'Planting Seeds' for 'Good Growth'

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‘Planting Seeds’ for ‘Good Growth’: Anthropocenic performances of responsibility

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Introduction

All of the narratives described by Bonneuil (2015) argue that business as usual is insufficient for dealing with the societal challenges posed by the Anthropocene. Each narrative has a slightly different response to the question: who is responsible for ensuring the sustainability of agrifood systems so that humans will survive the current Epoch? Producers, who are tilling the earth with machines of variable complexity and are responsible for what toxins are entering the soil and water; or those companies who make the chemicals and machines responsible for the effects of their products on the environment? What about the processors who purchase the produce from the farms and turn these into products that can be consumed by people, animals and machines? What then is the responsibility of aggregators and distributors, who collect, pack and transport the produce and the products? Where is the responsibility of retailors and brands, which turn fresh and transformed products into consumables that are easily recognised by consumers? What role do consumers play when they decide to purchase something that has, through all of these steps, become a ‘sustainable’ product? Finally, where is the responsibility of researchers and actors in the agricultural knowledge and innovation systems (AKIS) who are creating and sharing knowledge about what is or could be sustainable? Or, for that matter, what is the responsibility of a State, and its various administrations working at different levels of engagement, who is supposed to govern what sustainability ought to be across geo-political boundaries?

In this chapter, I take up this challenge by comparing the two leading food manufacturers – Nestlé and Unilever – who control major portions of the global food system. Beyond their

control of trade in food, in 2021, they were the largest investors in agricultural research and development (R&D), investing 1.6 billion and 800 million respectively. Both companies have made 'responsibility' a fundamental aspect of their innovation agenda and they are at the forefront of the emerging 'sustainability' field. I focus on *how these MNCs are justifying the responsibility of their vision and technologies for the sustainability of agrifood systems.*

Responsibility for sustainable agrifood systems

Sustainability and responsibility are 'essentially contested concepts' (Gallie, 1955; Collier et al., 2006; Connelly, 2007) because these terms are of great societal concern, yet they involve endless disputes by their users who can offer up a multiplicity of forms of proof to justify different interpretations (Boltanski and Thévenot, 2006 [1991]). As such, they pose fundamental ethical and political questions about how to live in the Anthropocene, what the future goal of that living ought to be (Jasanoff, 2004; Jasanoff, 2015) and what cannot be accepted within the definition or application of the concept.

Scholars of political economy and ecology focus on the competing interests in control over the definition of sustainability (Constance et al., 2018; Levin et al., 2012), pointing out power struggles that can both reinforce existing systems of domination and provide opportunities for alternatives to emerge (McMichael, 2011; McMichael, 2016; Levidow, 2015; Goodman et al., 2012). To date, the public controversies around sustainability have mostly been focused on the production-driven nature of the food system, where scientists and social movements have posed fundamental questions around the types of agriculture and knowledge (largely biotechnologies) needed to respond to the grand societal challenges (Bonneuil et al., 2008; Vanloqueren and Baret, 2009; Demortain, 2013; Dibden et al., 2013). Recent controversies in

ecology and biology have brought to the fore the question of biodiversity and the best use of land (at individual, collective and territorial scales) to ensure the sustainability of production systems (Chappell et al., 2009; Desquilbet et al., 2017; Phalan et al., 2011; Goulart et al., 2016). These debates position different epistemic communities in opposition according to the types of knowledge they are producing and how they conceive human-nature relations (Dempsey, 2011; Loconto et al., 2018; Chan et al., 2016; Díaz et al., 2015).

Definitions of responsibility are likewise multiple but often remain embedded in an assumed rational actor. Weber considered the 'ethic of responsibility' as "a political stance adequate to morally serious endeavour in a world characterised by inevitable and irresolvable value conflict" (Starr, 1999: 409). While debated in political theory, this interpretation pretends a consequentialist approach to ethics where outcomes may not always justify the means, but should always be considered within the political calculations (Nye, 1985). Thus, the notion of responsibility has been understood both in terms of acting responsibly and being held accountable for actions. But in the literature, the two terms are often used separately where accountability is more closely tied to obeying rules and suffering consequences, and responsibility is more individual and open-ended (Selznick, 2008). These approaches are usually linked to legal concepts of liability and blame, and thus we see calls for transparency as a means to increase accountability (Biermann et al., 2012; Hale, 2008), but with uncertain results (Fox, 2007). Prospective responsibility attempts to account for something that may (or may not) happen in the future (Gorgoni, 2009; Stilgoe et al., 2013), while 'role-responsibility' is connected less to an individual virtue than it is to an obliged 'sense of responsibility', or stewardship (Hart and Gardner, 2008). Nesting and rotating these responsibilities have been shown to be effective means to manage common resources (Ostrom, 1990); while recent efforts to encourage 'responsiveness' in innovation seeks

collective virtue (Grinbaum and Groves, 2013) and ethical choices in practice (Stilgoe et al., 2013; Genus and Stirling, 2018). The question here remains how individuals and collectives (particularly organizations) become responsive to each other (Lindner et al., 2016), towards societal concerns (Von Schomberg, 2013), or inclusive and collaborative processes (EU Council, 2014) without rendering responsibility a 'thin' notion (Stirling, 2015) that reinforces incumbent interests or becomes the 'green-washed' version of social responsibility (Enoch, 2007).

Sustainability is considered to be a fundamental aspect of responsible research and innovation (Von Schomberg, 2013) and the European Commission has further framed sustainable agriculture and food security as the second societal grand challenge on the horizon.[1] Responding to this challenge requires research, innovation and action that contributes to more sustainable food and agriculture. Who then, is responsible for driving this research agenda and finding innovative solutions to the unsustainability of the current agri-food system?

According to a 2011 study by the United States Department of Agriculture (USDA), the private sector spent US$19.7 billion on food and agricultural research (56 percent in food manufacturing and 44 percent in agricultural input sectors) and accounted for about half of total public and private spending on food and agricultural research and development (R&D) in high-income countries in 2007 (Fuglie et al., 2011). According to the 2021 EU Industrial R&D Investment Scoreboard, food producers spent €7.32 billion while chemical companies (the largest of which produce agro-chemicals) spent €22.11 billion.[2] Forty-seven percent of the money spent on investment by food producers was spend by five companies and one third

[1] https://ec.europa.eu/programmes/horizon2020/en/h2020-section/societal-challenges, accessed 03/02/2022

[2] 2021 EU Industrial R&D Investment Scoreboard (https://iri.jrc.ec.europa.eu/scoreboard/2021-eu-industrial-rd-investment-scoreboard#dialog-node-5747), accessed 03/09/2022

of the €7.32 billion was spent by only two companies – Nestlé and Unilever (Table 12.1). These large firms are multinational corporations (MNCs) who operate within global networks of both R&D and marketing and dominate global R&D landscape.

[Table 12.1 about here]

These numbers are significant not just because the private sector spends about as much on R&D as the public sector; but because there are publicly regulated responsibility and accountability mechanisms in place for the expenditure of public R&D funds, while there are no identical mechanisms for private R&D. Private R&D is regulated through controls internal to companies and in those spaces of hybrid control where public and private funds mix. Innovation processes are even less regulated as they are often occurring outside official R&D departments within organizations or through partnerships with start-ups, universities or other private organizations. Most mechanisms that are used to regulate private research and innovation are therefore voluntary instruments that are tied to international, sector-specific, professional or national agreements. This poses the empirical question of: *how is responsibility for sustainability governed within private research and innovation?*

Governing responsible research and innovation

The concept of responsible innovation has been gaining much attention as the “vanguard of both intellectual creativity and social responsibility” (Guston, 2006: 169). First defined as "a transparent, interactive process in which societal actors and innovators become mutually responsible to each other with view on the (ethical) acceptability, sustainability and society desirability of the innovation process and its marketable products" (Von Schomberg, 2013:

9); the focus is moving towards incorporating democratic principles of governance into innovation processes and delivering the 'right impacts' (Owen et al., 2012), such as sustainability. Yet, what responsibility means in innovation processes is far from stabilized (Blok and Lemmens, 2015). Rather, it is highly contingent upon existing normative understandings and the discursive and material infrastructures that are already governing actors' interactions and practices.

This *de facto* governance (Rip, 2018) is what we can study empirically as we can find traces of these interactions in an organizational field (Dingwerth and Pattberg, 2009). Here, governance refers to 'self-governing' (Jessop, 2002), or more simply, the "structuring of action and interaction that has some authority and/or legitimacy" (Rip, 2018: 76). It could be also seen as the way in which society defines and handles its problems (Voß et al., 2006), a type of 'self-steering' that has also be attributed to civil society and private actors (Cashore et al., 2007). These governance arrangements are heterarchical (hybrid vertical and horizontal networks) (Jessop, 2002), often formed by enrolling and entangling actors around specific matters of concern (Rip, 2010; Loconto and Fouilleux, 2014). But complex problem solving, particularly for food security and sustainable agriculture, is contentious; which, when managed, can also be productive (Duncan and Claeys, 2018).

Following from this line of thinking, we can trace the ideas, as inscribed in specific discourses, to their translations into the rules, material objects and collaborations that are used to govern how organizations take on responsibility for sustainability. This conceptualization provides the basis for the analysis in this chapter, where I explore the *performation* (Callon, 2010) of the instruments used by each company to draw the boundaries around how they conceive of and control their responsibility for sustainability. That is,

responsibility must be defined and put into action to be effective; what happens when it is enacted makes changes in turn to the activities and definitions. Therefore, analytically (see Table 12.2), we are attentive to how the governance arrangements are organized, including the specific actor landscapes, and the *de facto* governance practices. We also explore the legitimacy of these governance arrangements in terms of how 'well' the actors are doing in 'constructively' or 'productively' governing their responsibility for sustainability (Walhout et al., 2016).

Research for this chapter was conducted during two phases of qualitative research between 2007 and 2016. Formal interviews were conducted at different R&D sites of the two MNCs in Europe and Africa (five at Unilever and three at Nestlé) and interaction with key informants at both companies occurred throughout this period via participant observations during expert meetings on sustainable agriculture, including the Agri-food Task Force of the FAO/UNEP 10YP on Sustainable Consumption and Production, UN Global Compact's Food and Agriculture Business (FAB) Principles, sustainability standards conferences and invitation only events on sustainable value chains.

[Table 12.2 about here]

Governance arrangements: drawing the boundaries of responsibility

The wider governance landscape (WGL) extends both vertically and horizontally and is embedded in the notion of corporate social responsibility (CSR) (e.g., Carroll, 1979). CSR is well institutionalized within large companies and it has been the main pathway through which MNCs have expanded their consideration of and collaboration with a broad range of

stakeholders. At the European level, CSR has been successively institutionalized since 2001 through multi-stakeholder meetings that resulted in a resolution by European Parliament[3] that identified existing guidelines and voluntary standards[4,5] as authoritative, internationally agreed sets of standards for corporate conduct for social and environmental responsibility. The EU focus on reporting requirements and existing policy instruments (PI) is the same approach used by MNCs.

A mix of PIs, including private soft regulation (private standards) and public voluntary laws and directives, are used and compliance with mandatory regulations is the foundation of their responsibility (see Table 12.3). For example, both companies had a version of a Code of Business Conduct or Code of Ethics for employees and codes of conduct for suppliers (both raw materials for products and for technologies). For example, at Nestlé, the values of "integrity, honesty, fair dealing and full compliance with all applicable laws"[6] govern all aspects of their operations – including research and innovation. This code of conduct carries provisions for disciplinary action for non-compliance. The System of enforcement (SE) for responsibility follows the organizational chain of command internal to each company.

[Table 12.3 about here]

These instruments help govern responsibility in the following ways. First, as a reaction to existing regulatory requirements for agricultural research, new products and active

[3] European Parliament Resolution, (2006/2133/(INI)) (http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-TA-2007-0062+0+DOC+XML+V0//EN), accessed 03/09/2022

[4] OECD Guidelines for Multinational Enterprises, (http://mneguidelines.oecd.org/), accessed 03/09/2022

[5] ILO MNE Declaration, (http://www.ilo.org/empent/Publications/WCMS_094386/lang--en/index.htm) accessed, 03/09/2022

[6] Nestlé's Code of Business Conduct (http://www.nestle.com/asset-library/documents/library/documents/corporate_governance/code_of_business_conduct_en.pdf), accessed 03/09/2022

ingredients, the MNCs have initiated specific collaborations, programs, and tools. There are two types of reactions: *mandatory measures*, which is a situation in which legal obligations require that the company comply directly (own operations) or indirectly (through their customers) that translates into a market potential for the company. The second is a situation of *early compliance* where a future regulation seems possible due to an increased interest of the public and/or the public sector in the specific subject. The company thus reacts with voluntary standards or projects to pre-comply with upcoming regulation, shape possible regulation, increase investor confidence or get in contact with (local) authorities to facilitate future compliance.

Second, we see voluntary investments as corporate reactions to 'irresponsible' practices within the industry that are linked to their suppliers. This is a situation in which a company participates independent from legislation. The motivation emerges through reasons located in the production chain of a product and actions aim to reduce production costs, secure long – term availability/ quality of production factors or enhance R&D.

Finally, we see the positioning of the organization within global discourses of sustainability (i.e., social and environmental responsibility) through voluntary investments not linked to their direct supplies. This is a situation in which a company engages (usually external) partners through environmental and social initiative without having any direct connection between the investment and the daily business operations. They do this to generate financial return, as a CSR engagement to manage reputation and customer satisfaction, and to improve customer loyalty.

These instruments are used to frame the purpose (P) of the governance arrangement as ensuring responsibility for sustainability. The notion of responsibility is this justified in three approaches.[7] The first is *Regulatory Compliance*, which is in line with Carrol's pyramid of CSR priorities. This framing is largely linked to the definitional framing of *de facto* governance practices, which are explained in a subsequent section. The next two approaches require more elaboration as they capture the particularities of how these companies justify their responsibility.

The Business Case

Making 'the business case' for responsibility was another dominant purpose for mobilizing resources and personnel in an attempt to realize responsibility in research and innovation. Making the business case basically means that any research and innovation activity should contribute to the bottom line of the core business; the Unilever pledge to 'people, planet and profit' captures their focus on maintaining a triple bottom line. An interviewee at Nestlé noted that "the last phrase of Von Schomberg's statement is key; research and innovation isn't there purely for their own sake, but for the marketable products."

Nestlé uses an internal document called the 'Corporate Business Principles' to coordinate the company's responsibilities. This document incorporates the 10 principles of the UN Global Compact.[8] It lays out the responsibilities that the company has towards: Consumers (Nutrition, Health and Wellness, Quality assurance and product safety, Consumer communication, Human rights and labor practices, Human rights in our business activities),

[7] These are found in both companies, the examples below are illustrative.

[8] Nestlé's Corporate Business Principles (http://www.nestle.com/aboutus/businessprinciples), accessed 03/09/2022

Employees (Leadership and personal responsibility, Safety and health at work), Suppliers and customers (Supplier and customer relations, Agriculture and rural development) and to the environment (Environmental sustainability and Water). Nestlé's main responsibility within its R&I processes is thus to ensure that its commercial products deliver nutrition, health and wellness: "With the world's largest private nutrition and food research capability, we are continuously creating nutritional value and health benefits across our product range."[9] This work includes investment in nutrition labelling and communication and primary research into nutrition and other types of research related to their core lines of business: cocoa, palm oil and sugar (for chocolate), coffee (Nescafé), water (infant formula) and other raw ingredients (Table 12.1).

Nestlé takes a strategic approach in developing research lines and product development that can meet both the bottom-line calculations and contribute to broader health outcomes. Nestlé calls this its 'innovation sweet-spot'.[10] For sustainability, Nestlé has developed a design tool (EcodEX) that is based on a simplified life cycle analysis (LCA) and enables designers to make early-stage decisions in the design process about the environmental foot print of their products in order to make changes in their design and sourcing strategies.[11] Instruments like this, in combination with their value chain approach, facilitate the capacity of Nestlé to make its business case for sustainability.

Mainstreaming

[9] Nutrition, health and wellness (http://www.nestle.com/nutrition-health-wellness), accessed 29/10/2018

[10] Nestlé Research: Vision, Action, Value Creation (https://www.nestle.com.eg/sitecollectiondocuments/nestle-rd-brochure-2010.pdf), accessed 22/10/2018

[11] Insight: how we're further building sustainability into our product design process (http://www.nestle.com/media/newsandfeatures/ecodex-insight-blog), accessed 22/10/2018

The framing of the mainstreaming of responsibility and sustainability throughout the company is based on the belief that the success of a company and the health of the communities around it are interdependent; and that economic growth and progress come from capitalizing on these interdependencies. It brings the notion of stakeholder participation to a different level of engagement. This notion also features prominently within Nestlé, who has made 38 commitments that support the company's long-term goal of creating shared value.[12] Unilever, however, is farther advanced in mainstreaming its responsibility for sustainability throughout its key supply chains (Table 12.3). The company claims that:

We believe that as a business we have a responsibility to our consumers and to the communities in which we have a presence. Around the world we invest in local economies and develop people's skills inside and outside of Unilever.[13]

Unilever has joined the Blueprint for Better Business initiative,[14] which helped them to embed the company's purpose within its organization. Unilever's approach for the past 15 years has been a successive restructuring of the company to ensure the incorporation of sustainability throughout their different product lines. While the global sustainability group consists of 12 people, Unilever has identified 'sustainability champions' in every R&D unit of the company: "R&D find new sustainable technologies, marketers listen to consumers to help us make sustainable products consumers desire, supply chain implement our technologies and ideas in our factories, and ensure we source and manufacture in a

[12] Creating Shared value (http://www.nestle.com/csv), accessed 02/09/2022
[13] About Unilever, Responsible Business (https://www.unilever.com/about/who-we-are/about-Unilever/), accessed 22/10/2018
[14] Blueprint for Better Business (http://www.blueprintforbusiness.org/), accessed 02/09/2022

sustainable way."[15] They have driven this CSR approach from the company leadership by setting ambitious targets along 10 year timelines, including the ambitious goal of halving the environmental footprint of making and using their products by 2020. This is branded as the company's Sustainable Living Plan. The three goals of the plan are: 1) help more than a billion people to improve their health and well-being; 2) halve the environmental footprint of their products; and 3) source 100% of their agricultural raw materials sustainably and enhance the livelihoods of people across their value chain.[16] This mainstreaming approach has propelled them to be considered as one of the top green companies in the world.[17]

The main governance instrument used to organize this work is the voluntary standard, which is owned by an external NGO, but is used to 'co-brand' the products as being responsibly produced. Both companies use voluntary standards for sustainable sourcing, but Unilever has led this approach with its pioneering efforts to create the Marine Stewardship Council (MSC) certification together with the World Wildlife Fund (WWF) in 1995. Unilever has subsequently established commitments for each of its product lines that include the adoption of voluntary standards by producers and innovations in packaging and transport, which enable the company to reduce its environmental footprint. This mainstreaming approach demonstrates a company-wide response to responsibility, where the company has reflected on the stakeholder pressure that was received through both consumer research and NGO lobbying to restructure the priorities for the company's work. In an interview with a Unilever R&D employee, he highlighted the importance the MNC places on listening to stakeholder interests in designing the type of research that is done. For example, animal testing, while not

[15] Interview – Global Director of Sustainability – Stefano Giolito (http://www.unilevergraduatesblog.com/2011/12/interview-global-director-of-sustainability-stefano-giolito/), accessed 22/10/2018

[16] About Unilever, Responsible Business (https://www.unilever.com/about/who-we-are/about-Unilever/), accessed 22/11/2015

[17] Top 10 Green Companies in the World 2015 (http://www.newsweek.com/green-2015/top-10-green-companies-world-2015), accessed 02/09/2022

illegal, is not accepted by many consumers, so this approach to product development is not used. Across its different product lines shown in Table 12.3, Unilever has selected the voluntary standards and lines of research that are the most responsive to consumer demand and stakeholder pressure – which represents significant flexibility and autonomy within its governance arrangement

Actor landscape

The two MNCs conduct research and innovation in as many as 14 different countries (Table 12.1) at the same time and selling products around the world. In this section, I briefly describe 3 unique sets of actors who are found across the three companies - R&D units, corporate affairs, and foundations – as responsibility for research and innovation processes are distributed among these actors. Forging partnerships is the most often used approach for actor mobilization (AM) and these partnerships take different forms, depending on the department that leads the effort. Partners include suppliers, start-ups, universities, donors, private research companies, NGOs, public actors (including extension) and intergovernmental organizations.

R&D Units

Nestlé employs 5000 in their R&D operations that cover 14 different countries. They employ "scientists, technologists, engineers and even anthropologists" (Nestlé, 2010: 4). Proprietary high-tech product development takes place in 34 Product Technology centers and R&D centers worldwide. Nestlé also has an Institute of Health Sciences that conducts fundamental research on health and disease related to nutrition; and a Nutrition Institute, whose mission is

to share leading science-based information and education with health professionals, scientists and nutrition communities and stakeholders. This in-house network is complemented by corporate venture funds and research partnerships with business partners and universities.

Unilever has more than 6000 scientists, engineers, chefs and technicians on staff in six strategic R&D laboratories, in 31 major development centers focused on development and implementation of product innovations and in 92 locations that implement innovations in countries and factories.[18] Unilever also runs a large consumer research unit that relies upon qualitative research.[19] Unilever also engages with start-ups, university and private research teams as well as maintaining a large 'open innovation' program. In 2014, Unilever launched the Unilever Foundry, which is a web platform that offers a variety of programs and a range of partnership arrangements (crowd-sourcing, pilots, mentorships, venture funding, etc.) to stimulate and facilitate experimentation within their brands and functions.[20]

Corporate Affairs Units

Both companies maintain a corporate affairs unit that has the responsibility for developing and monitoring the CSR programs explained above. These corporate affairs units manage the relationships between the internal governance functions of the MNCs and the external partnerships. On the one hand they act as the public relations arms in communicating the responsibility of the company to the outside world, and on the other hand, collaborate internally to implement external programs that help the companies to act responsibly. For example, Nestlé interviewees explained that the MNC's core mission of health and wellness

[18] Unilever's research webpage (http://www.unilever.com/about/innovation/working-in-unilever-r-and-d/), accessed 18/05/2015

[19] Laybourne, Pete. "Damned if you don't. Thoughts on the Unilever Accreditation Programme" (https://rwconnect.esomar.org/damned-if-you-dont-thoughts-on-the-unilever-accreditation-programme/), accessed 22/11/2015

[20] Unilever Foundry (https://foundry.unilever.com/about-us#fpPanelItem2), accessed 22/11/2015

are also encouraged for Nestlé employees to create a more positive work environment. The interactions with the external voluntary standards are handled through these offices as are the official CSR programs like Nestlé's Corporate Business Principles for Creating Shared Value and Unilever's Sustainable Living Plan.

Foundations

Each company also has a foundation, which engages in additional R&D activities. It was clear that there are strategic differences between the type of research conducted by each foundation and that of the core R&D departments of the MNCs. The foundations carry out research that is related to what Carrol would refer to as the 'philanthropic' layer of the CSR pyramid. Corporate foundations are funded and governed separately from the MNCs. The research agendas are broader than those of the MNCs that focus specifically on product development and related fundamental research, the foundations sponsor research and development projects that often have an 'international development' component. For example, Nestlé Foundation conducts research on human nutrition with public health relevance and on provides access to funds and scientific publications for researchers in developing countries. The Unilever Foundation focuses on social investments that improve the quality of life through the provision of hygiene, sanitation, basic nutrition, access to clean drinking water, and enhancing self-esteem. They do this primarily in communities where the company works and through partners in other countries.

de facto governance of responsibility

The *de facto* governance dynamics that we see in each of these MNCs are influenced by their internal framing of responsibility and external positioning with regards to the problem of food security, which is the common definitional frame (DF) in both companies (Table 12.2).

While there are debates around the types of R&I needed to provide the solutions (S) to food insecurity (i.e., emerging biotechnologies, eco-friendly packaging and new ways to introduce micronutrients), the instruments used to verify the practices and the use of the technology are quite standardized. There is a general approach to integrating sustainability across entire value chains with the use of CSR programs, voluntary standards and involvement in multi-stakeholder initiatives at the global level.

There are two international communities that serve as spaces of interaction (SI). The first is the scientific community. In both MNCs, interviewees reported that their scientists are first and foremost scientists and therefore they follow the ethics of the scientific communities and professional organizations in which they were trained. Furthermore, they are constantly publishing in the peer-reviewed scientific journals and must follow the protocols and responsibility requirements of any other scientist in the academic community. At a scientific conference sponsored by Nestlé in 2015 – Planting Seeds for the Future of Food – there were participants from both MNCs and the debate about the role of scientists in society was raised. There was consensus that scientists themselves need to take responsibility for communication about new technologies and particularly about nutrition as consumers lack 'science education', which is exacerbated by a significant amount of 'bad information'.

The second is found in international multi-stakeholder initiatives. Voluntary standards are used for sustainable sourcing strategies by each of the companies, however, the MNCs are also involved in what might be called industry 'technical standards' committees whereby they set the analytical methods for safety in food and beverages (Nestlé - AOAC INTERNATIONAL) and standards for palm oil (Unilever – Roundtable on Sustainable Palm Oil). Additionally, these companies have both been involved in the UN Global Compact's

Food and Agriculture Business (FAB) Principles. The FABs Principles draw a clear link between the MNCs' definitional frame (food security) and the concept of partnership: "they [FAB Principles] were developed over two years, through over 20 consultations globally with over 1,000 businesses and other key stakeholders and offer a framework for principle-based partnerships to advance sustainable agriculture."[21]

Finally, there are two *de facto* governance instruments that remain important. The first is the Dow Jones Sustainability Index.[22] Launched in 1999, this index tracks sustainability performance (using corporate responsibility reports) and selects the sustainability leaders. The second is The Declaration of Abu Dhabi,[23] which was launched and signed by the MNCs in 2014. This declaration is a global collaboration to develop a set of common good agricultural practices (GAP) criteria that defines safe, environmentally sustainable, and socially responsible agriculture and aquaculture. Along with this set of GAP standards, the partners will set up a system for uniquely identifying every certified farm, and a public reporting mechanism for supply chains. This system will be the foundation for delivering training, assessment and verification programs and measuring the impacts of more sustainable practices at farm level.

Responsibilization, 'doing well'?

The richness of the above-described governance arrangements offers both pre-competition and competition incentives for companies, but are they effective and legitimate? To answer this question, we categorize the conditions where 'shared understanding' of responsibility are consistently found across the cases who are functioning at a global scale.

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[21] UN Global Compact FAB (https://www.unglobalcompact.org/what-is-gc/our-work/environment/food-agriculture), accessed 22/11/2015

[22] DJ Sustainability Index (http://www.sustainability-indices.com/), accessed 22/11/2015

[23] Declaration of Abu Dhabi (http://www.declaration-of-abu-dhabi.org/), accessed 22/11/2015

In both companies there has been a shift in their CSR policies from being *ad hoc* 'window dressing' to becoming integral parts of how they do business. This has included integrating CSR objectives into employee performance indicators and introducing design tools that can change the relationships between product designers, researchers and suppliers. There is also movement towards shifting some research centers to developing countries. In some cases, this is an attempt to be closer to the crop production areas (e.g., coffee, cocoa, tea), in other cases this may be to be closer to collaborating partners who are working on specific technologies, yet still in others it may be a way to conduct research that is not condoned elsewhere (e.g., genetic engineering is carried out in Brazil and India and not in Europe).

The work these MNCs are doing to align their governance instruments is moving them in the direction of productive responsibilization. However, it would be naïve to declare that the MNCs have transformed action. The notion of 'good business' is the fundamental organizational principle for all activities within MNCs and this means that their main purpose of doing research and innovating is to create 'marketable products'. If they receive public backlash, or significant signs that their products will not make it to market, they will make changes to their R&D processes. However, these actions are part of a user responsive design process and not necessarily the result of efforts of a concerted responsibilization process. Nonetheless, Unilever is the most advanced in this direction as its mainstreaming approach has indeed made the whole organization more responsive towards meeting its sustainability goals.

The MNCs have become very responsive to stakeholder pressure and thus productively manage contestation. For example, in 2015, Unilever and Nestlé were ranked numbers 1 and

2 on Oxfam's 'Behind the Brands Scorecard'.[24] Gender was one of the concerns that was raised for both companies and in 2015 Nestlé hosted an expert consultation with the leading gender and value chain scholars and practitioners in order to gain advice on how to best promote gender equality in their cocoa value chain. Moreover, as explained earlier, both Unilever and Nestlé are making efforts to participate in multi-stakeholder initiatives and voluntary standards. As shown in Table 12.3, these two companies have been very effective in 'co-branding' with a number of voluntary standards. Therefore, this approach of responding and pro-actively engaging in the definitions of the collective rules for responsible behavior have made these two companies very capable of managing contestation.

Conclusions

MNCs are a unique type of organization who can influence the way in which responsibility is defined, constituted and taken up by other actors. The positioning of research within a private company, who is responsible not only for conducting new research but also product development and commercialization, offers insights into how existing tools are being used and how responsibility for sustainability is governed in private research and innovation.

Through the analysis of these two companies' approaches to responsibility, the legacy of CSR emerges strongly and is well embedded in the infrastructures of the organizational field of sustainability. While the companies do take slightly different approaches to the actual placement of CSR incentives within their internal governance arrangements, CSR and existing regulatory regimes *de facto* dominate. CSR tools are often more important for the innovation processes than for the research processes, as the scientists working within these

[24] Oxfam, Behind the Brand Scorecard (http://www.behindthebrands.org/scorecard), accessed 12/11/2018

companies view themselves primarily as scientists, and thus are also bound to the ethics and peer-review systems used in scientific communities.

The global scale at which MNCs work poses uncertainties about what happens to the governance of research and innovation processes outside headquarters. All interviewees confirmed that the internal codes of conduct are valid for all employees around the world. However, these companies also utilize the regulatory uncertainties and inconsistencies to their advantages by strategically positioning their research programs within more permissive regulatory environments. This marks a displacement of responsibility from one geographic and regulatory context to another. It is not clear whether this approach strengthens or weakens the responsibility of the company, as it can be interpreted in one of two ways. Either as a strong responsibility for pursuing scientific endeavors and thus promoting the ethic of 'freedom of basic science', or to avoid citizen and public controversy over socially unsustainable practices and thus shirk the responsibility of responding to the needs of society.

In either case, the point is that we must move our understanding of governance of responsible innovation beyond fixed regulatory environments and towards fluid systems where there are multi-directional initiatives carried out by distributed actors in myriad spaces globally. This chapter shows clearly how responsibility for sustainability is closely tied to economic interests of 'core business' – which is a growth model that is fundamentally inconsistent with the conditions of the Anthropocene (Meadows et al., 2004). Responsibility is also linked to the strategic interests of balancing controversy with brand reputation, and company sustainability with the global societal challenges of sustainable agriculture and food security. The principle of 'shared benefits' recommended by informants suggests an expansion of responsibility to encompass outcome legitimacy or, more likely, towards a responsibility for

maintaining the philanthropic aspect of CSR. While it is true that MNCs have taken on more responsibility within the sustainability field, they remain unable to change their R&D and business models in order to be responsive to the knowledge, environmental and governance challenges of the Anthropocene. If these actors continue to lead and control the creation of knowledge for agrifood systems, only contestations will be managed and transitions to sustainable agrifood systems will remain a discursive performance.

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