not acknowledge if it considers water security to be an issue at the core of the firm, and still keeps the discussion framed as an optional action in the public eye.

Bunge's long modest water discourse can be partly explained by the invisibility of its brand and historical private ownership structure. It has not been in the focus of consumer and other stakeholder scrutiny to the same extent as Nestlé and hence not forced to report its strategies, actions and responsibility on water. However, an interviewee explained that listening to different perspectives on water from a diverse set of stakeholders has helped Bunge to realise a new depth and richness of issues around water recently. Bunge has also lately encountered shareholder advocacy, specifically on water management. While Bunge has long considered water when making investments, an interviewee indicated that the company has been considering water only from their own viewpoint. Bunge began to look at other ways to view water when the National Jesuit Committee on Investment Responsibility (NCJIR) engaged them on water sustainability in 2010. The objective of the engagement was for Bunge to "improve its water use, set meaningful goals for increasing water efficiency throughout its operations, and provide more systemic disclosure of water risks in its direct operations and supply chain" and join Pespico in recognising the human right to water (NCJIR, 2010). A year after the NCJIR publicly called on Bunge to expand its disclosure and environmental management practices, an interviewee indicated that Bunge had increased its disclosure of water management and that its strategic thinking had been enriched by the dialogue with the NCJIR.

Bunge's reflexive awareness of their agency in managing and governing water resources in their value chains is important to note. An issue-framing discourse that Bunge has recently disseminated through several of Carl Hausmann's, the company's former head of global corporate affairs and current global policy advisor's, public speeches, is the importance of trade for food security and sustainability. This fits directly into the idea of virtual water trade for water security, and into the business model of commodity traders such as Bunge. Hausmann has spoken on how growing crops where they are best suited to be grown – in areas with sustainable water sources and rich soil – can improve the efficiency and sustainability of feeding society (Hausmann, 2010a, 2010b, 2011). However, in order to see the bigger picture of Bunge's role in global food and water security, the message and actions need to be linked to its instrumental and structural power over national and global trade policies and agro-food markets, their impact on rural livelihoods and water security of the other stakeholders in and beyond the basins where the company operates in.

## Cargill

Cargill began as a family company in 1865 operating in the US but has expanded from trading, storing, and transporting commodities to seeds, fertilisers, milling, and financial services across the world (Cargill, 2012a; Kneen, 2002). It has 138,000 employees based in 67 countries on all continents and holds many smaller firms in its portfolio (Cargill, 2012a). According to the company's own financial reporting system, in the fiscal year 2012 its revenues were US\$ 133.9 billion and earnings in continuing operations US\$ 1.17 billion (Cargill, 2012b). It remains the largest privately held company in the US. It has very few shareholders: approximately 80 members of the Cargill and MacMillan families who largely reinvest profits into the business (Kneen, 2002; Blas and Meyer, 2010).

According to estimates, Cargill controls 45% of global grain trade, 42% of all US maize exports, approximately 30% of soya bean exports and approximately 20% of the US wheat exports, and the majority of sugar and soy bean exports from Brazil for biofuels and feed (Holt-Giménez and Shattuck, 2009; Lawrence, 2011). Due to its internal asset flexibility Cargill is capable of buying commodities from the market when the prices are low and releasing them back to the market when the prices are soaring again (Holt-Giménez and Shattuck, 2009; Kaufman, 2011). It has a wide experience in agro-food financing and hedging, not avoiding accusations of market speculation and resisting regulations (Murphy et al., 2012). Accordingly, like Bunge, it manages a major share of international virtual water flows in global value chains but due to its wider power in the agro-food system it also influences the wider framework for global food and water security (Sojamo et al., 2012).

Cargill is among the biggest funders of the agricultural and food industry lobby groups to the US Congress. Through 'revolving doors' of positioning personnel, its instrumental power is also strongly rooted in the US state agencies and advisory boards (Kneen 2002; OpenSecrets.org 2012). It is as well among the greatest beneficiaries of the US in-kind food-aid business (Clapp, 2009). It has been able to exert ideational power especially over US agricultural policies via multiple strategies, e.g. by funding academic and professional policy analyses, grass-root-level public advocacy, and partnering with NGOs working on issues critical to the company (Kneen, 2002).

Cargill has formed conglomerates with powerful agricultural input corporations such as Monsanto (Holt-Giménez and Shattuck, 2009), further consolidating its power in the agro-food value chains. Despite denying owning any land and thus having no power over the agricultural practices of the locations from which it sources commodities (BBC 2011), it has reportedly started direct investing in agricultural land in Latin America, South-East Asia and Australia under its direct subsidiary hedge fund Black River (GRAIN, 2012).

Based on the interviews, Cargill has long contested and resisted its role in managing water resources, claiming it has no power over the farm-level water use practices positioning water use as a non-issue to it. Furthermore, like Bunge, Cargill also argues that regulating the use of water on farms is the

responsibility of the state, and commodity traders do not have the power to question state regulations. However, the broader analysis of the instrumental, structural and bargaining power of the companies illustrates that they do have the capacity to influence policy frameworks of their operational locations.

In an interview with an online agribusiness industry newspaper, Mark Murphy, who oversees corporate responsibility within Cargill's global corporate affairs department, described the company's CSR approach as decentralised and 'evolving' and still far from the level of industry leaders such as Nestlé (Cooper, 2010). One of Cargill's corporate goals for its own operations is to reduce freshwater use by 5% by 2015 from a 2010 baseline. The company has reportedly made contributions to The Nature Conservancy to protect ecologically important waters in North America, has supported water conservation education in UK schools, implemented a *Water Saving Irrigation Improvement Plan* in drought-stricken areas of China that helps farmers to conserve water while increasing crop yields, and helped several communities in Ghana gain access to safe water (Cargill, 2012). An interviewee indicated that Cargill has developed a set of water-stress maps to help better inform business decisions in regions where they work or are considering capital investments, but the company has neither a uniform nor outward approach to water risk assessments, accounting, disclosure or stewardship.

Cargill's CSR activities on water thus far appear to fall mostly on the promotional and profit-driven side of the CSR. More importantly, its activities and awareness on water do not scale up to its influence and power in the global agro-food political economy. Accordingly, Cargill remains an 'invisible giant' (Kneen, 2002) not only in the world agro-food system, but also as an agent of managing and governing global water security.

## DISCUSSION

Based on the case studies of Nestlé, Bunge and Cargill, the following features can be observed with regard to the agency of the largest food and agribusiness corporations in global water security, management and governance.

First, food and agribusiness corporate awareness, programmes and discourses on water do not scale up to their operations or to their power in the political economy of the world agro-food system. The corporations in focus have begun to address water risks by assessing water stress in their supply chains and reducing their water footprints. However, still with very few exceptions, the actions that are taken are made to reduce the non-consumptive water footprint in their processing facilities. Reducing the water footprint in this way does not address their role as managing the water security of the global agricultural water use. Bunge and Cargill recognise the advantage inherent in sourcing commodities from water-secure areas, but it is unclear if they have made the connection to their own role in market dynamics and policy frameworks influencing the security situation. They have thus far left virtual water flows in global value chains and their wider instrumental, structural and bargaining power in the agro-food political economy out of the discussion of their role as water managers, and this act of omission shapes the debate around their responsibilities in global water security. Nestlé has started to pay closer attention also to the consumptive water use in its supply chains and intentionally utilises its different forms of power to advocate for improved global water security in diverse forums with a highly visible CSV-programme. Nevertheless, the overall objectives, targets and main challenges of the programme remain unidentified, nor can its water security impacts be verified and different case studies compared and evaluated in the absence of appropriate methodologies (Bureau Veritas Solutions, 2012).

Second, out of the different types of corporations studied, agribusiness traders seem to have more structural and bargaining power over their value chains and management of virtual water flows in the chains than direct power to manage the material conditions of water management at the farm level. Furthermore, traders like Bunge and Cargill seem to engage in a political dialectic to balance pressure from brands with the interests of farmers. An interviewee indicated that, while not many companies are currently asking for the water sustainability of products, if they were to enquire about it at the farm

level or suggest that farmers should manage water differently it would create political problems that may affect the ability of the company to do business. In this way commodity trading companies claim that farmers are exercising their influence as primary stakeholders to discourage the development and implementation of CSR activities for water in the value chain. According to the interviews, commodity traders such as Cargill and Bunge do not want to lose the storage and transportation business from farmers by unilaterally engaging in policy making through CSR. However, these statements diminish the instrumental, structural and bargaining power the biggest food and agribusiness companies have throughout the world agro-food system. The nature of the long-term investments of the biggest traders in regions from where they source raw commodities also makes them political agents in the shaping of agricultural policies and accordingly water use and management frameworks around the world. The recent reported direct investments in agricultural land by Cargill and Bunge also show that their control over the supply chain is becoming more consolidated, which potentially gives them power to directly control water management at the farm level.

Third, food and agribusiness corporations' overt strategies and actions on water on the continuum of CSR approaches from promotional to institutional and their engagement in the emerging forms of transnational water governance correlate strongly with the visibility of their brand and stakeholder influence. Besides external stakeholders, the Nestlé and Bunge cases both show signs of influence by shareholders on environmental and water management practices and disclosure. It is equally important to note that Cargill, which has no public shareholders, was described by interviewees as engaging in a more philanthropic type of CSR, rather than embedding it into their practices as deeply as other companies. The interviewees indicated that the most effective method for food and agribusiness corporations to manage water in their value chains is to engage in multi-stakeholder knowledge-sharing platforms. Through these roundtables and initiatives the companies can work together with farmers and secondary stakeholders to share best practices for effective water management and understanding of their role in global water security.

Fourth and finally, food and agribusiness corporations are still first and foremost profit-driven entities with vast resources compared to most of their stakeholders in the water security context. Instead of sharing water risks per se (WWF, 2009; Sarni, 2011), corporations share water stress with their stakeholders in the basins where they operate but their means of managing it are often better than those of others, especially marginalised and voiceless entities. Furthermore, the bargaining power of actors such as farmers, NGOs and consumers, even governments, over multinational corporations is much stronger in the global North and West than in the South and East, leaving the global setting of stakeholder interaction asymmetric (Hartwick, 2000; Friedberg 2004, 2007). The lead corporations most active in developing the transnational water governance regime such as Nestlé are powerfully framing discourses on water without necessarily addressing all the complexity around it, influencing national and international policies besides their direct operations. However, as their work on water develops, and their challenges become evident, the corporations are forced to learn their lessons as their licence to operate ultimately depends on how they are viewed by their stakeholders. Food and agribusiness corporations are key agents in global water security, but they do not manage and govern water resources in the world agro-food system alone. Increased transparency from the corporations' side and open engagement in private-public-civil society partnerships could be keys to global water security for all. Responsibility of engaging and scrutinising them is on the wider group of their stakeholders, including not only policy makers, NGOs and academia, but eventually the consumers at the end of their value chains covering most of the world.

## CONCLUSIONS

The agency of the world's largest food and agribusiness corporations' in global water security, management and governance is evolving but growing more important than ever. The pressing need for

more sustainable global water management and governance, the major dependence and impact of the agro-food sector on water resources, and the consolidated and concentrated power of a small group of multinational corporations over the world agro-food system position food and agribusiness corporations like Nestlé, Bunge and Cargill at the heart of the global challenge for not only food but also water security. The dual challenge is so pressing that thinking in silos and not engaging the vast resources of the multinational corporations in finding solutions to it cannot be afforded. However, due to their power-asymmetric position in relation to their stakeholders and still evolving understanding of their role in managing and governing water resources in global value chains and less directly in the global agro-food political economy and transnational water governance context, their strategies and actions demand continuous scrutiny.

More research is needed to provide information on the further efficiency, accountability and legitimacy of the corporations as global water security, management and governance agents, linking them to the ongoing wider discussion on sustainable global governance reform (see e.g. Biermann et al., 2010). Important topics to cover could include bargaining dynamics in specific water-intensive global agro-food value chains, instrumental, ideational and discursive power of corporations in setting broader frameworks for agricultural production, trade, food and water security in specific international and transnational forums, and water security impacts of their CSV-, stakeholder interaction and partnership programmes on the ground.

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